

Cobbora Solar Farm Biodiversity Development Assessment Report

FINAL REPORT

Prepared for Pacific Partnerships

31 July 2025

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Glossary

Assessment Area	All land within a 1500 m of the subject land
BAM	NSW Biodiversity Assessment Method
BAM-C	BAM Calculator
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BSSAR	Biodiversity Stewardship Site Assessment Report
Biosecurity Act	*Biosecurity Act 2015*
BOS	Biodiversity Offsets Scheme
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CPHR	Conservation Programs, Heritage and Regulation Group
DNG	Derived native grassland – Sometimes known as secondary grasslands, are native grasslands that remain after the removal or dieback of previous woody canopy vegetation, with a present woody vegetation cover generally less than 10%.
Cth DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water
DBH	Diameter at Breast Height
DCDB	Digital cadastral database
Development footprint	The area of land that is directly impacted by the project
Development site	The broader area in which the subject land is located.
DNG	Derived native grassland – Sometimes known as secondary grasslands, are native grasslands that remain after the removal or dieback of previous woody canopy vegetation, with a present woody vegetation cover generally less than 10%.
DoIW	Directory of Important Wetlands
DP	Deposited Plan
DPHI	NSW Department Planning, Housing and Infrastructure
DPI	NSW Department of Primary Industries
DTDB	Digital topographic databases
Ecosystem credits	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development
Ecosystem credit species	Threatened species whose occurrence can generally be predicted by vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. A targeted survey is not required to identify or confirm the presence of ecosystem credit species.
EEC	Endangered Ecological Community

EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
GDE	Groundwater Dependent Ecosystem
GIS	Geographic Information System
IBRA	Interim Biogeographic Regionalisation of Australia
LEP	Local Environmental Plan
LGA	Local Government Area
Locality	Area located within 10 km radius from the subject land
LPI	NSW Land and Property Information
MNES	Matters of National Environmental Significance protected by a provision of Part 3 of the EPBC Act
Natural grassland	Native grasslands that are considered to have had less than 10% woody vegetation cover at the time of European settlement.
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NPW Act	National Parks and Wildlife Act 1974
PCT	Plant Community Type
RDD	Regional Delivery Division (formerly Biodiversity Conservation and Science division) of NSW DCCEEW
SAII	Serious and Irreversible Impact
Survey area	The broader project area boundary that was initially investigated and assessed for constraints and opportunities, and to guide avoid and minimisation of impacts based on biodiversity values
SEARs	NSW Planning Secretary's Environmental Assessment Requirements
SEPP	NSW State Environmental Planning Policy
Species credits	A class of biodiversity credits required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates
Species credit species	Threatened species for which vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence or components of their habitat. A targeted survey or an expert report is required to confirm the presence of these species on the subject land. Alternatively, the Applicant may elect to assume the species is present for development/clearing projects only.
SSD	State Significant Development
SSDA	State Significant Development Application
Subject land	A buffered area beyond the development footprint including areas of any potential indirect and prescribed impacts., based on biodiversity values present, to which the BAM has been applied
TEC	Threatened Ecological Community
TBDC	Threatened Biodiversity Data Collection
VEC	Vulnerable Ecological Community
WM Act	*NSW Water Management Act 2000*

WHS	Work Health and Safety

Certification and Declarations

I certify that this report has been prepared on the basis of the requirements of, and information provided under the Biodiversity Assessment Method (DPIE 2020) and s6.15 of the *Biodiversity Conservation Act 2016*.

In preparing this assessment I have acted in accordance with the Accredited BAM Assessor Code of Conduct.

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest.

Signature:	
Date:	31/07/2025
BAM Assessor Accreditation Number:	BAAS17051

Summary

Pacific Partnerships Pty Ltd (the Applicant) proposes to develop the Cobbora Solar Farm and Battery Energy Storage System (BESS) (the Project). The Project is considered State Significant Development (SSD) and will be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project is located in the Cobbora locality, around 18 kilometres south-west of Dunedoo and 53 kilometres north-west of Dubbo, New South Wales (NSW). Majority of the subject land is located within the Warrumbungle Local Government Area (LGA), with the western side located within the Dubbo Regional LGA.

The project will have a generation capacity of up to approximately 700 megawatts (MW) (AC), equivalent to the needs of around 260,000 NSW households per year. The BESS will have a capacity of up to approximately 400 MW (AC or DC coupled) and will have provision for up to 5 hours of storage (1600 MWh). The Project is located within, and would connect to, the Central West Orana (CWO) Renewable Energy Zone (REZ) grid infrastructure via up to four onsite grid substations, with potential connection to the Elong Elong Energy Hub were investigated. The subject land is directly adjacent to the proposed Sandy Creek Solar Farm and the Elong Elong Energy Hub.

NSW Planning Secretary's Environmental Assessment Requirements (SEARs) were issued for the proposed Cobbora Solar Farm Project on 11 September 2022. The SEARs were extended on 7 November 2024 (SSD-2491142). The project has also been declared a Controlled Action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), (referral number 2022/09269) with the Controlling Provisions including listed threatened species and communities.

As the project is considered SSD and entry into the NSW Biodiversity Offset Scheme (BOS) is triggered, and therefore requires the preparation of a Biodiversity Development Assessment Report (BDAR). This BDAR addresses the NSW *Biodiversity Conservation Act 2016* (BC Act), including the BAM, and Commonwealth EPBC Act. All EPBC Act requirements will be addressed and assessed in this BDAR in accordance with the NSW Assessment Bilateral Agreement and controlling provisions. The purpose of this assessment is to apply the NSW Biodiversity Assessment Method (BAM) (DPIE 2020a) to the project. This BDAR will be submitted to the Minister for Planning and Public Spaces as part of an Environmental Impact Statement (EIS) and SSD.

An original subject land of 2,188.02 hectares was identified of which a worse case 1,607.30 hectare Development Footprint would be sited, including substations, solar arrays, proposed access, asset protection zones, fencing and transmission line connections. Field investigation, undertaken in accordance with the BAM, recorded 250.97 hectares of native vegetation within the refined development footprint representing eight Plant Community Types (PCTs), including three threatened ecological communities (TECs). The remainder of the vegetation within the development footprint consists of Category 1 – Exempt Land as defined by the *Local Land Services Amendment Act* 2015, approximately 1,349.13 hectares.

PCTs were recorded and as such, in accordance with Section 10 of the BAM, offsets are to be secured for the project. PCTS recorded include:

- PCT 81 *Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion*.
- PCT 201 *Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion*.
- PCT 281 *Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion*.

- PCT 440 *Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion.*
- PCT 467 *Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo).*
- PCT 468 *Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo).*
- PCT 478 Red *Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion*.
- PCT 599 *Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion.*

PCTs within the subject land were found to be consistent with three TECs listed under the BC Act and/or EPBC Act. These include:

- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Endangered).*
- *Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions (Endangered).*
- *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Endangered).*

A total of two candidate threatened species were recorded within the Subject Land. These include:

- Pine Donkey Orchid – recorded in development footprint.
- Keith's Ziera – recorded in Subject land.

Additional ecosystem credit species were recorded that include Grey-crowned Babbler, Brown Treecreeper and Diamond Firetail. Superb Parrots were also recorded foraging within the subject land, however, are not considered to be breeding with the subject land.

Avoidance of native vegetation, TECs and threatened species habitat has been undertaken to restrict impacts to a total of 250.97 hectares of native vegetation, of which the majority is considered to occur in areas of lower condition, and were biodiversity values are reduced. Consideration has also been given to avoiding and minimising impacts to highest biodiversity values where possible during the assessment and detailed design. Mitigation and management measures are proposed to adequately address impacts associated with the Project, both direct, indirect and prescribed.

For impacts that are unavoidable, the following table outlines the total number of biodiversity credits that are required for the project, in accordance with Section 10 of the BAM.

Vegetation zone	Vegetation integrity (VI) score	Area (ha)	Impact	Offset required	Credit requirement
81_Low	43	24.90	Direct	Yes	535
81_Moderate	64.3	6.60	Direct	Yes	212
201_Low	80.6	5.91	Direct	Yes	238

Vegetation zone	Vegetation integrity (VI) score	Area (ha)	Impact	Offset required	Credit requirement
201_Moderate	88.8	2.80	Direct	Yes	124
281_Low	32.2	42.30	Direct	Yes	850
281_Moderate	67.2	9.25	Direct	Yes	389
440_Low	78	9.53	Direct	Yes	279
440_Moderate	56.3	0.43	Direct	Yes	9
467_Low	31.3	39.47	Direct	Yes	463
467_Moderate	49.6	1.45	Direct	Yes	27
467_Regrowth	34.5	46.45	Direct	Yes	602
468_Moderate	55.7	3.97	Direct	Yes	83
478_Moderate	42.8	1.00	Direct	Yes	16
599_DNG	14.4	56.88	Direct	No	0
Pine Donkey Orchid	4.5	N/A	Direct/Indirect	Yes	91

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STAGE 1 – BIODIVERSITY ASSESSMENT

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1 Introduction

Biosis Pty Ltd (Biosis) was originally commissioned by Marble Solar Pty Ltd (Marble Solar) and later by Pacific Partnerships Pty Ltd (the Applicant) after the acquisition of the Cobbora Solar Farm. Biosis was commissioned to undertake a biodiversity assessment for the Cobbora Solar Farm, a large-scale solar photovoltaic (PV) generation facility and battery energy storage system (BESS), supported by associated infrastructure (the project). Cobbora Solar Farm Pty Ltd, in its capacity as trustee for the Cobbora Solar Farm Trust (a wholly owned subsidiary of Pacific Partnerships Pty Ltd), the project is on the traditional lands of the Wiradjuri and Kamilaroi. The subject land is located in the Cobbora locality, around 18 kilometres south-west of Dunedoo and 53 kilometres north-west of Dubbo, New South Wales (NSW). Majority of the subject land is located within the Warrumbungle Local Government Area (LGA), with the western side located within the Dubbo Regional LGA.

The Project is located within, and would connect to, the Central West Orana (CWO) Renewable Energy Zone (REZ) grid infrastructure via up to four onsite grid substations, connecting to the Elong Elong Energy Hub.

The purpose of this assessment is to apply the NSW Biodiversity Assessment Method (BAM) (DPIE 2020a) to the project. This Biodiversity Development Assessment Report (BDAR) will be submitted to the Minister for Planning and Public Spaces as part of an Environmental Impact Statement (EIS) and State Significant Development Application (SSDA), under Part 4 of the *Environmental Planning and Assessment Act* (EP&A Act).

NSW Planning Secretary's Environmental Assessment Requirements (SEARs) were issued for the proposed Cobbora Solar Farm Project on 11 September 2022. In August 2022, the Department of Planning and Environment (the department) published new Large-scale Solar Energy Guidelines for State Significant Development. The guideline now applies to the Cobbora Solar Farm. Following this requirement, an addendum to the SEARs was issued on 15 February 2023. Updated SEARs were issued 16 October 2023. The SEARs expired and were extended on 7 November 2024 (SSD-2491142).

The project has also been declared a Controlled Action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), (referral number 2022/09269) with the Controlling Provisions including listed threatened species and communities. The project will be assessed under the Assessment Bilateral Agreement between NSW and the Commonwealth governments, and as such this BDAR also contains an assessment of the project's impacts to relevant Matters of National Environmental Significance (MNES). Supplementary SEARs following declaration of the project as a controlled action were issued on 29 September 2022.

1.1 Project description

The project would have a generation capacity of up to approximately 700 megawatts (MW) (AC), equivalent to the needs of around 260,000 NSW households per year. The BESS would have a capacity of up to approximately 400 MW (AC or DC coupled) and would have provision for up to 4 hours of storage. The project is consistent with NSW Government policy for development of renewable energy generation and storage infrastructure. It would assist in meeting NSW and Australian Government emissions reduction targets.

Primary access will be via four access points along Spring Ridge Road and one on the Golden Highway. Internal access roads will be provided within and between the various array areas. Local roads within the Project Area, including Danabar Road, Sandy Creek Road, and Sweeneys Lane, will not be used by the Project during construction except where crossing is required. These local roads experience minimal

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traffic and are primarily used as access routes for rural properties. These roads will remain open and available for public use throughout the construction and operation of the Project.

Key features of the Project would include:

- Construction and operation of a 700 MW (AC) solar farm.
- Installation of a 400 MW / 1600 MWh BESS.
- Installation of up to four substations, comprising:
  - One substation connecting the BESS to the Elong Elong Energy Hub.
  - Up to three substations connecting the solar farm to the Elong Elong Energy Hub.
- Supporting facilities and infrastructure, including:
  - Internal roads.
  - Upgrades to external access roads (if required).
  - Underground and overhead cabling.
  - Waterway crossings.
  - Staff office, meeting facilities, storage facilities, operations and control room and workshop.
  - Amenities, temporary accommodation, car parking.
  - Fencing, and landscaping.

The project is considered SSD and entry into the NSW Biodiversity Offset Scheme (BOS) is triggered, and therefore requires the preparation of a BDAR. This BDAR addresses the NSW *Biodiversity Conservation Act 2016* (BC Act), including the BAM, and Commonwealth EPBC Act. All EPBC Act requirements will be addressed and assessed in this BDAR in accordance with the NSW Assessment Bilateral Agreement and controlling provisions.

1.2 Purpose of this assessment

This BDAR has been prepared in accordance with the requirements of the BC Act to address the project's SEARs. Specifically, this BDAR will:

- Address the BAM (DPIE 2020a) and the BOS.
- Identify how the Applicant has avoided and minimised impacts to biodiversity.
- Identify any potential impact that could be characterised as serious and irreversible.
- Identify measures to manage residual impacts (including details of adaptive management protocols and ability to obtain achievable offsets).
- Identify measures to avoid, mitigate and offset impacts, with the objective of achieving an overall 'improve or maintain' environmental outcome for the project.
- Describe the offset obligations required to compensate for any unavoidable biodiversity impacts resulting from the project.
- Consider and assess the project in accordance with other relevant legislation such as the Commonwealth EPBC Act.

Biodiversity assessments have been undertaken in accordance with the BAM, and this BDAR has been prepared by Accredited Assessor Mitchell Palmer (BAAS17051) and Dimity Webster (BAAS23038), and reviewed by Accredited Assessor Callan Wharfe (BAAS18138). This BDAR describes the outcome of the BAM Calculator (BAM-C) development assessment case. See Section 11 for further details.

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- 37580/54157 (RV4)– Total project impacts.
- 37580/54562 (RV2) – Scattered trees.

1.3 The subject land, development footprint and assessment area

The terms subject land, development footprint and assessment area are used throughout this BDAR and are defined below.

- The **subject land** is defined as an area of approximately 2,188.02 ha. The subject land includes the development footprint, and additional areas where indirect and prescribed impacts may occur, and ultimately the area to which the BAM has been applied.
- The **development footprint** is approximately 1,607.30 ha and comprises all areas of direct impact arising from vegetation clearing, construction and operation of the project. It includes the solar arrays, access roads, site access, perimeter fencing, Asset Protection Zones (APZs) and other associated construction works. Approximately 250.97 ha within the development footprint consists of native vegetation, and approximately 1,349.13 ha of non-native or cleared vegetation.
- The **development site** coincides with the Project Area, located south of the Golden Highway, east of Spring Ridge Road in the Cobbora locality, around 18 kilometres south-west of Dunedoo and 53 kilometres north-west of Dubbo, NSW. The majority of the development site is located within the Warrumbungle LGA, with the western side located within the Dubbo Regional LGA.
- The **assessment area** includes the subject land and the area of land within a 1500m buffer zone surrounding the subject land that is determined as per the BAM.
- The **survey area**, is the broader boundary that was initially investigated and assessed for constraints and opportunities, and importantly used to guide avoid and minimisation of impacts, based on biodiversity values identified.

1.4 Sources of information

Sources of information used in the assessment included relevant databases, spatial data, literature and previous site reports.

In order to provide a context for the assessment area, records of flora and fauna from within 10 kilometres (the locality) were collated from the following databases and datasets and reviewed:

- Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW) Protected Matters Search Tool for matters protected by the EPBC Act.
- NSW Department of Climate Change, Energy, Environment and Water (NSW DCCEEW)) BioNet - the database for the Atlas of NSW Wildlife for species, populations and ecological communities listed under the BC Act.
- NSW BAM Calculator.
- Biodiversity values map (DPE 2023a).
- Native Vegetation Regulatory map.
- BAM Important Areas maps (DPE 2023b).
- PlantNET (The Royal Botanic Gardens and Domain Trust).
- BirdLife Australia, the New Atlas of Australian Birds.

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Other sources of biodiversity information relevant to the assessment area were sourced from:

- The NSW Plant Community Types (PCTs), as held within the BioNet Vegetation Classification database (NSW DCCEEW 2024a).
- Relevant vegetation mapping:
  - NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b).

The following reports and information were also reviewed and relied on to provide additional information:

- Cobbora Coal Project Terrestrial Ecology Assessment (EMM Consulting 2012).
- Planning Secretary's Environmental Assessment Requirements Cobbora Solar Farm SSD-29491142 (DPHI 2023).
- Supplementary Secretary's Environmental Assessment Requirements Cobbora Solar Farm (EPBC 2022/09269) (DPIE 2022).
- Notification of Referral Decision and Designated Proponent – Controlled Action (EMM Consulting 2021).
- Cobbora Solar Farm Scoping Project (EMM Consulting 2021).
- Cobbora Solar Farm field survey summary memo (Niche, 2023).

Basemap data was obtained from NSW Land and property information (LPI) 1:25,000 digital topographic databases (DTDB), with cadastral data obtained from LPI digital cadastral database (DCDB).

The following spatial datasets were utilised during the development of this report:

- Catchment Boundaries of NSW dataset.
- Mitchell Landscapes Version 3.0.
- Interim Biogeographic Regionalisation of Australia (IBRA) Version 7.
- Directory of Important Wetlands (DoIW).

Mapping has been produced using a Geographic Information System (GIS). The following maps and data have been provided:

- Digital mapping with aerial photography showing 1:1000 or finer.
- Site map as described in subsection 3.1.1 of the BAM (DPIE 2020a).
- Location map as described in subsection 3.1.2 of the BAM (DPIE 2020a).
- Landscape map with features including 1,500 metre buffer, as described in section 3.1.3 of the BAM (DPIE 2020a).
- LiDAR DEM (Digital Elevation Model) and DSM (Digital Surface Model).

1.5 Legislative requirements

The project has been assessed against relevant biodiversity legislation and government policy, including:

- *Environment Protection and Biodiversity Conservation Act 1999.*
- *Environmental Planning and Assessment Act 1979.*

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- *Biodiversity Conservation Act 2016.*
- *Fisheries Management Act 1994.*
- *Biosecurity Act 2015.*
- *Water Management Act 2000.*
- *Local Land Services Act 2013*
- State Environmental Planning Policy (Biodiversity and Conservation) 2021.

A key objective of this BDAR is to address the requirements of the BAM, as required in the SEARs and summarised below in Table 1.

Table 1 Summary of SEARs and supplementary SEARs

Biodiversity requirements	Relevant section
SEARS	
An assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the Biodiversity Conservation Act 2016 (NSW) (BC Act), the Biodiversity Assessment Method (BAM) 2020 and documented in a Biodiversity Development Assessment Report (BDAR),the BDAR must: • *be prepared using the approved BDAR template;* • *document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM;* • *assess the impacts associated with all ancillary infrastructure, including the transport route road upgrades;* • *include an assessment for serious and irreversible impacts (SAII) in accordance with Section 9.1 of the BAM;* • *include a strategy to offset any residual impacts of the development in accordance with the BC Act; and* • *be finalised by an accredited assessor as BAM-compliant within 14 days of submission.*	The BDAR has been prepared in accordance with the BC Act and BAM. Avoid and minimise is discussed throughout and is a key focus for the project, discussed in detail within Section 5 and Section 7. Biodiversity values to be impacted, including ancillary infrastructure, are discussed throughout and summarised in Section 8. Flora survey methods were completed in accordance with relevant guidelines and is outlined in Section 4.3.1. Residual offsets are considered in Section 8.3 and Section 9. The BAM case will be finalised within 14 days of submission.
Unless BCS (Now RDD) and DPHI determine the proposed development is not likely to have any significant impacts on biodiversity values.	Biodiversity values to be impacted are discussed throughout and summarised in Section 8. Significant impact criteria assessment for species listed under the EPBC Act with the potential for significant impacts are completed within Appendix 6.
An assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the Fisheries Management Act 1994, and a description of the measures to minimise and rehabilitate impacts, including impacts to the Sandy Creek and Lahey's Creek and unnamed watercourses flowing across the site;	The BDAR has described the aquatic habitat within Section 2 and discussed potential impacts to aquatic environments in Section 6.4, Section 7 and Section 10.
A cumulative impact assessment of biodiversity values in the region from nearby developments.	The BDAR has discussed cumulative impacts in Section 6.6.

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Biodiversity requirements	Relevant section
If an offset is required, details of the measures proposed to address the offset obligations.	Residual offsets are considered in Section 8.3 and Section 9.
Supplementary SEARs	
Impacts - *The EIS/BDAR must include an assessment of the relevant impacts of the action on the matters protected by the controlling provisions, including:* • *a description and detailed assessment of the nature and extent of the likely direct, indirect and consequential impacts, including short term and long term relevant impacts;* • *a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;* • *analysis of the significance of the relevant impacts; and* • *any technical data and other information used or needed to make a detailed assessment of the relevant impacts.*	The BDAR has discussed relevant EPBC Act listed entities in Section 6, Section 10.1 and Appendix 6.
Avoid and minimise - *For each of the relevant matters protected that are likely to be significantly impacted by the action, the EIS must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action.*	Avoid and minimise is discussed throughout and is a key focus for the project, discussed in detail within Section 5 and Section 7.
Key biodiversity issue - *The EIS must identify each EPBC Act listed threatened species and community likely to be impacted by the action. For any species and communities that are likely to be impacted, the proponent must provide a description of the nature, quantum and consequences of the impacts. For species and communities potentially located in the project area or in the vicinity that are not likely to be impacted, provide evidence why they are not likely to be impacted.*	The BDAR has discussed relevant EPBC Act listed entities in Section 10.1, Appendix 3 and Appendix 6. Biodiversity Offset Strategy is discussed in Section 9.
Key biodiversity issue - *Further analysis of the impacts of the 2019-2020 bushfires on EPBC Act listed threatened species and communities should be undertaken during the assessment. Further assessment will determine whether the remaining habitat within the proposed action area is of substantially greater importance to the survival of the listed threatened species following the fires and/or whether the population of the species in the area is considered an important population. This information, once obtained, can be considered when determining avoidance, mitigation and offset measures for these species.*	
Key biodiversity issue - *For each of the EPBC Act listed threatened species and communities likely to be impacted by the action the EIS must provide a separate:* • *description of the habitat (including identification and mapping of suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and*	

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Biodiversity requirements	Relevant section
reference to, any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans; • *details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements;* • *description of the relevant impacts of the action having regard to the full national extent of the species or community's range;* • *description of the specific proposed avoidance and mitigation measures to deal with relevant impacts of the action;* • *identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account;* • *a description of any offsets proposed to address residual adverse significant impacts and how these offsets will be established;* • *details of how the current published NSW Biodiversity Assessment Method (BAM) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts; and* • *details of the offset package to compensate for significant residual impacts including details of the credit profiles required to offset the action in accordance with the BAM and/or mapping and descriptions of the extent and condition of the relevant habitat and/or threatened communities occurring on proposed offset sites.*	

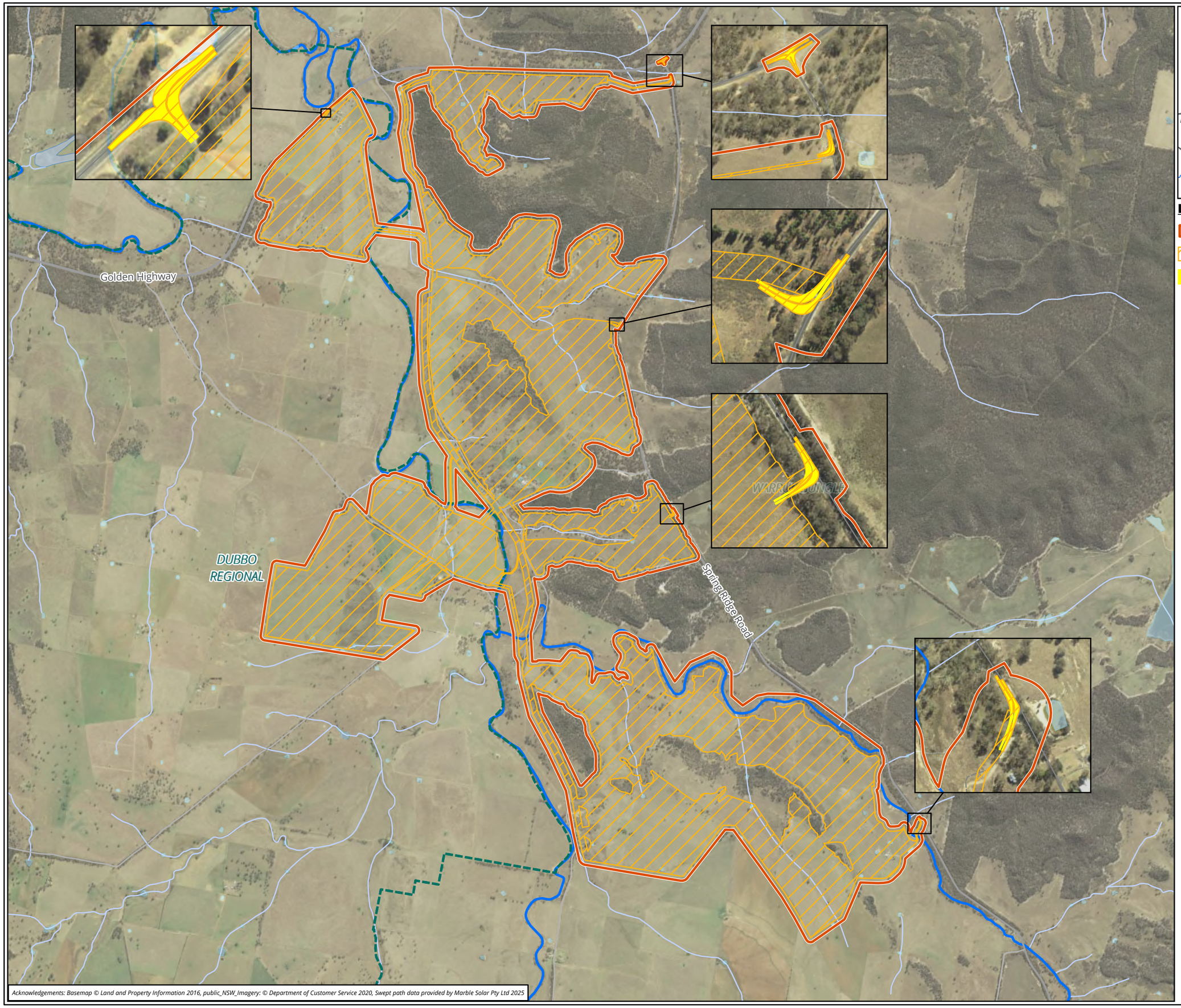
1.6 Consultation

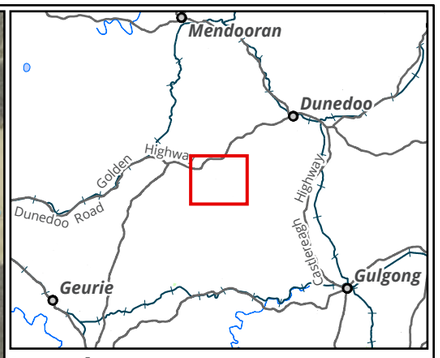
Consultation was carried out with relevant authorities on multiple occasions during the assessment phase of the project. A summary of the consultation undertaken is demonstrated below in Table 2.

Table 2 Consultation

Date	Consultation	Purpose
29/09/2022	Biodiversity Conservation Division (BCS – now CPHR), Marble Solar, AECOM and Niche	Project overview and introductions, initial discussions around varying flora surveys and partial loss
18/11/2024	BCS,, Marble Solar, Pacific Partnerships and Biosis	Project update covering flora/fauna surveys results, land categorisation, project timing and BCS site visit
15/02/2024	BCS and Biosis	Site inspection by Mitch Palmer (Biosis), David Geering and Prakriti Mukherjee (BCS) to discuss land categorisation approach. Section 3.1.2

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Legend

- Subject land
- Development footprint
- Swept path

Figure 1 Subject land

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

APEM Group

Matter: 38235, Date: 28 May 2025,
Prepared for: DW, MGP. Prepared by HL, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F1-4.aprx
Layout: 38235_F1_SubjectLand

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020, Swept path data provided by Marble Solar Pty Ltd 2025

2 Landscape Context

This chapter describes the landscape and site context of the subject land, describing the landscape features present within the subject land and within a 1500 metre buffer, as required by the BAM (DPIE 2020a). Figure 2 and Figure 3 show the location of the subject land and landscape features within the 1500 metre buffer.

2.1 Subject land description

The subject land is located directly south of the Golden Highway. Spring Ridge Road forms the eastern border of the subject land. Sandy Creek Road to the east, Danabar Road, Sweeneys Lane and Tallawonga Road all bisect the subject land.

The subject land is privately owned and predominantly used for farming. The majority of the land is in use for improved pasture and livestock grazing (both cattle and sheep), in addition to areas of significant crop and tilled land. Slightly elevated ridgelines and vegetated foothills are present throughout the subject land.

The majority of the subject land was previously subject to a green field open cut coal mine proposed by Cobbora Holding Company Pty Limited. The project did not proceed due to the NSW government negotiating the cancellation of the coal supply contract, however early exploration drilling and associated disturbance was conducted frequently prior to the projected being cancelled.

Native vegetation within the subject land is in varying condition due to historical clearing and livestock grazing. The majority of the vegetation within the subject land is situated on the vegetated foothills and road reserves. Clearing and grazing adjacent to vegetated foothill areas has resulted in disturbed patches with some moderate and low condition derived grassland areas, interspersed with fragmented patches of native grassy woodland, dry sclerophyll forest and scattered trees. Most cleared paddocks contain vegetation dominated by exotic (non-native) species; however, some grazed paddocks were dominated by grassland derived from adjacent foothill areas containing a high cover of native grasses, but low diversity of species.

The subject land is bisected by Sandy Creek, Lahey's Creek and numerous associated watercourses forming part of the catchment for Talbragar River, just north of the subject land. With exception to Lahey's Creek, the watercourses are highly disturbed.

2.1.1 Native vegetation cover

Vegetation within the assessment area (1,500 metre buffer area) was assessed using aerial photographic interpretation, field survey results and existing vegetation mapping.

Much of the vegetation modelled for the NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b), was derived grassland, which was subsequently confirmed as exotic pasture during the rapid and detailed field assessment. This is described further in Section 3.1.9.

The total assessment area is 8,474 hectares, with the area of native vegetation mapped within the buffer being 2,450 hectares. This is a native vegetation cover of 28.91% (Class B >10% - 30% class) as defined in Section 3.2.3 of the BAM (DPIE 2020a). This value was entered into the BAM calculator.

Cleared, highly modified areas within the subject land make up the majority of land use.

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2.1.2 IBRA Bioregions and subregions

The subject land occurs within the Brigalow Belt South Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and the Talbragar Valley IBRA subregion. The Brigalow Belt South bioregion lies in northern NSW within the eastern subhumid region and covers an area of approximately 5,623,054 hectares. It occupies about 6.7 % of NSW and extends from south of Dubbo in central-western NSW to the mid-Queensland coast. The bioregion shares its borders with five other bioregions; the Nandewar and North Coast bioregions in the east, the Sydney Basin and South Western Slopes bioregions to the south and the Darling Riverine Plains Bioregion on its western border (NSW National Parks and Wildlife Service 2003).

2.1.3 Hydrology - Surface

The subject land is located within the Central West Local Land Services (LLS) Region and the Macquarie Catchment Management Area (CMA). The closest river-mouth is the Talbragar River, which is mapped as a seventh order watercourse (Strahler method) and is located approximately 600 metres to 1 kilometre north-east to north of the subject land.

All watercourses within the subject land (Figure 2) form part of the catchment for the Talbragar River. Two perennial creeks, Sandy Creek and Lahey's Creek bisect the subject land. Sandy Creek flows directly into the Talbragar River north of the subject land and runs south-north through the subject land. Lahey's Creek is a tributary of Sandy Creek, starting south of the subject land and running parallel to Spring Ridge Road in the east, before cutting west to join with Sandy Creek. A small portion of Blackheath Creek, a non-perennial tributary of Lahey's Creek, is located within the subject land, running under Spring Ridge Road.

Fourteen undefined, unnamed non-perennial first order watercourses occur within the subject land. Three second order non-perennial watercourses occur, including Blackheath Creek. Lahey's Creek is defined as fourth order perennial watercourse. Sandy Creek is defined as a fifth order perennial watercourse (Water NSW 2018).

Sandy Creek (fifth order) and Lahey's Creek (fourth order) are mapped as Key Fish Habitat by the NSW Department of Primary Industries (DPI). These watercourses are classified as habitat for the threatened Southern Purple-spotted Gudgeon *Mogurnda adspersa* (DPI 2022). Although not directly impacted by the project, the Talbragar River is also mapped as habitat for the threatened Eel Tailed Catfish *Tandanus tandanus* (DPI 2022).

2.1.4 Hydrology - Groundwater

The development site is mapped as having Groundwater Vulnerability under both the *Warrumbungle Local Environmental Plan* (LEP) *2013* and *Dubbo Regional LEP 2022*. In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must consider the following:

- The likelihood of groundwater contamination from the development (including from any on-site storage or disposal of solid or liquid waste and chemicals).
- Any adverse impacts the development may have on groundwater dependent ecosystems (GDEs).
- The cumulative impact the development may have on groundwater (including impacts on nearby groundwater extraction for a potable water supply or stock water supply).
- Any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

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Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

- The development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
- If that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- If that impact cannot be minimised—the development will be managed to mitigate that impact.

Groundwater may be utilised by the project and is subject to further investigation and assessment as part of the EIS. The distribution of alluvial sediments and the water table may be within the tree root depth of 3-5 meters. The PCTs present within riparian zones and areas potentially containing rain fed springs are not typically known for groundwater dependence. These communities also occur where alluvial sands are deep, or absent, within the subject land, and therefore any groundwater use is more so opportunistic rather than dependent.

2.1.5 Wetlands

Ramsar wetlands are representative, rare or unique wetlands, or are important for conserving biological diversity. They are included on the List of Wetlands of International Importance developed under the Ramsar convention. Important wetlands are identified as nationally significant and are identified in the Directory of Important (DoI) Wetlands in Australia (Cth DCCEEW 2019). No Ramsar wetlands have been identified within 100 kilometres of the subject land. The closest Ramsar wetland is the Macquarie Marshes, approximately 160 kilometres north-west of the subject land.

No DoI wetlands (Cth DCCEEW 2019) or mapped NSW wetlands (OEH 2010) are present within or directly adjacent to the subject land. The nearest mapped wetland is around 25 kilometres south of the subject land. Approximately 45 dams occur within the subject land, often along mapped watercourse areas.

2.1.6 Connectivity

Connectivity of habitat within the subject land to broader areas within the landscape occurs in two main forms, woodland and watercourses.

The vegetated riparian zones of Sandy Creek and Lahey's Creek that bisect the subject land provide seasonal connectivity both within the subject land and into the broader landscape. Within the subject land the numerous watercourses present provide connectivity between dams, likely used for many common fauna species such as turtles and frogs. The riparian zones connect the subject land to Talbragar River, a key feature within the landscape eventually feeding into the Macquarie River. The numerous dams (around 45) that occur within the subject land are highly degraded but provide minor habitat connectivity for common waterbird species such as ducks and cormorants as they move nomadically within the landscape. Riparian watercourses are utilised by many fauna species as movement pathways through the landscape.

The subject land contains vegetated foothills associated with the adjacent range directly east. This area is largely privately owned, however it is an extensive tract of vegetated woodland and forest, with ridgelines, gullies and a large dammed area along Blackheath Creek. The vegetated foothills within the subject land appear to contain thinner canopy than that on the extensive range adjacent. The adjacent range connects to an extensive network of habitat within a 10 kilometre locality including Tuckland State Forest, Goodiman State Conservation Area, Yarrobil National Park and Dapper Nature Reserve in the south and east and Cobbora State Conservation Area in the north. The extensive Goonoo State Conservation Area occurs 15 kilometres to

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the north. These areas are known to contain viable populations of a number of threatened flora and fauna species.

Numerous Travelling Stock Reserves (TSR) are located along the Golden Highway. The Sam Foo Pt Cobborah TSR is located on the intersection of the Golden Highway and Spring Ridge Road. The Medway TSR is located on the intersection of the Golden Highway and Sweeney Lane (LLS 2024).

These connectivity features provide breeding, foraging and dispersal resources for terrestrial and arboreal mammals, flying mammals, and avifauna.

Barriers to movement of ground dwelling species occur including local roads and the Golden Highway, however connectivity still occurs due to the extensive habitat located to the east and north of the subject land.

Much of the subject land is cleared of native vegetation, and habitat fragmentation is present. The majority of the subject land has been subject to clearing and disturbance of habitat. Some of the cleared foothill areas within the subject land still contain embedded and partially rocky habitat, but fissures, cracks and caves are absent. The majority of the land for approximately three to seven kilometres to the south and west of the subject land contains cleared agricultural land, before vegetated foothills and ranges are present again.

2.1.7 Geological features of significance

There were no recorded karst, caves, crevices, cliffs or other areas of geological significance within the subject land or within the development footprint.

Large areas of vegetated land associated with the range located directly east of the subject land occur. These areas are connected to numerous reserves, conservation areas and National Parks. Geological features such as ridgelines, karst, caves, crevices and cliffs may occur within these areas, but are greater than two kilometres from the subject land.

2.1.8 Areas of outstanding biodiversity value

Under the BC Act, the Minister for the Environment has the power to declare Areas of Outstanding Biodiversity Value (AOBVs). To date no AOBVs have been declared within the development footprint or subject land.

2.1.9 NSW (Mitchell) Landscape

The subject land occurs within the Goonoo Slopes, Talbragar – Upper Macquarie Terrace Sand and Gulgong Ranges Mitchell Landscapes (Mitchell 2002). The vast majority of the subject land occurs in the Goonoo Slopes landscape, and as such this was entered into the BAM Calculator (BAM-C):

- Goonoo Slopes: 2,031.16 ha within subject land, 92.86 % of subject land.
- Talbragar – Upper Macquarie Terrace Sands: 86.03 ha within subject land, 3.93 % of subject land.
- Gulgong Ranges: 70.13 ha within subject land, 3.21 % of subject land.

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Goonoo Slopes

Extensive undulating to stepped low hills with long slopes on sub-horizontal Triassic/Jurassic quartz sandstone, conglomerates, siltstone, shale and some coal. General elevation 300 to 500m with overall westerly slope, poorly defined drainage network, local relief to 30m. Stony yellow earths with sandstone outcrop on ridgelines to yellow harsh texture-contrast soils in shallow valleys. Broad-leaved Ironbark *Eucalyptus fibrosa ssp. fibrosa* and Black Cypress Pine *Callitris endlicheri* on ridges, Narrow-leaved Ironbark *Eucalyptus crebra*, Mugga Ironbark *Eucalyptus sideroxylon*, Fringe Myrtle *Calytrix tetragona*, Spur-wing Wattle *Acacia triptera*, Dainty Phebalium *Phebalium obcordatum*, Daphne Heath *Brachyloma daphnoides* on slopes with patches of Green Mallee *Eucalyptus viridis*, Dwyer's Gum *Eucalyptus dwyeri* and Broombush *Melaleuca uncinata*. Grey Box *Eucalyptus microcarpa*, Mugga Ironbark, Red Stringybark *Eucalyptus macrorhyncha*, Fuzzy Box *Eucalyptus conica* and Blakely's red gum *Eucalyptus blakelyi* with Knob Sedge *Carex inversa* and Tall Sedge *Carex appressa* along streams (Mitchell 2002).

Talbragar – Upper Macquarie Terrace Sand

Sandy Quaternary alluvial sediments on the floodplains and terraces of the Talbragar River, general elevation 350 to 500m, local relief 30 to 40m. Red-brown and red-yellow earthy sands with some yellow texture-contrast soils on the valley margins. River Red Gum *Eucalyptus camaldulensis* along the channels, Yellow Box *Eucalyptus melliodora* and Rough-barked Apple *Angophora floribunda* with White Cypress Pine *Callitris glaucophylla* on the plain.

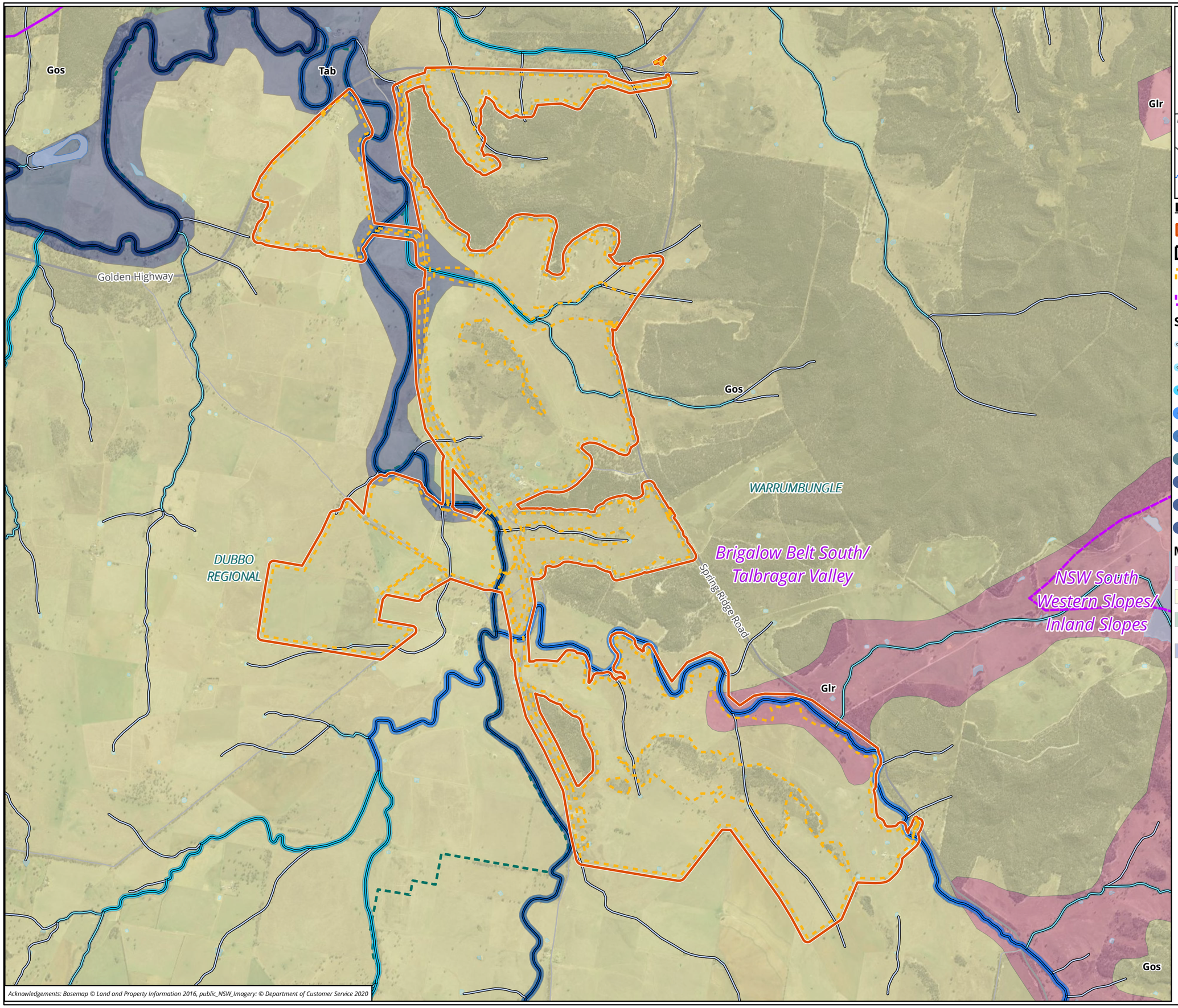
Gulgong Ranges

Strike ridges with steep slopes and long debris aprons on complexly folded steep dipping Silurian lithic sandstone, quartzite and phyllite, Devonian sandstone, siltstone, shale, rhyolite and dacite. General elevation 550 to 980m, local relief 350m. Shallow stony red and yellow texture-contrast soils with stony uniform loams on steep slopes. Large areas of dense Black Cypress Pine on slopes, Red Stringybark and White Gum *Eucalyptus rossii* on ridges. Blakely's Red Gum, Narrow-leaved Peppermint *Eucalyptus radiata* and White Box *Eucalyptus albens* on lower slopes grading to Yellow Box.

2.1.10 Additional landscape features

The subject land and 1,500 metre assessment area do not contain any soil hazard features or other additional features that are required to be assessed according to any SEARs.

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Legend

- Subject land
- Development site
- Development footprint
- IBRA Region/Sub-region

Strahler stream order / buffers

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Mitchell landscapes

- Glr, Gulgong Ranges
- Gos, Goonoo Slopes
- Meh, Merrygoen Hills and Slopes
- Tab, Talbragar - Upper Macquarie Terrace Sands and Gravels

Figure 2 Site map

0 500 1,000 1,500

Metres

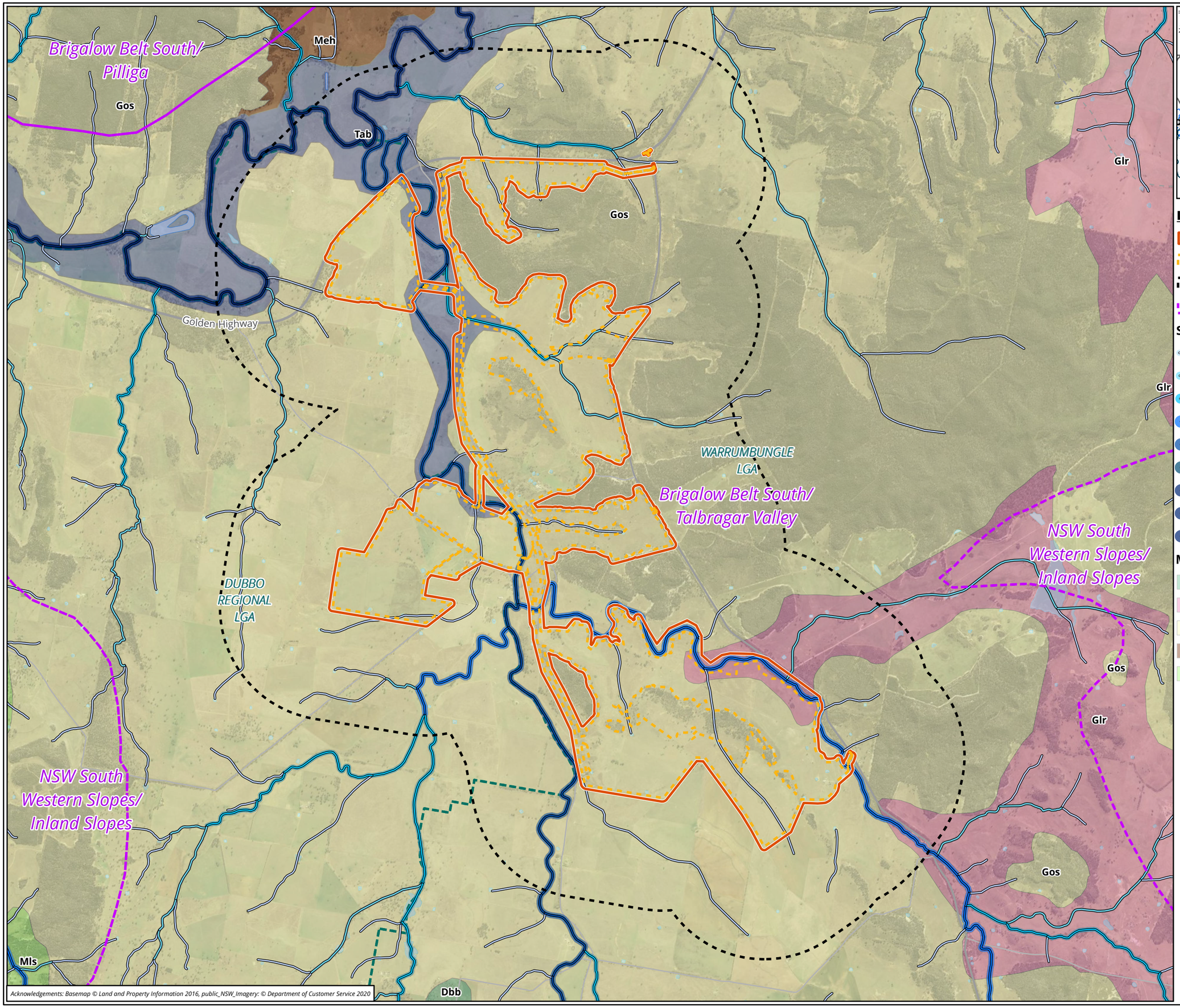
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Coordinate System: GDA2020 MGA Zone 55

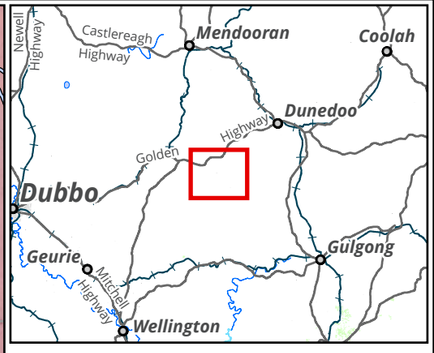
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Matter: 38235, Date: 28 May 2025
Prepared for: DW, MGP. Prepared by: HL, Last edited by: jturner
Location: P:
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Layout: 38235_F2_Sitemap



Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020



Legend

- Subject land
- Development footprint
- Assessment area
- IBRA Region/Sub-region

Strahler stream order / buffers

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Mitchell landscapes

- Dbb,Dubbo Basalts
- Glr,Gulgong Ranges
- Gos,Goonoo Slopes
- Meh,Merrygoen Hills and Slopes
- Mls,Mullion Slopes

Figure 3 Location map

0 500 1,000 1,500

Metres

Scale: 1:48,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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APEM Group

Matter: 38235, Date: 28 May 2025
Prepared for: DW, MGP. Prepared by HL, Last edited by: jturner
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F1-4.aprx
Layout: 38235_F3_Location

3 Native vegetation

The subject land comprises 2,188 hectares, including approximately 638.96 hectares (29%) of native vegetation and 1,526.88 hectares (70 %) of non-native or cleared vegetation, subject to varying levels of disturbance, and a further 22 (1%) hectares of cleared areas such as existing roads. Most of the vegetation within the subject land is comprised of forest and woodland in association with vegetated foothills and road reserves. Derived native grassland (DNG) areas are present, generally surrounding vegetated outcrops in grazed paddocks.

3.1 Native vegetation and habitat assessment

3.1.1 Native vegetation extent

The extent of native vegetation, threatened ecological communities (TECs), and vegetation integrity within the subject land was determined using the results of site investigations by Biosis, previous studies undertaken at the site by Niche in 2022-2023, as well as Section 4 of the BAM (DPIE 2020a).

Figure 4 provides a map of the native vegetation extent recorded within the assessment area, subject land and development footprint, as assessed during field investigations undertaken in October 2022 and November 2023. The figure includes all areas of native vegetation (native ground cover and areas with canopy). Areas not shown as native vegetation cover within Figure 4, and which do not provide habitat for threatened species, are not included for further assessment in accordance with Section 5.1.1.5 of the BAM. These areas are addressed further below. Non-native vegetation considered to provide habitat for threatened species is required to be assessed and is discussed within section 4.1.

3.1.2 Land category assessment

The BAM excludes the assessment of the impacts of clearing of native vegetation on Category 1-Exempt Land (within the meaning of Part 5A of the *Local Land Services Act Amendment Act 2016* (LLS Act)). This is outlined in:

- **BC Act s6.8(3):** *The biodiversity assessment method is to exclude the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1-Exempt Land (within the meaning of Part 5A of the LLS Act), other than any impacts prescribed by the regulations under section 6.3*;
- **BAM cl1.5 (BAM2020):** *Biodiversity values not assessed under the BAM include: (d) biodiversity values associated with the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1-Exempt Land (within the meaning of Part 5A of the LLS Act), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC regulation; (that being prescribed impacts).*

A detailed land category assessment (LCA) and review of desktop vegetation mapping to PCT was undertaken to inform the extent of the area subject to assessment under the BAM and BC Act, as well as preliminary PCT mapping and field validation. This also included reviewing historical aerial imagery for the 1980s and 1990s. This was then compared to the Draft Native Vegetation Regulatory (NVR) mapping provided by NSW DCCEEW for the subject land under licence.

Category 1-Exempt Land is classified broadly as

- Land cleared of native vegetation as at 1 January 1990 or lawfully cleared after 1 January 1990 and before 25 August 2017.

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- Land containing low conservation value grasslands or groundcover.
- Native vegetation identified as regrowth in a Property Vegetation Plan (PVP) under the repealed Native Vegetation Act 2003 only where the PVP specifies a regrowth date
- Land bio-certified under the BC Act.

Category 2-regulated land is classified broadly as

- Vulnerable and sensitive regulated land.
- Land not cleared of native vegetation before 1 January 1990 or unlawfully cleared of native vegetation after 1 January 1990.
- Land containing native vegetation grown or preserved using public funds.
- Land subject to an expired remedial action to restore or protect the biodiversity values.
- Land in the proximity area of a coastal wetland or littoral rainforest areas of the coastal zone under the Coastal Management Act 2016..
- Land subject to (or previously subject to) a private native forestry plan under either the *Forestry Act 2012* or the *Native Vegetation Act 2003*.
- Land containing medium conservation value grasslands.
- Land containing low conservation grasslands beneath the canopy or drip line of woody vegetation.
- Land is a travelling stock reserve (unless the land is located in the Western Division).
- The land is otherwise prescribed by the Local Land Services Regulation as Category 2–regulated land.

Historical aerial imagery was analysed from 1987 and 1992, as well as current aerial imagery to support the recategorisation of data. These can be seen below, along with alternative development footprint at the time of assessment.

Site-based floristic assessment was undertaken to verify the presence or absence of critically endangered ecological communities (CEECs), critically endangered plants and other Category 2 – Regulated Land criteria, in order to confirm at the site scale, whether the criteria for Category 1 – Exempt Land are met. Areas of CEEC or habitat for Critically Endangered flora species on Category 1- Exempt Land are required to be re-categorised as Category 2 - Regulated Land. Within the subject land, some areas have been identified as containing Box-gum Woodland CEEC, and where required, were converted back to Category 2 – Regulated Land. This was particularly the case for areas of, and buffers around, Rough-barked Apple – red gum – Yellow Box woodland (PCT 281) and Blakley's Red Gum – Yellow Box grassy tall woodland (PCT 599) low condition and Derived Native grasslands.

In the instance of ecotonal grassland vegetation between PCT 281 and PCT 599, and other PCTs such as Western Grey Box -cypress pine woodland (PCT 81) and Fuzzy Box woodland (PCT 201), a precautionary approach was undertaken, and floristic data collected was entered into the BAM-C and the Interim Grasslands and Other Groundcover Assessment (GGAM) calculator. This is particularly the case in the northern and central areas of the subject land. Cleared areas, more so in the southern and western areas of the subject land, have more historical and current cropping regime that is clearly evident. Vegetation integrity scores for transects and plots collected in Category 1 – Exempt Land scored between 5.2 and 32 using the interim GGAM, and was identified with a Low Conservation Value, and therefore remained as Category 1 – Exempt Land, with exception to areas of CEEC which retained or were reallocated Category 1 – Regulated status as stated above.

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As noted in Section 1.6, consultation with RDD was undertaken regarding the LCA. This included a site visit with RDD officers and the Biosis Accredited Assessor to discuss. Overall following the above approach, and in conjunction with the site visit, Biosis received positive feedback and endorsement from RDD, pending a final review of the field data. Areas identified as non-native vegetation or Category 1 – Exempt Land from both the Draft NVR map, and a revised Biosis land category map are shown on Figure 5.

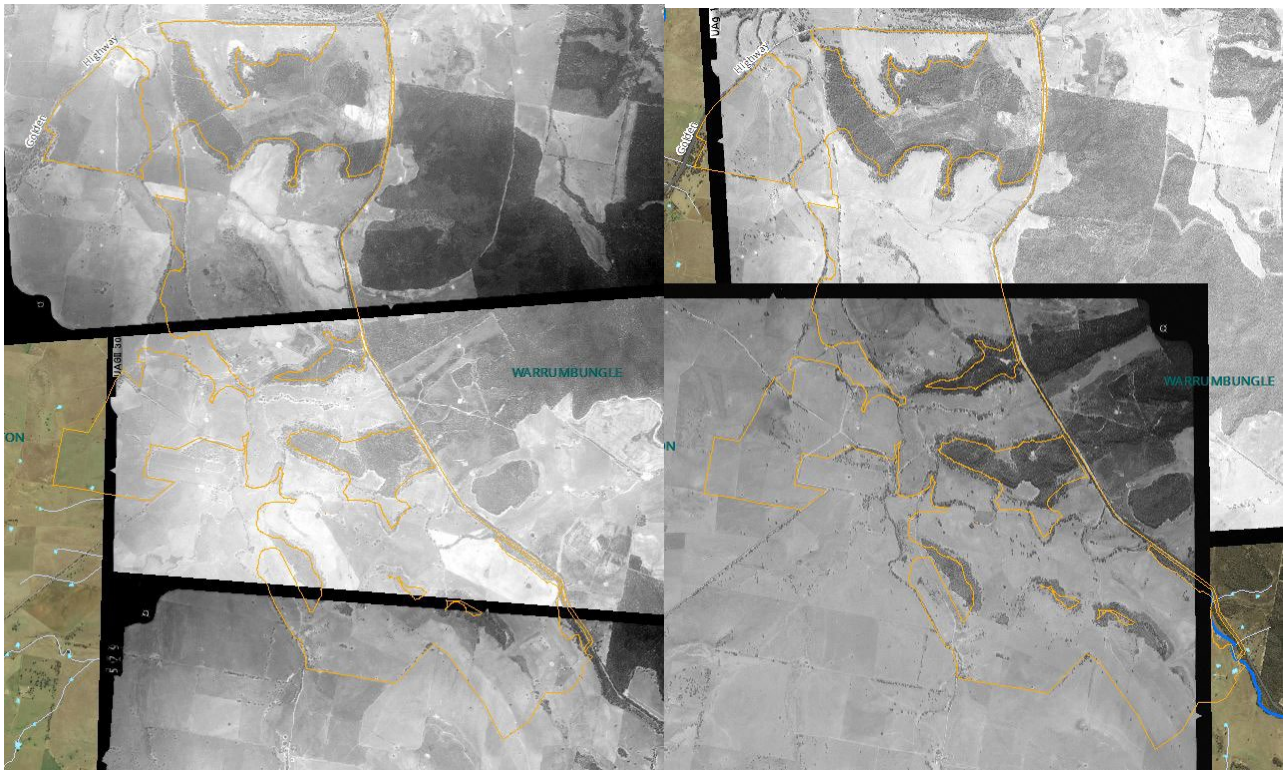


Plate 1 – Demonstrating portions of the subject in 1987 and 1992 (left to right respectively) indicating areas of cropping and clearing

Plant community types (PCT) & ecological communities

Delete	Formation *	Class *	Plant community type *	PCT % cleared	Associated TEC *	NSW listing status	Action
✖	Grassy Woodlands	Floodplain Transition Woodlands	**81** - Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion **Note:** "Selected PCT will be assessed as a Derived Native Grassland"	78	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Endangered Ecological Community	ADD VEG ZONE Modify default benchmarks
✖	Grassy Woodlands	Western Slopes Grassy Woodlands	**281** - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion **Note:** "Selected PCT will be assessed as a Derived Native Grassland"	67	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	ADD VEG ZONE Modify default benchmarks

ADD ANOTHER PCT

IMPORT SITE Vegetation zones (Current vegetation integrity score)

Delete	Import	Number	PCT code	Condition class *	Vegetation zone name	Area (ha) *	Location	Exotic perennial / Native cover	Composition condition score	Structure condition score	Current vegetation integrity score	Conservation value
✖		1	81	Cat1	81_Cat1	10		1	39.9	0.7	5.2	Low
✖		2	281	Cat1	281_Cat1	10		0.8	21.4	47.8	32	Low

CLEAR

Plate 2 – Results of the interim GGAM calculator indicating Low Conservation groundcover value.

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3.1.3 Changes to mapping native vegetation extent

There were major differences between the actual native vegetation extent and that modelled by the State Vegetation Type Mapping. A majority of the subject land has previously been mapped as derived native grassland by NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b). However, field investigations by Biosis found most of this vegetation across the subject land was exotic grassland and agricultural crops.

3.1.4 Review of existing information

Existing information regarding native vegetation was reviewed to inform field investigations including:

- NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b).
- Cobbora Coal Project Terrestrial Ecology Assessment (EMM Consulting 2012).
- Cobbora Solar Farm Scoping Project (EMM Consulting 2021).

Based on the results of the background review and the requirements of the BAM with respect to this BDAR, appropriate surveys were designed for the subject land and development footprint.

Table 3 PCTs mapped within the 1500m assessment area

Plant Community Type	Threatened Ecological Community associations	Status		Area (ha)
		EPBC	BC	
76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Part)* *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Part)*	E	E	0.83
78 River Red Gum riparian tall woodland / open forest wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion	Not associated with a TEC.	-	-	83.16
81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Part)* *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Part)*	E	E	492.62
201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	*Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions (Part)*	-	E	63.89
202 Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	*Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions (Part)*	-	E	46.64

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Plant Community Type	Threatened Ecological Community associations	Status		Area (ha)
		EPBC	BC	
277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)* *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)*	CE	CE	0.91
281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)* *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)*	CE	CE	183.49
403 Dapper Mugga Ironbark - Western Grey Box - Blakely's Red Gum - Black Cypress Pine grass shrub hill woodland (southern Brigalow Belt South Bioregion)	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)* *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)*	CE	CE	15.19
412 White Box - Black Cypress Pine shrubby hill woodland in the east Pilliga - Mendooran - Gulgong regions, mainly Brigalow Belt South Bioregion	Not associated with a TEC.	-	-	1.89
433 White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, BBS Bioregion	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)* *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)*	CE	CE	44.15

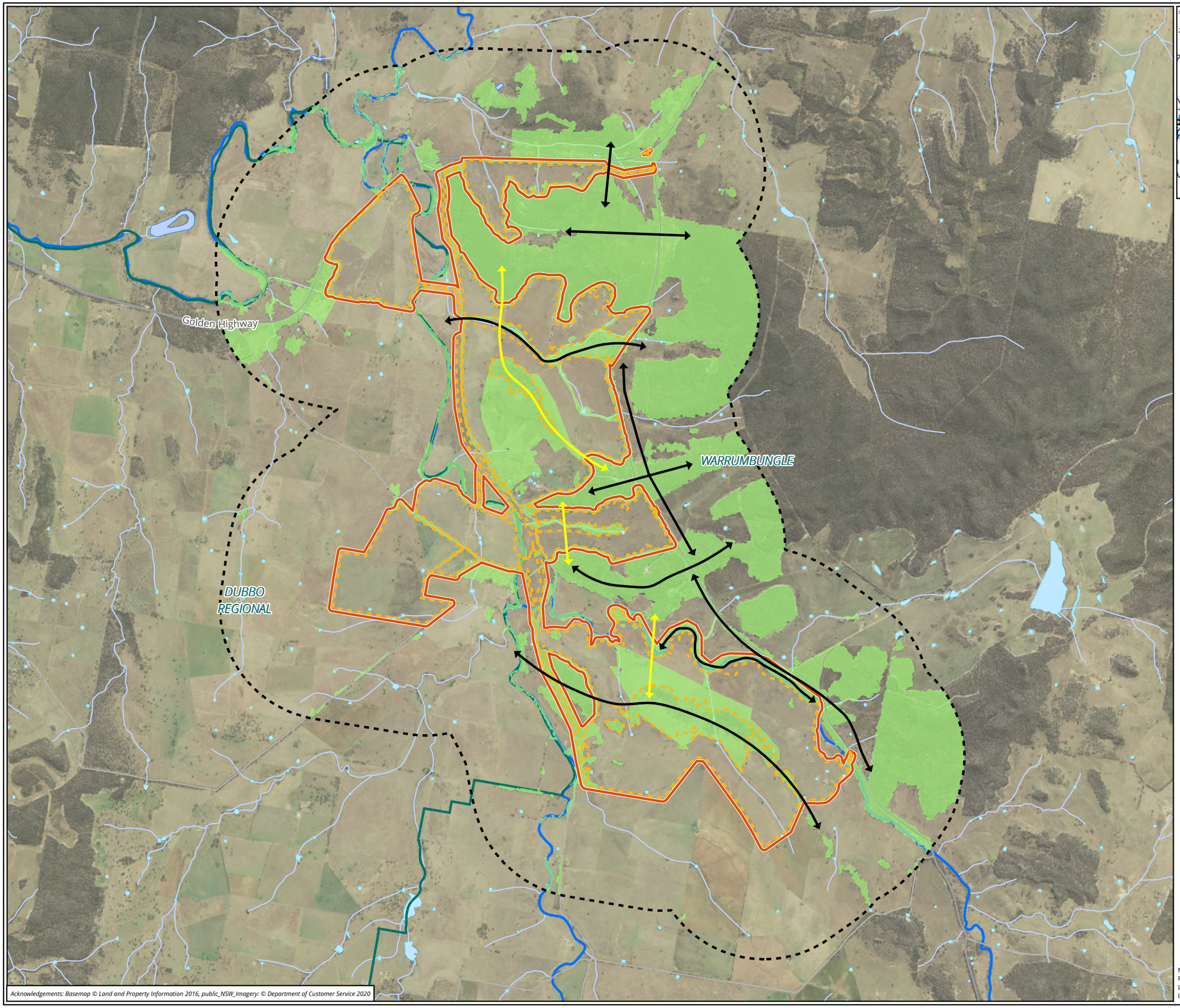
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Plant Community Type	Threatened Ecological Community associations	Status		Area (ha)
		EPBC	BC	
437 Yellow Box grassy woodland on lower hillslopes and valley flats in the southern NSW Brigalow Belt South Bioregion	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)* *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)*	CE	CE	16.69
440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not associated with a TEC.	-	-	37.08
461 Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not associated with a TEC.	-	-	35.10
467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	Not associated with a TEC.	-	-	811.14
468 Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Not associated with a TEC.	-	-	409.05
478 Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not associated with a TEC.	-	-	20.67
479 Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not associated with a TEC.	-	-	22.27
599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part)*	CE	CE	156.39

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Plant Community Type	Threatened Ecological Community associations	Status		Area (ha)
		EPBC	BC	
	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part)			

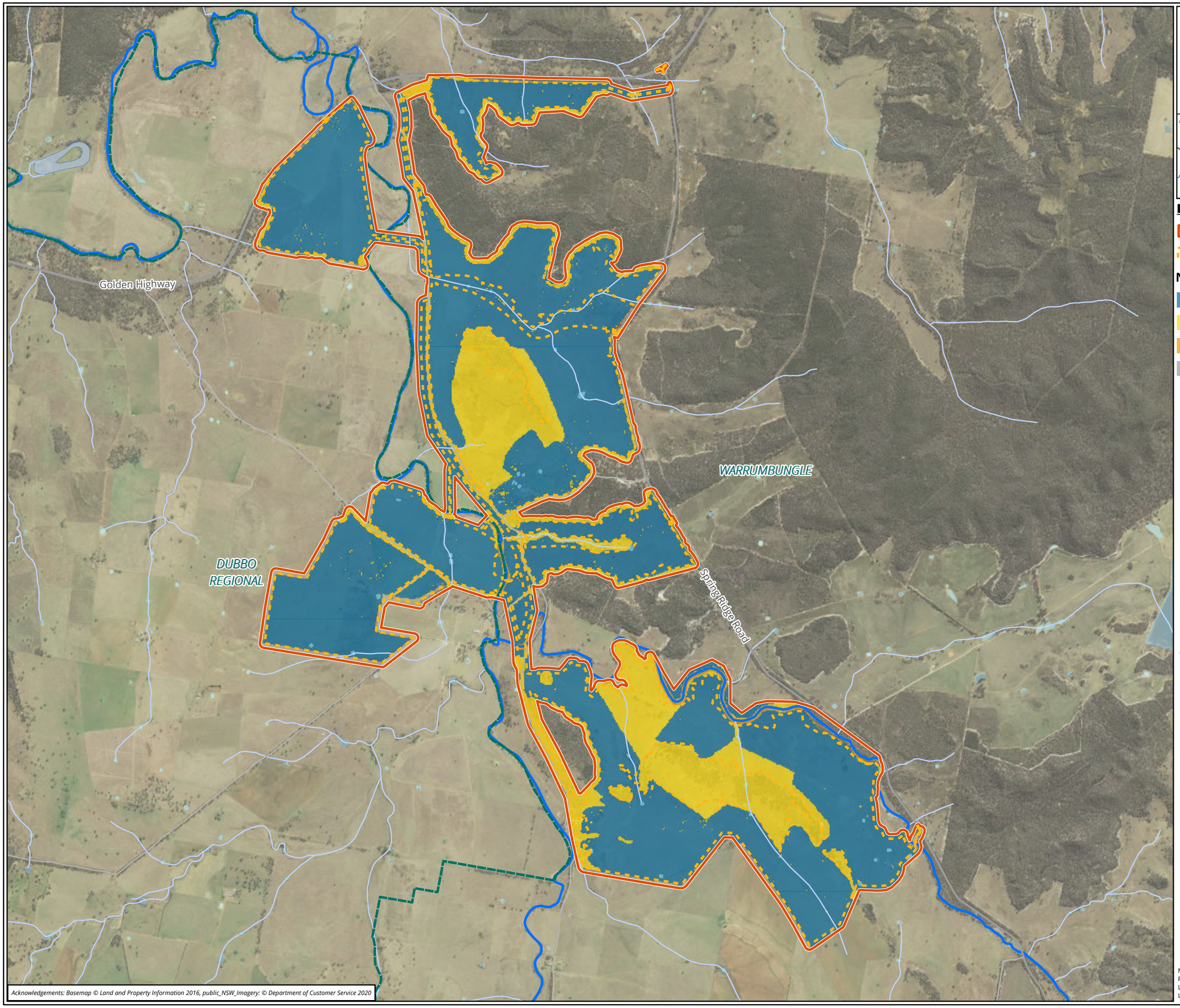
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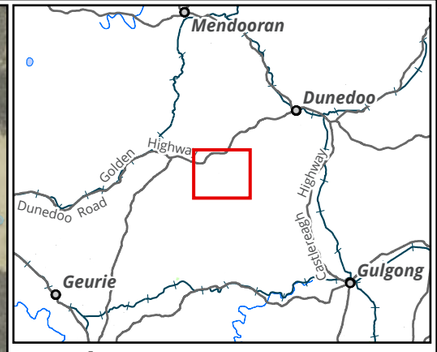


Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

Figure 4 Native vegetation extent

Matter: 38235, Date: 03 March 2025
Prepared for: MP. Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F1-4.aprx
Layout: 38235_F4_NativeVeg





Legend

- Subject land
- Development footprint

NSW Land categorisation

- Cat 1 - Exempt land
- Cat 2 - Regulated land
- Cat 3 - Regulated land - Vulnerable
- Excluded land

Figure 5.2 Land category - NVR Map

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

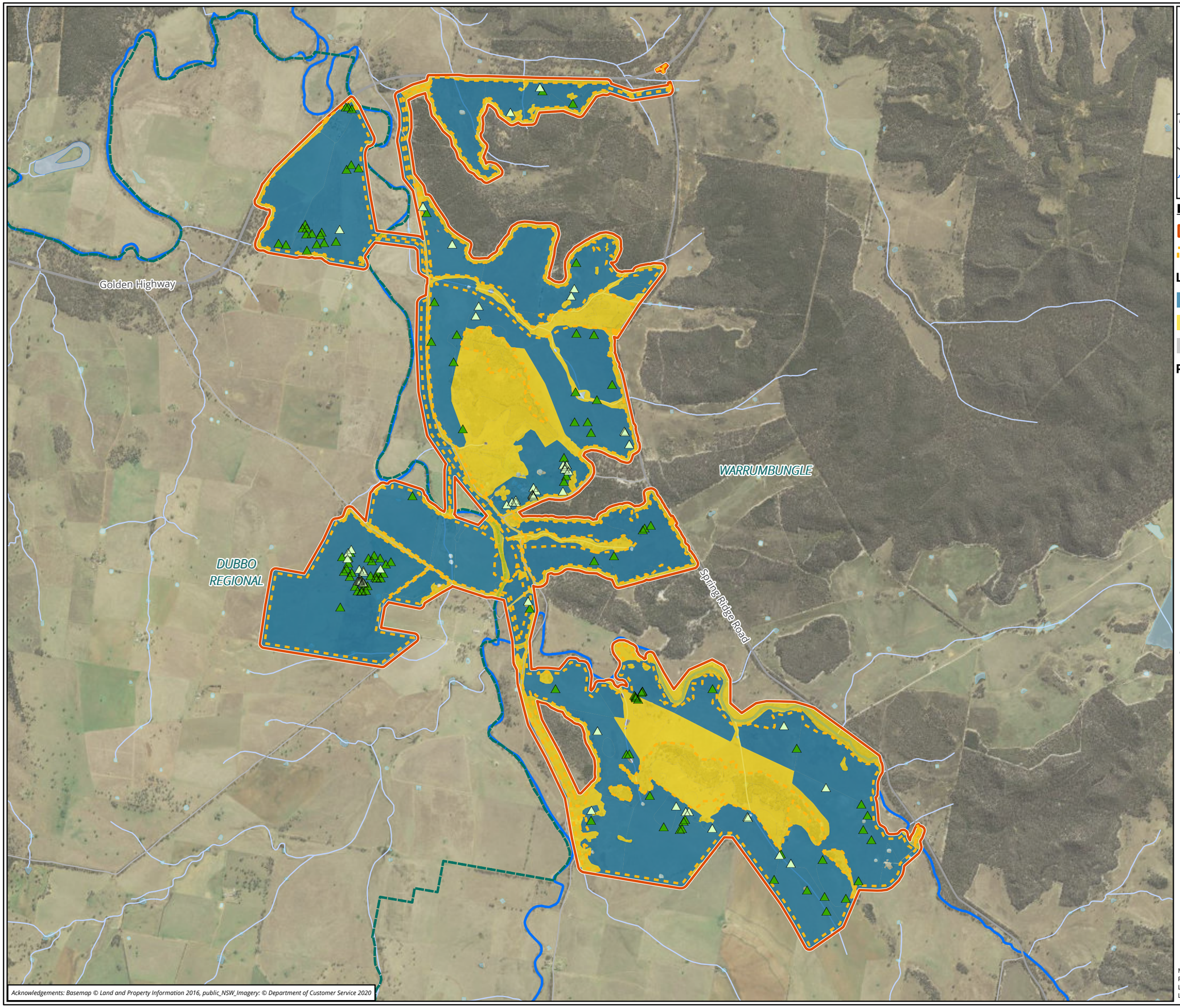
Coordinate System:
GDA2020 MGA Zone 55

N

biosis

APEMGroup

Matter: 38235, Date: 22 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F5.1_LandCat_NVR



Legend

- Subject land
- Development footprint

Land categorisation

- Cat 1 - Exempt Land
- Cat 2- Regulated Land
- Excluded

Paddock tree class

- 2
- 3

Figure 5.2 Land category - Biosis

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

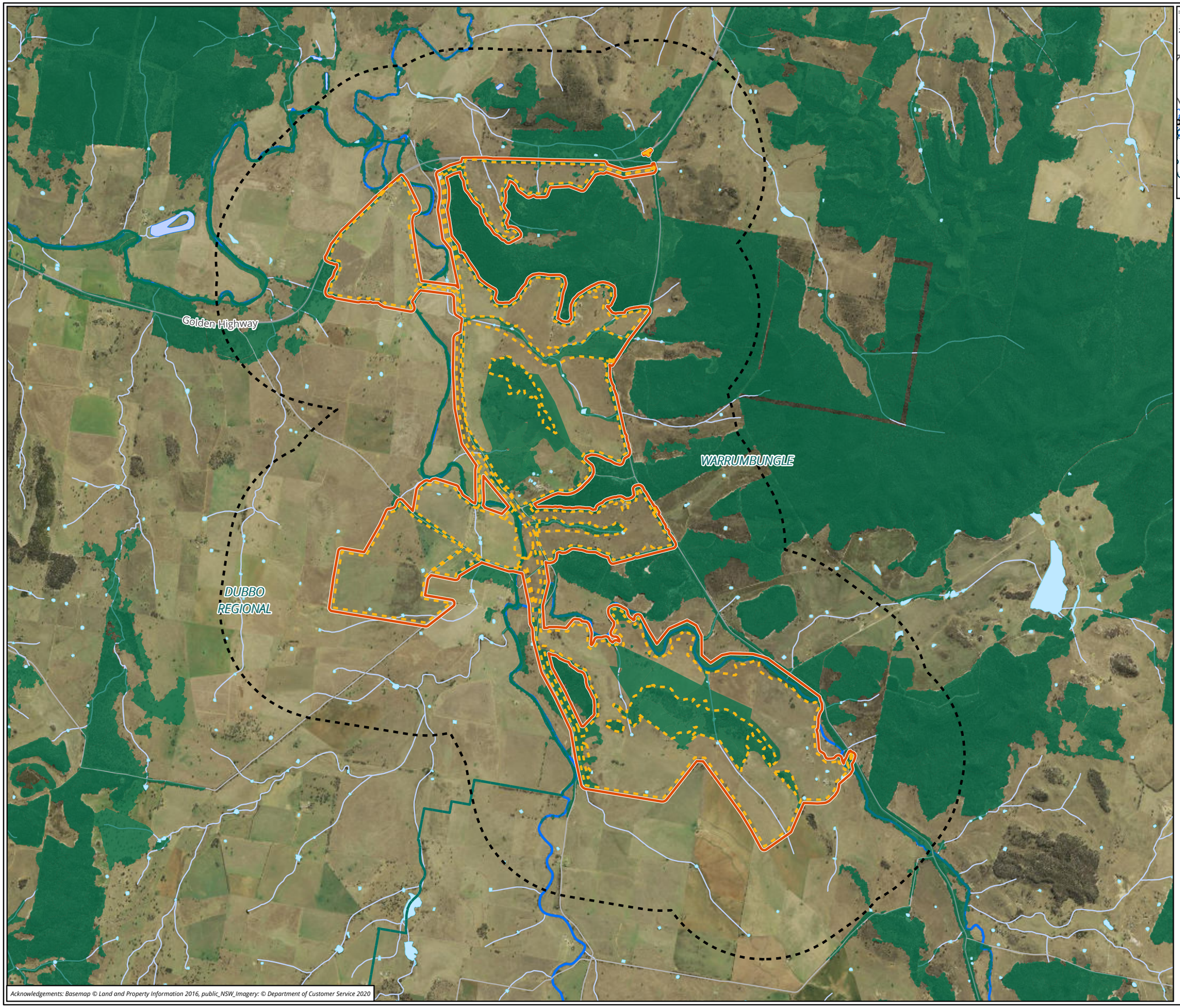
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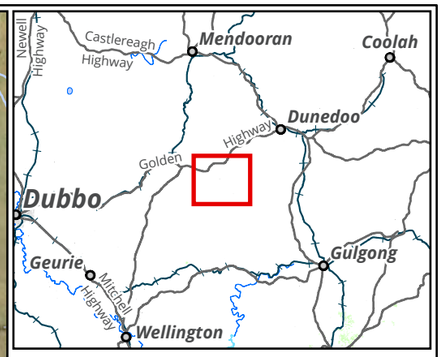
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APEM Group

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Matter: 38235, Date: 22 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F5.2_LandCat_Biosis





Legend

- Subject land
- Development footprint
- Assessment area

Patch size

- All vegetation zones ≥100ha

Figure 6 Patch size

0 500 1,000 1,500

Metres

Scale: 1:48,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis
APEM Group

Matter: 38235, Date: 22 May 2025
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F6_PatchSize

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3.1.5 Field investigation of biodiversity values

Initial field investigations consisted of opportunistic and rapid assessment surveys of vegetation and habitat to stratify vegetation communities, assess potential habitat values and refine detailed survey requirements. Following the initial survey effort, systematic biodiversity assessments were conducted. Field investigations were carried out as follows:

- Biosis:
  - October 2022 – Rapid assessment and vegetation mapping of the subject land. Scattered tree and hollow-bearing tree (HBT) mapping. Stick nest searches. Opportunistic fauna and flora.
  - November 2022 – Scattered tree and HBTs mapping. Targeted fauna surveys - Stick nest searches. Koala Spot Assessment Technique (SAT) searches, habitat area searches. Targeted flora surveys.
  - January 2023 – Detailed vegetation mapping, BAM plots. Scattered tree and HBTs mapping. Placement of camera traps.
  - February 2023 – Detailed vegetation mapping, BAM plots. Scattered tree and HBTs mapping.
  - November 2023 – Detailed vegetation mapping, BAM plots. Scattered tree and HBTs mapping. Targeted fauna surveys - SAT searches, habitat area searches.
  - February 2024 – Site assessment with RDD. Camera trap and Anabat collection.
  - August 2024 – Targeted fauna surveys - Stag watch, call playback.
  - October 2024 -Targeted flora surveys.
- Niche:
  - July 2022 – Rapid aquatic assessment.
  - August 2022 – Targeted fauna surveys – Spotlighting, woodland bird surveys, amphibian survey, call playback. Camera trap placement.
  - February 2023 – Camera trap collection.

Biosis' surveys were under the terms of Biosis' Scientific Licence issued by the NSW DCCAAEEW under the *National Parks and Wildlife Act 1974* (NPWS Act) (SL100758, expiry date 31 June 2025). Fauna survey was conducted under approval CSB 17/892 from the NSW Animal Care and Ethics Committee (expiry date 31 January 2026).

Assessment in accordance with the BAM was planned, overseen and carried out by Accredited Assessor Mitchell Palmer (BAAS17051). Niche survey effort and data was verified, deemed appropriate and accepted.

The subject land was surveyed in accordance with the BAM (DPIE 2020a), which involved:

The identification and mapping of PCTs according to the structural definitions held in the BioNet Vegetation Classification database, with reference to information provided in NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b).

- Undertaking floristic plots within each vegetation zone in accordance with Section 4 of the BAM (DPIE 2020a), considering varying condition states and avoidance of ecotones, areas of disturbance, and edges.

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- The identification of native and exotic plant species, according to the Flora of NSW (Harden 1992, 1993, 2000, 2002) with reference to recent taxonomic changes.
- Targeted searches for plant species of conservation significance according to Surveying Threatened Plants and Their Habitats (DPIE 2020b).
- Incidental observations using the "random meander" method (Cropper 1993).
- Identification of previous and current factors threatening the ecological function and survival of native vegetation within and adjacent to the subject land.
- An assessment of the natural resilience of the vegetation of the site.
- Identifying and mapping fauna habitats (e.g., hollow-bearing trees, rock outcropping etc.), assessing their condition and value to threatened fauna species, and considering threatened species' habitat constraints.
- Observations of animal activity and searches for indirect evidence of fauna (such as scats, nests, burrows, hollows, tracks, scratches and diggings).
- Targeted surveys for threatened fauna species.

The conservation significance of plant species and plant communities was determined according to:

- BC Act for significance within NSW.
- EPBC Act for significance within Australia.

Detailed field mapping and collection of GPS point locations were conducted using hand-held (uncorrected) tablet units (Samsung Galaxy Tab X) running the ArcGIS Field Maps application, using the inbuilt GPS, and aerial photo interpretation. Spatial locations are therefore considered to have an accuracy of generally ±5 metres.

Areas of native vegetation for which a PCT could validly be assigned were identified and delineated in the field, and their condition determined and assigned. Identification of PCTs within the subject land was confirmed with reference to the community profile descriptors (and diagnostic species tests) held within NSW BioNet Vegetation Classification database (NSW DCCEEW 2024a). Locations of floristic plots surveyed are shown on Figure 10

Further details of targeted survey for threatened flora and fauna species are provided in Section 4.3 below.

3.1.6 Local appropriate data

No local appropriate data or non-standard benchmarks have been used in the preparation of this BDAR or added to the BAM Calculator.

3.1.7 Limitations

Field surveys were undertaken in accordance with the BAM (DPIE 2020a) and relevant guidelines as far as practicable. Field surveys have been conducted across multiple seasons and across multiple years, however due to the size of some vegetation zones, scale-based variations to methods have been applied and discussed further in Section 4.3.

Ecological surveys provide a sampling of flora and fauna at a given time and season. Factors influencing detectability of species during survey include species dormancy, seasonal conditions, rainfall amounts, and

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migration and breeding behaviours of some fauna. In many cases, these factors do not present a significant limitation to assessing and characterising the overall biodiversity values of a site.

Field work undertaken in spring 2022 was subject to high levels of rainfall, localised flooding and above average rainfall conditions. This resulted in access issues in certain parts of the subject land, with access by walking only. Additional spring survey was undertaken in spring 2023 and spring 2024 to minimise limitations associated with the above average conditions and access issues from 2022.

Generally, surveys undertaken across various methods, combined with habitat assessments and desktop analysis are considered sufficient to reach the conclusions herein regarding species' likelihood of occurrence and level of expected impacts within the subject land. Reference has also been made to survey effort undertaken for the adjacent Sandy Creek Solar Farm (EMM Consulting 2024) and the findings of that work with regards to new threatened flora records and detectability. Database searches, and associated conclusions on the likelihood of species to occur within the assessment area, are reliant upon external data sources and information managed by third parties.

3.1.8 Non-native vegetation

As mentioned in Section 3.1.2, Category 1 – Exempt Land is present within the subject land, largely in the form of cropped and significantly and historically disturbed and cleared paddocks utilised for improved pasture grazing. Many of these areas are dominated by improved temperate and subtropical pastures such as Bambatisi Panic, Premier Digit, Rhodes Grass as well as *Setaria* spp. and *Paspalum* spp., and various legumes sown below such as *Trifolium* spp. and *Medicago* spp. Some areas have small patches of a high cover but low diversity of disturbance tolerant natives such as the highly resilient *Sporobolous crebra, Carex appressa* and *Juncus* spp. interspersed with the exotic groundcover. More so in the southern and western areas of the subject land, areas of till and cropping were noted containing Barley and Canola.

Other exotic flora species occurred as minor components throughout the subject land. Weed species including Common Prickly Pear *Opuntia stricta* and St John's Wort *Hypericum perforatum* were identified.

Areas of non-native vegetation cover approximately 1,526.88 hectares, or 69.71% of the subject land.



Plate 3 – From left to right, areas of cropping and areas of improved Bambatisi Panic improved pasture

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3.1.9 Plant community types

PCTs are based on, but not limited to floristic components and composition, and location within the landscape such as elevation, landform and soil type. Derived grasslands were determined to occur through assessment of historical information and aerial imagery, signs of clearing such as stumps and logs and floristic composition of adjacent woodland and forest areas. Comparative analysis was completed against grassland communities with the potential to occur within the region to ensure the PCT of best fit was assigned. Dominant and characteristic floristic species data was used to confirm PCTs within the subject land.

The following PCTs were assessed as present within the subject land:

- PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion.
- PCT 201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion.
- PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion.
- PCT 440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion.
- PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo).
- PCT 468 Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo).
- PCT 478 Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion.
- PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion.

Table 4 to Table 11 proved detailed descriptions and justification for the eight PCTs and their condition states recorded within the subject land. PCTs recorded within the subject land are shown in Figure 7.

Table 4 PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	
Common name	Western Grey Box - cypress pine shrub grass shrub tall woodland
Vegetation formation	Grassy Woodlands
Vegetation class	Floodplain Transition Woodlands
Extent within subject land	94.05 ha
Condition	Low – 42.92 ha Moderate – 51.12 ha
Description	**Low** Generally occurs on the fringing edges of moderate condition woodland areas. Occurs lacking a canopy, however some isolated trees occur including White-Cypress Pine *Callitris glaucophylla,* Rough Barked-apple *Angophora floribunda* and Western Grey Box *Eucalyptus microcarpa,* with occasional Blakley's Red Gum *Eucalyptus blakeyii* and

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PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	
	Yellow Box *Eucalyptus melliodora.* Low shrub to no shrub coverage, dominated by Climbing Saltbush *Einadia nutans*, Small-leaf Bluebush *Maireana microphylla*, where present. Slender rat's Tail Grass *Sporobolus creber* and Speargrass *Austrostipa scabra* were common grasses. Exotic species occurred as varying densities including species such as Perennial Ryegrass *Lolium perenne,* Purpletop *Verbena bonariensis* and St Jhon's Wort *Hypericum perforatum.* **Moderate** Generally occurs on the lower alluvial areas and plains surrounding the foothills. Woodland dominated by Western Grey Box. Other canopy species include Yellow Box and Rough Barked-apple. A sparse shrub layer occurs, and includes Sifton Bush *Cassinia sifton.* The ground stratum is dominated by grasses, small heaths and forbs including Slender rat's Tail Grass, Slender Bamboo Grass *Austrostipa verticillata,* Speargrass *Austrostipa scabra,* Urn Heath *Melichrus urceolatus* and Kidney Weed *Dichondra repens.*
Survey effort	The following BAM plots were collected (Figure 10): • Low – 4. • Moderate – 3
Justification of PCT	PCT 81 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – The PCT occurs on the lowland areas and alluvial plains associated with the foothills. • Soil - occurs on red brown earths on the Goonoo Slopes within the Dunedoo formation. • Rainfall - average annual rainfall of 571.1 mm. • Structure – Tall woodland, sparse but present shrub layer and mid to dense grassy ground layer with forbs and small heaths. Low condition areas consistent with shrub and grassy ground layer, but generally lacking canopy with some isolated tree's present. • Dominant species - canopy dominated by Western Grey Box with characteristic non-dominant canopy species including Yellow Box and Rough-barked Apple. Shrub and ground stratum floristic composition characteristic of PCT, with sparse shrubs and mid-dense grassy ground layer. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** All PCT 81 within the subject land was determined to meet the criteria for the BC Act listed EEC *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions*. The final determination does not distinguish between condition classes. **Commonwealth EPBC Act:** Only the moderate condition state of this PCT were found to meet the condition thresholds for listing of EPBC Act listed EEC *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* under the EPBC Act. Refer to Table 14. Further information on TECs is provided in Section 3.1.10 below. State and Commonwealth TECs are mapped on Figure 10.
Estimate of percent cleared value of PCT (BioNet)	78% (NSW DCCEEW 2024a).

PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	
PCT 81 – Low condition	
PCT 81 – Moderate condition	

Table 5 PCT 201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion

PCT 201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	
Common name	Fuzzy Box Woodland
Vegetation formation	Grassy Woodlands
Vegetation class	Western Slopes Grassy Woodlands
Extent within subject land	63.89 ha
Condition	Low – 21.43 ha Moderate – 42.47 ha

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PCT 201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	
Description	**Low** Occurs on the fringes of woodland condition zones. Dominated by Native grasses including Common Wheatgrass *Anthosachne scabra,* Rough Speargrass and Slender Rat's Tail Grass. Some low density of canopy species isolated and scattered within the derived grassland areas including Fuzzy Box *Eucalyptus conica*. and Western Grey Box. Shrub species are present however in very low density and include Sifton Bush *Cassinia Sifton* and Amulla *Eremophila debilis.* **Moderate** Open woodland dominated by Fuzzy Box. Other canopy species present include Western Grey Box. Tall shrub and mid shrub stratum include Narrow-leaved Wattle *Acacia linearifolia* and Tablelands Wattle *Acacia caesiella*. Low shrub and ground stratum species include a variety of grasses, small shrubs and forbs, noting grass and grass-like species make up over 50% of the ground layer and include Rough Speargrass, Threeawn Speargrass *Aristida vagans,* Pitted Bluegrass *Bothriochloa decipens var. decipens,* Hairy panic *Panicum effusum,* Mulga Mitchell Grass *Thyridolepis,* Wiry Spurge *Phyllanthus,* Speedwell *Veronica plebeia,* Clustered Everlasting *Chrysocephalum semipapposum,* and Slender Stackhousia *Stackhousia viminea*.
Survey effort	The following BAM plots were collected (Figure 10): • Low – 2. • Moderate – 6.
Justification of PCT	PCT 201 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Occurs in alluvial plains, low slopes, disturbed streams and watercourse areas. • Soil - occurs on red brown earths in low slopes and yellow solodic soils associated with creek areas. • Rainfall - average annual rainfall of 571.1 mm. • Structure - open woodland with spare but present shrubs and a dense grassy ground layer with diverse forbs present. • Dominant species - canopy dominated by Fuzzy Box with characteristic additional canopy species present including Western Grey Box. Shrub and ground stratum species characteristic of this community. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** All PCT 201 within the subject land was determined to meet the criteria for the BC Act listed EEC *Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions*. The final determination does not distinguish between condition classes. **Commonwealth EPBC Act:** Not listed. Further information on TECs is provided in Section 3.1.10 below. State and Commonwealth TECs are mapped on Figure 10.
Estimate of percent cleared value of PCT (BioNet)	94% (NSW DCCEEW 2024a).

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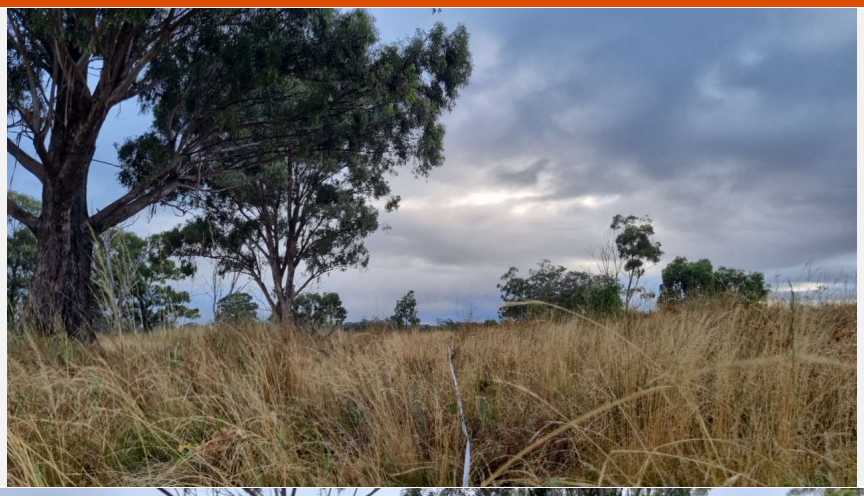
PCT 201 Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	
PCT 201 – Low condition	
PCT 201 – Moderate condition	

Table 6 PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	
Common name	Rough-Barked Apple - red gum - Yellow Box woodland
Vegetation formation	Grassy Woodlands
Vegetation class	Western Slopes Grassy Woodlands
Extent within subject land	134.78 ha
Condition	Low – 87.94 ha Moderate – 46.84 ha
Description	**Low** Occurs on the fringes of woodland condition zones with some isolated and scattered tree's present including Rough-barked Apple *Angophora floribunda* and Yellow Box. Some shrub species occur including Gorse Bitter Pea *Daviesia ulicifolia.* Occurs in a derived grassland state, with a dominance of grass and grass like species including Silky Browntop *Eulalia aurea,* Hairy panic *Panicum effusum,* Rough Speargrass and

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PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	
	Foxtail Speargrass *Austrostipa densiflora.* Numerous forb species occur and include Tufted Bluebell *Wahlenbergia communis,* Yellow Burr-daisy *Calotis lappulacea,* Small St John's Wort *Hypericum gramineum,* Corrugated Sida *Sida corrugata* and Tall Bluebell *Wahlenbergia stricta.* **Moderate** Occurs as open woodland, dominated by Rough-barked Apple and Yellow Box. Other species include Blakley's Red Gum *Eucalyptus blakelyi*. A sparse shrub layer is present generally consisting of Sifton Bush *Cassinia sifton.* A dense grassy ground layer is present dominated by Weeping Grass *Microlaena stipoides var. stipoides* and Slender Bamboo Grass *Austrostipa verticillata.* Exotic grasses occurred including Prairie Grass *Bromus catharticus,* Soft Brome *Bromus hordeaceus,* Paspalum *Paspalum dilatatum.* Numerous forb species occur and include Tufted Bluebell *Wahlenbergia communis,* Yellow Burr-daisy *Calotis lappulacea,* Small St John's Wort *Hypericum gramineum,* Corrugated Sida *Sida corrugata* and Tall Bluebell *Wahlenbergia stricta.*
Survey effort	The following BAM plots were collected (Figure 10): • Low – 5. • Moderate - 8
Justification of PCT	PCT 281 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Occurs on hill landform patterns and alluvial plains of foot slopes. • Soil – Occurs on red brown earths, alluvial soils and yellow solodic soils associated with plains near creeks. • Rainfall - average annual rainfall of 571.1 mm. • Structure - open woodland with spare but present shrubs and a dense grassy ground layer with diverse forbs present. • Dominant species - canopy dominated by Rough-barked Apple and Yellow Box. Some additional species occurs including Blakley's Red Gum. Shrub and ground stratum species characteristic of this community. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** All PCT 281 within the subject land was determined to meet the criteria for the BC Act listed CEEC *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. **Commonwealth EPBC Act:** Only the moderate condition state of this PCT were found to meet the condition thresholds for listing of EPBC Act listed CEEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* refer to Table 15. Further information on TECs is provided in Section 3.1.10 below. State and Commonwealth TECs are mapped on Figure 10.
Estimate of percent cleared value of PCT (BioNet)	67 % (NSW DCCEEW 2024a).

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PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	
PCT 281 – Low condition	
PCT 281 – Moderate condition	

Table 7 PCT 440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

PCT 440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	
Common name	Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Western Slopes Dry Sclerophyll Forests
Extent within subject land	24.91 ha
Condition	Low – 11.08ha Moderate – 13.83 ha
Description	**Low** Occurs on the fringing edges of woodland areas where historical clearing has occurred. Very spare presence of canopy species with only a few isolated saplings and small trees. Dense coverage of shrub layer in the form of Sifton Bush, generally covering around

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PCT 440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	
	80% of the area. Grass, grass like, heath and forb species make up the remainder of this zone, including Weeping Grass *Microlaena stipoides var. stipoides,* Fringed Heath Myrtle *Micromyrtus ciliata,* Native Millett *Panicum decompositum,* Bush Pea *Pultenaea foliolosa* and Foxtail Speargrass *Austrostipa densiflora.* **Moderate** Open to dense woodland on shallower soils, generally on slopes and hills. Canopy dominated by Red Stringy Bark *Eucalyptus macrorhyncha,* Black Cypress Pine *Callitris endlicheri* and Mugga Ironbark *Eucalyptus sideroxylon.* Shrub layer generally consist of Sifton Bush, with health and other shrub species present including Cough Bush *Cassinia laevis, Platysace ericoides* and Sticky Hob Bush *Dodonaea viscosa.* A varied grass and forb presence occurs including Rough Speargrass, Slender Rat's Tail Grass, Rough Saw-sedge Grass *Gahnia aspera*, Yellow Burr-daisy *Calotis lappulacea* and Tall Bluebell *Wahlenbergia stricta.*
Survey effort	The following BAM plots were collected (Figure 10): Low – 1. Moderate – 2.
Justification of PCT	PCT 440 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Occurs on red brown earths and dapper hill landforms. Occurs on slops and hails. • Soil – Occurs on red brown earths and shallower hill soils on dapper hill landforms. • Rainfall - average annual rainfall of 571.1 mm. • Structure – Open tall with shrub layer present. Shrubs are dense where disturbance has shifted typical structure, such as in low condition where Sifton bush has dominated the landscape. Ground layer dominated by grasses, heaths, small shrubs and forbs. Strong presence of fallen timber, litter and rocky ground present. • Dominant species - Canopy dominated by Red Stringy Bark with Black Cypress Pine and Mugga Ironbark present. Shrub species including Cassinia are present. Ground layer dominated by grasses, heaths, small shrubs and forbs characteristic of this PCT. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** No associated TEC. **Commonwealth EPBC Act:** No associated TEC.
Estimate of percent cleared value of PCT (BioNet)	34% (NSW DCCEEW 2024a).

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PCT 440 Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	
PCT 440 – Low condition	
PCT 440 – Moderate condition	

Table 8 PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)

PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	
Common name	Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Western Slopes Dry Sclerophyll Forests
Extent within subject land	113.89 ha
Condition	High - 2.30 ha Moderate – 21.03 ha Regrowth - 48.92 ha Low – 41.65 ha

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PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	
Description	**High** Occurs on hillslopes and hillcrests along road reserves where less disturbance occurs compared to nearby patches in farmland. Occurs as open forest dominated by Blue-leaved Ironbark *Eucalyptus nubila* with White Cypress Pine Callitris *glaucophylla,* Red Box *Eucalyptus polyanthemos.* Tall shrub species occur including Narrow-leaved Wattle *Acacia linearifolia.* Shrub species are present and include Sifton Bush, Cough Bush *Cassinia laevis* and Hoary Guinea Flower *Hibbertia obtusifolia. Mountain Wallaby Grass Rytidosperma monticola* forms a strong portion of the ground layer, alongside numerous other grasses and forms including Purple Wiregrass *Aristida ramosa,* Blue Flax Lily *Dianella revoluta,* Weeping Grass *Microlaena stipoides var stipoides* and Smooth Goodenia *Goodenia glabra.* **Moderate** Occurs on hilltops and crests where disturbance from farming has occurred. Canopy species dominated by Blue-leaved Ironbark, with tall shrub and tree species including Black Cypress Pine *Callitris endlicheri, Allocasuarina gymnanthera,* Dwyer's Red Gum *Eucalyptus dwyeri,* Native Blackthorn *Bursaria spinosa* and Western Silver Wattle *Acacia decora.* Grass and forb species are present in lower densities due to the rockier and shallow soils, these include Speargrass *Austrostipa scabra* and Rough Saw-sedge *Gahnia aspera.* Sifton Bush is present in high density, leading to high coverage in adjacent regrowth areas. **Regrowth** Dominated by dense re-growth of Sifton Bush, covering upwards of 75% of the zone. This species has dominated where clearing of previous canopy species occurs. Other shrub species present at lower densities include Western Silver Wattle *Acacia decora* and Urn Heath *Melichrus urceolatus.* Grass and forb species are present in low percentage due to the dominance of Sifton Bush. Rough Saw-sedge *Gahnia aspera* occurs at low-mid density for this species. **Low** Occurs as a derived zone on the slopes surrounding woodland areas and regrowth areas. High presence of annual exotic grasses including Perennial Ryegrass *Lolium perenne* and some perennial grasses including *Paspalum dilatatum.* Dominated by native grass and forb species including Common Couch *Cynodon dactylon,* Tall Sedge *Carex appressa,* Slender Rat's Tail Grass *Sporobolus creber, Juncus usitatus*, Lovegrass *Eragrostis elongata,* Raspwort *Haloragis heterophylla* and Finger Sedge *Fimbristylis dichotoma.*
Survey effort	The following BAM plots were collected (Figure 10): • High – 1 • Moderate – 3. Only two used within BAM-C. • Regrowth – 5 • Low - 3
Justification of PCT	PCT 467 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Hillslopes, hillcrests and hills. • Soil – Occurs on soloths, shallow rocky soils associated with hillcrests, hills and slopes from the dapper hill formation in the Goonoo slopes areas. • Rainfall - average annual rainfall of 571.1 mm. • Structure – High open forest in high condition along road reserves, Structure within the subject land is comparatively more disturbed from clearing and grazing, altering the structure and most noticeably, greatly increasing the

PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	
	dominance of disturbance specialist species like Sifton Bush. This is evident in the regrowth area. Low areas are generally grassy with species characteristic of this PCT but with stronger presence due to lack of canopy. • Dominant species - Canopy dominated by Blue-leaved Ironbark, with other canopy and tall shrub species present including Black Cypress Pine, White Cypress Pine and Dwyer's Red Gum. . Ground layer dominated by grasses, heaths, small shrubs and forbs characteristic of this PCT, with a strong presence of rocks as the patch moves towards hillcrests. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** No associated TEC. **Commonwealth EPBC Act:** No associated TEC.
Estimate of percent cleared value of PCT (BioNet)	17% (NSW DCCEEW 2024a).
PCT 467 – High condition	
PCT 467 – Moderate condition	

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PCT 467 Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	
PCT 467 – Regrowth condition	
PCT 467 – Low condition	

Table 9 PCT 468 Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

PCT 468 Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	
Common name	Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Western Slopes Dry Sclerophyll Forests

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PCT 468 Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	
Extent within subject land	61.45 ha
Condition	Moderate – 61.45 ha
Description	**Moderate** Open forest dominated by Mugga Ironbark *Eucalyptus sideroxylon,* with a low density of Black Cypress Pine *Callitris endlicheri.* Shrub species present at low density include Bush Pea *Pultenaea foliolosa,* Tablelands Wattle *Acacia caesiella* and Hakea Wattle *Acacia hakeoides.* Rough Speargrass *Austrostipa scabra var scabra* made up the main grass component in the ground layer, alongside Weeping Grass *Microlaena stipoides var stipoides* and Silvertop Wallaby Grass *Rytidosperma pallidum.* Forb species present occur at low density and include Slender Wire Lily *Laxmannia gracilis,* Smooth Goodenia *Goodenia glabra,* Raspwort *Gonocarpus elatus* and Tall Bluebell *Wahlenbergia stricta.*
Survey effort	The following BAM plots were collected (Figure 10): Moderate – 5.
Justification of PCT	PCT 468 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Hillslopes, hillcrests and hills. • Soil – Occurs on soloths, shallow rocky soils associated with hillcrests, hills and slopes from the dapper hill formation in the Goonoo slopes areas. • Rainfall - average annual rainfall of 571.1 mm. • Structure –Structure within the subject land is typical of this PCT, with a grassy layer, moderate litter cover and open forest canopy. Sparse shrubs and low density but high richness of forbs present. • Dominant species - Canopy dominated by Mugga Ironbark, with other canopy and tall shrub species present including Black Cypress Pine. Ground layer dominated by grasses, heaths, small shrubs and forbs characteristic of this PCT. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** Not listed. **Commonwealth EPBC Act:** Not listed.
Estimate of percent cleared value of PCT (BioNet)	33% (NSW DCCEEW 2024a).
PCT 468 – Moderate condition	

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Table 10 PCT 478 Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

PCT 478 Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	
Common name	Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Western Slopes Dry Sclerophyll Forests
Extent within subject land	20.67 ha
Condition	Moderate – 20.67 ha
Description	**Moderate** Occurs on hillslopes and hillcrests. Dominated by Narrow Leaved Ironbark *Eucalyptus crebra,* Black Cypress Pine *Callitris endlicheri,* Mugga Ironbark *Eucalyptus sideroxylon* and Red Stringybark *Eucalyptus macrorhyncha*. Shrub species are present at low density and include Cough Bush *Cassinia laevis,* Spurwing Watle *Acacia triptera,* Mintbush *Prostanthera howelliae* and Bush Pea *Pultenaea spinosa.* A mid-dense grass coverage is present including Foxtail Speargrass *Austrostipa densiflora* and Weeping Grass *Microlaena stipoides var. stipoides.* A diverse but low density forb coverage is present and includes Poverty Raspwort *Gonocarpus tetragynus,* Smooth Goodenia *Goodenia glabra,* Purple-burr Daisy *Calotis cuneifolia, Tall Bluebell Wahlenbergia stricta* and Blue Flax Lily *Dianella revoluta var. revoluta.*
Survey effort	The following BAM plots were collected (Figure 10): Moderate – 3.
Justification of PCT	PCT 478 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Hillslopes, hillcrests and hills. • Soil – Occurs on soloths, shallow rocky soils associated with hillcrests, hills and slopes from the dapper hill formation in the Goonoo slopes areas. • Rainfall - average annual rainfall of 571.1 mm. • Structure –Structure within the subject land is typical of this PCT, with a grassy layer, moderate litter cover and open forest canopy. Sparse shrubs and low density but high richness of forbs present. • Dominant species - Canopy dominated by Narrow Leaved ironbark, Black Cypress Pine, red Stringybark and Mugga Ironbark. A low density of shrubs occur including Cough Bush. Grass species are present that are typical of this PCT within the subject land. Forb species are diverse but low density due to the shallow soils. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** No associated TEC. **Commonwealth EPBC Act:** No associated TEC.
Estimate of percent cleared value of PCT (BioNet)	29% (NSW DCCEEW 2024a).

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PCT 478 Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	
PCT 478 – Moderate condition	

Table 11 PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	
Common name	Blakely's Red Gum - Yellow Box grassy tall woodland
Vegetation formation	Grassy Woodlands
Vegetation class	Western Slopes Grassy Woodlands
Extent within subject land	125.31 ha
Condition	DNG – 90.12 ha Moderate – 30.21 ha High – 4.97 ha
Description	**DNG** Occur on the fringe of woodland areas of flats and slopes of hills where canopy species have been cleared. Derived grassland of adjacent woodland areas. Dominated by dense grasses, namely Rat's Tail Grass *Sporobolus creber* forming in some areas up to 70% of the cover. Other native grass and forb species are present at low densities including Pitted Bluegrass *Bothriochloa decipiens var decipiens,* Paddock Lovegrass *Eragrostis leptostachya,* Rough Speargrass *Austrostipa scabra* subsp. *scabra.* Common forb species include Kidney Weed *Dichondra repens,* Slender Mint *Mentha diemenica,* small St John's Wort *Hypericum gramineum,* Tall Bluebell *Wahlenbergia stricta* and *Oxalis perennans.* **Moderate** Occur on slopes and hills where partial clearing and disturbance from grazing has occurred. Canopy generally open and thin but still intact, dominated by Yellow Box and Blakley's Red Gum. Other canopy species present include Western Grey Box at low density. A dense grassy layer is present dominated by Foxtail Speargrass *Austrostipa densiflora*, Slender Bamboo Grass *Austrostipa verticillata,* Native Millet *Panicum decompositum.* Forbs are present at low density, however a strong species richness is still present, and include Purple Burr-daisy *Calotis cuneifolia,* Climbing Saltbush *Einadia nutans,* Slender Wire Lily *Laxmannia gracilis, Oxalis perennans,* Corrugated Sida *Sida corrugata* and Stinking Pennywort *Hydrocotyle laxifolia.*

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PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	
	High High condition areas occurs adjacent to DNG and moderate areas. The High condition areas were similar to that of the moderate condition, with less disturbance present and therefore, higher quality of vegetation structure and floristic composition.
Survey effort	The following BAM plots were collected (Figure 10): DNG (Low) – 5 Moderate – 3 High – 0 (vegetation zone not impacted)
Justification of PCT	PCT 599 within the subject land meets the PCT description (NSW DCCEEW 2024a) via the following: • Landform – Hillslopes, hillcrests and hills, and slopes leading down to alluvial plains. • Soil – Occurs on soloths, shallow rocky soils associated with hillcrests, hills and slopes from the dapper hill formation in the Goonoo slopes areas, leading down to red brown earths and yellow solodic soils associated with alluvial plains leading to watercourses. • Rainfall - average annual rainfall of 571.1 mm. • Structure –Structure within the subject land is typical of this PCT, with a grassy layer, moderate litter cover and open forest canopy. Sparse shrubs and low density but high richness of forbs present. • Dominant species - Canopy dominated by Yellow Box and Blakley's Red Gum. Moderate and derived areas contained a higher grass component, often dominated by disturbance specialist grasses however a moderate to high level of forb species still occur. • IBRA region and subregion – Talbragar Valley subregion and occurs within the Warrumbungle Shire.
TEC Status	**NSW BC Act:** All PCT 599 within the subject land was determined to meet the criteria for the BC Act listed CEEC *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. **Commonwealth EPBC Act:** Only the moderate and high condition states of this PCT were found to meet the condition thresholds for listing of EPBC Act listed CEEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* refer to Table 15. Further information on TECs is provided in Section 3.1.10 below. State and Commonwealth TECs are mapped on Figure 10.
Estimate of percent cleared value of PCT (BioNet)	80% (NSW DCCEEW 2024a).

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PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	
PCT 599 – DNG condition	
PCT 599 – Moderate condition	

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PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCT 599 – High condition



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Golden Highway

DUBBO REGIONAL

Spring Ridge Road

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Legend

- Subject land
- Development footprint
- Hollow-bearing tree

Paddock tree class

- 2
- 3

Plant community type

- 201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion
- 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
- 440 - Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
- 467 - Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)
- 468 - Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
- 599 - Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
- 81 - Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
- Cat 1 - Exempt Land
- Non-native vegetation

Figure 7 - Overview Vegetation within the subject land

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

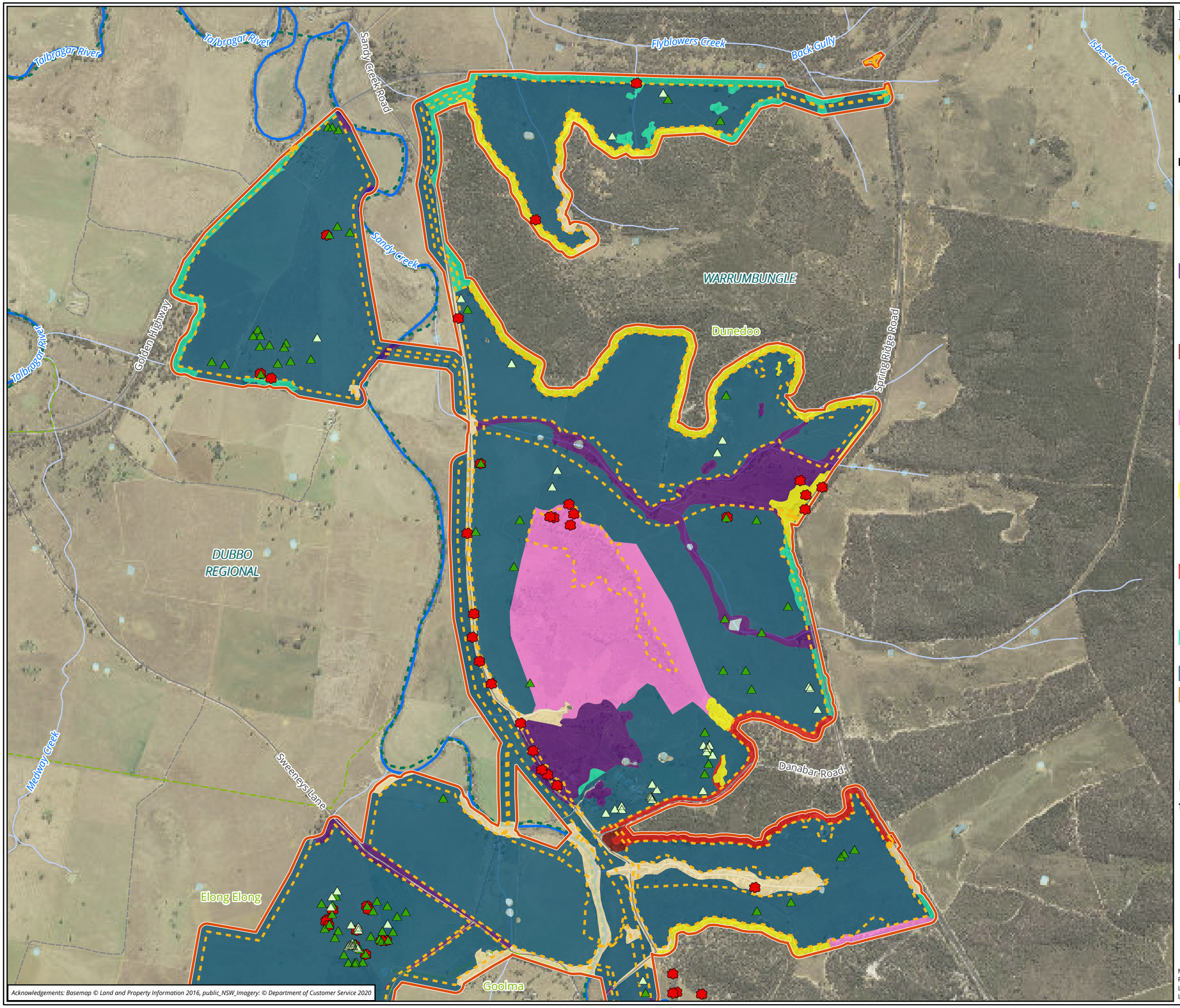
Coordinate System: GDA2020 MGA Zone 55

N

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APEM Group

Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F7_PCTs_Overview



Legend

- Subject land
- Development footprint
- Hollow-bearing tree

Paddock tree class

- 2
- 3

Plant community type

- 201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion
- 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
- 440 - Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
- 467 - Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)
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- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
- 81 - Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
- Cat 1 - Exempt Land
- Non-native vegetation

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Figure 7.1 Vegetation within the subject land

0 500 1,000

Metres

Scale: 1:22,000 @ A3

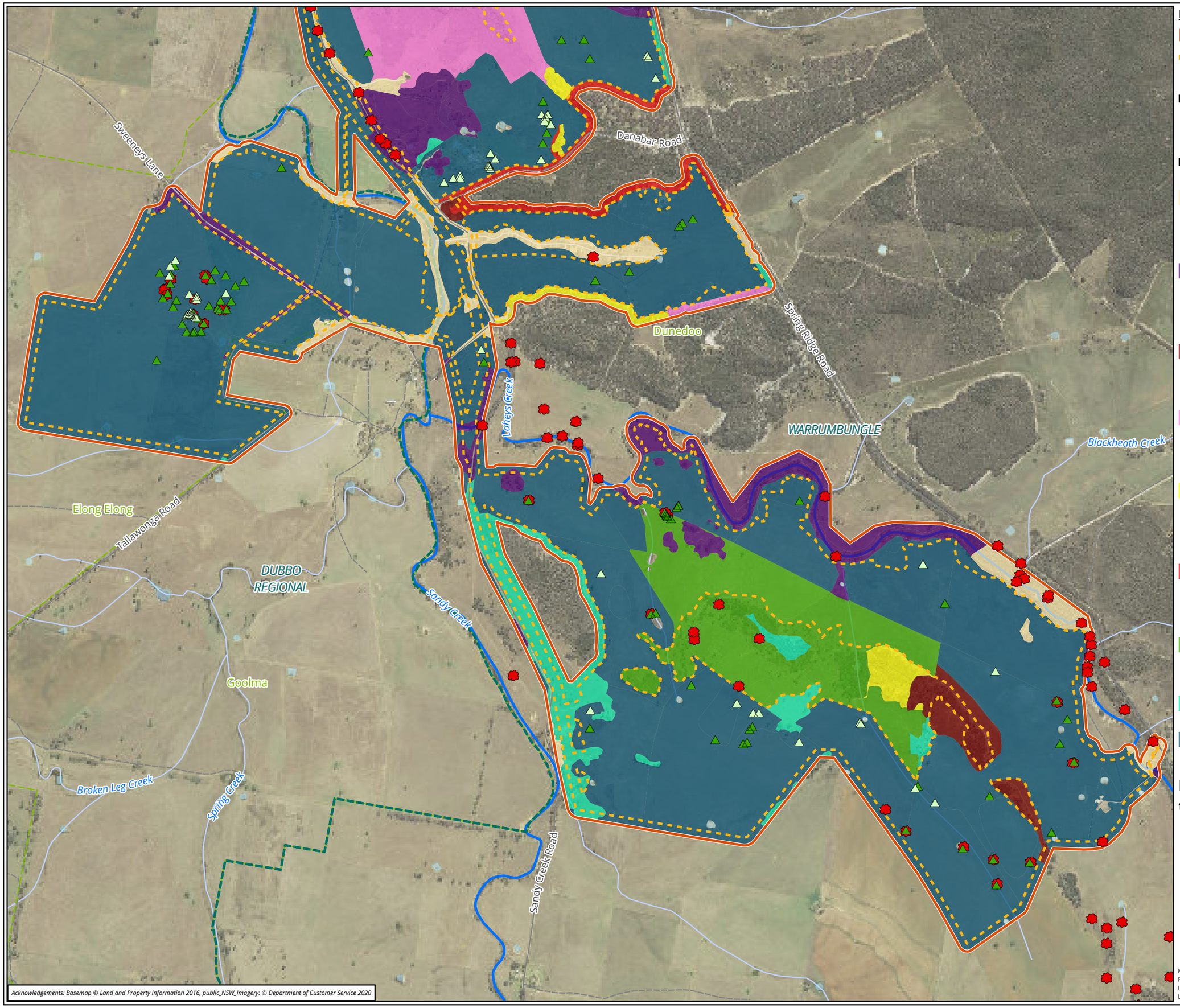
Coordinate System: GDA2020 MGA Zone 55

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Matter: 38235, Date: 22 May 2025,
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Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F7_PCTs



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Legend

- Subject land
- Development footprint
- Hollow-bearing tree

Paddock tree class

- 2
- 3

Plant community type

- 201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion
- 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
- 440 - Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
- 467 - Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)
- 468 - Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
- 599 - Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
- 81 - Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
- Cat 1 - Exempt Land

Figure 7.2 Vegetation within the subject land

0 500 1,000

Metres

Scale: 1:22,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F7_PCTs

3.1.10 Threatened ecological communities

Vegetation within the subject land was found to represent three TECs listed under the NSW BC Act, and two TECs listed under the Commonwealth EPBC Act, as outlined in Table 12 and Table 13 below and illustrated on Figure 8 and Figure 9. A considerable effort has been made to avoid and minimise impacts to the highest value areas of these TECs, with the development footprint avoiding most high and moderate areas. The majority of impacts to TECs occur on low condition areas. This is also linked to avoidance measures discussed in Section 5. Further assessment and descriptions are provided below.

Table 12 Summary of BC Act TECs within the subject land and within 10 km

BC Act TEC	Listing status	Potential TEC within 10km of subject land (Figure 9) (ha)	Subject land (Ha)	Development footprint (ha)
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	EEC	2,373.79	94.05	31.50
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	EEC	383.35	63.89	8.71
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions.	CEEC	2,973.71	260.09	108.44

Table 13 Summary of EPBC Act TECs within the subject land within 10km

EPBC Act TEC	Listing status	Subject land (ha)	Development footprint (ha)
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	EEC	51.06	6.60
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CEEC	82.03	9.25

Grey Box Woodland

Grey Box woodland is listed as Endangered under the EPBC Act and BC Act. PCT 81within the subject land has the potential to form part of both the BC Act and EPBC Act listed TEC. PCT 81 occurs as fringing woodland areas on the lowland alluvial plains at the edge of foot slopes within the subject land. The moderate and low condition state of this PCT met the characteristic description of this TEC under the BC Act where Grey Box *E. microcarpa* is, or was (low condition areas), the most dominant species. Only the moderate condition zone met the criteria for listing of this TEC under the EPBC Act.

An assessment against the listing criteria and EPBC Act policy statement flow charts was completed for both low and moderate condition states. This assessment of plot data and rapid field observations determined only the moderate condition state was likely to meet the condition thresholds for listing under the EPBC Act. The assessment is summarised below in Table 14.

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Table 14 Grey Box Woodland EPBC Act determination PCT 81

Listing criteria	Condition state	
	Moderate	Low
Is the property within or near the area shown on the Grey Box Grassy Woodland distribution map	Yes	Yes
Is at least 50% of the plant cover in the ground layer made up of perennial native species? OR Is at least 10% of plant cover in ground layer made up of perennial native grass species?	Yes - 50% of the ground cover is not native, however, around 25% of the ground cover is made up of perennial native grass species.	No – perennial groundcover does equate to greater than 50%, although noting on occasion, one species, *Einadia nutans*, can occur in high abundance on occasion.
Is (or was previously) the most common tree species Grey Box	Yes – Current dominant canopy species.	N/A
Is the patch at least 0.5 ha in size?	Yes – all patches are greater than 0.5 ha.	N/A
Do non-grass weeds make up more than 30% of the plant cover in the ground layer?	No – Non grass weeds make up <1% of cover in the ground layer.	N/A
Do trees cover at least 10% of patch?	Yes – Trees cover around 17% and higher of the patch.	N/A
Is the patch bigger than 2 ha?	Yes – All patches are bigger than 2 ha.	N/A
Are there at least 8 trees/ha: a) that contain hollows; or b) have a diameter >60 cm at 1.3 m above ground level?	Yes – No plot data indicates less than 8 trees per ha contain hollows or have a DBH of >60.	N/A
Are there at least 20 live trees/ha with a diameter >12 cm at 1.3 m above ground level?	Yes – Plot and field data indicate at least 20 live trees per ha with a DBH of >12.	N/A
Is at least 50% of the plant cover in the ground layer made up of perennial native species	Yes – Plot data and field observations indicate on average the ground layer is made up of at least 50% perennial native species.	N/A
Result	**The listed national ecological community is present**	**The listed national ecological community is not present for this condition zone**

Box-Gum Woodland

Box-Gum Woodland is listed as Critically Endangered under the EPBC Act and BC Act. PCT 281 and PCT 599 within the subject land have the potential to form part of both the BC Act and EPBC Act listed TEC. Both of these PCTs contain characteristic species of Box-Gum Woodland within the subject land. All condition states of these PCTs meet the characteristic description of this TEC under the BC Act where Yellow Box and co-

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dominant species such as Rough-Barked Apple occur (PCT 281), and Yellow Box and Blakley's Red Gum (PCT 599) is, or was (low and moderate condition areas), the most dominant species.

An assessment against the listing criteria and EPBC Act policy statement flow charts was completed for all condition states. This assessment of plot data and rapid field observations determined only moderate and high condition states are likely to meet the condition thresholds for listing under the EPBC Act. The assessment is summarised below in Table 15.

Table 15 Box-Gum Woodland EPBC Act determination PCT 281 and PCT 599

Listing criteria	Condition state	
	Moderate	**Low**
PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland		
Is, or was previously, at least one of the most common overstorey species White Box, Yellow Box or Blakley's Red Gum?	Yes – co-dominance of Yellow Box and Blakley's Red Gum present alongside Rough-barked Apple.	Yes – Highly likely that prior to clearing a co-dominance of Yellow Box and Blakley's Red Gum occurred alongside the Rough-barked Apple.
Does the patch have a predominately native perennial understorey?	Yes – Plot data indicates the understory is dominated by more than 50% perennial cover.	No – Plot data and rapid floristic data indicates the understory is not above 50% cover threshold.
Is the patch greater than 0.1 ha in size?	Yes – All patches are greater than 0.1 ha.	N/A
Are there 12 or more native understory species present, and at least one important species?	Yes – More than 12 native understory species are present, this is supported by plot data.	N/A
Is patch size greater than 2ha?	N/A	N/A
Does the patch contain more than 20 mature trees per hectare or contain natural regeneration of dominant overstory species?	N/A	N/A
Result	**The listed ecological community is present**	**The listed ecological community is not present for this condition state**
PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland		
	High/Moderate	**DNG (Low)**
Is, or was previously, at least one of the most common overstorey species White Box, Yellow Box or Blakley's Red Gum?	Yes – co-dominance of Yellow Box and Blakley's Red Gum present alongside Rough-barked Apple.	Yes – Highly likely that prior to clearing a co-dominance of Yellow Box and Blakley's Red Gum occurred alongside the Rough-barked Apple.
Does the patch have a predominately native perennial understorey?	Yes – Plot data indicates the understory is dominated by more than 50% cover.	Yes – Plot data indicates the understory is dominated by more than 50% perennial cover. Generally however, these areas have a high native cover, but low species diversity.

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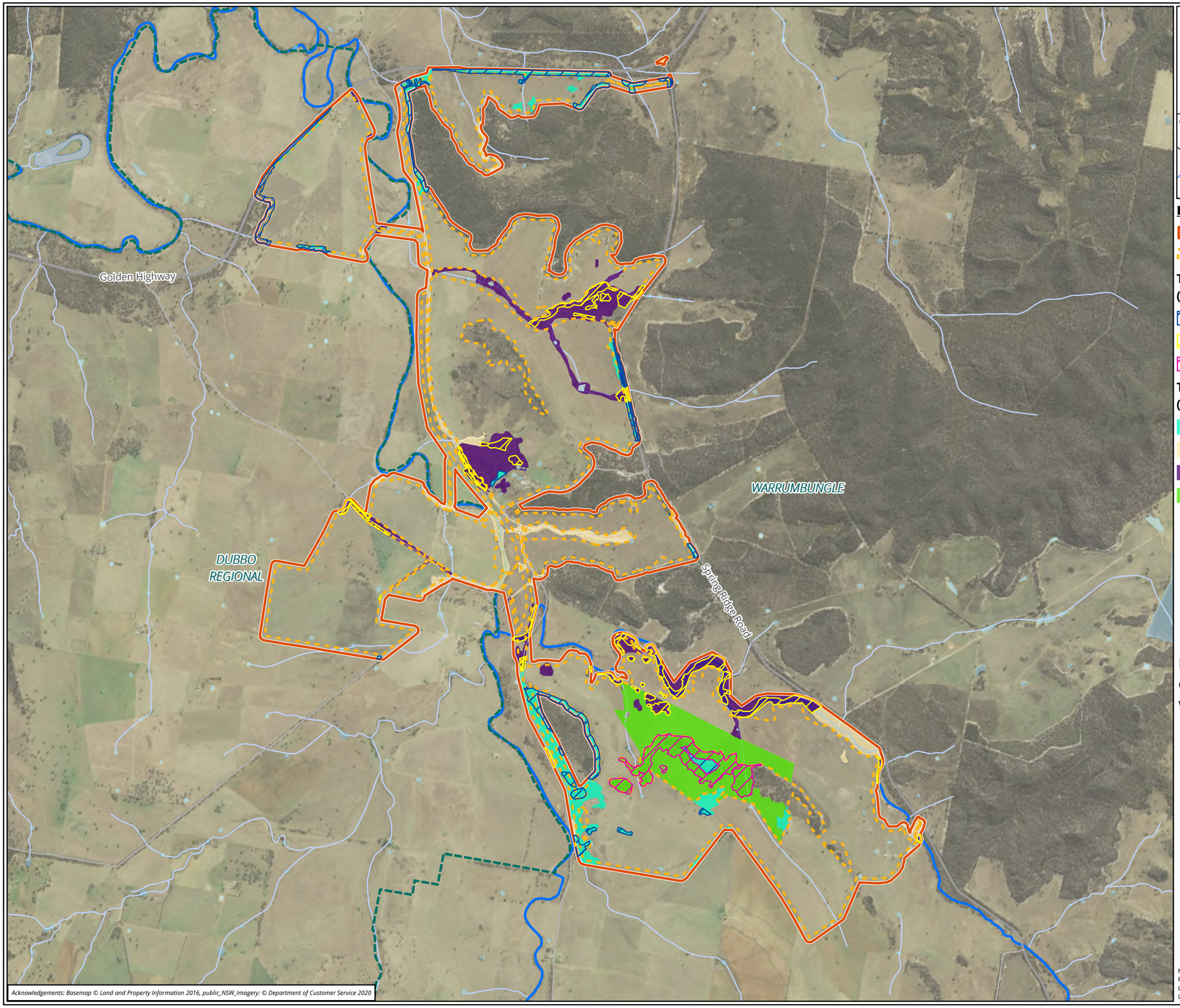
Listing criteria	Condition state	
	Moderate	**Low**
Is the patch greater than 0.1 ha in size?	Yes – All patches are greater than 0.1 ha.	Yes – All patches are greater than 0.1 ha.
Are there 12 or more native understory species present, and at least one important species?	Yes – More than 12 native understory species are present, this is supported by plot data.	Yes – More than 12 native understory species are present on average, this is supported by plot data.
Is patch size greater than 2ha?	**The listed ecological community is present**	Yes - Patch size is greater than 2ha
Does the patch contain more than 20 mature trees per hectare or contain natural regeneration of dominant overstory species?		No – Areas do not contain mature canopy trees and do not contain any natural regeneration of dominant canopy species.
Result		**The listed ecological community is not present for this condition state**

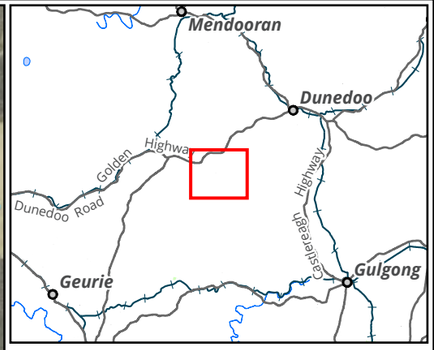
Fuzzy Box Woodland

Fuzzy Box Woodland is listed an Endangered under the BC Act. PCT 201 within the subject land has the potential to form part of the BC Act TEC, and occurs as woodland dominated by, or once dominated by, Fuzzy Box. All condition states of this PCT meet the characteristic description of this TEC under the BC Act, primarily due to;

- The subject land is within the Brigalow Belt South Bioregion.
- The subject land occurs on prior stream, paleochannel or abandoned channel and undulating plain with alluvial or colluvial soils.
- Area identified are dominated by Fuzzy Box with a sparse shrubby understorey and/or open forb and grassy groundcover
- Contains diagnostic tree species on lower slope or valley flat with other species, such as Inland Grey Box, Yellow Box, and Blakely's Red Gum.

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Legend

- Subject land
- Development footprint

Threatened ecological communities (EPBC Act)

- 81 - Inland Grey Box
- 281 - Box Gum Woodland
- 599 - Box Gum Woodland

Threatened ecological communities (BC Act)

- 81 - Inland Grey Box
- 201 - Fuzzy Gum Woodland
- 281 - Box Gum Woodland
- 599 - Box Gum Woodland

Figure 8 Threatened ecological communities within the subject land

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

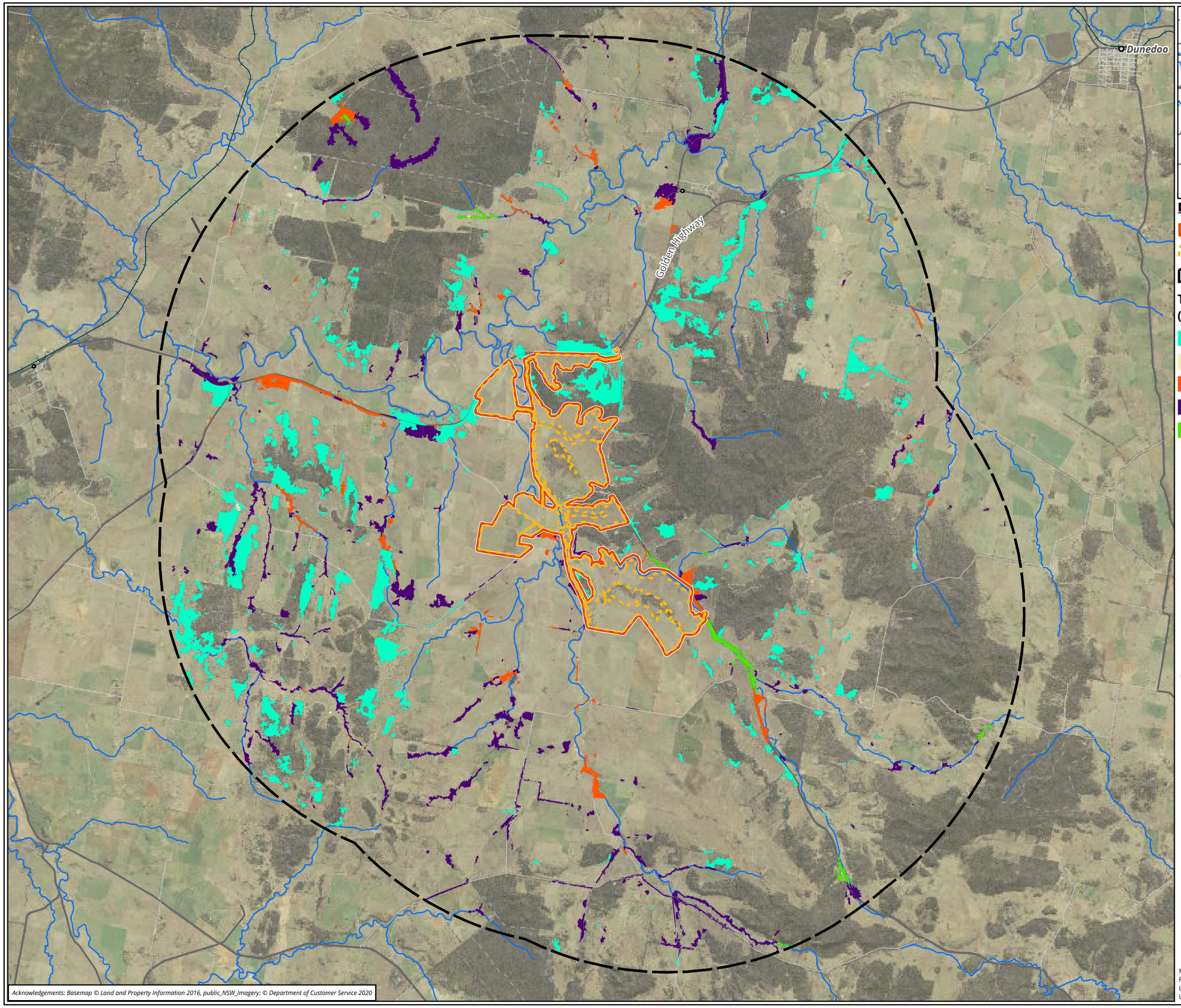
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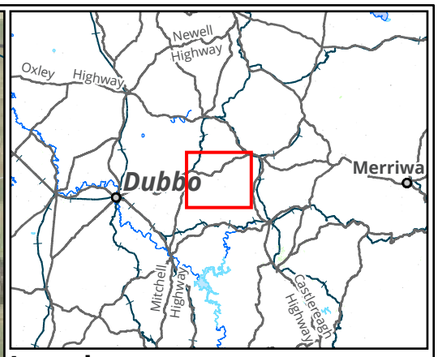
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Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F8_TECs_SL

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Legend

- Subject land
- Development footprint
- Subject land 10km buffer

Threatened ecological communities (SVTM, 2024)

- 81 - Inland Grey Box
- 201 - Fuzzy Box Woodland
- 202 - Fuzzy Box Woodland'
- 281 - Box Gum Woodland
- 599 - Box Gum Woodland

Figure 9 Threatened ecological communities in the broader locality

0 1 2 3 4 5

Kilometers

Scale: 1:110,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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Layout: 38235_F9_TECs_10km

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3.2 Groundwater dependent ecosystems

Review of the Groundwater Dependent Ecosystem (GDE) Atlas (BOM 2020) indicates no aquatic GDEs are present within the subject land.

An in-depth assessment of terrestrial GDEs was undertaken as part of the Cobbora Coal Project assessment (EMM Consulting 2012) within the subject land. Key findings of this assessment include:

Riparian zones within the subject land occur on sandy loams characterised by Eucalyptus species not typically known for groundwater dependency.

Riparian zones may have shallow aquifers which may be used by riparian vegetation as a water source, particularly in dry periods. Isotopic analysis identified these pools as likely to be derived from rainwater infiltration rather than groundwater.

The groundwater assessment completed as part of the Cobbora Coal Project assessment determined *'As groundwater is 3-5 metres or deeper for the majority of the riparian zone, and therefore likely to be outside the typical rooting depth of the eucalyptus present, these systems are likely to be more reliant on flood events for ecosystem, processes than this groundwater. Therefore groundwater use by terrestrial woodland is likely to be opportunistic rather than dependent'.* (EMM Consulting 2012)

3.3 Vegetation integrity assessment

3.3.1 Vegetation zones and patch size class

PCTs within the subject land were assessed and stratified, based on broad condition state, into vegetation zones in accordance with Section 4.3 of the BAM, and as described in Table 4 to Table 11 above. This resulted in 14 vegetation zones being identified within the development footprint. Table 16 describes each of the zones, and provides details on the numbers of BAM floristic plots undertaken in each zone.

Patch size classes for each vegetation zone present within the subject land were assessed as per Section 4.3.2 of the BAM (DPIE 2020a) using a select process in ArcGIS. All native vegetation with a gap of less than 100 metres for woody vegetation or ≤30 metres for non-woody vegetation from the next area of native vegetation, is considered a single patch, with a patch able to extend onto adjoining land.

Each native vegetation patch was considered to be greater than 100 hectares due to connectivity of vegetated hillcrests leading east of the subject land.

Patch size classes for each vegetation zone are also outlined in Table 16 below, and illustrated on (Figure 6) above. Where plot deficits occur, benchmark data was used to meet the requirements. This is highly precautionary and has resulted in some instances of inflated VI scores as a result. These are identified with an asterisk (*) in the table below. Additionally, zones marked with a double asterisk (**) also contain the number of plots entered into the BAM-C, Other plots were collected however now fall too far outside of the subject land, and therefore, were not used in the assessment.

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Table 16 Vegetation zones in development footprint

Vegetation zone	Plant Community Type	Condition	BAM plots completed	Area (ha)	Max. patch size within subject land
1	81	Low	4	24.90	>100
2	81	Moderate	3	6.60	>100
3*	201	Low	2*	5.91	>100
4	201	Moderate	6	2.80	>100
N/A	281	Cat 1	6	-	>100
5	281	Low	5	42.3	>100
6	281	Moderate	8	9.25	>100
7*	440	Low	1	9.53*	>100
8	440	Moderate	2	0.43	>100
9*	467	Low	3*	39.47	>100
10**	467	Moderate	2**	1.45	>100
11	467	Regrowth	5	46.45	>100
N/A	467	High	1	-	>100
N/A	468	Low	-	-	>100
12	468	Moderate	5	3.97	>100
13	478	Moderate	2**	1.00	>100
14	599	DNG	5	56.88	>100
N/A	599	Moderate	3	0.10	>100
N/A	599	High	-	-	>100

3.3.2 Vegetation integrity

Vegetation integrity, or condition, was assessed using data obtained from undertaking BAM plots within the vegetation zones, as per Section 4.3.4 of the BAM (DPIE 2020a). Plot data was collected via:

- A 20 metre x 50 metre quadrat and 50 metre transect for assessment of site attributes and function.
- A 20 metre x 20 metre quadrat, nested within the larger quadrat for full floristic survey to determine composition and structure of the PCT.

The minimum number of BAM plots per vegetation zone was determined using Table 3 of the BAM (DPIE 2020a). Prior to the reduction of the subject land, 65 BAM plots were completed. Four of the plots are no longer in the subject land and occur south of the subject land, or along Spring Ridge Road. Therefore, 61 BAM plots occur within the subject land and have been completed within the vegetation zones present within or adjacent to the development footprint, details are provided in Table 17 and shown on Figure 10. Several BAM plots included in the assessment are no longer within the development footprint as a result of design refinements over the course of the project, however, are still within the subject land. These plots have been retained for use in the assessment as they are adjacent to the development footprint and are still considered to be representative of the vegetation present within the development footprint.

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Table 17 BAM plots completed within the subject land

BAM plot reference	Vegetation zone	BAM plot reference	Vegetation zone
38235_csf_nov2	81_Low	**38235_csf_110**	467_Moderate
38235_csf_nov22	81_Low	**38235_csf_111**	467_Moderate
38235_csf_nov3	81_Low	**38235_csf_106**	467_Regrowth
38235_csf_nov6	81_Low	**38235_csf_107**	467_Regrowth
38235_csf_100	81_Moderate	**38235_csf_109**	467_Regrowth
38235_csf_nov1	81_Moderate	**38235_csf_nov12**	467_Regrowth
38235_csf_nov4	81_Moderate	**38235_csf_nov13**	467_Regrowth
38235_csf_04	201_Low	**38235_csf_06**	468_Moderate
38235_csf_24	201_Low	**38235_csf_101**	468_Moderate
38235_csf_05	201_Moderate	**38235_csf_105**	468_Moderate
38235_csf_07	201_Moderate	**38235_csf_18**	468_Moderate
38235_csf_nov19	201_Moderate	**38235_csf_nov14**	468_Moderate
38235_csf_nov20	201_Moderate	**38235_csf_01**	478_Moderate
38235_csf_nov5	201_Moderate	**38235_csf_02**	478_Moderate
38235_csf_nov7	201_Moderate	**38235_csf_11**	599_DNG
38235_csf_102	281_Low	**38235_csf_13**	599_DNG
38235_csf_112	281_Low	**38235_csf_15**	599_DNG
38235_csf_26	281_Low	**38235_csf_16**	599_DNG
38235_csf_nov15	281_Low	**38235_csf_17**	599_DNG
38235_csf_nov8	281_Low	**38235_csf_114**	599_Moderate
38235_csf_08	281_Moderate	**38235_csf_12**	599_Moderate
38235_csf_09	281_Moderate	**38235_csf_nov23**	599_Moderate
38235_csf_103	281_Moderate	**38235_csf_104**	Cat 1_Cat 1
38235_csf_113	281_Moderate	**38235_csf_21**	Cat 1_Cat 1
38235_csf_115	281_Moderate	**38235_csf_22**	Cat 1_Cat 1
38235_csf_14	281_Moderate	**38235_csf_nov18**	Cat 1_Cat 1
38235_csf_25	281_Moderate	**38235_csf_nov9**	Cat 1_Cat 1
38235_csf_nov17	281_Moderate		
38235_csf_19	440_Low		
38235_csf_20	440_Moderate		
38235_csf_nov21	440_Moderate		
38235_csf_10	467_High		
38235_csf_108	467_Low		
38235_csf_nov10	467_Low		
38235_csf_nov11	467_Low		

Assessment of vegetation integrity was undertaken using standard benchmark data as outlined in the BAM and held in the BioNet Vegetation Classification database. A list of flora species was compiled for each BAM plot completed and is included in Appendix 3. Records of all flora species will be submitted to NSW DCCEEW for incorporation into the Atlas of NSW Wildlife.

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3.3.3 Vegetation integrity score

Plot data was entered into the BAM calculator to determine vegetation integrity score for the subject land. Plot data are presented in Appendix 3, with vegetation integrity scores for each vegetation zone provided in Table 18.

Table 18 Vegetation zone integrity scores and condition

Vegetation zone	Composition score	Structure score	Function score	VI score*	Hollow-bearing trees present
81_Low	58.9	35.9	37.5	43	Yes
81_Moderate	93	78.2	36.5	64.3	Yes
201_Low*	85	90.4	68	80.6*	Yes
201_Moderate	89.6	90.7	86	88.8	Yes
281_Low	40	46.2	18	32.2	No
281_Moderate	80.5	79.1	47.7	67.2	Yes
440_Low*	97.4	73.9	65.9	78*	No
440_Moderate	65.9	37.5	72.1	56.3	No
467_Low	58.8	31.6	16.4	31.3	Yes
467_Moderate	67.9	52.6	34.1	49.6	No
467_Regrowth	68.7	40.4	14.8	34.5	No
467_High	93.2	31.9	52.1	53.7	Yes
468_Moderate	79.9	38.9	55.7	55.7	Yes
478_Moderate	77	19.2	53.3	42.8	No
599_DNG	49.2	60.6	0.8	14.4	No
599_Moderate	82	83.3	82.	82.5	No

*** Vegetation zones include benchmark plots due to a shortfall in plots collected within the subject land**

As outlined in Section 9.2.1 of the BAM (DPIE 2020a), an offset is required for impacts on native vegetation where the vegetation integrity score is:

- ≥15 where the PCT is representative of an endangered or critically endangered ecological community.
- ≥17 where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or is representative of a vulnerable ecological community.
- ≥20 where the PCT is not representative of a TEC or associated with threatened species habitat.

As such, ecosystem credit offsets are required for all zones except 599_DNG, where the VI score is 14.4 and represents a CEEC.

3.3.4 Scattered trees

An assessment of the impact of clearing scattered trees can be made using the module in Appendix B of the BAM (DPIE 2020a), where:

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- The impacts of clearing or development proposals are for vegetation that meets the definition of scattered trees, and
- The scattered tree is not a threatened species itself nor does it have any record of candidate species credit species (flora or fauna) incidentally using it, and
- The impact is unlikely to be serious or irreversible.

A total of 166 scattered trees are within the development footprint and were entered into the scattered tree calculator. Scattered trees were assigned based on criteria one being:

- Have a percent foliage cover that is less than 25% of the benchmark for tree cover (Table 19) for the most likely PCT and are on Category 2-regulated land and surrounded by Category 1-Exempt Land on the NVR mapping under the LLS Act.

Additionally, many of the scattered trees would also meet the other criteria being

- Have a DBH of greater than or equal to 5 cm and are located more than 50 m away from any living tree that is greater than or equal to 5 cm DBH, and are completely separated by 100 % exotic vegetation, human-made surfaces or bare ground or
- Are three or fewer trees that have a DBH of greater than or equal to 5 cm and are within a distance of 50 m of each other, that in turn, are greater than 50 m away from the nearest living tree that is greater than or equal to 5 cm DBH, and are completely separated by 100 % exotic vegetation, human-made surfaces or bare ground

Table 19 Tree cover benchmarks for relevant PCTs

PCT	Tree cover benchmark value (Average)	25% of benchmark value	Min. m^2 cover of 400m^2 plot (assuming 100% PFC)
81	37%	9.25%	37m^2
201	18%	4.5%	18m^2
281	18%	4.5%	18m^2
468	61%	15.25%	60m^2
599	18%	4.5%	18m^2

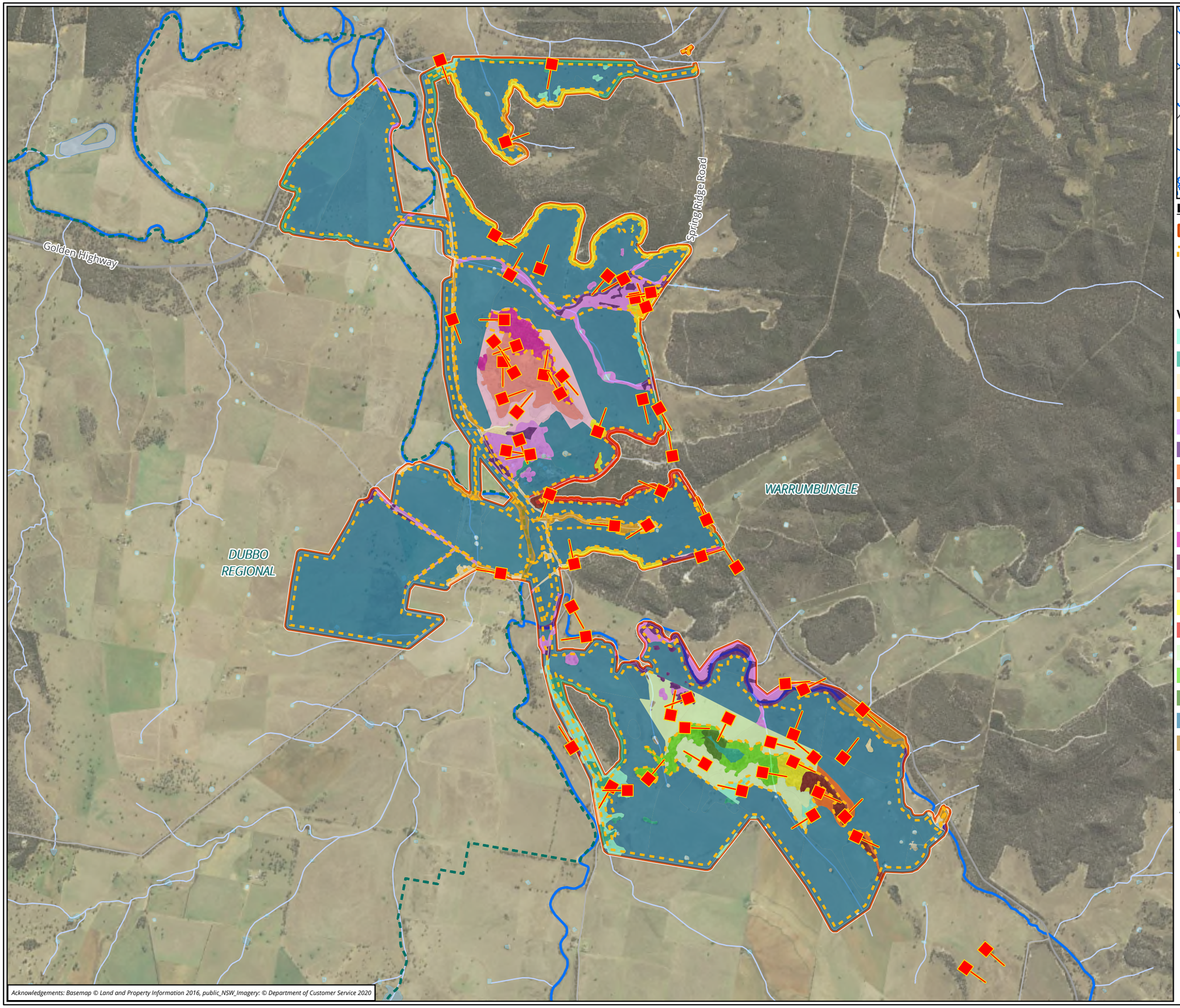
Table 20 below demonstrates a summary of the scattered trees occurring in Category 1-Exempt Land, with associated TEC and PCT. Unverified trees noted in the spatial data are those added following site assessment as a result of not being accessible during surveys, footprint changes or additional areas being added. These have been assigned to the highest class (Class 3) accordingly as a precautionary approach.

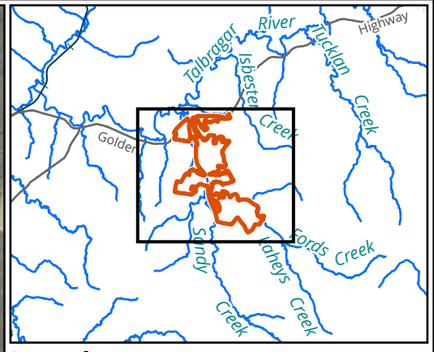
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Table 20 Scattered tree class summary

PCT	Species	Number of trees	Class	Hollows
81	*Eucalyptus blakelyi*	1	2	No
		1	3	No
	Eucalyptus microcarpa	10	2	No
		19	3	Yes
	Callitris glaucophylla	8	2	No
		14	3	No
	Eucalyptus melliodora	1	2	No
	Acacia homalophylla	1	2	No
201	*Eucalyptus conica*	1	2	Yes
		9	3	No
281	*Eucalyptus blakelyi*	9	2	No
		4	3	Yes
	Eucalyptus melliodora	12	2	No
		24	3	Yes
	Angophora floribunda	1	2	No
		5	3	No
	Eucalyptus camaldulensis	1	3	Yes
468	*Callitris endlicheri*	2	2	No
		1	3	No
	Eucalyptus blakelyi	3	2	No
		2	3	No
	Eucalyptus fibrosa	1	2	No
		3	3	No
	Eucalyptus sideroxylon	5	2	No
		1	3	No
599	*Eucalyptus melliodora*	1	2	No
		26	3	Yes
Total		166		

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Legend

- Subject land
- Development footprint
- BAM Plot

Vegetation zone

- VZ1 - 81_Low
- VZ2 - 81_Moderate
- VZ3 - 201_Low
- VZ4 - 201_Moderate
- VZ5 - 281_Low
- VZ6 - 281_Moderate
- VZ7 - 440_Low
- VZ8 - 440_Moderate
- VZ9 - 467_Low
- VZ10 - 467_Moderate
- VZ N/A - 467_High
- VZ11 - 467_Regrowth
- VZ12 - 468_Moderate
- VZ13 - 478_Moderate
- VZ14 - 599_DNG
- VZ N/A - 599_Moderate
- VZ N/A - 599_High
- Cat 1 - Exempt Land
- Non-native vegetation

Figure 10 - Overview Vegetation zones and vegetation plot based surveys

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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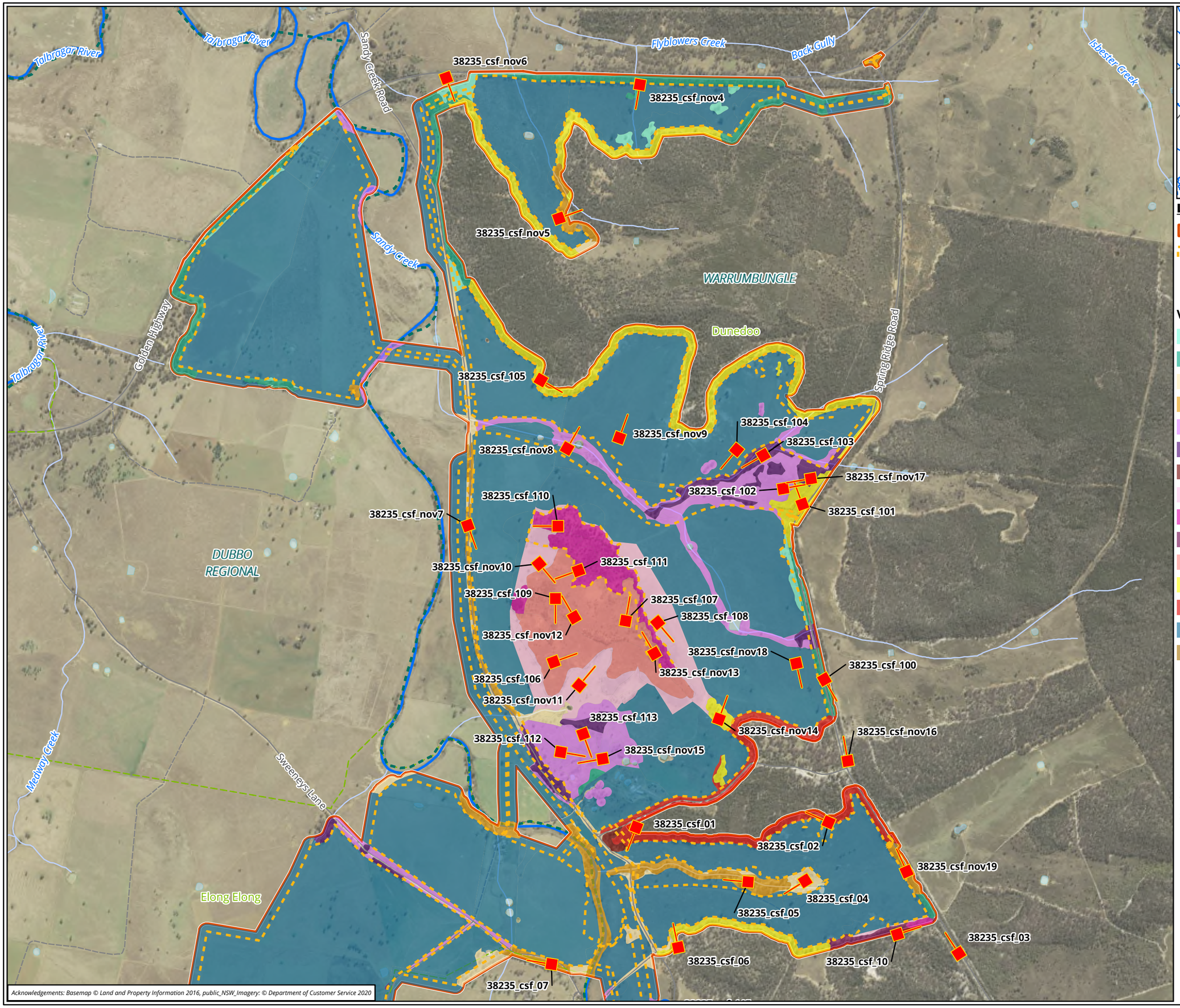
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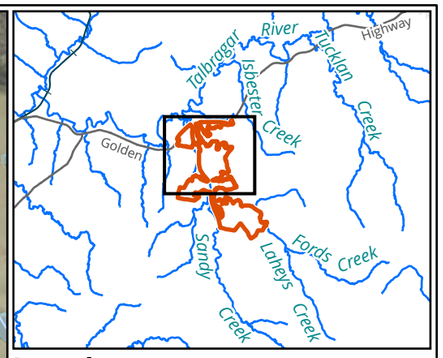
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius

Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx

Layout: 38235_F10_VZs

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020





Legend

- Subject land
- Development footprint
- BAM Plot

Vegetation zone

- VZ1 - 81_Low
- VZ2 - 81_Moderate
- VZ3 - 201_Low
- VZ4 - 201_Moderate
- VZ5 - 281_Low
- VZ6 - 281_Moderate
- VZ8 - 440_Moderate
- VZ9 - 467_Low
- VZ10 - 467_Moderate
- VZ N/A - 467_High
- VZ11 - 467_Regrowth
- VZ12 - 468_Moderate
- VZ13 - 478_Moderate
- Cat 1 - Exempt Land
- Non-native vegetation

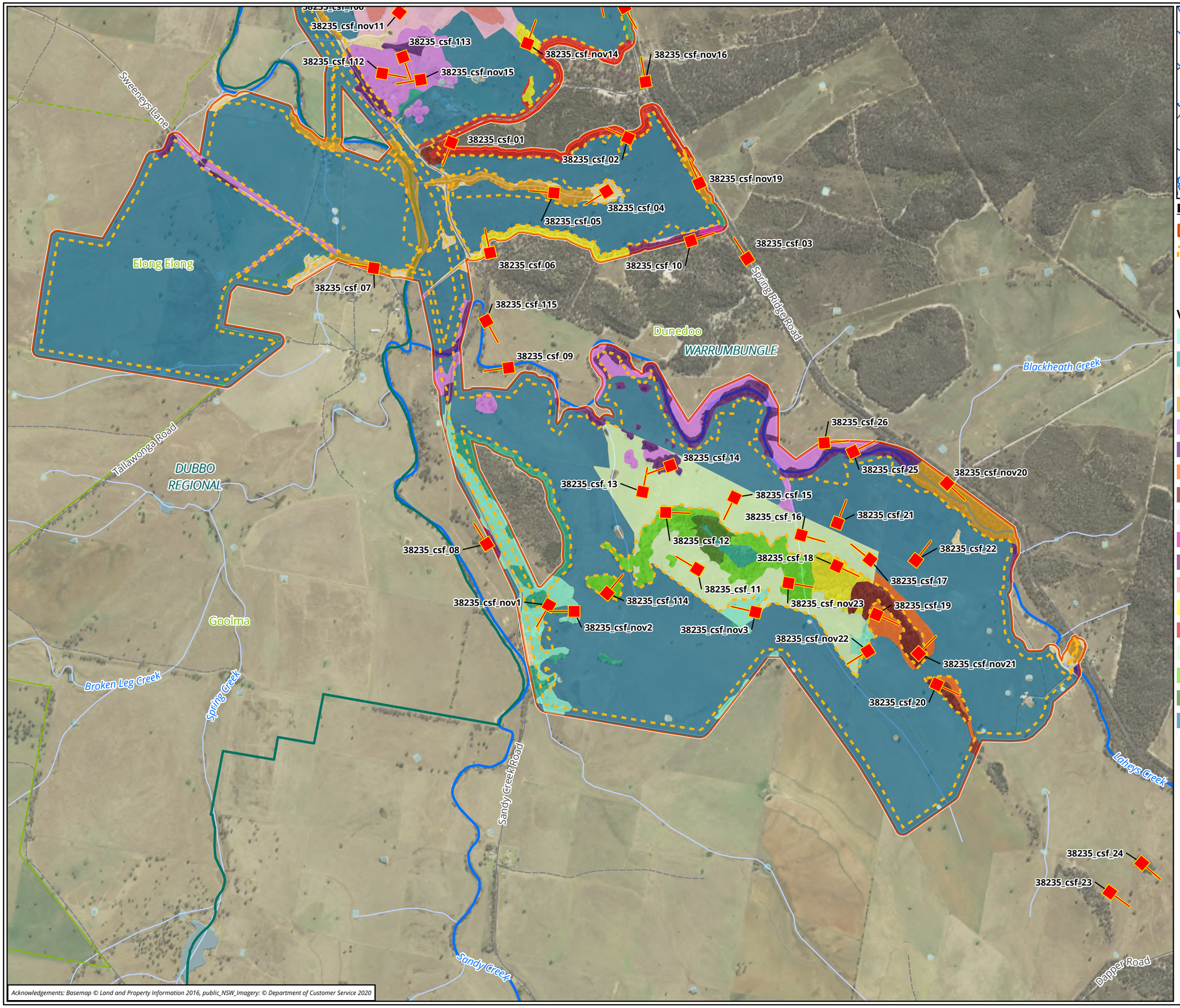
Figure 10.1 Vegetation zones and vegetation plot based surveys

0 500 1,000 N

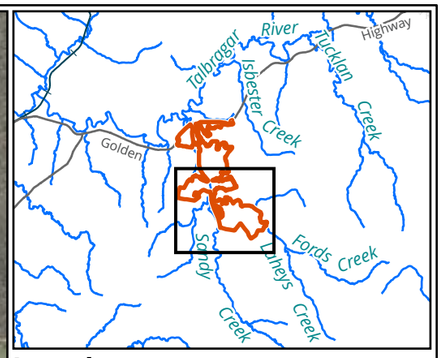
Metres
Scale: 1:22,000 @ A3
Coordinate System: GDA2020 MGA Zone 55

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Matter: 38235, Date: 22 May 2025
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F10_VZs



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Legend

- Subject land
- Development footprint
- BAM Plot

Vegetation zone

- VZ1 - 81_Low
- VZ2 - 81_Moderate
- VZ3 - 201_Low
- VZ4 - 201_Moderate
- VZ5 - 281_Low
- VZ6 - 281_Moderate
- VZ7 - 440_Low
- VZ8 - 440_Moderate
- VZ9 - 467_Low
- VZ10 - 467_Moderate
- VZ N/A - 467_High
- VZ11 - 467_Regrowth
- VZ12 - 468_Moderate
- VZ13 - 478_Moderate
- VZ14 - 599_DNG
- VZ N/A - 599_Moderate
- VZ N/A - 599_High
- Cat 1 - Exempt Land

Figure 10.2 Vegetation zones and vegetation plot based surveys

0 500 1,000

Metres

Scale: 1:24,000 @ A3

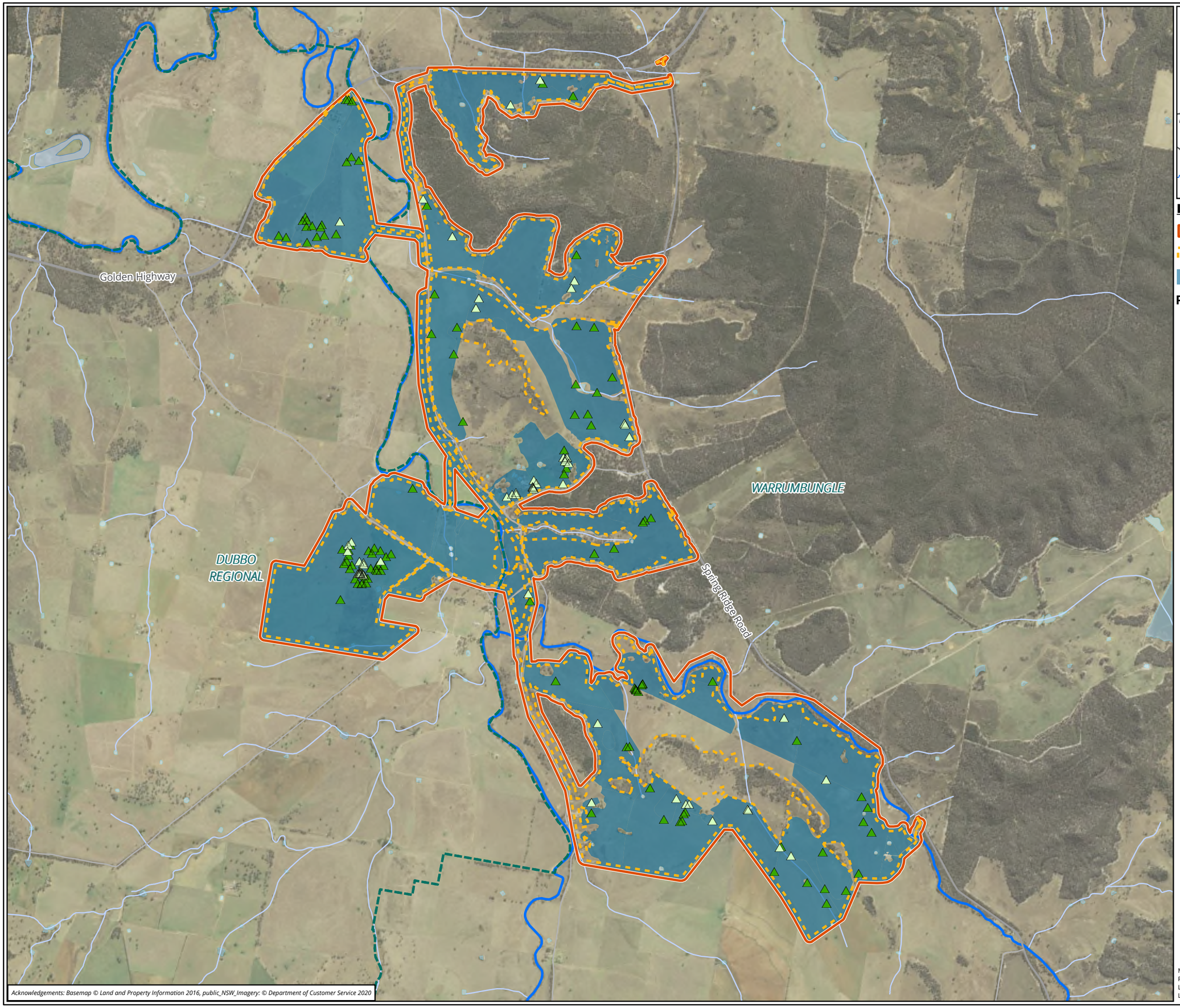
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N

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Matter: 38235, Date: 22 May 2025
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F5-10.aprx
Layout: 38235_F10_VZs



Legend

- Subject land
- Development footprint
- Cat 1 - Exempt Land

Paddock tree class

- 2
- 3

Figure 11 Paddock trees

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

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APEM Group

Matter: 38235, Date: 28 March 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F11-16.aprx
Layout: 38235_F11_PaddockTrees

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

4 Threatened species

4.1 General habitat types and features

The subject land supports extensive cleared and cropped land. The quality of the habitat present across the subject land and paddocks is largely representative of the recent land use history and cropping cycles. Native vegetation and fauna habitat remains and is generally concentrated around watercourses, hillslopes and hillcrests. Typical habitat within the subject land includes woodland and forest, fallen timber, rocky hillcrests, dense shrubland, flowering trees and shrubs, bush rocks, watercourses with pooled water and seasonal rain dependent flows, riparian vegetation, scattered trees, hollow-bearing trees and grassland.

The subject land is connected directly to hillcrests and footslopes of a larger range system to the east and provides connectivity potential to large areas of higher-quality habitat outside the subject land for a range of flora and fauna species. The diversity of habitat within the subject land allows for a range of potential of fauna presence. The subject land hosts woodland, forest, riparian vegetation, grassland and shrubland. Grassland and shrubland within the subject land are derived from the adjacent woodland and forest areas, however, they provide a varied set of foraging resources for many species, especially birds, allowing for both foraging, roosting and breeding habitat. The woodland and forest areas through connectivity to the large range to the east have the potential to support a varying range of woodland bird species including owls, raptors and parrots, including Superb Parrot *Polytelis swainsonii.* The dense and regenerating areas of Sifton Bush, fallen timber and rough barked eucalyptus species present provide foraging and breeding habitat for a range of small bird species including Diamond Firetail *Stagonopleura guttata.* The presence of flowering trees and shrubs, with respect to the large tract of woodland/forest directly east, are likely to seasonally support a range of nectar dependent species, including honeyeaters. The derived grassland areas provide foraging habitat for many ground granivorous birds and ground dwelling birds such as parrots and common quail species.

HBTs were observed within the woodland and forest areas, these trees were generally smaller in diameter due to the shallow rocky nature of the soil and history of disturbance. The majority of HBTs were identified on the slopes, plains, road reserves and watercourses. Many fauna are hollow dependent, requiring the resource for roosting and breeding. Many of the scattered trees present were hollow-bearing and as such, are less likely to be used by mammal species such as Squirrel Glider due to the distance between HBTs and foraging resources. HBTs within the subject land are likely to support a range of common fauna species such as cockatoos and small parrots. However, they may support microbat species, with hollows utilised for roosting (and breeding for some species), and foraging occurring in nearby woodland areas.

The grassland, grassy slopes, bush rocks, rocky slopes, rocky crests woodland and forest provide habitat for reptile species including snakes and lizards. The sloped, grassy and rocky soil with partially buried rocks may support foraging and breeding habitat for species such as Pink-tailed Legless Lizard *Aprasia parapulchella.* The network of farm damns present are also likely to support common turtles.

4.2 Ecosystem credit species

A list of predicted species (ecosystem credit species) expected to occur within the subject land was generated as per Section 5 of the BAM (DPIE 2020a). Impacts to these species require assessment, however targeted survey is not required as these species are assumed to occur, based on the occurrence of the PCTs, habitat constraints, native vegetation cover in the landscape and calculated patch sizes. These species are identified as ecosystem credit species in the Threatened Biodiversity Data Collection (TBDC). Table 21 lists the

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ecosystem credit species that could not be discounted, based on geographical restrictions or a lack of suitable habitat, from using the subject land on occasion. A search of relevant government databases, including the BioNet database and the EPBC Act Protection Matters Search Tool (PMST) was also carried out for a 50 kilometre radius around the development footprint, to identify any additional threatened species not identified by the BAM calculator that have significant records present or predicted.

Ecosystem credit species were considered when prescribing management and mitigation measures for the project, and a number have been specifically considered as part of the assessment under the Commonwealth EPBC Act.

Table 21 Ecosystem credit species (predicted species) with potential to occur

Common name	Species name	Recorded during surveys	Sensitivity to gain class
Black Falcon	*Falco subniger*	No	Moderate
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	No	Moderate
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	Yes	High
Corben's Long-eared Bat	*Nyctophilus corbeni*	No	High
Diamond Firetail	*Stagonopleura guttata*	Yes	Moderate
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*	No	Moderate
Flame Robin	*Petroica phoenicea*	No	Moderate
Gilbert's Whistler	*Pachycephala inornata*	No	Moderate
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	Yes	Moderate
Grey-headed Flying-fox	*Pteropus poliocephalus*	No	High
Large Bent-winged Bat	*Miniopterus orianae oceanensis*	No	High
Little Eagle	*Hieraaetus morphnoides*	No	Moderate
Little Lorikeet	*Glossopsitta pusilla*	No	High
Little Pied Bat	*Chalinolobus picatus*	No	High
Malleefowl	*Leipoa ocellata*	No	High
Painted Honeyeater	*Grantiella picta*	No	Moderate
Pink Cockatoo	*Lophochroa leadbeateri*	No	Moderate
Regent Honeyeater	*Anthochaera phrygia*	No	High
Scarlet Robin	*Petroica boodang*	No	Moderate
South-eastern Glossy Black-Cockatoo	*Calyptorhynchus lathami lathami*	No	High
South-eastern Hooded Robin	*Melanodryas cucullata cucullata*	No	Moderate
Southern Whiteface	*Aphelocephala leucopsis*	No	Low
Speckled Warbler	*Chthonicola sagittata*	Yes	High
Spotted Harrier	*Circus assimilis*	No	Moderate
Spotted-tailed Quoll	*Dasyurus maculatus*	No	High
Square-tailed Kite	*Lophoictinia isura*	No	Moderate

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Common name	Species name	Recorded during surveys	Sensitivity to gain class
Superb Parrot	*Polytelis swainsonii*	Yes	Moderate
Swift Parrot	*Lathamus discolor*	No	Moderate
Turquoise Parrot	*Neophema pulchella*	No	High
Varied Sittella	*Daphoenositta chrysoptera*	No	Moderate
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	No	High
White-throated Needletail	*Hirundapus caudacutus*	No	High
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	No	High

4.3 Species credit species

Species credit species are threatened species for which vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence, or components of their habitat. These candidate species are identified as species credit species in the TBDC. A targeted survey or an expert report is required to confirm the presence of these species on the subject land, or alternatively the species can be assumed to be present (DPIE 2020a).

Appendix 2 provides the lists of species credit species predicted to occur within the subject land based on the IBRA subregion(s) on/within which the project occurs, the native vegetation cover present within the 1,500 metre buffer area, the PCTs present within the subject land, and patch sizes listed in Table 16.

The potential for a species to occur within the subject land was assessed in accordance with Section 5.2 of the BAM (DPIE 2020a) and species with geographical restrictions, or habitat constraints not present, were not required to be assessed. Three predicted species credit species have been excluded from occurring within the subject land based on the following

Swift Parrot - No important mapped areas.

Regent Honeyeater – No important mapped areas.

Large Bent wing bat (Breeding) – No cave, tunnel, mine, culvert or other structures known or suspected to be used for breeding including species records with microhabitat.

A detailed assessment of potential for occurrence, and potential for impact, for all species credit species predicted to occur within the subject land is provided in Appendix 2. Species credit species considered to potentially occur within the subject land, and thus considered 'candidate species credit species' have been subject of targeted threatened species surveys, or assumed present where suitable surveys could not be completed.

All candidate species credit species considered as part of this assessment, and their associated method of assessment, are listed in Table 22 (flora species) and Table 23 (fauna species).

Threatened flora

Habitats for threatened flora species within the subject land occur across shrubland, woodland, riparian and grassland communities, including areas of DNG. Some areas of the subject land have been subject to a moderate and high degree of disturbance, including clearing/thinning and grazing and are less likely to

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provide threatened flora habitat, with some areas supporting a very dense regenerating shrub layer. This includes open areas of thinned woody vegetation, trees and small areas of lower condition vegetation generally where cattle congregate around gates and dams. Additionally large areas of Category 1 - Exempt Land provide highly suboptimal conditions for threatened flora.

Table 22 provides a list of candidate flora species credit species considered in this assessment, each species' required survey period. Further detail of the targeted surveys undertaken are provided below section 4.3.1.

Table 22 Candidate flora species credit species assessed via targeted survey

Species name	Common name	PCT/Zone	Survey period	Sensitivity to gain/Biodiversity Risk weighting
Acacia ausfeldii	Ausfeld's Wattle	PCTs 201, 281 and 599 in all condition zones	Aug-Oct	High
Dichanthium setosum	Bluegrass	PCTs 81, 201, 281 and 599 in all condition zones.	Jan – May, Nov-Dec	High
Commersonia procumbens	Commersonia procumbens	Habitat constraints are largely absent from the subject land, however, may occur within PCTs 467, 468 and 478	Jan-May, Aug-Dec	High
Homoranthus darwinioides	Fairy Bells	PCT 468 in all condition zones	Mar-Dec	High
Zieria ingramii	Keith's Zieria	PCT 440, 467 and 468 in moderate condition or greater, excluding low and regrowth condition zones	Jan-Feb, Sep-Dec	High
Indigofera efoliata	Leafless Indigo	PCT 468 moderate	Sep-Oct	High
Diuris tricolor	Pine Donkey Orchid	All PCTs and zones	Sep-Oct	Moderate
Pomaderris queenslandica	Scant Pomaderris	All PCTs and zones	Jan-Dec	High
Swainsona sericea	Silky Swainson-pea	PCTs 81, 201, 281 and 599 in all condition zones	Sep-Nov	High
Tylophora linearis	Tylophora linearis	All PCTS in moderate condition or greater, excluding low and regrowth condition zones	Jan-May, Oct-Dec	High

Threatened fauna

Fauna habitat assessment was undertaken to determine whether the vegetation to be impacted by the project contained microhabitats suitable to support the candidate fauna species credit species, as outlined in Appendix 2.

The subject land provides suitable habitat values for a number of threatened species credit species. Native vegetation including grasslands, shrublands and woodlands provides foraging and nesting habitat for bird species (including Superb Parrot) and may also provide resources for Glossy Black Cockatoo. Grey-crowned Babblers and Superb Parrots were frequently recorded foraging during multiple survey periods. Ephemeral waterways, wetlands, farm dams and low lying areas subject to periodic inundation and adjacent riparian vegetation were found to provide habitat for various common amphibian species such as Common Eastern

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Froglet *Crinia signifera*, Brown-striped Frog *Limnodynastes peroni* and Eastern Banjo Frog *Limnodynastes dumerilii*, however overall abundance was observed to be low.

Open native grassland communities, and DNG areas subject to grazing may provide foraging resources for raptor species such as Little Eagle *Hieraaetus morphnoides* and Square-tailed Kite *Lophoictinia isura*. However open areas of Category 1 exempt lands are unlikely to provide more than marginal foraging habitat for most species. Hollow-bearing trees may be utilised as roosting and/or breeding for owls and bird species such as Glossy Black Cockatoo.

Table 23 provides a list of candidate fauna species credit species considered in this assessment, each species' required survey period. Further detail of the targeted surveys undertaken are provided below section 4.3.1.

Table 23 Candidate fauna species credit species via targeted survey

Common name	Species name	PCT/Zone	Survey period	Sensitivity to gain/Biodiversity Risk weighting
Barking Owl	*Ninox connivens*	All PCTs and zones	Jan - Dec	High
Bush Stone-curlew	*Burhinus grallarius*	All PCTs and zones	Jan - Dec	High
Eastern Pygmy-possum	*Cercartetus nanus*	All PCTs and zones	Jan- Mar, Oct - Dec	High
Grey-headed Flying-fox	*Pteropus poliocephalus*	All PCTs and zones fringing or within riparian areas	Oct-Dec	High
Koala	*Phascolarctos cinereus*	All PCTs and zones	Jan - Dec	High
Large-eared Pied Bat	*Chalinolobus dwyeri*	All PCTs and zones	Jan, Nov-Dec	Very High
Little Eagle	*Hieraaetus morphnoides*	All PCTs and zones	Aug-Oct	Moderate
Masked Owl	*Tyto novaehollandiae*	All PCTs and zones	Jan - Dec	High
Pale-headed Snake	*Hoplocephalus bitorquatus*	All PCTs and zones	Jan-Mar, Nov-Dec	High
Pink Cockatoo	*Lophochroa leadbeateri*	All PCTs and zones	Sep-Dec	High
Pink-tailed Legless Lizard	*Aprasia parapulchella*	All PCTs and zones containing loose or partially embedded rock adjacent to woodland and DNG	-	High
Powerful Owl	*Ninox strenua*	All PCTs and zones	Jan - Dec	High
Sloane's Froglet	*Crinia sloanei*	All PCTs and zones containing areas of inundation, including farm dams	Jul-Aug	Moderate
South-eastern Glossy Black-Cockatoo	*Calyptorhynchus lathami lathami*	All PCTs and zones	Apr-Aug	High

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Common name	Species name	PCT/Zone	Survey period	Sensitivity to gain/Biodiversity Risk weighting
Square-tailed Kite	*Lophoictinia isura*	All PCTs and zones	Jan, Sep-Dec	Moderate
Squirrel Glider	*Petaurus norfolcensis*	All PCTs and zones	Jan - Dec	High
Superb Parrot	*Polytelis swainsonii*	All PCTs and zones	Sep-Nov	High
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	All PCTs and zones	Jul-Dec	High

4.3.1 Threatened species survey details

Targeted threatened species surveys of the subject land were undertaken seasonally over a 2.5 year period from August 2022 through to October 2024. Weather observations for each survey date are shown in Table 24. Some early surveys (2022 and late 2023) and associated weather conditions are not completely known or records easily obtained. Early planning, preliminary surveys and initial winter surveys were conducted by Niche in August 2022 prior to Biosis undertaking the remaining works. Niche data was reviewed and analysed accordingly and included within the additional surveys completed by Biosis.

Table 24 Weather observations during targeted flora and fauna surveys (Dunedoo, NSW)

Survey undertaken	Survey date	Temperature (°C)		Rain (mm)	Rain preceding month (mm)
		Min.	Max.		
Biosis					
Stick nests search, HBTs, Scattered Trees	24/10/2022	15.5	26	0	74
	7/11/2022	13.6	23	0.4	135
	30/11/2023	15.8	26.6	6.2	44.2
	31/1/2023	20.5	31.0	5.8	34
	1/2/2023	18.5	33.3	0.2	121
	2/2/2023	14.4	33.7	0	
Stick nests search, HBTs, Scattered Trees, Koala SAT	8/11/2022	11.6	25.5	0	135
	9/11/2022	11.5	25.5	0.2	
	10/11/2022	10.3	25.8	0.2	
	27/11/2023	12.9	31.7	1.6	44.2
	28/11/2023	17.8	27.5	1.0	
	29/11/2023	16.8	26.8	14.8	
Superb Parrot Area Search and woodland bird survey	28/03/2023	18.8	16.1	4.8	29.2
Camera Trap and Anabat start	18/01/2024	20.0	28.8	32.4	32.4

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Survey undertaken	Survey date	Temperature (°C)		Rain (mm)	Rain preceding month (mm)
		Min.	Max.		
Camera Trap and Anabat collection	15/02/2024	19.8	31.5	0	70.6
Owl Call Playback	12/8/2024	9.5	18.3	0	58.2
	13/8/2024	9.0	19.4	0	
	14/8/2024	12.9	18.5	11	
	15/8/2024	4.8	17.7	0.8	
Threatened flora surveys	14/10/2024	13.2	27.3	0	10.0
	15/10/2024	12.7	22.7	5.2	
	16/10/2024	11.0	16.4	8.0	
	17/10/2024	11.3	27.2	4.6	
	18/10/2024	14.4	28.2	0.7	
Reptile surveys – Pale-headed snake	17/03/2025	14	28.2	0	9.0
	18/03/2025	18	29.0	0	
	19/03/2025	18.6	32.0	0	
	20/03/2025	19.7	34.2	0	
Niche					
Aquatic assessment	22/07/2022	3.5	17.8	0	14.4
	23/07/2022	-0.5	17.8	0	
	24/07/2022	-0.5	17.5	0	
	25/07/2022	5.4	20.2	0.2	
	26/07/2022	8.7	14.1	1.6	
Anabat start, Camera trap start, diurnal woodland birds, spotlighting, amphibian surveys, stick nests	23/08/2022	6.0	17.2	0	35
Diurnal woodland birds, spotlighting, amphibian surveys, stick nests,	27/08/2022	5.8	18.7	0	
Call playback, diurnal woodland birds, spotlighting, amphibian surveys, stick nests, Anabat collection	29/08/2022	6.8	18.3	0	
Stag watching, diurnal woodland	24/08/2022	-0.3	13.5	4.2	
	25/08/2022	1.9	14.2	0	

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Survey undertaken	Survey date	Temperature (°C)		Rain (mm)	Rain preceding month (mm)
		Min.	Max.		
birds, spotlighting, amphibian surveys, stick nests	26/08/2022	2.0	19.1	0	
Camera trap collection	06/02/2023	7.5	34.5	0	121

Information from the Australia Government Bureau of Meteorology website.

Details of surveys undertaken as part of the current assessment are provided below.

Threatened Flora

Survey method and effort

Targeted flora surveys were undertaken by qualified ecologists Mitchell Palmer (Principal Ecologist), Jake Schwebel (Senior Botanist), Paul Price (Principal Botanist), Todd Horton (Botanist), Natasha Zahra (Botanist), Dylan Mason (Ecologist), Stephany Cerato (Botanist). Surveys were undertaken over a total of 484 person hours between

- 24-27 October 2022.
- 7-11 November 2022.
- 30 January-3 February 2023.
- 27 November - 1 December 2023, and
- 14-18 October 2024.

Each ecologist undertook surveys searching via two phase systematic grids in areas of suitable habitat, with additional 10 metre-wide transects completed in between each grid point. Grid spacing was placed at 100 metres x 100 metres and covered all areas of mapped woodland and forest (including derived and regrowth conditions) within the subject land. An additional 500 metre x 500 metre grid system was designed within areas of Category 1 – Exempt Land. Survey was designed as far as practicable to maximise the likelihood of detection of targeted threatened flora species by grouping flora species considered likely to be consistently detected through survey according to optimal months of survey and specific associated habitat. Geospatial data was recorded using a handheld GPS, and illustrated in Figure 12**.**

Justification of survey method and effort

Survey guidelines followed included:

- Section 5 of the BAM to determine the potential for threatened species identified under the BAM as 'ecosystem credit species' and 'species credit species' to occur (DPIE 2020a).
- *Surveying threatened plants and their habitats NSW survey guide for the Biodiversity Assessment Method* (DPIE 2020b).
- *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities* (DEC 2004).

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This survey effort has been achieved by a combination of both grid searches and transects and in accordance with the *NSW Surveying threatened plains and their habitats for the BAM*. During initial field planning, and based off early layouts, the areas of zones were not known, and therefore, a precautionary grid was applied across all likely habitats. A total of 1,130, 100 metre x 100 metre grid points were mapped to be surveyed, alongside 21, 500 metre x 500 metre grid points within Category 1 – Exempt Land. The surveyed area for each grid point was 0.126 hectares (a 40 metre buffer on each grid point). A total of 954, 100 metre x 100 metre grid points and six 500 metre x 500 metre grid points were surveyed in total. Not including the area covered within additional transects between each grid point, the survey area consisted of 120.20 hectares within suitable habitat.

The survey effort is considered sufficient given the percentage of coverage achieved in regard to what is representative to the development footprint.

Timing of survey

Survey was conducted in relation to requirements in the TBDC survey guidelines as far practicable. Prior to commencing survey, reference populations in each season for *Diuris tricolor, Dichanthium setosum and Swainsona sericea* were checked to confirm flowering of this species.

Survey personnel and relevant experience

Targeted flora surveys were undertaken by the Biosis ecologists listed in Table 25.

Table 25 Targeted flora survey personnel and relevant experience

Staff member	Role	Relevant experience
Mitchell Palmer	Manager – Ecology and GIS (NSW) BAM Accredited Assessor Principal Ecologist	Over 14 years' experience and key expertise in the identification of native flora, vegetation communities and avifauna species throughout NSW, including conducting flora and fauna surveys.
Paul Price	Principal Botanist	Over 20 years' experience and key expertise in the identification of native flora, vegetation communities and avifauna species throughout NSW, including conducting flora surveys.
Stephanie Cerato	Botanist	Four years' experience conducting threatened flora surveys within NSW.
Jake Schwebel	Senior Botanist	Four years' experience conducting threatened flora surveys within NSW.
Natasha Zahra	Botanist	Three years' experience conducting threatened flora surveys within NSW.
Kit King	Botanist	Three years' experience conducting threatened flora surveys within NSW.
Dylan Mason	Botanist	Two years' experience conducting threatened flora surveys within NSW.
Todd Horton	Botanist	Two years' experience conducting threatened flora surveys within NSW.

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Results

One threatened flora species was recorded within the subject land, being Pine Donkey Orchid *Diuris tricolor*. Pine Dinkey Orchid was identified in two isolated populations within the subject land. One occurred in the north, and one in the south. The population identified in the north occurred adjacent to PCT 81 and PCT 468, and on areas fringing Category 1 - Exempt Land. Four individual plants were identified in the north. A larger population was identified towards the south, with 116 individuals estimated as present across 25 data points. The southern population occurred within PCT 201 and PCT 81.

At two locations previously included within the subject land, in an area of rocky hillcrest west of Spring Ridge Road and north of Lahey's Creek, two populations of Keith's Zieria *Zieria ingramii* were identified. Two data points were taken, the western most point representing around 20 individual plants and the eastern most point representing around 14 plants. Both populations were identified in PCT 468. A known population of this species occurs directly east in higher elevated areas, in rocky habitat and hillcrests.

Table 26 provides a summary of the results of the targeted flora surveys completed.

Table 26 Summary of targeted flora survey method and results

Species name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Acacia ausfeldii	Ausfeld's Wattle	• Grid and transect searches	Species not identified	N/A
Dichanthium setosum	Bluegrass	• Grid and transect searches	Species not identified	N/A
Commersonia procumbens	Commersonia procumbens	• Grid and transect searches	Species not identified	N/A
Homoranthus darwinioides	Fairy Bells	• Grid and transect searches	Species not identified	N/A
Zieria ingramii	Keith's Zieria	• Grid and transect searches	Two populations identified adjacent to subject land. No other occurrences found within subject land, habitat avoided and subject land reduced to exclude this area.	N/A
Indigofera efoliata	Leafless Indigo	• Grid and transect searches	Species not identified	N/A
Diuris tricolor	Pine Donkey Orchid	• Grid and transect searches	Two populations identified	4.5 ha
Pomaderris queenslandica	Scant Pomaderris	• Grid and transect searches	Species not identified	N/A
Swainsona sericea	Silky Swainson-pea	• Grid and transect searches	Species not identified	N/A
Tylophora linearis	Tylophora linearis	• Grid and transect searches	Species not identified	N/A

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Limitations

As previously mentioned in Section 3.1.7 and stated above, ecological surveys provide a sampling of flora and fauna at a given time and season. Factors influencing detectability of species during survey include species dormancy, seasonal conditions, ephemeral status of waterbodies, and migration and breeding behaviours of some fauna. In many cases, these factors do not present a significant limitation to assessing the overall biodiversity values of a site.

Application of the threatened flora guidelines (*Surveying Threatened Plants and Their Habitats* (DPIE 2020b)) with their current intent was not practicable at certain times due site access, dense vegetation, wet weather, design refinements, and uncertain factors such as the requirements for significant road upgrades for transport purposes. A modified and fluid approach of grids being applied to all potential habitats, supported by transects in between points, across three seasons, was considered appropriate. Consultation with RDD on this change to approach was not undertaken in detail, however Biosis considers the effort applied, with the site characteristics and habitat parameters mentioned throughout, is considered representative and scientifically robust.

Fauna habitat assessments

Fauna habitat assessment was undertaken to determine the presence of microhabitats and other critical habitat components (habitat constraints) suitable for all fauna species outlined in Table 23 and Appendix 2. Habitat assessments focussed on the presence of the following features within the subject land:

- Habitat trees including large and/or HBTs, stick nests, availability of flowering shrubs and canopy/understorey feed tree species.
- Soil type.
- Condition and type of native vegetation and the presence of exotic species.
- Presence and condition of pools and waterways.
- Quantity of ground litter and woody debris.
- Searches for indirect evidence of fauna (i.e. feathers, tracks and scats).
- General degradation of the site as a result of past and current disturbances such as vegetation clearing and industrial land management practices.
- Topography and landscape morphology.

Several habitat features with potential to support threatened species credit species were identified during these habitat assessments. These features have been summarised in Table 27.

Table 27 Habitat features with potential to support threatened species credit species

Habitat feature	Presence within the development footprint
Hollow-bearing trees	Habitat trees supporting hollows of a variety of size classes from small (<50 mm diameter) through to extra-large (> 400 mm diameter) were present across the subject land. These trees have the potential to provide breeding resources for a range of native fauna species including threatened owls. HBTs in riparian areas connected to woodland and forest can support tree adapted species such as Pale-headed Snake.
Feed tree species	Trees and shrubs providing food resources for a range of bird species including Superb Parrot, Grey-crowned Babbler, Brown Treecreeper and more common species such as

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Habitat feature	Presence within the development footprint
	Red-rumped Parrots and Eastern Rosella occur. A range of tree species at varying elevations, including riparian zones and forest on hillcrests are present.
Open grassland	Areas of open grassland provide foraging resources for large raptors species such as Little Eagle, Spotted Harrier and Square-tailed Kite, as well as owls. Open grassland and cropped land occur. Cropped land is a resource for many raptor species. Derived grasslands within the subject land occur on plains and slopes of hills and support common ground foraging birds such as parrots, alongside reptile species including snakes and lizards.
Derived shrubland	Sifton Bush within the subject land has regrown in historically cleared areas providing dense shrubland habitat. This habitat supports foraging, breeding and refuge for small bird species including Diamond Firetail and Speckled Warbler.
Watercourses and waterbodies (i.e. dams)	Perennial and non-perennial watercourses and drainage lines occur within the subject land. These watercourses hold seasonal water, generally in association with rain events. Pooled water within watercourse areas provide refuge for freshwater species. During periods of flowing water, freshwater fish species may be present. A network of dams occurs across the subject land, dams provide permanent water are utilised by many common fauna species, especially common ducks, cormorants, ibis, crayfish and turtles. Riparian vegetation in association with watercourses are often preferred breeding location for raptor species and provide a network on connectivity across the landscape. Riparian habitat in drier environments can support species such as Pale-headed Snake.
Woody debris and leaf litter	Woody debris and leaf litter was prevalent in the remnant vegetation patches across the subject land especially on hillcrests and in area of dense vegetation, providing potential foraging habitat for birds, raptors and owl species. Reptile species utilise this habitat, including lizards and snakes.
Rocky crests and buried rocks	Rocky habitat on hillcrests and partially buried rocks provide valuable resources for reptiles species. Rocky habitat provides heat sources for basking, with foraging occurring between rocky areas. Rocky habitat provides shelter and refuge between cracks and gaps for small species including common lizards. Partially buried rocks, especially on slopes and in grassland provide habitat for legless lizard species and many invertebrates that common lizard species forage on.

Field capture of detailed fauna habitat information allowed for confirmation of presence/absence of habitat features and microhabitats for a range of candidate threatened species across surveyed portions of the development footprint. Fauna habitat assessments were captured using ArcGIS polygons attributed with specific habitat criteria that allowed for planning of further targeted survey for select species, or the exclusion of the potential for occurrence of various candidate species from the subject land.

Nocturnal birds (Barking Owl, Masked Owl, Powerful Owl and Bush Stone-curlew)

Survey method and effort

Owls

Habitat assessments, including the detailed mapping of HBTs and opportunistic surveys were undertaken. This assessment concluded there were HBTs with the potential to support breeding of owl species within the subject land. A 1 kilometre buffer was applied to each HBT identified with the potential to support owl species, this was utilised to focus survey effort.

Stag watching, spotlighting and call playback were completed.

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Stag watching was completed by Niche between 24 – 26 August 2022. A total of 26 suitable HBTs were selected and observed for 20 minutes at dusk. A total of six hours was completed over 3 days. Appropriate HBT stags were selected based on location and suitability of hollow size.

Spotlighting for Barking Owl, Masked Owl and Powerful Owl was completed by Niche in five transect locations covering a broad area from 23 – 27 and 29 August 2022. A total of six spotlighting nights was completed. Each transect length was between 500 metres to 3,500 metres long.

Call playback was completed by Niche in five locations on 29 August 2022. Call playback was completed by Biosis 12 – 15 August 2024 in six locations. A total of five call playback nights was completed. Each call playback location was placed at least 1.5 kilometres apart. Call playback points allowed for a broad coverage of the subject land.

Additional to this Niche deployed three audio recording (songmeters) between 23 August 2022 – 29 August 2022 targeting Bush Stone-curlew, Barking Owl, Powerful Owl and Masked Owl. A total of 13 nights of recording data was captured.

Bush Stone-curlew

Spotlighting for Bush Stone-curlew was completed concurrently with owl survey with the same survey effort and methods detailed above excluding stag watches.

Justification of survey method and effort

Owls

The survey effort undertaken was completed prior to changes implemented in March 2024, when the BAM-C and TBDC were updated with new guidance and data regarding forest owls. However the survey effort completed is considered to meet the new (current) requirements. The combination of four separate approaches, completed in suitable time periods in both 2022 and 2024 provides strong evidence these species are unlikely to be present within the subject land. Alongside this, only four HBTs were identified as containing hollows greater than 40 centimetres in diameter. Of the 35 HBTs identified as containing large hollows 15-40 cm in diameter, eight occurred in trees with a DBH of 50 centimetres or less. The remaining 21 occurred in trees with a DBH greater than 50 centimetres, with six occurring in trees with a DBH greater than 100 centimetres. The data collected indicates that hollow competition for these species is likely to be high within the subject land, with many of the HBTs identified within the subject land noted as being occupied by common resident fauna species such as Galahs and Sulphur-crested Cockatoos.

Bush Stone-curlew

Bush Stone-Curlew survey effort totalled six spotlighting nights and five call playback nights, alongside audio recording analysis. This survey effort is in accordance with the guidelines.

Survey personnel and relevant experience

Surveys were undertaken by the Biosis ecologists outlined in Table 28.

Table 28 Targeted nocturnal bird survey personnel and relevant experience

Staff member	Role	Relevant experience
Joel Nicholson	Senior Zoologist	5 years' experience conducting threatened fauna surveys within NSW.

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Staff member	Role	Relevant experience
Rachael Moore	Zoologist	4 years' experience conducting threatened fauna surveys within NSW.

Results

None of the target owl species or Bush Stone-Curlew were recorded.

Table 29 provides a summary of the results of the targeted nocturnal bird surveys completed.

Table 29 Summary of nocturnal bird survey method and results

Species Name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Tyto novaehollandiae	Masked Owl	• Habitat assessment and hollow bearing tree assessment. • Stag watching. • Spotlighting. • Call playback.	No evidence of Owl use within suitable habitat	N/A
Ninox connivens	Barking Owl	• Habitat assessment and hollow bearing tree assessment. • Stag watching. • Spotlighting. • Call playback.	No evidence of Owl use within suitable habitat	N/A
Ninox strenua	Powerful Owl	• Habitat assessment and hollow bearing tree assessment. • Stag watching. • Spotlighting. • Call playback.	No evidence of Owl use within suitable habitat	N/A
Burhinus grallarius	Bush Stone-curlew	• Habitat assessment. • Spotlighting. • Call playback.	No evidence of Bush Stone-curlew use within suitable habitat	N/A

Diurnal birds

Survey method and effort

Diurnal bird surveys were completed between 2022 and 2024. Diurnal bird surveys included transects, areas searches, raptor and diurnal bird point surveys and stick nest surveys.

Stick nest searches were completed across the subject land, these searches were completed alongside other surveys including area searches, HBT and scattered tree assessments and raptor surveys. Stick nest surveys were completed by Niche 23 – 27 August 2022 and 29 August 2022. Stick nest searches were completed by Biosis 7 – 11 November 2022 and 27 November – 1 December 2023. All stick nests identified were recorded and classified into size categories.

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Diurnal area searches for Bush Stone-curlew were completed by Niche 23 – 27 August 2022 and 29 August 2022 in areas of suitable habitat. Area searches for Superb Parrot were completed by Biosis 7 – 11 November 2022 and 27 November – 1 December 2023 assessing hollows to determine if breeding individuals were present.

Diurnal survey transects were completed by Niche 23 – 27 August 2022 and 29 August 2022, all species seen during diurnal transects were recorded. Raptor and diurnal bird point surveys were completed by Niche 23 – 27 August 2022 and 29 August 2022 and by Biosis 7 – 11 November 2022 and 27 November – 1 December 2023. Raptor and diurnal bird point surveys were completed by observing all species within visible and identifiable range, generally around two hectares. Raptor surveys were completed alongside stick nest assessments and covered broad areas of the subject land, including category 1 exempt land. A total of 17 accumulated days were spent across 2022 and 2023, amounting to around 85 hours survey effort.

Additional to this, camera traps were placed by Niche 23 August 2022 and collected on the 6 February 2023 amounting to 167 camera trap nights per device. A total of 19 cameras were deployed. An additional four camera traps were deployed by Biosis 18 January 2024 - 15 February 2024, amounting to an additional 28 days of camera trap data per device. Two of the Biosis camera traps were placed near previously surveyed locations and two were placed in areas not previously subject to camera trap assessment. All of the camera trap data was analysed by Biosis. Camera trap surveys were targeted Bush Stone-curlew alongside threatened mammal species (discussed further below).

Justification of survey method and effort

NSW DCCEEW is developing survey guidance for many threatened bird species (DPE 2023c). Methods employed as part of this assessment for Superb Parrot, South-eastern Glossy Black-cockatoo, and threatened raptors included:

- Survey for the presence of eucalypts containing hollows that are at least 9 m above the ground, and with hollow diameter of 10 cm or larger.
- Survey for the presence of breeding on site as follows; (a) begging birds of any age or sex; or (b) lone adult males identified during the breeding season (April to August); or (c) an occupied nest.
- Survey for the presence of living or dead eucalypt trees containing hollows greater than 5 cm diameter and greater than 4 m above the ground (or with a DBH of greater than 30 cm).
- Survey for the presence of nest trees supporting large stick nests.

Currently, the TBDC stipulates a staged approach for the detection of breeding. This includes the identification of signs of breeding (presence of the species during breeding season) and potential nest trees (suitable hollow-bearing trees).

The survey methods and effort completed by Biosis are considered to fulfil the requirement of diurnal bird species requiring survey.

Survey personnel and relevant experience

Diurnal bird surveys were undertaken by the Biosis ecologists outlined in Table 30.

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Table 30 Targeted diurnal bird survey personnel and relevant experience

Staff member	Role	Relevant experience
Tara Lillicot	Zoologist	3 years' experience conducting threatened fauna surveys within NSW.
Joel Nicholson	Senior Zoologist	5 years' experience conducting threatened fauna surveys within NSW.

Results

Table 31 provides a summary of the results of the diurnal bird surveys completed. Grey-crowned Babbler *Pomatostomus temporalis*, Brown Treecreeper (eastern subspecies) *Climacteris picumnus victoriae,* Diamond Firetail *Stagonopleua guttata* and Superb Parrot *Polytelis swainsonii* were identified within the subject land.

Superb Parrot was not identified breeding within the subject land. Flocks of adult and juvenile birds were observed foraging however the active searches did not identify any hollows in use for breeding. There are three main breeding areas within the south-west slopes of NSW, bounded by Molong, Rye Park, Yass, Coolac, Cootamundra and Young, which are all a substantial distance to the south of the subject land. This species has a preference for breeding within Eucalypts along watercourses, and have been known to forage up to 7 kilometres from breeding locations. Superb Parrots tend to remain within or near their breeding territories throughout the year, especially if suitable habitat and food sources are available but will undertake local movements or dispersals, particularly young birds seeking new territories or breeding opportunities which is likely the behaviours seen within the subject land, and more commonly on the central and north western slopes.

The HBT data collected indicates that hollow competition for Superb Parrot, and other threatened hollow-dependent bird species is likely to be high within the subject land. Many of the HBTs identified within the subject land were noted as occupied by common resident fauna species such as Galahs and Sulphur-crested Cockatoos.

Only common fauna species and livestock were identified during the camera trap survey effort. No threatened species were recorded.

Stick nests were identified during the targeted survey. No large active stick nests were observed, however eight large non-active stick nests were identified. Small to medium nests were detected regularly, with most in use by common species such as Ravens, Brown Falcons and Nankeen Kestrels.

No other large nests suitable for White-bellied Sea-Eagle, Little Eagle, or Square-tailed Kites were detected.

Table 31 Summary of diurnal bird survey method and results

Species Name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Polytelis swainsonii	Superb Parrot	• Hollow bearing tree surveys. • General diurnal bird surveys • Opportunistic surveys • Area search for breeding hollows	This species was observed foraging through the subject land. No evidence of breeding was observed or likely to	N/A

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Species Name	Common name	Survey method	Survey results	Species Polygon (ha) or count
			occur within this region	
Hieraaetus morphnoides	Little Eagle	• Targeted nest surveys in September 2022 and September 2023	This species was not observed during multiple surveys. No suitable nests were observed.	N/A
Lophoictinia isura	Square-tailed Kite	• Targeted nest surveys in September 2022 and September 2023	This species was not observed during multiple surveys. No suitable nests were observed.	N/A
Haliaeetus leucogaster	White-bellied Sea-Eagle	• Targeted nest surveys in September 2022 and September 2023	This species was not observed during multiple surveys. No suitable nests were observed	N/A
Lophochroa leadbeateri	Pink Cockatoo	• Hollow bearing tree surveys. • General diurnal bird surveys • Opportunistic surveys	This species was not observed during multiple surveys	N/A
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	• Hollow bearing tree surveys. • General diurnal bird surveys • Opportunistic surveys	This species was not observed during multiple surveys	N/A

Amphibians – Sloane's Froglet

Survey method and effort

Niche completed a rapid aquatic assessment alongside aural and visual frog surveys. The aquatic assessment was completed at seven sites and included a water quality assessment of six sites 22 June 2022 – 26 June 2022. Aural and visual surveys were completed 23 August 2022 – 27 August 2022 and 29 August 2022. Four transect lines on drainage lines and dams were surveyed, with each site surveyed four times.

Call playback for Sloane's Froglet was undertaken 12 August 2024 – 15 August 2024 by Biosis. Transects 500 metres long were surveyed along creek lines and drainage lines on four repeat nights. Call playback points were completed every 50 metres along each transect for five minutes. Survey points were completed at farm dams. Each farm dam survey point consisted of an approximate 10-minute survey, allowing for adequate call play back and return call assessment time.

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Justification of survey method and effort

Niche and Biosis targeted surveys were planned and completed in accordance with the "NSW survey guidelines for Threatened frogs".

The survey effort completed across 2022 and 2024, in multiple locations in accordance with the guidelines is considered sufficient.

Survey personnel and relevant experience

Amphibian surveys were undertaken by the Biosis ecologists outlined in

Table 32.

Table 32 Amphibian survey personnel and relevant experience

Staff member	Role	Relevant experience
Joel Nicholson	Senior Zoologist	5 years' experience conducting threatened fauna surveys within NSW.
Rachael Moore	Zoologist	4 years' experience conducting threatened fauna surveys within NSW.

Results

Table 33 provides a summary of the results of the amphibian surveys completed. Sloane's Froglet was not detected. Only common amphibian species were identified, seen and/or heard calling.

Table 33 Summary amphibian survey method and results

Species name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Crinia sloanei	Sloane's Froglet	• Rapid aquatic assessment. • Aural and visual survey. • Call playback.	This species was not observed or heard calling during multiple surveys.	N/A

Microbats

Survey method and effort

Ultrasonic microbat calls were recorded from dusk until dawn using Titley Scientific Anabat Express (Full Spectrum upgrade) and Anabat Swift ultrasonic recorders, fitted with omnidirectional microphones. Default settings for trigger, sensitivity, sampling rate and minimum / maximum frequency were used. Each time a bat flies past the detector, its call is recorded as a digital file (defined here as a 'pass') that is saved directly onto a memory card in the detector unit. Files were recorded in full spectrum format (.wav). Default settings for trigger, sensitivity, sampling rate and minimum / maximum frequency were used. Units were set on trigger mode to record at night. Units were located in flyways within target habitat areas to allow space in front and around the microphone to minimise echoes from hard surfaces, call attenuation from surrounding vegetation, and ensure adequate flight space around the microphone.

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Anabat devices were deployed 18 January 2024 - 15 February 2024, amounting to 81 detector nights of call data. Units were deployed at four locations in the subject land representing a variety of habitats. Units were located to allow space in front and around the microphone to minimise echoes from hard surfaces, call attenuation from surrounding vegetation, and ensure adequate flight space around the microphone. Representative images of detector deployments are shown below. All units were deployed at ground level (between 1-2 metres above the ground).



Plate 4 – examples of detector set up within the subject land.

Justification of survey method and effort

Survey was undertaken with reference to the following guidelines:

- *'Species credit' threatened bats and their habitats: NSW survey guide for the Biodiversity Assessment Method* (NSW Office of Environment and Heritage, 2018).
- *Survey guidelines for Australia's threatened bats* (Department of the Environment, Water, Heritage and the Arts, 2010).

Timing of survey

Surveys were undertaken in summer during the optimal recording times for the target species. Surveys were undertaken over 28 nights, and a total of 81 detector nights, to allow a broad spectrum of data collection.

Survey personnel and relevant experience

Microbat surveys were undertaken by the Biosis ecologists outlined in Table 34.

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Table 34 Targeted microbat survey and data analysis personnel and relevant experience

Staff member	Role	Relevant experience
Caragh Heenan	Senior Zoologist	Seven years' experience conducting threatened fauna surveys within NSW
Felicity Williams	Senior Zoologist – Bat Ecology	Over 12 years' experience in bat call data analysis.
Sarah Tobin	Senior Zoologist	Over 10 years' experience in bat call data analysis.

Results

Species identification was first refined by using known species geographic distributions (Churchill 2008, Australasian Bat Society 2022) to generate a list of species with potential to occur at the site. Species identification was guided by the probability of occurrence at the site based on distribution, database records obtained from NSW BioNet and known habitat values at each detector point and across the site more broadly.

Files not containing bat calls (noise files) were filtered out using a standard "allbats" filter in Anabat Insight and not included in further analysis.

A custom decision tree was used to sort remaining files into likely species and species groups.

Calls were identified by visually comparing the spectrogram and call characteristics (e.g. characteristic frequency and call shape) with reference calls and descriptions from available reference materials (Reinhold et al. 2001, Pennay, Law, & Reinhold 2004).

A call (pass) was defined as a sequence of five or more consecutive pulses of similar frequency and shape. Identification was not attempted for sequences with less than five defined consecutive pulses (unless for readily identifiable species such as the White-striped Freetail-bat *Austronomus australis*). Sequences with less than five pulses were also not included in metrics of activity. Similarly, sequences containing multiple bats or pulses with irregular frequency and / or shape (non-search-phase calls) were not identified to species.

The focus of call analysis was to generate a list of species present, with a focus on threatened species. Once a species was positively identified, it was recorded as present. Species identification was not attempted for all files recorded. Where a threatened species was not recorded through the decision tree, additional checks were used to improve confidence that a false negative was not recorded including target frequency filters and manual review.

Due to variability in the quality of calls and difficulty in distinguishing some species a conservative approach was taken when analysing calls and assigning an identification. The identification of each call was assigned a confidence rating (Duffy et al. 2000) as summarised in Table 35.

A total of 38,296 files were recorded by the four detectors over 81 detector nights. Of these, 22,286 files (58%) were deemed to be likely bat passes. A total of 19 % of potential bat calls were manually reviewed, with 275 sequences representing the range of call diversity being subject to quality assurance by multiple observers. The majority of the data fell between 26-49 kHz. The maximum activity recorded per night was 794 passes (10/2/2024) and the minimum was 43 passes (21/1/2024). Lowest average activity comprised 111 bat passes per night, with highest average activity found to be 354 bat passes per night.

Table 36 provides a summary of the results of the microbat surveys completed.

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Table 35 Bat call confidence ratings

Identification	Description
C – Almost certain	Call characteristics diagnostic, matching those described in reference material, including species reference calls.
PR – Probable	Call most likely to represent a particular species, but there exists a low probability of confusion with species of similar call type or frequency, or call lacks sufficient detail (e.g. call quality) to be definite.
SG – Species Group	Call characteristics (e.g. frequency, shape) overlap with other species or call lacks sufficient detail (e.g. call quality) making it too difficult to distinguish between species.
X – Not Detected	Of the data analysed, no calls were attributable to this species.

Ultrasonic analysis confirmed the presence of the following threatened bat species:

- Large (Eastern) Bent-winged Bat *Miniopterus orianae oceanensis.*
- Yellow-bellied Sheathtail-bat *Saccolaimus flaviventris.*

Although the Large (Eastern) Bent-winged Bat was recorded, no suitable breeding habitat occurs within the subject land, and is therefore likely to be transient or foraging only. No Large eared Pied bats were detected.

The data contained a low number of sequences at or above 49 kHz. This suggests that activity of species that call at this frequency is likely to be low in the subject land. The species which may occur in the locality calling at this frequency include Little Forest Bat *Vespadelus vulturnus*, Eastern Cave Bat *Vespadelus troughtoni* and Chocolate Wattled Bat *Chalinolobus morio*. The results of the analysis suggest it is unlikely that Eastern Cave Bat is present at the site given the low volume of data in the correct frequency range for the species, and the lack of suitable habitat.

Table 36 Summary of microbat survey method and results

Species name	Common name	BC Act status	EPBC Act status	Identification
Austronomus australis	White-striped Free-tailed Bat	-	-	C
Chalinolobus gouldii	Gould's Wattled Bat	-	-	C
Chalinolobus morio	Chocolate Wattled Bat	-	-	C
Miniopterus orianae oceanensis	Large (Eastern) Bent-winged Bat	V	-	C
Ozimops petersi	Inland Free-tailed Bat	-	-	C
Ozimops planiceps	South-eastern Free-tailed Bat	-	-	C
Ozimops ridei	Ride's Free-tailed Bat	-	-	C
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	C
Scotorepens balstoni	Inland Broad-nosed Bat	-	-	C
Scotorepens greyii	Little Broad-nosed Bat	-	-	C
Vespadelus darlingtoni	Large Forest Bat	-	-	C
Vespadelus regulus	Southern Forest Bat	-	-	C
Vespadelus vulturnus	Little Forest Bat	-	-	C
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	SG

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Species name	Common name	BC Act status	EPBC Act status	Identification
Nyctophilus geoffroyi	Lesser Long-eared Bat	-	-	SG
Nyctophilus gouldi	Gould's Long-eared Bat	-	-	SG
Ozimops lumsdenae	Northern Free-tailed Bat	V	-	SG
Scotorepens sp.	Parnaby's Broad-nosed Bat	-	-	SG
Vespadelus troughtoni	Eastern Cave Bat	V	-	SG
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	X
Chalinolobus picatus	Little Pied Bat	V	-	X
Rhinolophus megaphyllus	Eastern Horseshoe Bat	-	-	X

Limitations

Ultrasonic sampling is associated with a number of limitations. Detectability of bats relates to the intensity of their calls, their flight characteristics and the structure of the surrounding vegetation, all of which influence the distance over which a bat can be detected. Differences in the probability of detection may result in reduced likelihood of recording and therefore positively identifying some species as present within a site.

Natural and sampling variability in detected bat calls tends to be very high, with night-to-night differences due to minor changes in weather conditions alone being a substantial variable (Law et al. 2015). To reduce the influence of this, sampling was undertaken across multiple nights. Survey was undertaken where possible, during weather conditions considered suitable for bats, to maximise accurate sampling of activity.

A recorded call constitutes a measure of relative bat activity, but does not reflect species abundance. The number of calls provides a comparable index of activity to estimate the foraging selectivity of individual species between sampling sites. Manual call analysis is also associated with limitations including the sometimes arbitrary selection of useable calls and subjectivity of the observer. Time vs frequency graphs of calls assigned to each species have been provided to improve transparency of which calls were attributed to a species.

Mammals (Grey-headed Flying-fox, Spot-tailed Quoll, Koala, Squirrel Glider, Eastern Pygmy Possum)

Survey method and effort

A habitat assessment was completed by Biosis including all creek lines for evidence of Grey-headed Flying-fox camps, alongside diurnal searches for Koala completed by Biosis 7 – 11 November 2022 and 27 November – 1 December 2023.

Camera traps were placed by Niche 23 August 2022 and collected on 6 February 2023 amounting to 167 camera trap nights per device. A total of 19 cameras were deployed. An additional four camera traps were deployed by Biosis 18 January 2024 - 15 February 2024, amounting to an additional 28 days of camera trap surveys (or another 112 days/nights). Two of the Biosis camera traps were placed near previously surveyed locations and two were placed in areas not subject to previous camera trap assessment. All of the camera trap data was analysed by Biosis. Camera trap surveys by Niche were targeting Bush Stone-curlew. The camera trap surveys completed by Biosis were also placed to support survey effort for Squirrel Glider and Eastern Pygmy Possum.

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Spotlighting for nocturnal mammals was completed by Niche in five transect locations covering a broad area from 23 – 27 and 29 August 2022. A total of six spotlighting nights was completed. Each transect length was between 500 metres to 3,500 metres long.

Koala SATs were completed by Biosis on 9 November 2022 – 10 November 2022 and 27 November 2023 – 29 November 2023. A total of nine SAT points were completed in areas of suitable habitat. SAT points were based on appropriate grid survey spacing for habitat patch size. Each SAT point consisted of a scat assessment of a central tree and 29 surrounding trees in a radial pattern.

Survey guidelines were planned and completed in accordance with the NSW *Threatened biodiversity survey and assessment working draft* and *Koala BAM survey guide.*

Justification of survey method and effort

The survey effort completed was undertaken over suitable time periods from 2022 to 2024. Extensive camera trap data supplemented by spotlighting, habitat assessment, SAT and diurnal searches is considered sufficient. Alongside this, extensive vegetation and opportunistic surveys have been completed over a broad time period adding weight to the justification of the absence of Koala.

Survey personnel and relevant experience

Mammal surveys were undertaken by the Biosis ecologists outlined in Table 37.

Table 37 Mammal survey personnel and relevant experience

Staff member	Role	Relevant experience
Caragh Heenan	Senior Zoologist	7 years' experience conducting threatened fauna surveys within NSW
Joel Nicholson	Senior Zoologist	5 years' experience conducting threatened fauna surveys within NSW.
Rachael Moore	Zoologist	4 years' experience conducting threatened fauna surveys within NSW.

Results

Table 38 provides a summary of the results of the mammal surveys completed. No threatened mammal species were detected only common and exotic mammal species were identified.

Table 38 Summary of frog survey method and results

Species name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Phascolarctos cinereus	Koala	• SAT searches • Area searches • Spotlighting • Camera trap surveys	This species was not observed or heard calling during multiple surveys.	N/A
Pteropus poliocephalus	Grey-headed Flying-fox	• Active search for camps • Spotlighting	This species was not observed calling during multiple surveys.	N/A

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Species name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Cercartetus nanus	Eastern Pygmy-possum	• Area searches • Spotlighting • Camera trap surveys	This species was not observed calling during multiple surveys.	N/A
Petaurus norfolcensis	Squirrel Glider	• Spotlighting • Camera trap surveys	This species was not observed calling during multiple surveys.	N/A

Reptiles (Pink-tailed Legless Lizard and Pale-headed Snake)

Survey method and effort

Habitat assessment was completed for Pale-headed Snake through assessment of field data, targeted survey and spatial data. This species was considered initially as to be excluded based on microhabitat requirements and efforts to avoid suitable habitats, however due to design refinements including riparian lands suitable for this species, and a revision of more up to date literature review and advice, this species has subsequently been surveyed for. Potential habitat for this species was identified within PCTs 81, 468, 201 and 281. Targeted surveys including active search, spotlighting and funnel trapping were completed across the subject land across four nights between the 17 March to 21 March 2025. Surveys were conducted within suitable and adjacent riparian habitats and woodlands containing hollow bearing trees. Targeted survey was completed in accordance with the Threatened Reptiles Biodiversity Assessment Method survey guide. In total, eight trap lines were set, containing a total of 42 funnel traps, equalling 168 trap nights. Traps were spaced between logs and grass clumps in this case that would have permitted some funnelling. Trap lines were placed within suitable habitat (treed zones containing hollows and vine tangles) targeting areas with aquatic habitat where possible. Traps were checked each morning at sunrise from 6am. Traps were checked again at sunset around 8pm while also undertaking spotlighting.

Suitable habitat for Pink-tailed Legless Lizard occurs in the grasslands, rocky hillcrests and sloping hillsides within the subject land. This species is often associated with partially buried rocks and logs, with a preference for flat partially buried rocks. This association is linked with the presence of small ants, of which the species feeds on and shelters within the nests. Biosis completed rock turning over 7 November 2022 – 11 November 2022 and 27 November 2023 – 1 December 2023. Rock turning was completed in areas of suitable habitat for Pink-tailed Legless Lizard. As required by the guidelines, 200 rocks were turned for every five hectares. Rock turning transects occurred as a meander through areas with suitable habitat, between 100 -800 metres in length. Rock turning was completed in the early morning or late evening when thermal temperatures are ideal. Four rock turning transects were completed, amounting to around 1500 metres of transect.

This species was considered initially to be excluded based on microhabitat requirements and efforts to avoid suitable habitats, however due to design refinements including riparian lands suitable for this species, and a revision of more up to date literature review and advice, this species has subsequently been surveyed for.

Justification of survey method and effort

Habitat assessment and rock turning was completed in accordance with the NSW *Threatened reptiles BAM survey guide* released the same week targeted surveys were commenced. Pink-tailed Legless Lizard is conspicuous, and rock turning was completed in accordance with the guidelines.

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The *Threatened reptiles Biodiversity Assessment Method* survey guide suggests, where possible, undertaking surveys 1-2 days after rainfall and on humid nights (>70% humidity) for Pale-headed Snake. Minimal rainfall had occurred prior to the surveys, however relative humidity was above 70% across three of the survey nights, with exception to one night in which it was a monthly low of 38%. Ambient temperatures throughout the survey were above the >18°C required by the guide, with exception of one night which was marginally lower at >14°C, coinciding with the lower humidity on that night as well, however other snake and lizard activity was noted on that night, and caught within the funnel traps.

Survey personnel and relevant experience

Reptile surveys were undertaken by the Biosis ecologists outlined in Table 39.

Table 39 Reptile survey personnel and relevant experience

Staff member	Role	Relevant experience
Bret Stewart	Associate Zoologist	Fifteen years' experience conducting threatened fauna surveys within NSW.
Tara Lillicot	Zoologist	3 years' experience conducting threatened fauna surveys within NSW.
Joel Nicholson	Senior Zoologist	5 years' experience conducting threatened fauna surveys within NSW.

Results

Table 40 provides a summary of the results of the reptile surveys completed. the target species were not detected.

Table 40 Summary of reptile survey method and results

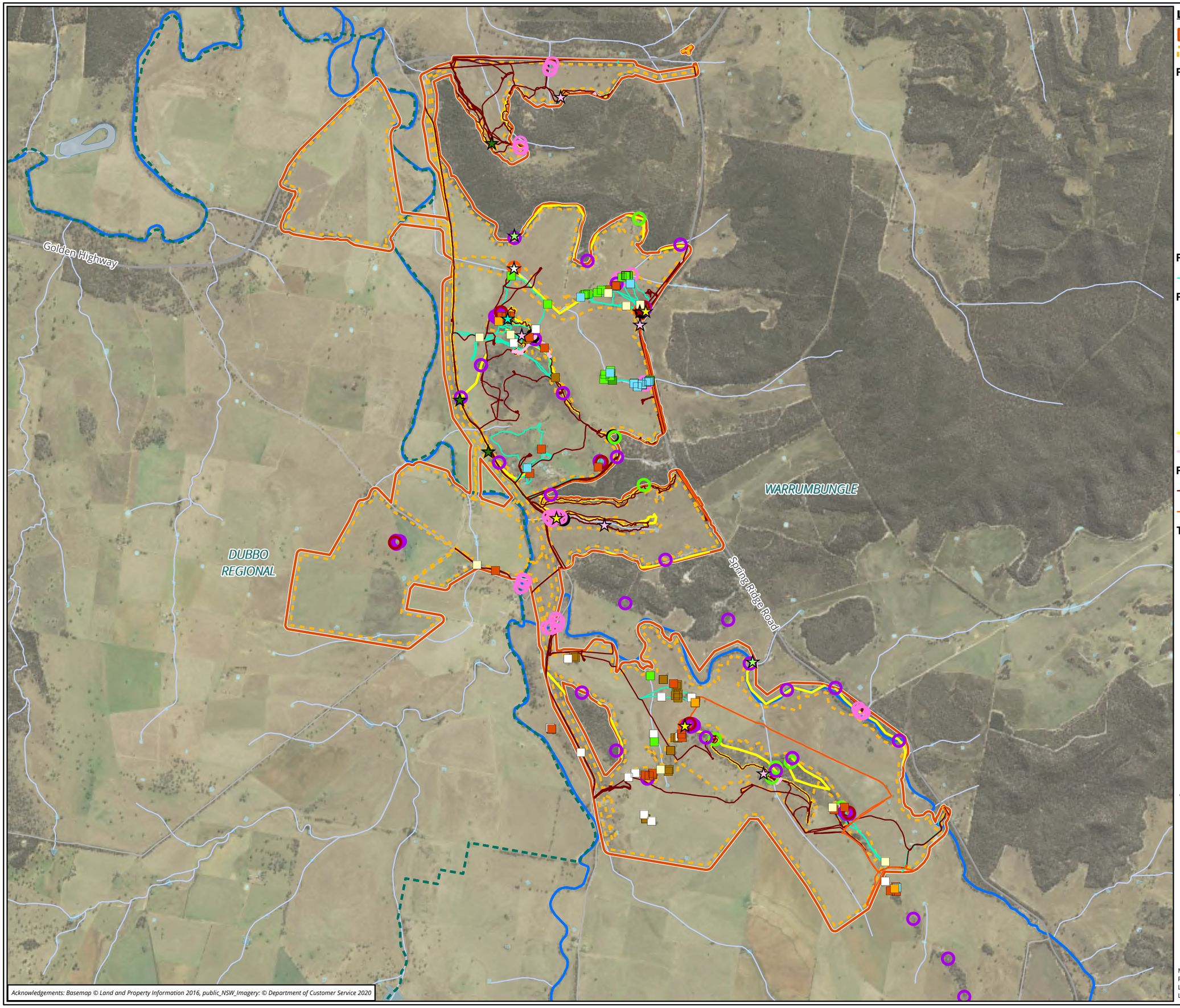
Species name	Common name	Survey method	Survey results	Species Polygon (ha) or count
Hoplocephalus bitorquatus	Pale-headed Snake	• Habitat assessment	Assumed presence no targeted survey	N/A
Aprasia parapulchella	Pink-tailed Legless Lizard	• Rock turning	Species was not identified	N/A

4.3.2 Incidental flora and fauna surveys

The following threatened species were recorded during incidental surveys undertaken as part of the current assessment:

- Grey-crowned Babbler *Pomatostomus temporalis* (Vulnerable – BC Act) – Multiple observations within the subject land and roadside vegetation.
- Brown Treecreeper (eastern subspecies) *Climacteris picumnus victoriae* (Vulnerable – BC Act, Vulnerable – EPBC Act) – observed in woodlands.
- Diamond Firetail *Stagonopleua guttata* Vulnerable – BC Act, Vulnerable – EPBC Act) – observed in woodlands and shrubland.

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Legend

- Subject land
- Development footprint

Fauna survey (Niche, 2024)

- Acoustic survey
- Bird survey other
- Call playback
- Camera trap
- Frog active search
- Frog census
- Spotlighting
- Stag watch

Fauna survey tracks (Niche)

- August 2022

Fauna survey (Biosis)

- Ultrasonic detector
- Camera trap
- Reptile trap
- Call playback
- Koala SAT survey
- Stag watch
- Bird survey
- Reptile survey

Fauna survey tracks (Biosis)

- November 2023
- August 2024

Threatened fauna sightings (Biosis)

- Diamond Firetail - *Stagonopleura guttata*
- Grey-crowned Babbler (eastern subspecies) - *Pomatostomus temporalis temporalis*
- Large Bent-winged Bat - *Miniopterus orianae oceanensis*
- Northern Free-tailed Bat - *Ozimops lumsdenae*
- Speckled Warbler - *Chthonicola sagittata*
- Superb Parrot - *Polytelis swainsonii*
- Yellow-bellied Sheathtail-bat - *Saccolaimus flaviventris*

Figure 12.1 - Overview Targeted species surveys - Fauna

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

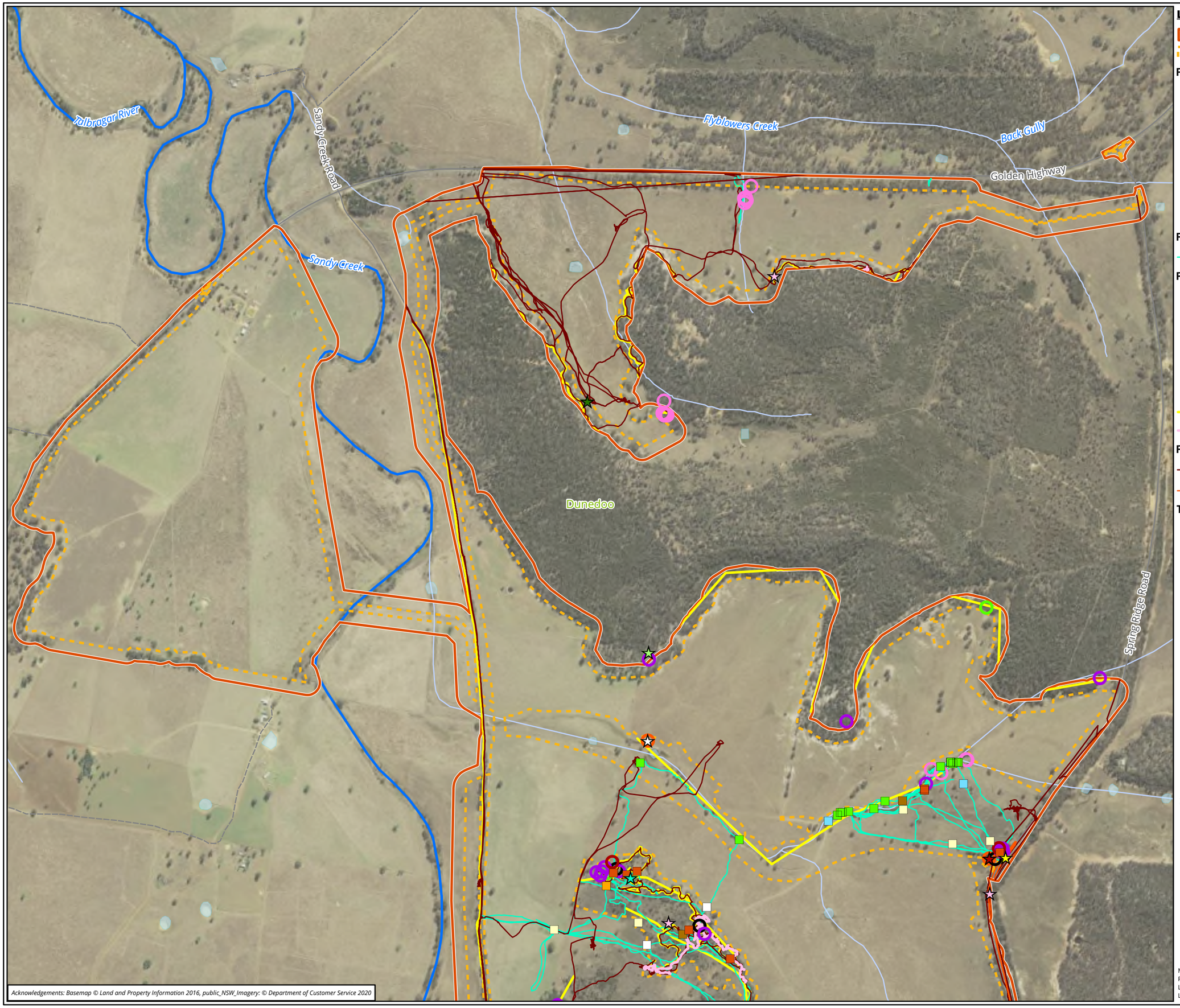
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biosis

APEM Group

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Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F11-16.aprx
Layout: 38235_F12.1_TrgSpec_Fauna

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Legend

- Subject land
- Development footprint

Fauna survey (Niche, 2024)

- Acoustic survey
- Bird survey other
- Call playback
- Camera trap
- Frog active search
- Spotlighting
- Stag watch

Fauna survey tracks (Niche)

- August 2022

Fauna survey (Biosis)

- Ultrasonic detector
- Camera trap
- Reptile trap
- Call playback
- Koala SAT survey
- Stag watch
- Bird survey
- Reptile survey

Fauna survey tracks (Biosis)

- November 2023
- August 2024

Threatened fauna sightings (Biosis)

- Diamond Firetail - *Stagonopleura guttata*
- Grey-crowned Babbler (eastern subspecies) - *Pomatostomus temporalis temporalis*
- Large Bent-winged Bat - *Miniopterus orianae oceanensis*
- Northern Free-tailed Bat - *Ozimops lumsdenae*
- Speckled Warbler - *Chthonicola sagittata*
- Superb Parrot - *Polytelis swainsonii*
- Yellow-bellied Sheathtail-bat - *Saccolaimus flaviventris*

Figure 12.1.1 Targeted species surveys - Fauna

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Metres

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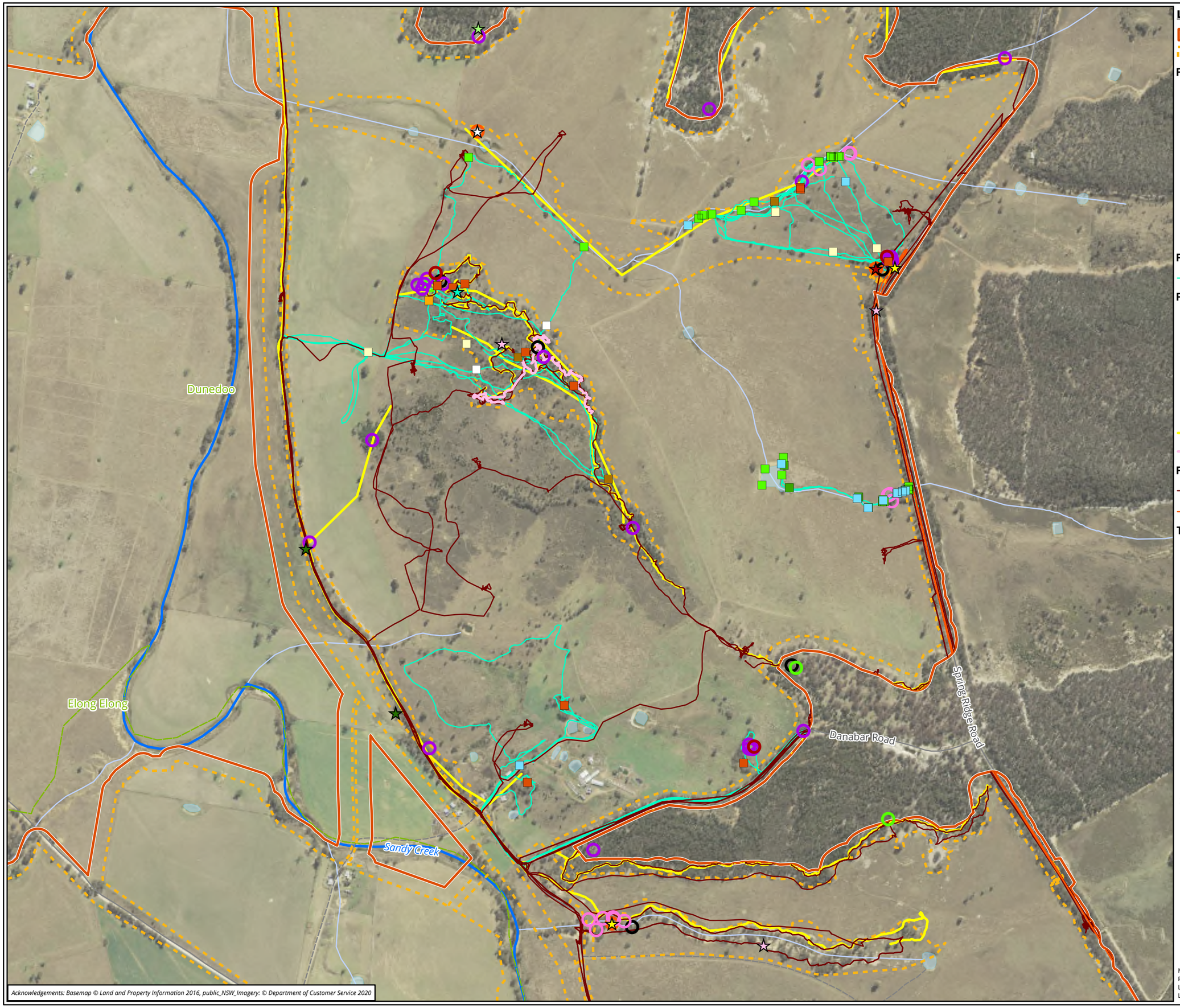
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Legend

Subject land

Development footprint

Fauna survey (Niche, 2024)

- Acoustic survey
- Bird survey other
- Call playback
- Camera trap
- Frog active search
- Frog census
- Spotlighting
- Stag watch

Fauna survey tracks (Niche)

- August 2022

Fauna survey (Biosis)

- Ultrasonic detector
- Camera trap
- Reptile trap
- Call playback
- Koala SAT survey
- Stag watch
- Bird survey
- Reptile survey

Fauna survey tracks (Biosis)

- November 2023
- August 2024

Threatened fauna sightings (Biosis)

- Diamond Firetail - *Stagonopleura guttata*
- Grey-crowned Babbler (eastern subspecies) - *Pomatostomus temporalis temporalis*
- Large Bent-winged Bat - *Miniopterus orianae oceanensis*
- Northern Free-tailed Bat - *Ozimops lumsdenae*
- Speckled Warbler - *Chthonicola sagittata*
- Superb Parrot - *Polytelis swainsonii*
- Yellow-bellied Sheathtail-bat - *Saccolaimus flaviventris*

Figure 12.1.2 Targeted species surveys - Fauna

0 500

Metres

Scale: 1:12,000 @ A3

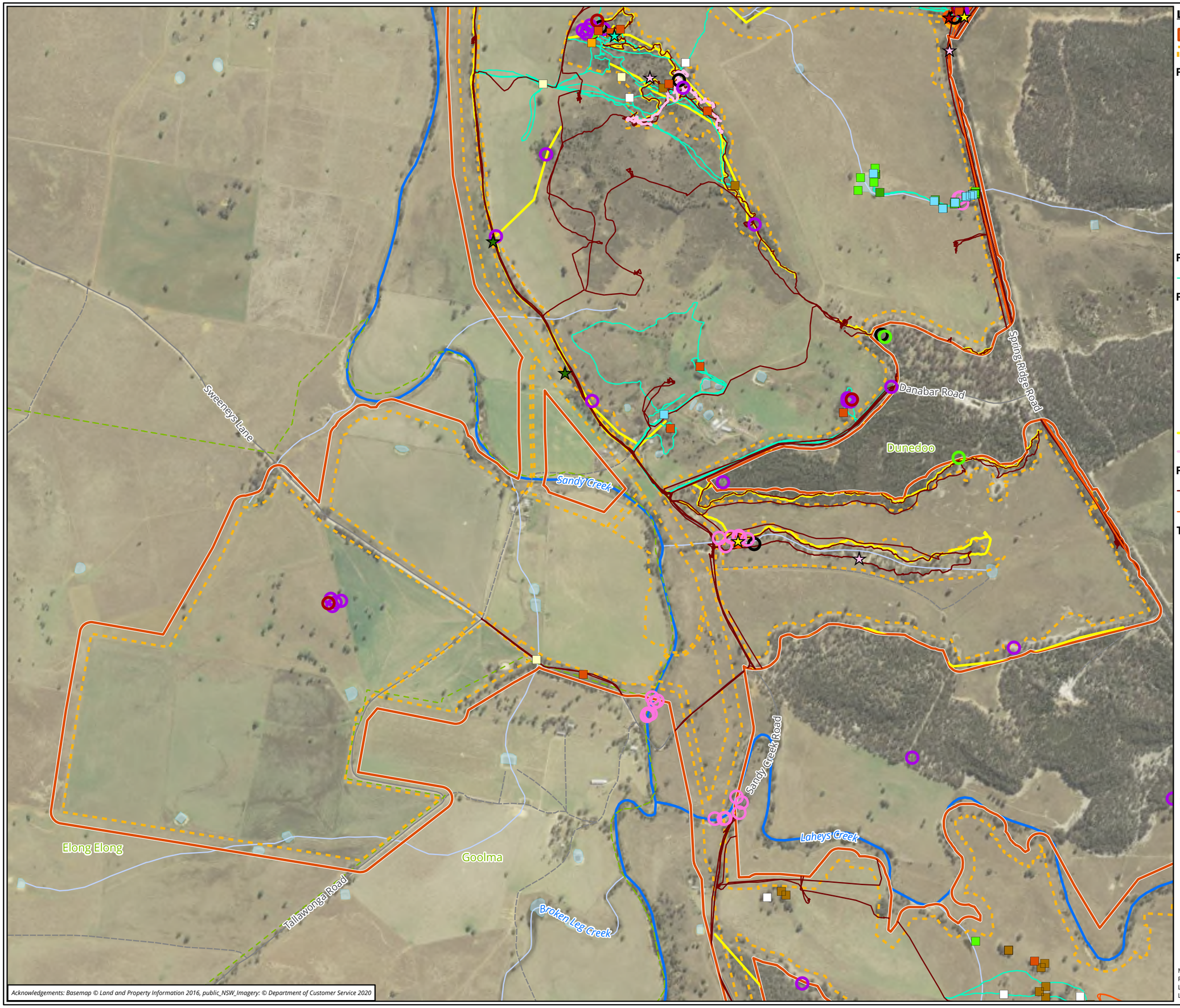
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Layout: 38235_F12.1_TrgSpec_Fauna



Legend

Subject land

Development footprint

Fauna survey (Niche, 2024)

- Acoustic survey
- Bird survey other
- Call playback
- Camera trap
- Frog active search
- Frog census
- Spotlighting
- Stag watch

Fauna survey tracks (Niche)

- August 2022

Fauna survey (Biosis)

- Ultrasonic detector
- Camera trap
- Reptile trap
- Call playback
- Koala SAT survey
- Stag watch
- Bird survey
- Reptile survey

Fauna survey tracks (Biosis)

- November 2023
- August 2024

Threatened fauna sightings (Biosis)

- Diamond Firetail - *Stagonopleura guttata*
- Grey-crowned Babbler (eastern subspecies) - *Pomatostomus temporalis temporalis*
- Northern Free-tailed Bat - *Ozimops lumsdenae*
- Superb Parrot - *Polytelis swainsonii*
- Yellow-bellied Sheathtail-bat - *Saccolaimus flaviventris*

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Figure 12.1.3 Targeted species surveys - Fauna

0 500

Metres

Scale: 1:15,000 @ A3

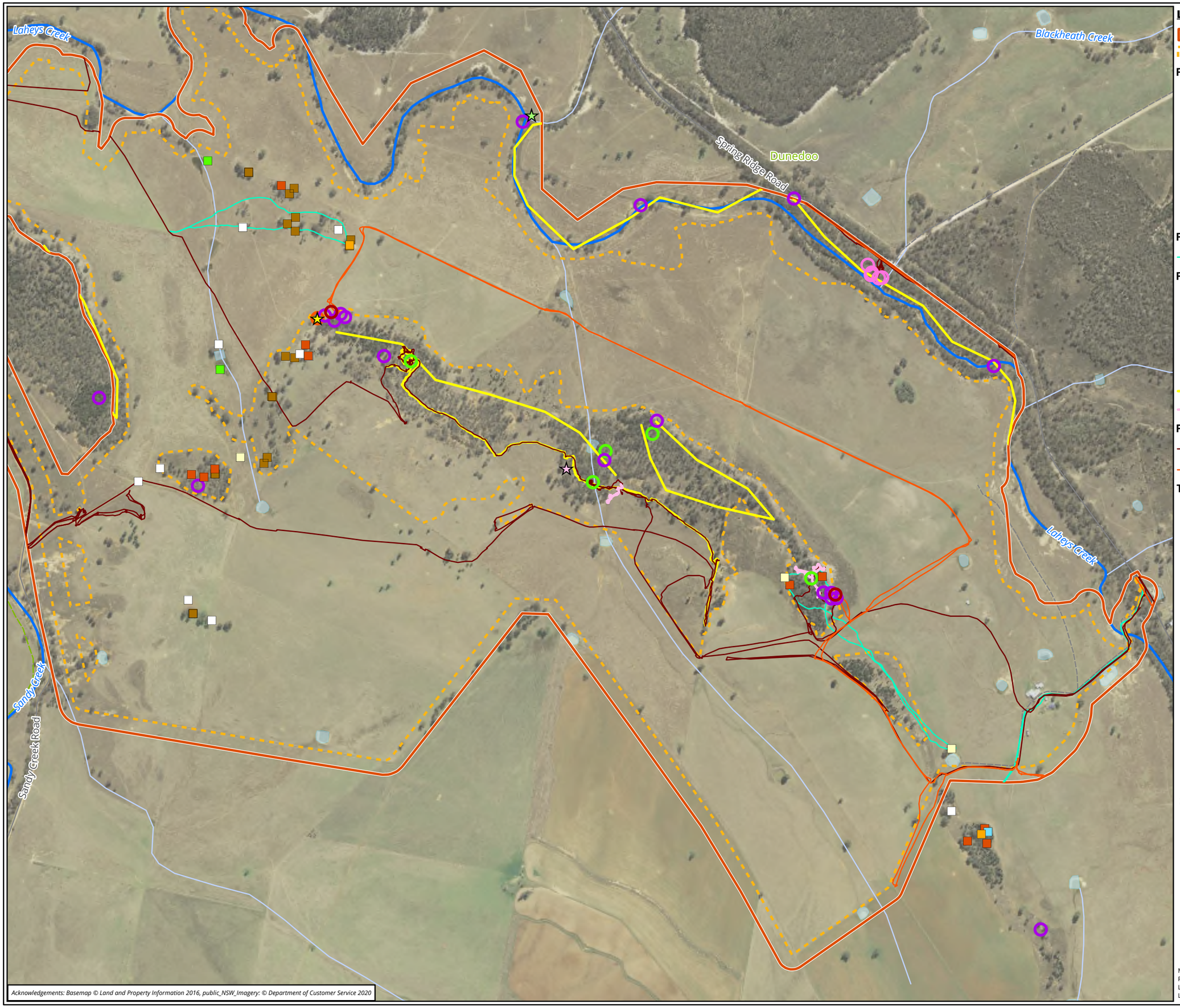
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biosis

APEM Group

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Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
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Layout: 38235_F12.1_TrgSpec_Fauna



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Legend

- Subject land
- Development footprint

Fauna survey (Niche, 2024)

- Acoustic survey
- Bird survey other
- Call playback
- Camera trap
- Frog active search
- Spotlighting
- Stag watch

Fauna survey tracks (Niche)

- August 2022

Fauna survey (Biosis)

- Ultrasonic detector
- Reptile trap
- Call playback
- Koala SAT survey
- Stag watch
- Bird survey
- Reptile survey

Fauna survey tracks (Biosis)

- November 2023
- August 2024

Threatened fauna sightings (Biosis)

- Grey-crowned Babbler (eastern subspecies) - *Pomatostomus temporalis temporalis*
- Speckled Warbler - *Chthonicola sagittata*
- Yellow-bellied Sheathtail-bat - *Saccolaimus flaviventris*

Figure 12.1.4 Targeted species surveys - Fauna

0 500

Metres

Scale: 1:12,000 @ A3

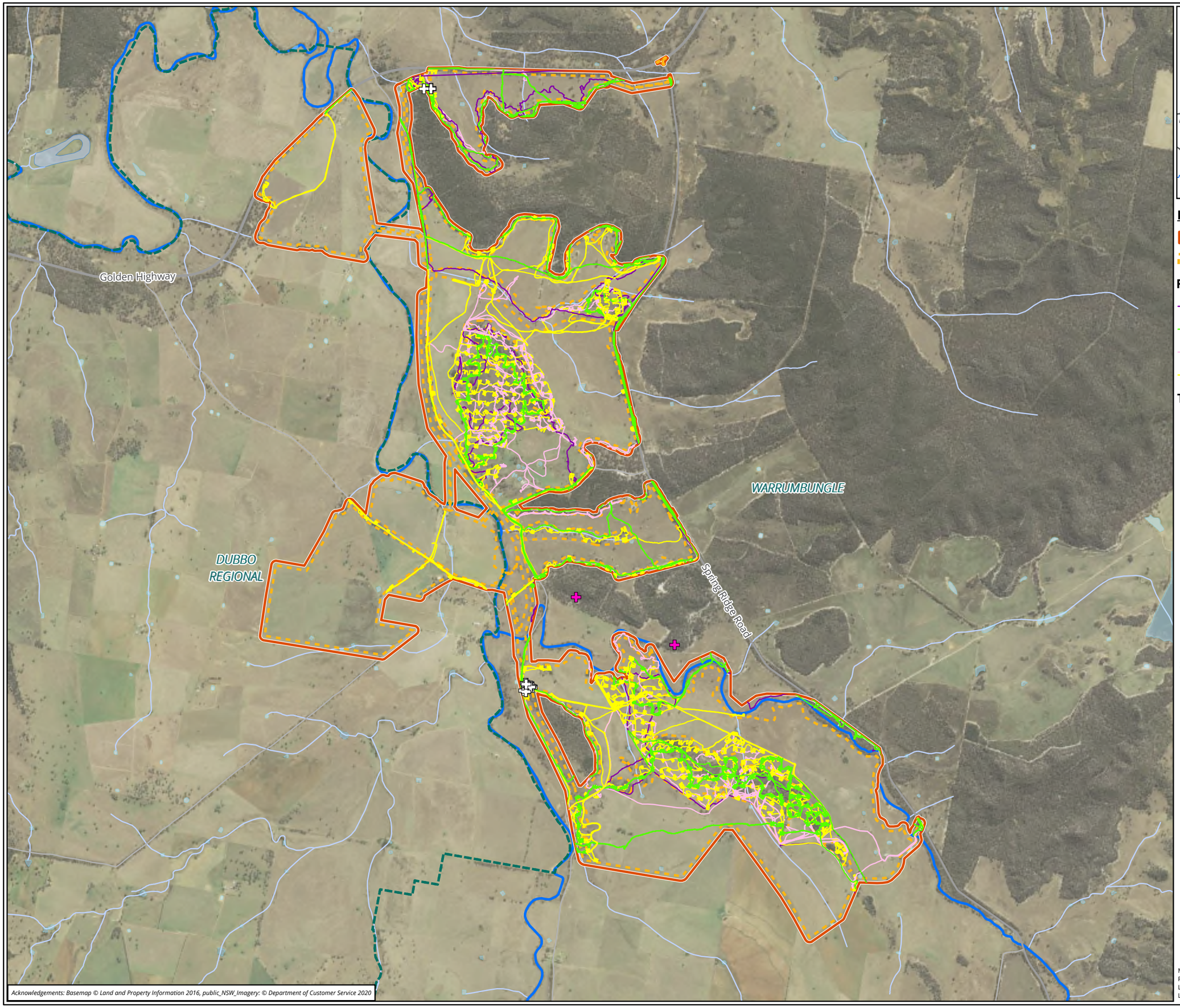
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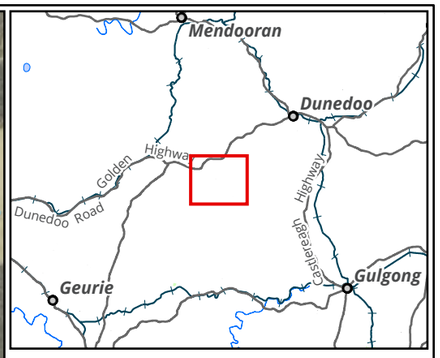
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Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F11-16.aprx
Layout: 38235_F12.1_TrgSpec_Fauna





Legend

- Subject land
- Development footprint

Flora survey tracks (Biosis)

- October 2022
- November 2022
- November 2023
- October 2024

Threatened flora records

- Keith's Zieria - *Zieria ingramii*
- Pine Donkey Orchid - *Diuris tricolor*

Figure 12.2 Targeted species surveys - Flora

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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Layout: 38235_F12.2_TrgSpec_Flora

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4.3.3 Expert reports

Sections 5.2 and 5.3 of the BAM outline that an expert report may be obtained instead of undertaking a species survey for a project, where the expert report is prepared by a person who, in the opinion of the Environment Agency Head, possesses specialised knowledge based on training, study or experience to provide an expert opinion in relation to the biodiversity values to which an expert report relates (DPIE 2020a).

No expert reports were utilised for the current assessment. The TBDC does now state, effective from November 2024, that it is recommended an expert report be obtained for Pink-tailed Legless Lizard. However given survey effort was undertaken well before this update, this survey effort has been accounted for within this assessment, and deemed appropriate given the habitat within the subject land, the known range and distribution of this species.

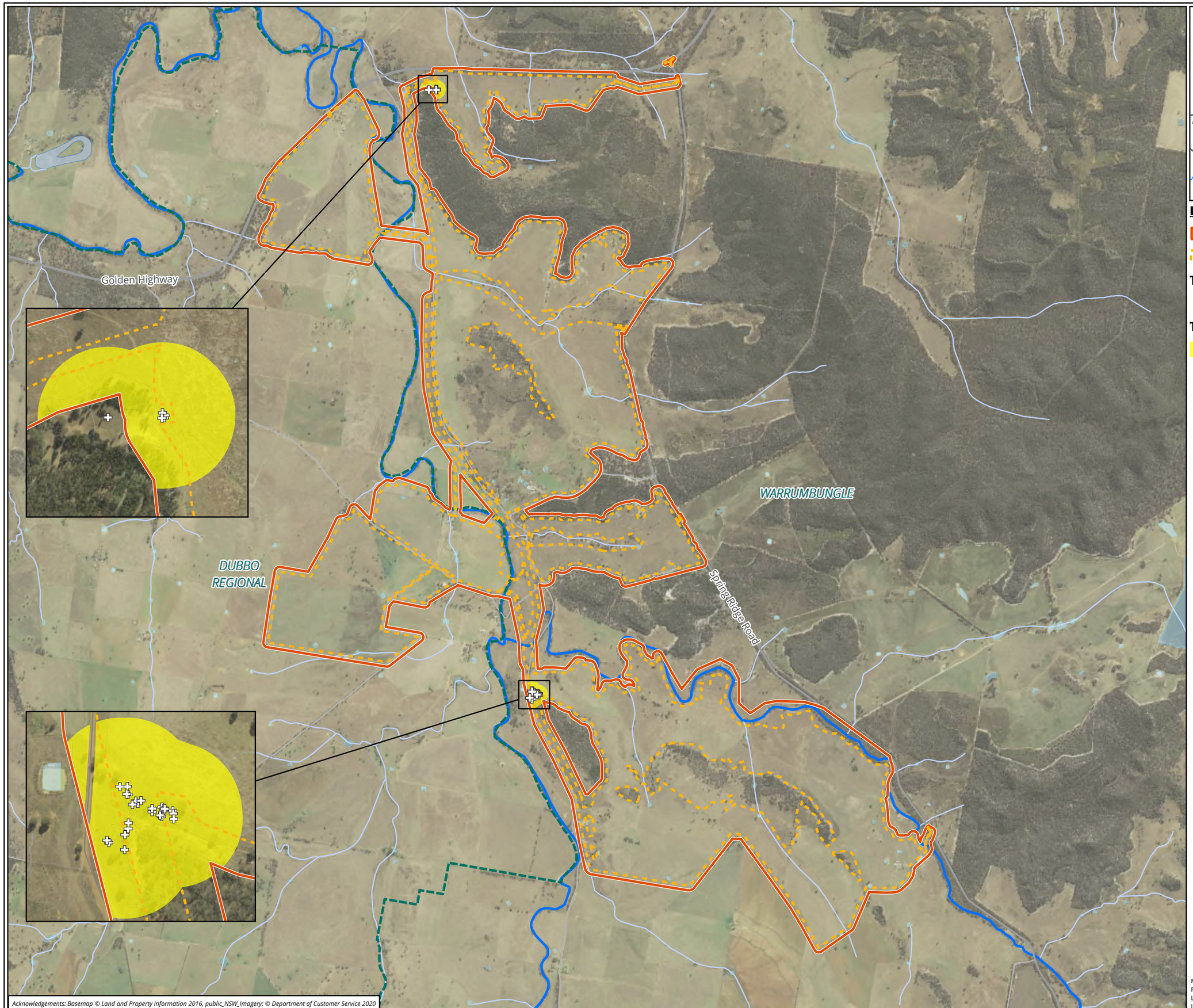
4.3.4 Threatened species summary and polygons

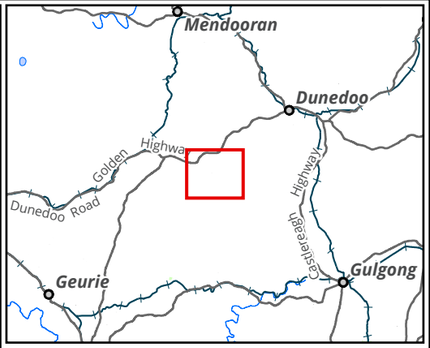
Table 41 provides details of threatened species impacted by the project and outlines the attributes that comprise the threatened species polygons. The presence of threatened species impacted by the project is illustrated in Figure 13.

Table 41 Threatened species polygons within the subject land

Threatened species	Presence determination	Polygon attribute	Biodiversity risk weighting	Polygon attributes within footprint
Flora				
Pine Donkey Orchid	Observed	100 m buffer from recorded population points	Moderate	• 1.7 ha PCT 81_Low • 1.7 ha PCT 81_Moderate • 1.1 ha PCT 468 Moderate
Keith's Ziera	Observed	100 m buffer from records	High	NA Polygon did not occur within revised subject land, which is more than 100 metres from identified population.

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Legend

- Subject land
- Development footprint

Threatened flora records

- Pine Donkey Orchid - *Diuris tricolor*

Threatened species polygon

- Pine Donkey Orchid - *Diuris tricolor*

Figure 13 Threatened species polygon

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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Layout: 38235_F13_SpecPoly

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STAGE 2 — IMPACT ASSESSMENT (BIODIVERSITY VALUES)

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5 Avoid and minimise impacts

This section demonstrates the efforts made to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the project in accordance with BAM, including an analysis of alternative:

- Modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology.
- Routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route.
- Locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location.
- Sites within a property on which the project is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site.

A description of the efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through design refinements is also provided through other site constraints that the Applicant have considered in determining the location and design of the project are also identified.

5.1 Site Selection

Although the Project did not proceed, it is important to note, that the subject land was originally assessed for the potential of a coal mine in 2012. Assessment for potential of a renewable energy development 10 years later is relevant in noting a general trend within Australia away from mining for energy development and towards renewable energy farming.

During initial phases of the project feasibility, multiple properties and regions within the broader CWO REZ with potential connection to the Elong Elong Energy Hub were investigated. The subject land is directly adjacent to the proposed Sandy Creek Solar Farm and the Elong Elong Energy Hub.

Many areas within this landscape hold high levels of biodiversity value due to the extensive ranges, reserves, national parks, state forests and conservation areas. The subject land, as previously assessed for a potential coal mining operation, had previously undergone extensive surveys and analysis. The subject land contains large areas of forest and woodland connected to a tract of vegetation to the east, however, these areas are generally steep or, associated within vegetated watercourses and as such, not suitable for solar development. The extensive cropped and cleared areas in the lowland plains mapped as Category 1 Exempt Land were compatible with the project.

The final location of the project was chosen based on:

- Occurring within the CWO REZ and nearby areas with potential connection to the Elong Elong Energy Hub. The project site is directly adjacent to the Elong Elong Energy Hub. The subject land was also selected due to its optimal renewable energy generation potential and overlap with the study corridor for the proposed CWO REZ transmission line.
- Availability of land of a suitable scale for a viable commercial-scale solar farm project, with the majority of the subject land cleared and highly modified, and relatively flat and suitable for solar panel installation.

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- The land surrounding the subject land is sparsely populated with minimal non-associated residences within 5 kilometres.
- Compatible land use zoning both on the subject land and adjacent land holdings.
- The existing agricultural land use (cropping and grazing) within and surrounding the subject land is compatible with large-scale solar energy generation and storage.
- Reduced environmental constraints with potential environmental impacts that can be managed with appropriate mitigation and management
- The subject land connects directly to the Golden Highway which is an approved B-Double route.
- Areas with high potential for biodiversity including hillcrests would be avoided by the project due to incompatibility of infrastructure.
- The land is not classed as Biophysical Strategic Agricultural Land (BSAL). BSAL is land with high quality soil and water resources capable of sustaining high levels of productivity.

Alternative sites considered were further from a REZ, closer to existing dwellings and/or were considered likely to result in fragmentation of existing agricultural operations and greater environmental impacts.

Site access was reviewed with all access points included within this assessment. Primary access will be via four access points along Spring Ridge Road and one on the Golden Highway. Internal access roads will be provided within and between the various array areas. Local roads within the Project Area, including Danabar Road, Sandy Creek Road, and Sweeneys Lane, will not be used by the Project during construction except where crossing is required. These local roads experience minimal traffic and are primarily used as access routes for rural properties. These roads will remain open and available for public use throughout the construction and operation of the Project.

5.2 Constraints and opportunities preliminary assessment

Extensive surveys and constraints assessment were undertaken as part of the proposed Cobbora Coal Project in 2012. The findings of the Cobbora Coal Project environmental assessment were reviewed, alongside an environmental assessment as part of the Scoping Report for this project completed by EMM Consulting. This assessment outlined potential biodiversity features present, including mapped vegetation and potential for TECs and threatened species. Majority of the hillcrests and vegetated areas were outlined in Figure 3.1 of the Scoping Report as exclusion areas. Lahey's Creek and Sandy Creek were outlined as waterbodies and excluded from the indicative developable area. Access points were situated off the main highway along Spring Ridge Road at existing road and farm access points.

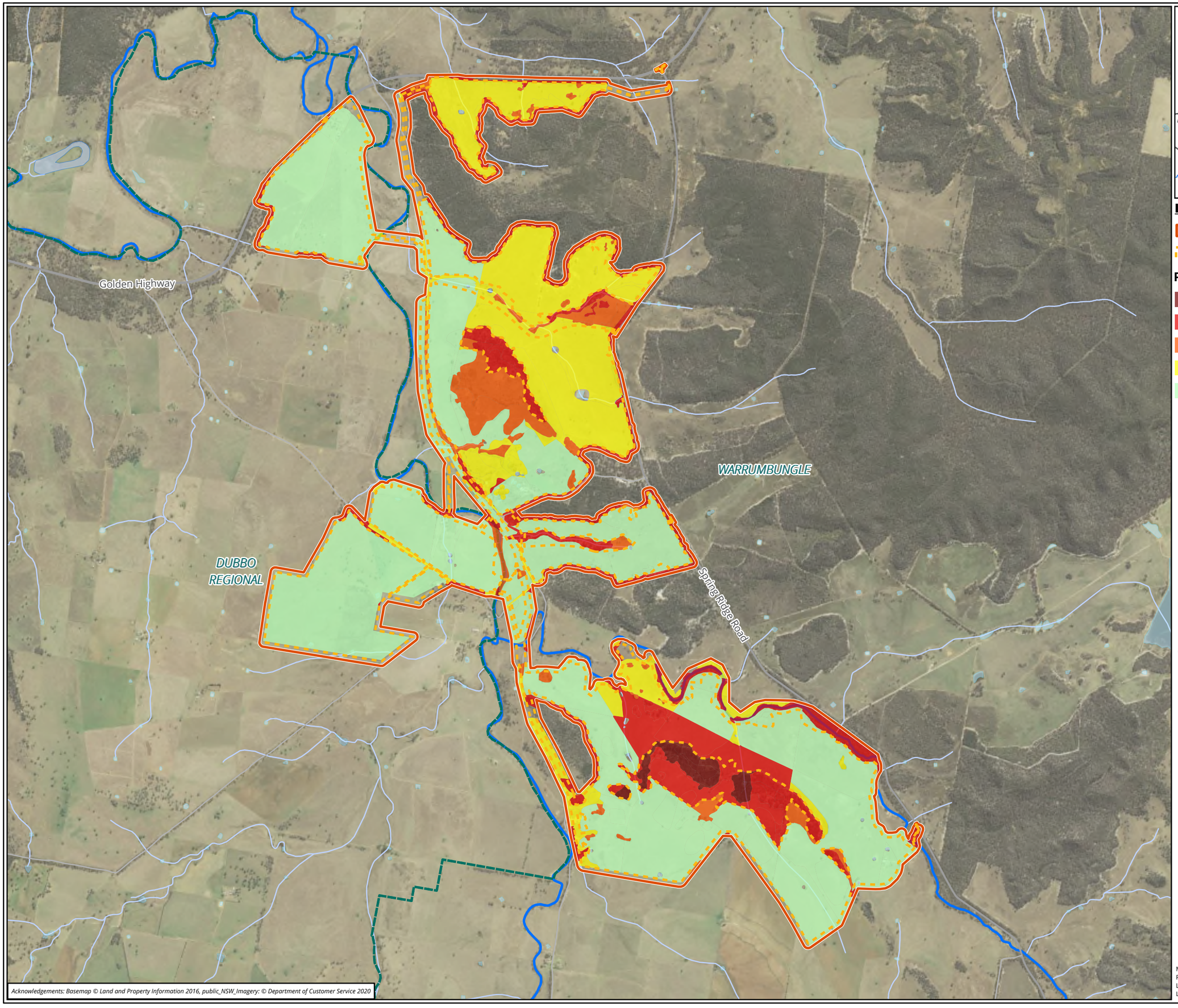
Following the completion of the initial survey effort and targeted surveys by Biosis in 2022 and 2023, a constraints model was completed based on several environmental parameters. The constraints model and associated mapping incorporated an assessment of all field data and background research at that time. The constraints assessment stratified vegetation into Low, Low-Moderate, Moderate, High and Very High. Non hollow-bearing scattered trees were classed as moderate and HBTs as high. This constraints model, summarised within Table 42, was utilised by the Applicant to refine the proposed development footprint (Figure 14).

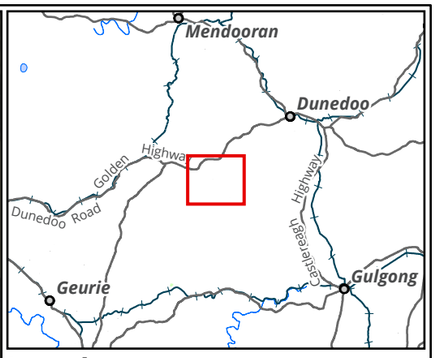
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Table 42 Framework and hierarchy of constraints applied in Project planning

Constraint category	Definition	Solar, battery, substation and general infrastructure constraint value
Very High Constraint (Constraint score – 5)	These are areas that should be avoided if possible and will require justification in a BDAR if they cannot be avoided. Likely to result in areas that may generate high biodiversity credit per hectare requirements that will require offsetting.	• Critically endangered and SAII Box Gum Woodland (BGW) TECs in moderate to high condition, or regenerating (PCT 599 and PCT 281). • Known threatened flora records.
High Constraint (Constraint score – 4)	These are areas that should be avoided if possible and will require justification in a BDAR if they cannot be avoided. Likely to result in areas that may generate high biodiversity credit per hectare requirements that will require offsetting.	• All remnant NSW and Commonwealth listed TECs including PCT 81 in high, moderate or DNG condition. • SAII listed TEC communities (PCT 201, PCT 281 and PCT 599) in moderate or DNG condition. • Non threatened vegetation in high condition, with significant biodiversity values. • Riparian areas in moderate to high condition. • HBTs
Moderate Constraint (Constraint score – 3)	Suitable for development. These areas do not necessarily need to be avoided but will generate a moderate biodiversity credit per hectare that requires offsetting.	• Riparian areas in moderate condition. • Regenerating areas of native vegetation that contains moderate habitat for threatened species. • Non TEC vegetation in moderate condition. • Scattered trees potentially containing hollows and nests comprising from all known PCTs observed, wholly surrounded by Category 1 - Exempt Land.
Low to Moderate Constraint (Constraint score – 2)	Best suited for development. These areas will generate low biodiversity credits per hectare that requires offsetting.	• Low condition DNG areas confirmed as Category 1 – exempt land, but associated with low condition BGW vegetation (requires floristic data to back up Category 1 – Exempt Land status). • Low condition or derived grassland TEC vegetation associated with non SAII PCTs. • Low condition non - TEC native woodland vegetation that contains sub-optimal threatened species habitat.
Negligible/Low Constraint (Constraint score – 1)	Best suited for development. These areas are unlikely to generate biodiversity credits (i.e. exotic/cultivated/irrigated areas) and outside of prescribed impacts, do not require assessment under the BAM.	• Non-native vegetation or areas likely to meet the definition of Category 1 – Exempt Land and where prescribed impacts are considered negligible.

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Legend

- Subject land
- Development footprint

Preliminary constraint

- Very_High
- High
- Moderate
- Low_Moderate
- Low

Figure 14 Preliminary constraints

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F11-16.aprx
Layout: 38235_F14_PrelConstraint

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5.3 Alternative footprints

The original subject land extended south down to Dapper Road. This area was reduced by around 1-1.5 kilometres. The original subject land included all sections of Spring Ridge Road, which has been refined to include areas relevant to the site access only. Two areas proposed for development were isolated in the north. Assessment was completed to identify areas containing low biodiversity value to connect the subject land to allow access tracks to these areas from the south, avoiding access requirements from the Golden Highway. The subject land was refined and reduced to exclude some fringing areas of vegetation associated with hillcrests and slopes. The subject land was reduced in several areas to move proposed development away from Sandy Creek and several areas of Lahey's Creek (Figure 16).

The development footprint was reduced to avoid areas of identified grassland and regrowth, further reducing impacts to vegetation, TECs and threatened species habitat. The development footprint (i.e. the area within which direct impacts will occur) has been refined through consideration of the findings of a preliminary ecological study (EMM Consulting 2012) and identification of constraints and opportunities mapped through the environmental impact assessment process (including this BDAR). The intent of this process was to avoid impacts to the highest ecological values identified as much as possible, whilst taking into account the high proportion of native vegetation within the subject land.

Measures to avoid and minimise impacts on highest value areas of native vegetation were considered during the planning stage of the project and designs were 'workshopped' through an iterative mapping process between Marble Solar, the Applicant and the Biosis BAM Assessors and project ecologists. Other disciplines such as flooding and archaeology were also considered during multiple revisions of the development footprint to ensure highest biodiversity values, as well archaeological values and areas likely to be inundated during significant flood events, were accounted for.

Overall, this process of refinement has resulted in impacts to areas of highest biodiversity value being avoided and/or minimised, including:

- Avoidance of impacts throughout the broader subject land, and an overall reduction in loss of higher quality habitats from multiple design revisions.
- Avoidance of the vast majority of intact woodland and forest vegetation and as such, avoidance of higher quality areas of TECs and threatened species habitat.
- Avoidance of impacts to the vast majority of riparian habitat with specific locations outlined for creek crossings and use of existing creek crossing selected. In general, development has been set back from the two key waterway areas, maintaining connectivity.
- Avoidance of approximately 55% of HBTs, i.e. 38 out of 68 HBTs.
- Avoidance and minimisation of impacts to threatened Pine Donkey Orchid and Keith's Ziera habitat.

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Table 43 Summary of key project refinements

PCT/Zone	Subject land (ha)	Preliminary development footprint 2022 (ha)	Development footprint February 2024 (ha) solar infrastructure only	Development footprint June 2024 (ha) solar infrastructure only	Current development footprint (ha) All infrastructure January 2025	Total change from preliminary development footprint (ha)
81_Low	42.92	22.35	8.07	7.94	24.90	2.55
81_Moderate	51.12	5.24	1.86	1.10	6.60	1.36
201_Low	21.43	7.39	3.42	0.73	5.91	-1.48
201_Moderate	42.47	3.57	0.21	-	2.80	-0.77
281_Low	87.94	69.05	48.59	27.63	42.30	-26.75
281_Moderate	46.84	17.82	7.27	5.12	9.25	-8.57
440_Low	11.08	9.48	6.84	6.84	9.53	0.05
440_Moderate	13.83	3.71	0.17	0.17	0.43	-3.28
467_Low	41.65	41.17	40.44	40.35	39.47	-1.70
467_Moderate	21.03	20.36	1.34	1.34	1.45	-18.91
467_Regrowth	48.92	48.83	45.29	45.29	46.45	-2.38
467_High	2.30	-	-	-	-	-
468_Moderate	61.45	9.37	2.42	2.38	3.97	-5.40
478_Moderate	20.67	1.94	-	-	1.00	-0.94
599_DNG	90.12	85.07	79.73	79.73	56.88	-28.29
599_Moderate	30.21	10.30	0.41	0.41	-	-10.30
599_High	4.97	-	-	-	-	-
Category 1 - Exempt Land	1,526.88	1327.02	1,157.73	1,102.22	1,349.13	22.11

5.4 Avoidance of EPBC Act listed species and communities

Avoidance and minimisation of impacts to biodiversity values and in particular, EPBC Act listed species and communities, have been undertaken throughout the development and design of the project from initial desktop-based constraints information, followed by design workshops and updates based on a number of rounds of collection of ground-validated data. As mentioned above, this includes a priority focus on avoidance and reducing impacts for intact Box-Gum Woodland TEC and Inland Gey Box TEC that meet the Matters of National Environmental Significance (MNES) criteria, maintaining connectivity through the landscape, as well as minimising impacts to more optimal habitats for species such as the Superb Parrot. Where indirect or residual impacts still occur, stringent mitigation measures will be implemented (refer Section 7 and Section 10.1).

Section 10.1 provides detailed information on assessment and impacts to EPBC Act listed species and communities following all efforts to minimise impacts to biodiversity values.

5.5 Summary

As previously indicated, the principal means to reduce impacts on biodiversity values within a development site is to avoid and/or minimise the removal of native vegetation and fauna habitat. Additional recommendations include measures to mitigate residual impacts after all measures to avoid and minimise impacts have been considered in Table 44.

Figure 15 shows the current development footprint, while Figure 16 shows the extent of refinements undertaken to avoid or minimise impacts on biodiversity values. Figure 17 and Figure 18 show the current development footprint as well as demonstrate indirect and prescribed impact zones.

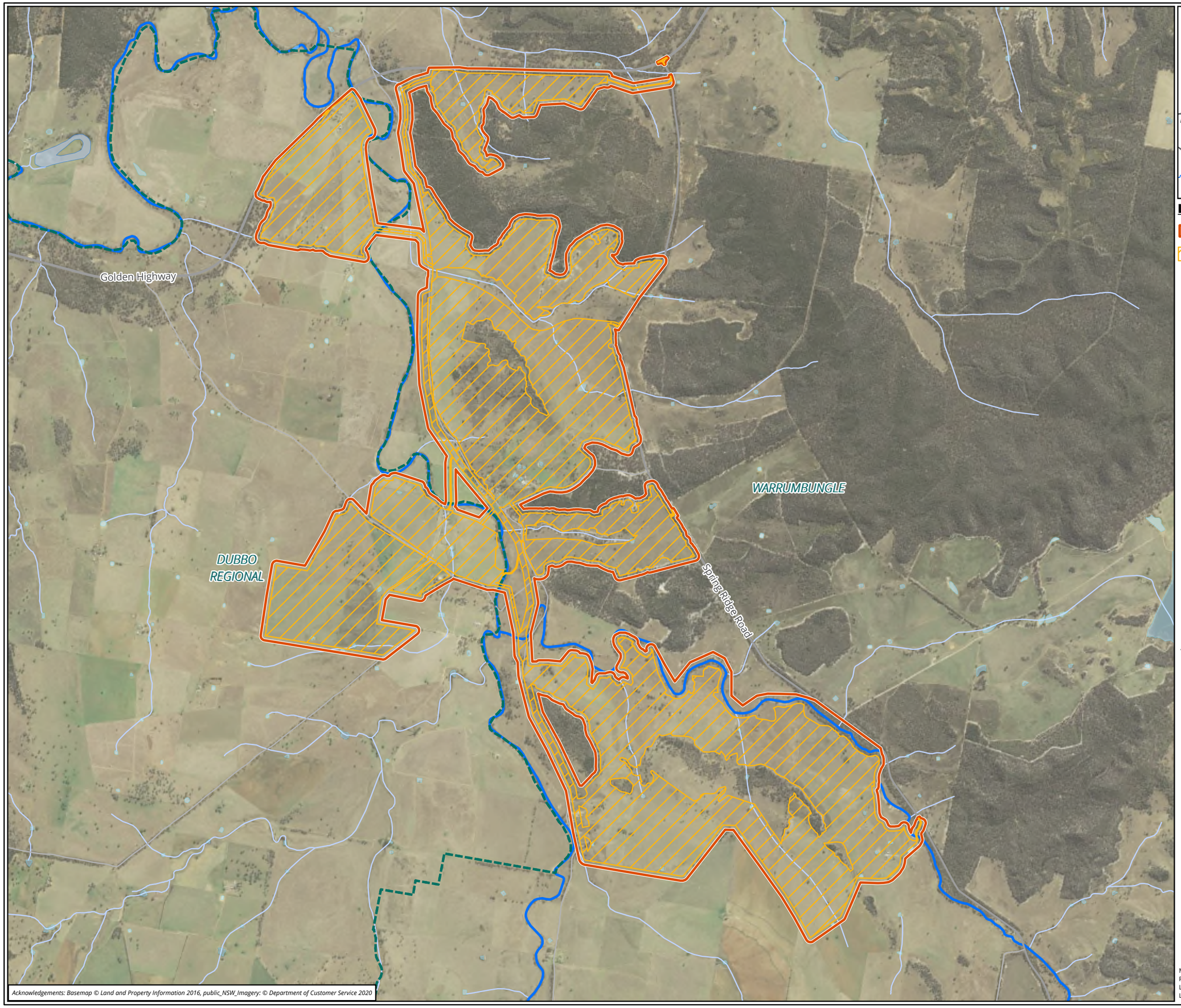
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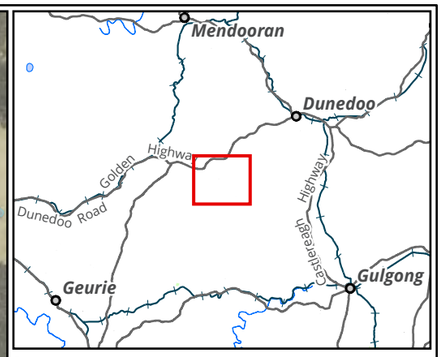
Table 44 Summary of avoidance and minimisation of impact

Avoidance and minimisation components	Action	Outcome	Timing	Responsibility
Modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology.	Investigate modes or technologies that would avoid or minimise impacts on biodiversity values. Solar tracking systems. Not require site leveling or heavy disturbance to groundcover. Ground cover management plans.	Reduction in impacts beneath, but more so between, solar arrays to incentivise and to retain a level of biodiversity value Avoidance of site leveling. Groundcover management to ensure total foraging habitat loss does not occur for species that utilise grassland and cropped lands such as raptors. Temporary impacts of compaction as opposed to full clearing and levelling of groundcover that will regenerate.	Project design Construction Operational monitoring	The Applicant Contractors
Routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route.	Utilising existing access as far as possible. Good access to existing local and regional roads. Site connectivity assessment	Minimise clearing impacts Avoidance of higher biodiversity values.	Project design	Applicant
Alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	Site selection Location next to proposed Sandy Creek Solar Farm and optimal renewable energy generation potential and overlap with the study corridor for the proposed CWO REZ transmission line. Location next to existing transmission lines in areas of farmland that area predominantly cleared of native vegetation.	Minimise clearing impacts Avoidance of higher biodiversity values. Avoidance of additional biodiversity impact through connection of existing approved infrastructure.	Project design	Applicant
Alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site.	Analysis of existing reports including Cobbora Coal Project Completion of constraints mapping Utilising project design to avoid areas of highest biodiversity value.	Avoidance of higher biodiversity values. Minimising impacts HBTs and scattered trees Reduction and avoidance of impacts to waterways and riparian habitat Avoidance of identified threatened flora populations (Pine Donkey Orchid and Keith's	Project design	Applicant

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Avoidance and minimisation components	Action	Outcome	Timing	Responsibility
		Ziera) and minimisation of impacts to threatened flora species polygons		
Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design.	Analysis of existing reports including Cobbora Coal Project Completion of constraints mapping Utilising project design to avoid areas of highest biodiversity value. Avoidance of hillcrests and vegetated hills	Avoidance of higher biodiversity values, including EPBC listed TECs Minimising impacts to HBTs Minimising impacts to known threatened species and their optimal microhabitats Allowing for movement corridors and fly paths, minimising connectivity constraints.	Project design Construction Operational monitoring	Applicant Contractors
Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal.	Conduct surveys to identify site constraints and opportunities to avoid and minimise. Adaptive management plans detail ongoing monitoring requirements and adaptive management	Avoidance and minimising impacts Pine Donkey Orchid and Keith's Ziera	Project design Construction Operational monitoring	Applicant Contractors





Legend

- Subject land
- Development footprint

Figure 15 Development footprint

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

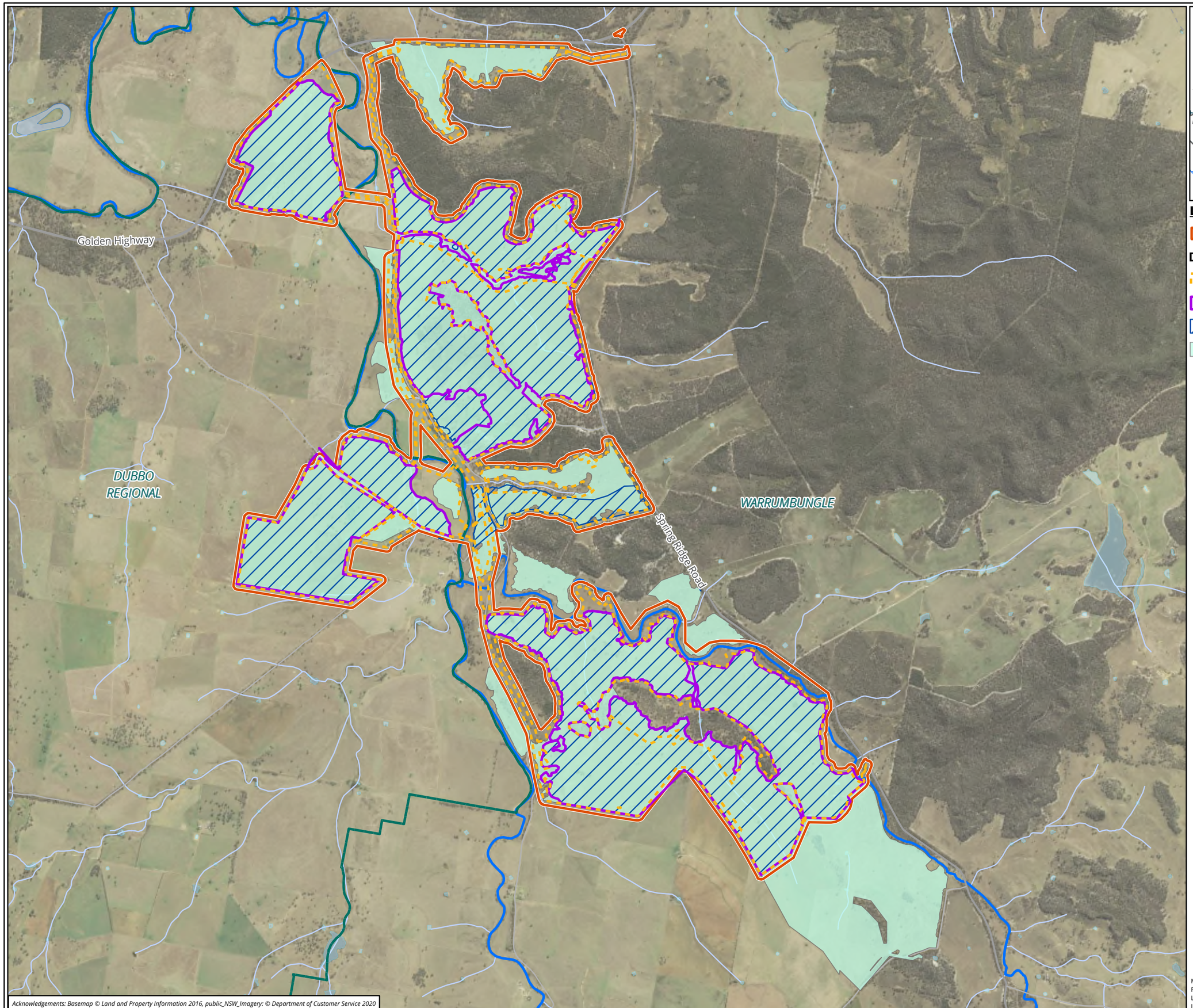
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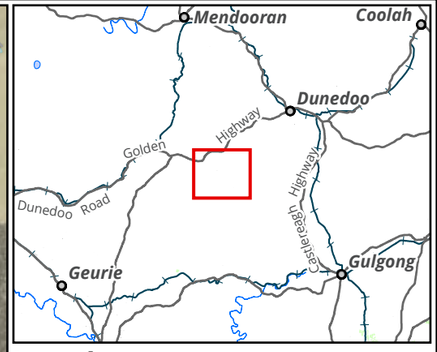
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Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F11-16.aprx
Layout: 38235_F15_DevFootprint

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Legend

- Subject land

Development footprint

- 2025 - Current
- 2024 - June
- 2024 - February
- 2022

Figure 16 Alternate options

0 500 1,000 1,500

Metres

Scale: 1:40,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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6 Impacts that are unable to be avoided

Assessment of direct and indirect impacts unable to be avoided has been undertaken in accordance with the BAM (DPIE 2020a). The following direct and indirect impacts are unable to be avoided by the project.

6.1 Direct impacts

Direct impacts include vegetation clearing calculated from within the development footprint including solar arrays, electrical cabling, access roads, public road upgrades, APZs, and other infrastructure such as substations, BESS, and construction compounds.

A summary of the estimated impacts is as follows:

- Direct removal of 1,349.13 ha of highly modified Category 1 Exempt Land.
- Direct impacts to 122.12 ha of low condition vegetation.
- Direct impacts to 56.88 ha DNG and 46.45 ha of regrowth where threatened species habitat is less optimal.
- Restrict direct impacts to 25.51 ha of moderate condition vegetation.
- Potential removal of 166 scattered trees and 30 HBTs.
- Removal of 1.10 ha of habitat for Pine Donkey Orchid within the development footprint and 4.50 ha within the subject land.
- Removal of 8.71 ha of Fuzzy Box Woodland under the BC Act.
  - Comprised of 5.91 ha of low condition woodland.
  - Comprised of 2.80 ha of moderate condition woodland.
- Removal of 31.50 ha of Grey Box Woodland under the BC Act and 6.60 ha under the EPBC Act.
  - Comprised of 24.90 ha of low condition woodland.
  - Comprised of 6.60 ha of moderate condition woodland.
- Removal of 108.44 ha of Box-Gum Woodland under the BC Act and 9.25 ha under the EPBC Act.
  - Comprised of 99.19 ha of low condition woodland and low condition DNG (91%). It must be noted that 56.88 (DNG) has of this scores a VI of <15, and therefore not consider viable TEC in accordance with the BAM (52%).
  - Comprised of 9.25 ha of moderate condition woodland.

For all intents and purposes, these impacts are considered to be representative of the worst case. They consider 100%, and permanent, loss of vegetation and will occur from the outset of the development; however, the majority of direct impacts are expected to be during the construction stage only.

Native ground cover disturbance under the solar arrays is expected to be temporary in nature. Native ground cover will be able to regenerate and persist throughout operations, however, for the purpose of this assessment has been calculated as total loss. This is discussed further in Section 6.5. Mitigation measures

outlined in Section 7 will help to minimise the potential impacts to biodiversity values that remain present within the subject land.

A summary of PCTs/zones directly impacted is provided in Table 45.

Table 45 Summary of direct impacts to vegetation

Zone	PCT	TEC	Area within subject land (ha)	Area impacted (ha)	VI Score
1	81_Low	Yes – Grey Box Woodland BC Act	42.92	24.90	43
2	81_Moderate	Yes – Grey Box Woodland BC Act and EPBC Act	51.12	6.60	64.3
3	201_Low	Yes – Fuzzy Box Woodland BC Act	21.43	5.91	80.6
4	201_Moderate	Yes – Fuzzy Box Woodland BC Act	42.47	2.80	88.6
5	281_Low	Yes – Box Gum Woodland BC Act	87.94	42.30	32.2
6	281_Moderate	Yes – Box Gum Woodland BC Act and EPBC Act	46.84	9.25	67.2
7	440_Low	-	11.08	9.53	78
8	440_Moderate	-	13.83	0.43	56.3
9	467_Low	-	41.65	39.47	31.3
10	467_Moderate	-	21.03	1.45	49.6
11	467_Regrowth	-	48.92	46.45	34.5
12	468_Moderate	-	61.45	3.97	55.7
13	478_Moderate	-	20.67	1.00	42.8
14	599_DNG	Yes – Box Gum Woodland BC Act but < 15 VI	90.12	56.88	14.4
-	Cat 1 Exempt/Exotic	-	1,526.88	1,349.13	-

Table 46 Summary of direct impacts species credit habitat or individuals

Species	Sensitivity	Area (ha) or count
Pine Donkey Orchid *Diuris tricolor*	Moderate	4.50 ha

6.2 Loss of scattered trees

A total of 166 scattered trees would be impacted . Additional opportunities during detailed design will enable the potential avoidance of further scattered trees where possible. Each of these trees has been categorised into one of the following classes as per Appendix B of the BAM:

- Class 1: trees that are <20 cm DBH and without hollows.
- Class 2: trees that are ≥20 cm DBH and less than the large tree benchmark for the most likely plant community type or trees that are <20 cm DBH that contain at least one hollow.
- Class 3: trees that are greater than or equal to the large tree benchmark for the most likely plant community type.

Table 47 provides a summary of the numbers and classes of scattered trees likely to be impacted by the Project.

Table 47 Summary of direct impacts species credit habitat or individuals

Class	No. trees impacted
1	-
2	56
3	110

6.3 Indirect impacts

This section details potential indirect impacts associated with the construction and operation of the project following the implementation of proposed avoidance and minimisation measures. Indirect impacts are considered to potentially occur in areas outside the development footprint, but within the subject land (Figure 17). In accordance with the BAM, an Applicant can retire credits to offset indirect impacts that cannot be avoided or adequately minimised. All indirect impacts can be adequately mitigated within a Biodiversity Management Plan (BMP) via active management and improve and maintain principles.

Potential indirect impacts arising from the project are outlined and addressed in Table 48.

Table 48 Assessment of indirect impacts

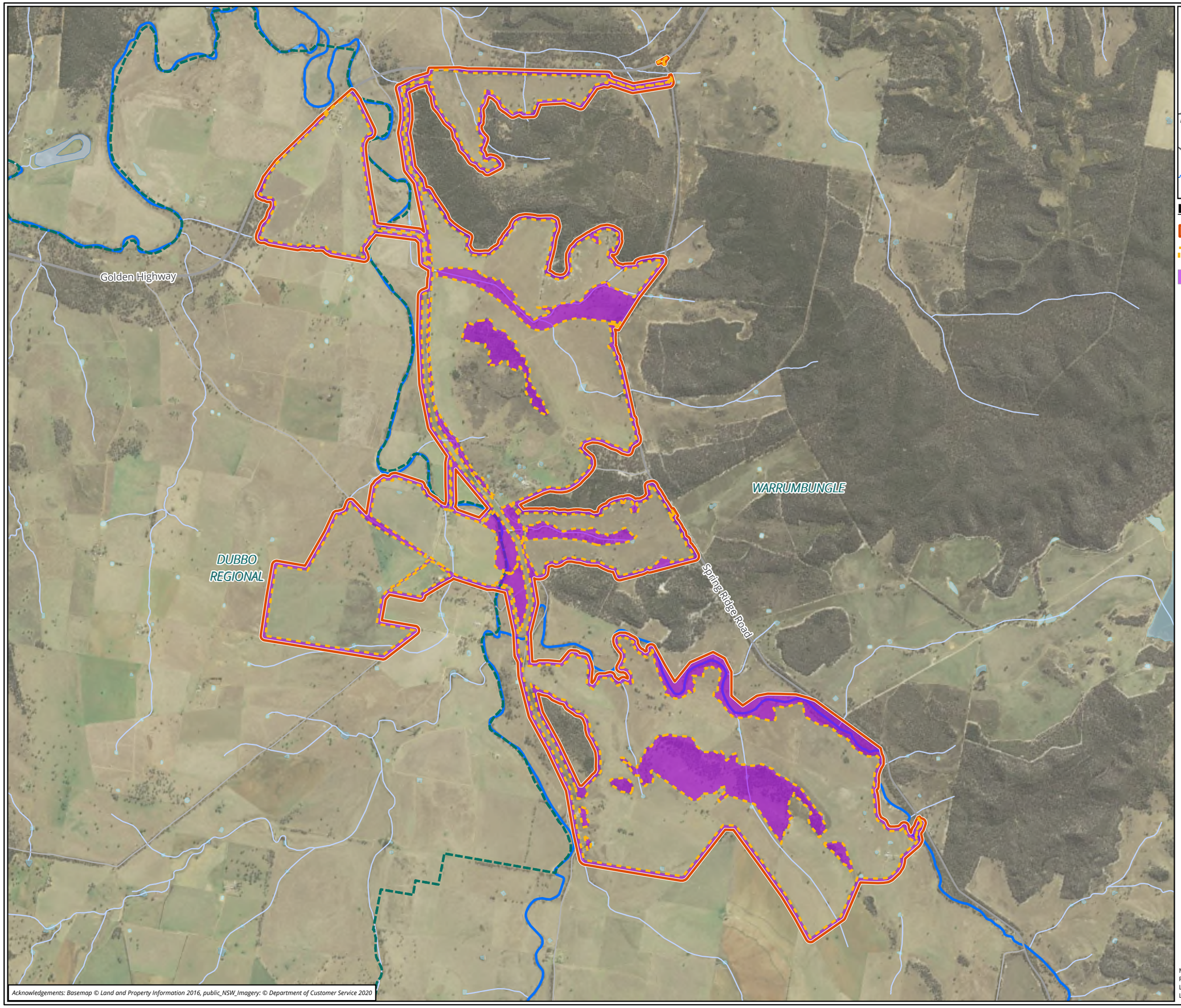
Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood, consequences and justification
Inadvertent impacts on adjacent habitat or vegetation	All PCT/zones All ecosystem credit species Box-Gum Woodland TEC Fuzzy Box Woodland TEC Grey Box Woodland TEC Pine Donkey Orchid	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 55.19 ha of adjacent Fuzzy Box Woodland TEC 151.65 ha of adjacent Box-Gum Woodland TEC 56.41 ha of adjacent Grey Box Woodland TEC 3.83 ha of Pine Donkey Orchid known habitat	One-off	Long-term	Construction, operation and rehabilitation	**Low.** Impacts to adjacent vegetation during construction and operational phase can be prevented or minimised through appropriate exclusion fencing, implementation of a Biodiversity management plan (BMP) and Construction Environmental Management Plan (CEMP) or similar, detailing best practice environmental protection measures, strict water quality practices and stormwater controls, and by ensuring any lighting is directed towards the development footprint, rather than towards adjacent retained habitat. Connectivity remains throughout areas of retained vegetation within the hillcrests minimising impacts to such as edge effect. Connectivity will be largely the same with development replacing cropped paddocks.
Reduced viability of adjacent habitat due to edge effects	All PCT/zones All ecosystem credit species Box-Gum Woodland TEC Fuzzy Box Woodland TEC Grey Box Woodland TEC Pine Donkey Orchid HBTs and Scattered Trees	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 55.19 ha of adjacent Fuzzy Box Woodland TEC 151.65 ha of adjacent Box-Gum Woodland TEC 56.41 ha of adjacent Grey Box Woodland TEC 3.83 ha of Pine Donkey Orchid known habitat 38 remaining HBTs 65 remaining Scattered Trees	Unknown	Short-term	Construction and operation	**Low-Moderate.** Adjacent habitats are currently subject to disturbance via clearing and existing agricultural land use. Improve and maintain principles will apply within the BMP to ensure retained areas of adjacent habitat do not decline or are subject to adverse impacts. Connectivity will largely remain the same within the subject land. The majority of key vegetation areas on slopes and hillcrests have been avoided. Between key vegetation areas historical clearing is present. Edge effect will be increased marginally through the removal of low and moderate edges of some woodland/forest areas. Distances between scattered trees, and hollow-bearing scattered trees will be increased from removal and will therefore incur an increase in edge effect and connectivity between these features.
Reduced viability of adjacent habitat due to	All PCT/zones All ecosystem credit species	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management.	Temporary	Short-term	Construction and operation	**Low-Moderate.** It is predicted that the adjacent habitat may be impacted in a small way by noise, dust, compaction and light spill, during construction. Despite the large size of the project, significant areas of commensurate habitat will

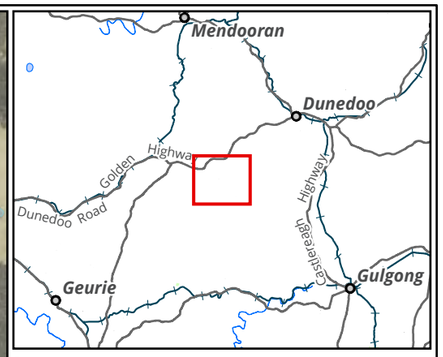
Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood, consequences and justification
noise, dust or light spill	Box-Gum Woodland TEC Fuzzy Box Woodland TEC Grey Box Woodland TEC Pine Donkey Orchid	55.19 ha of adjacent Fuzzy Box Woodland TEC 151.65 ha of adjacent Box-Gum Woodland TEC 56.41 ha of adjacent Grey Box Woodland TEC 3.83 ha of Pine Donkey Orchid known habitat				remain in the immediate locality, that can continue to be utilised by fauna species, away from noise impacts. Impacts during operation will be negligible during operation. However, this will be managed via best practices outlined in a BMP and CEMP or similar. Improve and maintain principles will apply within the BMP to ensure retained areas of adjacent habitat do not decline or are subjected to adverse impacts. A temporary reduction in foraging within the subject land may occur within scattered tree's however, as the development has largely avoided most large patches of vegetation through avoidance of hillcrests and hills noise, dust and light spill impacts are expected to be low.
Transport of weeds and pathogens from within the development footprint to adjacent vegetation	All PCT/zones All ecosystem credit species Box-Gum Woodland TEC Fuzzy Box Woodland TEC Grey Box Woodland TEC Pine Donkey Orchid	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 55.19 ha of adjacent Fuzzy Box Woodland TEC 151.65 ha of adjacent Box-Gum Woodland TEC 56.41 ha of adjacent Grey Box Woodland TEC 3.83 ha of Pine Donkey Orchid known habitat	Unknown	Possibly long-term	Construction and operation	**Low-Moderate.** Weeds occurring within the development footprint are consistent with those occurring within adjacent vegetation to be retained. However there is likely to be a substantial increase in traffic movement through the subject land during the construction phase of the project, and an ongoing increase in traffic through operation. This increase in vehicle movements, with many vehicles coming from other construction sites, has the potential to spread novel weed species within the subject land and strict biosecurity protocols will need to be established and adhered to prevent outbreaks of weeds. Increased transport of pathogens and weeds will be managed by biosecurity measures outlined in the CEMP or similar. During both the construction and the operational phases of the project, regular monitoring and management (weed control) will occur within retained areas adjacent to the disturbance footprint.
Increased risk of starvation, exposure and loss of shade or shelter	All ecosystem credit species HBTs	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 38 remaining HBTs	Unknown	Possibly long-term	Construction and operation	**Low-Moderate**. Improve and maintain principles will apply within the BMP to ensure retained areas of adjacent habitat do not decline or are subject to adverse impacts. Connectivity of vegetation will largely stay the same. Connectivity of habitat with the potential to support Pale-headed Snake will largely remain the same, in general

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood, consequences and justification
						development has been set back from the two key waterway areas, with selective crossings proposed. Removal of HBTs will increase hollow competition for common fauna species within the landscape. The level of change is minimal in the context of the subject land and broader locality and the ecosystem is unlikely to be at carrying capacity such that displaced fauna cannot continue to persist in adjacent retained areas.
Loss of breeding habitats	Hollow dependent fauna	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 38 remaining HBTs	One-off	Long-term	Construction	**Moderate.** The project will remove 45% of HBTs within the subject land, however many more occur in the broader landscape Indirect impacts associated with the loss of breeding habitats are not considered likely to be substantial or significant to any locally occurring threatened, or non-threatened, species based on numbers of retained patches and HBTs. Connectivity remains throughout areas of retained vegetation minimising impacts to threatened species. Indirect impacts may occur to areas of riparian habitat that may be suitable for Pale-headed Snake, however this was not recorded during targeted surveys. Indirect impacts are largely associated with increased competition for suitable habitat and foraging areas. Removal of HBTs will increase hollow competition for common fauna species within the landscape.
Trampling of threatened flora species	Pine Donkey Orchid	3.83 ha of Pine Donkey Orchid known habitat Retained areas of adjacent vegetation containing known threatened flora species, subject to monitoring and adaptive management	One-off	Long-term	Construction	**Low.** Known threatened species recorded within the subject land have been avoided, with offset to residual areas of potential habitat from formulated species polygons. Improve and maintain principles will apply within the BMP to ensure retained areas of adjacent habitat and individuals do not decline or are subject to adverse impacts.
Inhibition of nitrogen	N/A	N/A	N/A	N/A	N/A	**Negligible**. Not expected to result from the project. May be associated with ongoing treatment of nearby agricultural

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood, consequences and justification
fixation and increased soil salinity						land unrelated to the project. Any future excavations or soil disturbance resulting from the future development of the subject land would be largely restricted to areas having undergone significant previous disturbance through cattle grazing and vehicular traffic. As such it is not considered likely that the project would result in substantial changes to the level of nitrogen fixation or soil salinity in the locality.
Fertiliser drift	N/A	N/A	N/A	N/A	N/A	**Negligible.** The subject land has a long history of grazing over its total extent. Grazing is still active in all areas. Exotic species dominance and presence is common. No fertiliser is proposed to be used.
Rubbish dumping	N/A	N/A	N/A	N/A	N/A	**Negligible.** Standard environmental controls for the project will ensure potential impacts are minimised. Works will follow an approved CEMP or similar and specific waste and water management requirements.
Wood collection	N/A	N/A	N/A	N/A	N/A	**Negligible**. Not expected to result from the project. The project is unlikely to increase access to any retained vegetation, beyond current access capacity. Landholders are unlikely to undertake wood collection beyond existing rural approvals within the retained vegetation to a level that it will have a detrimental effect. Unauthorised access and collection of wood is expected to be negligible.
Removal and disturbance of rocks, including bush rock	Ecosystem credit species with preference for bush rock. Pink-tailed Legless Lizard	All hill crests and slopes supporting rocky habitat, bush rocks and partially buried rocks.	One-off	Long-term	Construction	**Low.** The majority of rocky habitat that would support species with a preference for bush rocks and rocky crests will be avoided by the project. Avoid steps have been undertaken to avoid key areas of grassland with partially buried bush rocks. Most of the land to be developed has limited bush rock presence due to extensive history of cropping and is unlikely to support fauna species with a preference for bush rocks.
Increase in predators and pest animal populations	All ecosystem credit species assumed present	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management.	One-off	Long-term	Operation	**Moderate**. Foxes, wild pigs and wild dogs are noted and have been observed on occasion during this assessment, however this is a common occurrence in this rural area. The project is not expected to increase numbers with required mitigation, however movement through the subject land

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase/ timing of impact	Likelihood, consequences and justification
						may be considered to be exacerbated with construction and improved access roads through the subject land. The BMP will detail pest management regimes in order to control foxes within the subject land during construction and operations.
Changed fire regimes	N/A	N/A	N/A	N/A	N/A	**Low.** Appropriate asset protection zones and fire mitigation systems will be implemented for the project and the implementation of bushfire management and mitigation measures for the project will help to manage risk of fire within the subject land.
Disturbance to specialist breeding and foraging habitat, e.g. important mapped areas	All ecosystem credit species assumed present No mapped important habitat is present.	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management.	One-off	Possibly long-term	Construction and operation	**Low.** No mapped areas of important habitat are present within or directly adjacent to the subject land. Improve and maintain principles will apply within the BMP to ensure retained important mapped areas and adjacent habitat do not decline or are subject to adverse impacts.
Fragmentation of movement corridors	All PCT/zones All ecosystem credit species Box-Gum Woodland TEC Fuzzy Box Woodland TEC Grey Box Woodland TEC Pine Donkey Orchid	341.85 ha of adjacent vegetation subject to monitoring, and adaptive management. 55.19 ha of adjacent Fuzzy Box Woodland TEC 151.65 ha of adjacent Box-Gum Woodland TEC 56.41 ha of adjacent Grey Box Woodland TEC 3.83 ha of Pine Donkey Orchid known habitat	One-off	Long-term	Construction and operation	**Low.** The subject land has been subject to previous historical disturbances and is heavily modified in terms of mature woody vegetation. Majority of the woodland and forest vegetation was excluded from the subject land during the site selection process, and further exclusions from the subject land and development footprint were undertaken. Fragmentation within the subject land will largely only be increased through removal of HBTs and scattered trees. Existing connectivity is expected to remain, with some increases to edge effect.





Legend

- Subject land
- Development footprint
- Indirect impact

Figure 17 Estimated zones of indirect impact

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

APEM Group

Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F17-21.aprx
Layout: 38235_F17_IndirectImpact

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

6.4 Prescribed impacts

Identification and assessment of prescribed biodiversity impacts are outlined and addressed in Table 49, and the section below, and shown on Figure 18.

Table 49 Identification of prescribed impacts

Prescribed impact	Description of relevant habitat features associated with prescribed impacts	Threatened species likely to utilise habitat features associated with prescribed impact	Importance of habitat feature to impacted species
Karst, caves, crevices, cliffs, rocks and other geological features of significance	The subject land does not contain any karst, caves, crevices or cliffs. Rocky habitat is present in the form of hillcrests, rocky slopes and partially buried rocks.	Pink-tailed Legless Lizard Kieth's Zeira Pine Donkey Orchid	**Moderate** - Rocky habitat, and partially buried rocks are an important habitat feature for the Pink-tailed Legless Lizard, this species has an association with large flat partially buried rocks and the ant species that occur beneath them. Grassland habitat on slopes adjacent to these areas are also important especially if partially buried rocks are present. This species is at the edge of its range and was not detected during surveys. **Moderate** - Hillcrests and rocky slopes. Keith's Ziera and Pine Donkey Orchid both have the potential to occur in the rocky slopes and shallow rocky soils of the hillcrests within the subject land. All recorded locations of these species will be avoided as they are important locations. Potential areas where these species may occur will be offset where residual impacts could not be avoided.
Occurrences of human-made structures and non-native vegetation	The subject land does not contain any human made structure of note. Roads border the subject land to the north and west, with some local roads dissecting sections of the subject land. Farm fences and dams occur within the subject land. Dams are discussed further below. Extensive cropped land and pasture occurs within the subject land.	Raptor and some owl species are known to forage over farmland, including cropped paddocks. Nesting and roosting in scattered trees and adjacent woodland. Farm fences can be used by some species, such as robins to forage in place of fallen timber in farm landscapes.	**Low** - Exotic vegetation: Some threatened raptor species have the potential to forage over the subject land. Breeding habitat in the form of stick nests were not identified as in use by threatened raptor species. The installation of solar panels will reduce the quantity and quality of farmland foraging habitat for raptor species, but will not remove it entirely with the retention of grassy ground cover. **Low** - Human-made structures. Farm fences hold a very low level of habitat for some species like robins, however, their removal will

Prescribed impact	Description of relevant habitat features associated with prescribed impacts	Threatened species likely to utilise habitat features associated with prescribed impact	Importance of habitat feature to impacted species
			not alter the potential for foraging within the cropped landscape. Rural-residential dwellings and sheds will not be impacted as part of the Project.
Corridors or other areas of connectivity linking habitat for threatened entities	Key areas of habitat within the subject land linking the woodland, forest and riparian vegetation/watercourses and vegetated road reserves to large areas of habitat within the landscaper including the Talbragar River, large areas of woodland and forest directly to the east and numerous national parks, state forest and conservation reserves will be retained. Some fringing areas of woodland and forest will be impacted alongside some vegetation associated with Sandy Creek and Lahey's Creek.	All ecosystem credit species assumed or identified as present.	**Moderate** - Habitat connectivity is critical for maintaining healthy populations, as it promotes biological diversity through the exchange of genes. The project will largely leave connectivity intact with key areas avoided from the early design phases and outlining of the subject land. Connectivity of woodland/forest on hillslopes and crests will be maintained and connectivity of key watercourses will be maintained.
Protected animals that may use the proposed wind farm development site as a flyway or migration route	This prescribed impact is not relevant to the project.	N/A	N/A
Water bodies or any hydrological processes that sustain threatened entities	All watercourses within the subject land form part of the catchment for the Talbragar River. Two perennial creeks, Sandy Creek and Lahey's Creek bisect the subject land. Sandy Creek flows directly into the Talbragar River north of the subject land and runs south-north through the subject land. Lahey's Creek is a tributary of Sandy Creek, starting south of the subject land and running parallel to Spring Ridge Road in the east, before cutting west to join with Sandy Creek. A small portion of Blackheath Creek, a non-perennial tributary of Lahey's Creek is located within the subject land, running under Spring Ridge Road.	All ecosystem credit species assumed or identified as present. Threatened fish habitat.	**Moderate** - Significant alterations to hydrology are not anticipated, as surface drainage would not be altered as part of the project. Stringent mitigation measures are required for the project over watercourses including erosion and sediment control, stormwater run-off and surface water movement. Overall, the project is expected to minimally impact existing surface water quality and flow patterns through the implementation of numerous mitigation and management measures, most of which would be captured in the CEMP or similar.

Prescribed impact	Description of relevant habitat features associated with prescribed impacts	Threatened species likely to utilise habitat features associated with prescribed impact	Importance of habitat feature to impacted species
	Fourteen undefined, unnamed non-perennial first Strahler Stream Order (SSO) watercourses occur within the subject land. Three non-perennial second SSO watercourses occur, including Blackheath Creek. Lahey's Creek is defined as a fourth SSO perennial watercourse. Sandy Creek is defined as a fifth SSO perennial watercourse (Water NSW 2018). Sandy Creek (fifth order) and Lahey's Creek (fourth order) are mapped as Key Fish Habitat by the NSW Department of Primary Industries (DPI) (Figure 1). These watercourses are classified as habitat for the threatened Southern Purple-spotted Gudgeon *Mogurnda adspersa* (DPI 2022).		
Where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community	The project will result in increased vehicle traffic during construction and to a far less extent, operations. This increased vehicle traffic has the potential to impact upon native fauna species that are active during the day, and generally with a higher potential for impact in areas where refuge/forage habitat exists immediately adjacent to areas where vehicle movements will occur. As such, construction traffic moving through the proposed access/electrical cabling corridors is seen as the highest risk.	All fauna ecosystem credit species assumed or identified as present.	**Moderate** - Vehicle strikes to non-threatened, ground dwelling fauna known to inhabit the general area is likely to be an impact already in place due to the existing road network and traffic levels, which may be exacerbated during construction. Low flying ground foraging birds such as Grey-Crowned Babblers and Superb Parrots are also prone to increased collision due to increase in traffic during construction. Repeated vehicle impacts to threatened species such as Superb Parrots could cause an impact to the local population, however the likelihood of repeated strikes is considered low. Many strikes of bird species such as Superb Parrot in agricultural landscapes are caused by grain spillage on roadsides during harvest periods. It can be reasonably expected that the potential for vehicle strikes can be effectively managed through driver awareness training

Prescribed impact	Description of relevant habitat features associated with prescribed impacts	Threatened species likely to utilise habitat features associated with prescribed impact	Importance of habitat feature to impacted species
			on the potential for fauna to occur, as well as on-site measures such as reduced speed limits and signage and education programs for staff. As such, the project is not expected to result in any substantial or significant impacts associated with vehicle strikes outside of what already exists due to the project's proximity to a major regional road corridor and network of local and regional roads. Primary access will be via four access points along Spring Ridge Road and one on the Golden Highway. Internal access roads will be provided within and between the various array areas. Local roads within the Project Area, including Danabar Road, Sandy Creek Road, and Sweeneys Lane, will not be used by the Project during construction except where crossing is required. These local roads experience minimal traffic and are primarily used as access routes for rural properties. These roads will remain open and available for public use throughout the construction and operation of the Project.

6.4.1 Karst, caves, crevices, cliffs, rocks and other geological features of significance

Nature

No karst, caves or cliffs occur within the subject land or known to occur within 2 kilometres of the subject land. Rocky crests, slopes and partially buried rocks occur within the subject land, however, a large portion of these areas have been avoided prior to establishment of the subject land boundary and during the constraints assessment. Further refinements and reductions of the subject land avoided most of these areas. The subject land occurs in the footslopes of a larger range located directly east. Soil mapping within the landscape identified these ridgelines and foothills as forming part of the 'dapper hill' complex.

Extent

Rocky areas generally occurred in proximity to foothills, hillcrests, hills and slopes. Most hills and elevated areas within the subject land are vegetated, with shallow rocky soils with exposed rocks on hillcrests. Hillslopes generally contained partially buried rocks as soil depth increased towards the alluvial plains utilised for cropping. Minimal rocky habitat and partially buried rocks were present in alluvial areas in comparison to sloped areas. The majority of key rocky habitat and partially buried rocks on hill slopes have been avoided.

Duration

This impact would be one-off and permanent.

Consequences for entities detailed in Table 49

Disturbance to any partially buried rocks or rock habitat in the alluvial plain utilised for cropping would be disturbed during construction of the project. Operational impacts would be minor, potential compaction from management of grass levels (mowing) under solar panels and movement of service vehicles throughout the subject land.

6.4.2 Human-made structures and non-native vegetation

Nature

Minimal human made structures occur within the subject land. Roads, fences and dams are the key human made structures. Dams are discussed further within Section 6.4.4 below. The subject land is located directly south of the Golden Highway. Spring Ridge Road forms the eastern border of the subject land. Sandy Creek Road, Danabar Road, Sweeneys Lane and Tallawonga Road bisect the subject land. The majority of the Golden Highway and Spring Ridge Road within or adjacent to the subject land are vegetated and contain moderate to high quality habitat however, the Golden Highway intersection with Spring Ridge Road is already highly disturbed by regular maintenance to retain sightlines. The remaining minor local roads are generally more disturbed.

Fences are present within the subject land, typical of a primary production farm. Fences are generally comprised of star pickets, with plain wire, or cyclone wire, with barb wire present in some locations.

The majority of the subject land is in use for grazing and cropping, with these areas comprised of exotic pastures and agricultural dryland crops. These areas provide extensive foraging areas for many common and threatened fauna species including raptors.

Extent

The extent of this impact is considered to be negligible. Some threatened fauna species such as robins are known to use fencelines when foraging within agricultural landscapes, however, this is not considered a key resource for these species in place of fallen timber.

Although there are large areas of exotic vegetation from cropped and grazed paddocks, the installation of solar panels would not entirely remove the exotic grassland as a foraging resource for these species. Grassy habitat would still remain beneath panels. Common fauna species foraged on by raptor species within this landscape such as quail and European rabbit will still occur.

Duration

This impact would be one-off and permanent.

Consequences for entities detailed in Table 49

The proposed removal of non-native vegetation constitutes a small reduction in general habitat for local flora and fauna populations, however, this is unlikely to be of consequence to the long-term persistence of any species.

Exotic vegetation, including cropped land is known to be utilised by fauna species, such as parrots, raptors, waterbirds and large mammals (e.g., Kangaroo) for foraging. Exotic vegetation, although utilised by some fauna species, is considered to have a low biodiversity value. Impacts to non-native vegetation will not have more than a negligible impact to threatened and non-threatened species. A number of farm tracks would be upgraded for the project, this would include widening of some roads. Existing tracks hold no biodiversity value, however widening of tracks may lead to increases in edge effect for some species.

Removal of fences within the landscape would not incur any impact on common or threatened fauna species. Removal of fences may increase the ability of common fauna species to move within the landscape through the removal of regular barriers.

6.4.3 Habitat connectivity

Nature

Loss of native vegetation and habitat has potential to affect landscape connectivity permanently or temporarily during construction and operation. Connectivity of habitat within the subject land to broader areas within the landscape occurs in two main forms, woodland and watercourses.

The vegetated riparian zones of Sandy Creek and Lahey's Creek that bisect the subject land provide seasonal connectivity both within the subject land and into the broader landscape. Within the subject land the numerous watercourses present provide connectivity between dams, likely used for many common fauna species such as turtles and frogs. The riparian zones connect the subject land to Talbragar River, a key feature within the landscape eventually feeding into the Macquarie River. The numerous dams (around 45) that occur within the subject land provide minor habitat connectivity for common waterbird species such as ducks and cormorants as they move nomadically within the landscape. Riparian watercourses are utilised by many fauna species as movement pathways through the landscape.

The subject land contains vegetated foothills associated with the adjacent mountain range directly east. The adjacent range connects to an extensive network of habitat within a 10 kilometre locality including Tuckland State Forest, Goodiman State Conservation Area (SCA), Yarrobil National Park and Dapper Nature Reserve in the south and east and Cobbora State Conservation Area in the north. The extensive Goonoo State Conservation Area occurs 15 kilometres to the north.

Numerous Travelling Stock Reserves (TSR) are located along the Golden Highway. The Sam Foo Pt Cobborah TSR is located on the intersection of the Golden Highway and Spring Ridge Road. The Medway TSR is located on the intersection of the Golden Highway and Sweeney Lane (LLS 2024). These connectivity features provide breeding, foraging and dispersal resources for terrestrial and arboreal mammals, flying mammals, and avifauna. Barriers to movement of ground dwelling species occur including local roads and the Golden Highway, however connectivity still occurs due to the extensive habitat located to the east and north of the subject land.

Much of the subject land is cleared of native vegetation, and habitat fragmentation is present. The majority of the subject land has been subject to clearing and disturbance of habitat. Some of the cleared foothill areas within the subject land still contain rocky habitat. Majority of the land for about three to seven kilometres to the south and west of the subject land contains cleared agricultural land before vegetated foothills and ranges are present again.

Extent

The key areas of connected outlined above have been largely avoided by the project through extensive analysis starting in early 2012 from the Cobbora Coal Project environmental assessment through to this current assessment. These areas have been high-lighted as high constraints and rigorous avoid and minimise steps have been undertaken, including refining of the subject land and development footprint to avoid key areas of woodland, forest, rocky habitat, Sandy's Creek and Lahey's Creek.

The extent of this impact is considered to be relatively low due to the retention of key habitat connectivity features. Improvement and management of these areas will be outlined in the BMP.

Duration

This impact would be one-off and permanent and subject to stringent mitigation measures.

Consequences for entities detailed in Table 49

Habitat connectivity is critical for maintaining healthy populations, as it promotes biological diversity through the exchange of genes. However, the subject land is largely cleared with most areas of woodland and forest connected along hillcrests leading to larger vegetated areas in the east and riparian areas in the north.

The project may to reduce the width of habitat connectivity areas, but will not remove any key areas of connectivity for aquatic, arboreal or terrestrial species. Key connectivity through the subject land, to external wildlife corridors will be maintained, including woodland, waterways and grassland. The project will not result in the loss of, or substantial impacts to, key functional corridors within the landscape. It is expected that fauna species will continue to utilise the existing corridors within the subject land and broader landscape, with minor or negligible impact to movement patterns and/or population viability.

The project may cause disruption to large ground dwelling fauna such as Kangaroos due to perimeter fencing, however, overall connectivity within the subject land to areas outside the subject land containing

similar habitat or key areas of important habitat would not be impacted or reduced by the project. Key impacts would include reduction of scattered trees, HBTs and minor increases to edge effect. The project as a whole is not expected to incur significant fragmentation or isolation of any areas of woodland, forest, or key riparian habitat.

Mobile threatened fauna species identified within the subject land including Grey-crowned Babbler, Brown Treecreeper, Diamond Firetail and Superb Parrot would not incur a significant loss of connectivity within the subject land to existing habitat or within the broader landscape. These species are still expected to regularly utilise the subject land.

Connectivity and gene flow of TECs and identified threatened flora, Pine Donkey Orchid and Keith's Ziera, would remain largely intact with key vegetation retained along Sandy Creek, Lahey's Creek, hillcrests and road reserves connecting these areas to other potential TEC areas and habitat within the landscape.

6.4.4 Water bodies, water quality and hydrological processes

Nature

Watercourses and waterbodies occur within the subject land. The closest river-mouth is the Talbragar River, which is mapped as a seventh order watercourse (Strahler method) and is located approximately 600 metres to one kilometre north-east to north of the subject land.

All watercourses within the subject land form part of the catchment for the Talbragar River. Two perennial creeks, Sandy Creek and Lahey's Creek bisect the subject land. Sandy Creek flows directly into the Talbragar River north of the subject land and runs south-north through the subject land. Lahey's Creek is a tributary of Sandy Creek, starting south of the subject land and running parallel to Spring Ridge Road in the east, before cutting west across the subject land to join with Sandy Creek. A small portion of Blackheath Creek, a non-perennial tributary of Lahey's Creek is located within the subject land, running under Spring Ridge Road.

Fourteen undefined, unnamed non-perennial first SSO watercourses occur within the subject land. Three non-perennial second SSO watercourses occur, including Blackheath Creek. Lahey's Creek is defined as a fourth SSO perennial watercourse. Sandy Creek is defined as a fifth SSO perennial watercourse (Water NSW 2018).

Sandy Creek (fifth order) and Lahey's Creek (fourth order) are mapped as Key Fish Habitat by the NSW DPI. These watercourses are classified as habitat for the threatened Southern Purple-spotted Gudgeon *Mogurnda adspersa* (DPI 2022). Talbragar River is also mapped as habitat for the threatened Eel Tailed Catfish *Tandanus tandanus* (DPI 2022).

The numerous dams (around 45) that occur within the subject land provide minor habitat connectivity for common waterbird species such as ducks and cormorants as they move nomadically within the landscape. The dams provide permanent water and are utilised by common fauna species including turtles.

Extent

PV arrays are only proposed over first SSO streams within the subject land. These undefined, unnamed watercourses have been subject to a history of disturbance from cropping and grazing and are largely devoid of native vegetation. In some areas, defined bed and banks are reduced due to agricultural practices. Despite a history of disturbance, these watercourses are likely to still have pooled or a low level of running water

during high or prolonged rainfall events. These watercourses are generally unlikely to host fish habitat but feed water catchment into larger connected systems including Lahey's Creek and Sandy Creek.

Development and infrastructure has largely been avoided for Lahey's Creek and Sandy Creek. One creek crossing across Lahey's Creek is proposed in the south-east where an existing road access point is present from Spring Ridge Road. An easement is proposed over Lahey's Creek just prior to its connection to Sandy Creek. This would include 33 kV poles either side of the creek (set back a minimum of 25 metres from riparian vegetation where possible) and overhead cable connection. The 330 kV easement running north-south would also cross at this point, with 330 kV towers set back a minimum of 40 metres from riparian areas. Two 33 kV easements with poles set back from the riparian vegetation is proposed over Sandy Creek in the north-west of the subject land. One 12 metre-wide road crossing is proposed through a section of Sandy Creek in the west of the subject land, aerial imagery indicates an existing crossing is not located within this area. Up to three bridge crossing structures will be required, one - two over Sandy Creek and one over Lahey's Creek. No piers or columns will be located within the creek, with a clear span across the creek.

No fish habitat would be lost. Stringent mitigation measures are recommended regarding run-off, sedimentation and siltation and potential impacts within Sandy Creek from the proposed crossing.

In the current design, around 31 of the approximately 45 dams are proposed for removal.

Groundwater may be utilised by the project and is subject to further investigation and assessment as part of the EIS. The distribution of alluvial sediments and the water table may be within the tree root depth of 3-5 meters.

Duration

This impact would be one-off and permanent and subject to stringent mitigation measures.

Consequences for entities detailed in Table 49

If unmanaged, ground disturbance during earthworks and other site activities may lead to exposure of soils and potential erosion and mobilisation of sediment into receiving watercourses.

- Water management will be covered within the CEMP and BMP to ensure:
- Minimisation of discharge from the construction and operational site.
- Maintaining current water flow regimes within the landscape of the subject land.
- Providing industry best practice erosion and sedimentation controls.
- Provide monitoring requirements to ensure longer-term impacts are realised if they are to occur.

No significant alterations to hydrology and drainage lines are anticipated. Surface drainage would not be altered as part of the project. Stringent mitigation measures are required for the development over first SSO watercourses including erosion and sediment control, stormwater run-off and surface water movement. Overall, the project is expected to minimally impact existing surface water quality and flow patterns through the implementation of numerous mitigation and management measures, most of which would be captured in the CEMP.

A flood assessment has been completed for the project, analysing flood events and high rainfall peaks through hydraulic modelling. The flood assessment outlined erosion and sediment control methods required from construction to decommissioning.

Up to three bridge structures will be constructed, one – two across Sandy Creek and one across Lahey's Creek. Construction of the bridge structures will include bridge deck levels tying into the natural ground level at each respective creek embankment. No piers or columns will be located within the creek, with a clear span across the creek. No instream work would be completed as part of construction. The project would not impact Key Fish Habitat and potential threatened fish habitat. Some clearing may be required of riparian woody vegetation to construct the bridge structures. The project is highly unlikely to incur substantial increases in sedimentation downstream or blockage of fish passage during construction.

6.4.5 Vehicle strikes

Nature

The project has the potential to result in vehicle strikes during construction from increased light and heavy vehicle movements. Increased traffic on external roads and increased traffic movements within the site will be substantial during the construction phase of the project and will remain at levels higher than the current situation during operation. The increased vehicle movements have the potential to affect ground-dwelling and low-flying fauna, and will require mitigation to prevent impacts to a range of threatened and non-threatened species.

Extent

Increased heavy vehicle movements would occur, predominantly during construction. The existing public roads, such as the Golden Highway, Spring Ridge Road, Sandy Creek Road, Danabar Road, Sweeneys Lane and Tallawonga Road bisect and border the subject land. Heavy vehicle traffic would increase on these roads, namely Spring Ridge Road. Construction vehicles would primarily use internal roads developed as part of the project. No use of Council roads are expected except to access and cross the project area. Sturdier perimeter fencing may create a barrier that prevents access to the subject land, however this will be designed so as not to funnel mobile large ground dwelling fauna towards rural roads.

Internal roads are also proposed, including an accommodation camp, and therefore light vehicle traffic would increase, largely during construction., However, operational vehicle movements are less likely to be higher than the current vehicle movements across the existing agricultural land use.

Primary access will be via four access points along Spring Ridge Road and one on the Golden Highway/Spring Ridge Road intersection. Internal access roads will be provided within and between the various array areas. Local roads within the Project Area, including Danabar Road, Sandy Creek Road, and Sweeneys Lane, will not be used by the Project during construction except where crossing is required. These local roads experience minimal traffic and are primarily used as access routes for rural properties. These roads will remain open and available for public use throughout the construction and operation of the Project.

Duration

This impact would be ongoing but temporary, limited to predominantly the construction stage, with minor increase in impacts during operation.

Consequences for entities detailed in Table 49

Non-threatened, ground dwelling fauna known to inhabit the general area, particularly macropods such as Eastern Grey Kangaroo and common bird species like Galah, are notoriously prone to vehicle strike. Vehicle

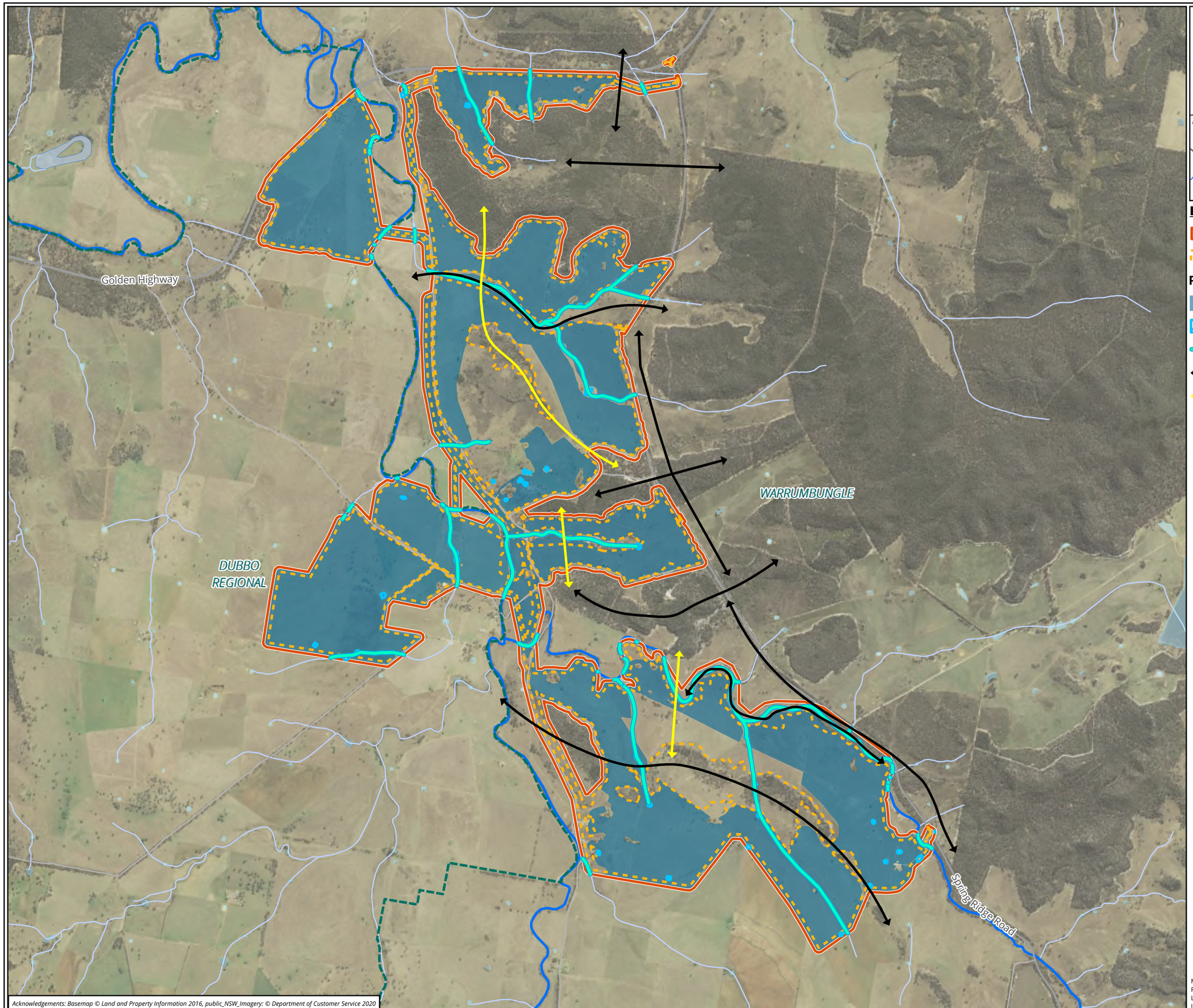
strike of macropods is likely to be an impact already in place due to the existing road network and traffic levels, which may be exacerbated during construction.

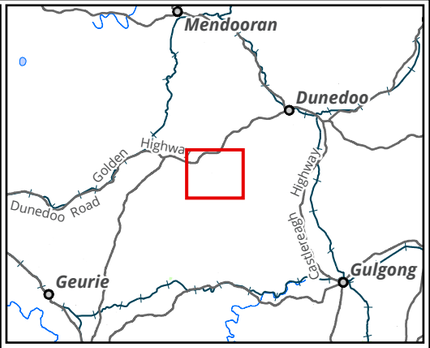
Low flying, ground foraging threatened birds such as Grey-crowned Babblers and Superb Parrots are also prone to collision which may increase during construction. Repeated vehicle impacts to threatened species such as Superb Parrots could cause an impact to local population, however the likelihood of repeated strikes is considered low. Many strikes of bird species such as Superb Parrot in agricultural landscapes are caused by grain spillage on roadsides during harvest periods. Large raptor species, such as Wedge-tailed Eagles, when feeding on carrion along roadside edges, are also prone to strike due to their slow and often last minute, flight take off

It can reasonably be expected that the potential for vehicle strikes can be effectively managed though:

- Reduced speed limits.
- Education on fauna species, particularly threatened species, at risk from vehicle strike.
- Minimising driving from construction or operational related vehicle from dusk – dawn.
- Driver awareness training of potential fauna to occur.
- On site measures including reduced speed limits and signage.
- Vehicle strike protocols, including contact numbers (e.g. WIRES) and steps to be undertaken in the event of a vehicle strike with an animal.
- Prompt carcass removal, if collision do occur to prevent further potential collisions with scavengers.
- Monitoring of roads and collisions and mapping of any hotspots where increased mitigation may be required.

As such, the project is not expected to result in any substantial or significant impacts associated with vehicle strikes outside of what already exists due to the project's proximity to a major regional road and the network of local roads.





Legend

- Subject land
- Development footprint

Prescribed impacts

- Cat 1 - Exempt Land
- Dam
- Waterway
- Major habitat connectivity
- Minor habitat connectivity

Figure 18 Prescribed impacts

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

APEM Group

Matter: 38235, Date: 03 March 2025
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F17-21.aprx
Layout: 38235_F18_PrescImpact

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

6.5 Impacts considered uncertain – Partial loss beneath solar arrays

At this stage of the assessment, a total loss of groundcover has been assumed to occur as a direct impact within the development footprint, including areas of temporary shading and in between solar panel row alignments, as well as APZs. This is considered a highly conservative measure as groundcover. potentially at a reduced level of biodiversity value, is known to persist in currently operating solar farms in NSW. It is likely that a direct impact would not result in complete loss of all biodiversity value. With required management between arrays and APZs for bushfire and insurance purposes, the level of value that remains post construction is highly uncertain and difficult to quantify. However, it has been estimated at a best case, approximately an 80% loss of biodiversity value, with 20% to remain, compared to that prior to construction and under current land use regimes. This is not expected to be considerable, across much of the development footprint, given the quantity of Category 1- Exempt Land that currently comprises a lower level of native biodiversity.

6.6 Cumulative Impacts

An assessment of proposed and current renewable energy and other projects within similar PCTs, habitats and sited in the CWO REZ within 30 kilometres of the project has been carried out to provide a summary of potential cumulative impacts to biodiversity (Table 50). Additional to the Cobbora Solar Farm, 12 large scale renewable energy related projects and related infrastructure proposals all impacting upon similar PCTs, habitats and threatened species have been considered.

It is important to recognise that the CWO REZ is currently a highly competitive landscape for renewable energy development and project outcomes will largely be determined by the NSW Government allocation of access rights to the limited transmission infrastructure present. For example, the NSW Government registration of interest, in June 2020 for the CWO REZ received 113 registrations, representing 27 gigawatts of electricity (more than nine times the originally intended 3 gigawatts capacity) from potential generation and storage projects. Access to the CWO REZ transmission lines will be managed by the NSW Government in accordance with the NSW *Electricity Infrastructure Investment Act 2020* (EII Act). A competitive tender process for transmission "access rights" will be administered by AEMO Services (ASL). The mix of technologies and size of projects that will be built in the CWO REZ will, to a large extent, be determined by the outcomes of this competitive auction process. This process would limit the scale of development within the CWO REZ and means that the cumulative impacts required to build the CWO REZ to its maximum capacity would be less than that predicted for the full extent of all projects currently proposed.

The summary of biodiversity impacts from publicly available information was reviewed to gain an understanding of the main biodiversity impacts and how these may contribute to cumulative impacts when considering the development of the project.

Table 50 Cumulative impact summary

Project, description and location	Distance	Overview	Potential biodiversity impacts
Sandy Creek Solar Farm (Assessment)	<1km adjacent west	• Construction and operation of a 700 MW (AC) solar farm. • Installation of a 700 MW BESS. • Connection to the connecting the solar farm to the Elong Elong Energy Hub.	• Direct impact on Box-Gum Woodland 1.17 ha BC Act, 0.97 ha EPBC Act. • Direct Impacts on Fuzzy Box Woodland, 0.64 ha BC Act. • Direct Impacts on Grey Box Woodland, 1.5 ha BC Act, 1.39 ha EPBC Act. • Spotted Harrier, Speckled Warbler, Pine Donkey Orchid species credits. • Direct impacts to PCT 81 1.5 ha, PCT 201 14.81, PCT 266 1.15 ha, PCT 281 0.00 ha, PCT 468 0.74, PCT 599 1.22 HA
Dapper Solar Farm (EIS Phase)	<1km adjacent south	• 300 megawatts (MW) and would connect to the CWO REZ transmission line and network infrastructure via a proposed substation which would be located along Dapper Road.	• 186 ha PCT 511. 18 ha PCT 202, 10 ha PCT 281, 57 ha PCT 78, 27 ha PCT 267 in subject land. • Fuzzy Box Woodland. • Box-Gum Woodland.

Project, description and location	Distance	Overview	Potential biodiversity impacts
			• About 176 hectares across the Project area would not be disturbed to avoid impacts to riparian habitat, waterways, areas of high biodiversity value and to minimise potential impact from areas mapped as bushfire prone land.
Spicers Creek Wind Farm (Determination - Approved)	<1km adjacent north of Golden Highway	• 117 wind turbine generators (WTGs), battery storage facilities and associated infrastructure, ancillary infrastructure and temporary facilities.	• The Project proposes to remove 269.2 ha of native vegetation of which 269.2 ha meets the offsetting threshold under the Biodiversity Offset Scheme (BOS). Of this, 96.9 ha conforms to Threatened Ecological Communities (TECs) under the BC Act. • 2.7 ha PCT 81, 16.7 ha PCT 266, 48.2 ha PCT 267, 76.7 PCT 272, 27.6 PCT 281, 93.2 ha PCT 467, 4 ha PCT 468. • Superb Parrot, Glossy Black-cockatoo, Barking Owl breeding habitat species credit impacts.
Orana Wind Farm (EIS Phase)	9.5 km east	• 92 windturbines and supporting infrstucture. • Up to two BESS, capacity up to 100 MW.	• 744 ha of vegetation mapped under SM across 21 Potential PCTS. • Potential Box-Gum Woodland, Grey Box Woodland and Fuzzy Box Woodland TEC. • Potential threatened species habitat.
Avonside Solar Farm (EIS Phase)	11 km east	• 180 MW solar farm and a 400 MW capacity BESS.	• Two PCTs identified on SVM mapping, PCT 468 and PCT 437. • Potential Box-Gum Woodland TEC.
Dunedoo Solar Farm (Determination - Approved)	19.5 km north-east	• 66 MW solar farm and 66kV overhead Transmission Line (approximately 2.1km long) connecting the Project's substation to the existing Essential Energy Dunedoo substation.	• Direct impacts to 0.06 ha PCT 201, 0.26 ha PCT 78, 0.58 ha PCT 281. • 2.18 ha direct impacts to Box-Gum Woodland. • 1.86 ha direct impacts to Fuzzy Box Woodland.
Tallawang Solar Farm (Assessment)	22.5 km north-west	• 500 MW solar farm with BESS and associated infrastructure and works.	• Direct impact to 58.4 ha PCT 81, 121.85 ha PCT 281, 0.92 ha PCT 318. • Southern Myotis, Bluegrass species credits.

Project, description and location	Distance	Overview	Potential biodiversity impacts
Bellambi Heights BESS (Determination)	24 km south-west	• 204 MW BESS.	• Direct impacts to 1.07 ha PCT 266, 0.05 ha PCT 277, both PCTs are BC Act Box-Gum Woodland.
Mavis Solar Farm (Withdrawn)	25 km south-west	• NA withdrawn	• NA withdrawn
Beryl Solar Farm (Determination – Approved with CoC)	24 km south-west	• 100 MW solar farm.	• Direct impacts to 17.13 ha PCT 281, BC Act Box-Gum Woodland.
Beryl BESS (RtS Phase)	24 km south-west	• 100 MW BESS.	• Direct impacts to 4.07 ha PCT 281.
Mayfair Solar Farm (Exhibition – submission closing 29th Janaury 2025)	28 km south-west	• 60 MW folar farm with 60 MW BESS.	• Direct impacts to 0.73 ha PCT 201 Fuzzy Box Woodland BC Act.

7 Mitigation and management of impacts

Identification of measures to mitigate or manage impacts (Table 51) has been undertaken in accordance with the BAM (DPIE 2020a), including considerations such as:

- Techniques, timing, frequency and responsibility.
- Identification of measures for which there is risk of failure.
- Evaluation of the risk and consequence of any residual impacts.
- Documentation of any adaptive management strategy proposed.
- Identification of measures for mitigating impacts related to:
- Displacement of resident fauna.
- Indirect impacts on native vegetation and habitat.
- Mitigating prescribed biodiversity impacts.

Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain.

There is a significant opportunity for the project to further minimise biodiversity impacts through the application of adaptive management and monitoring measures to promote the retention of native groundcover within the development footprint. The project is well-positioned to take a forward thinking approach to developing biodiversity avoidance and mitigation measures which exceed typical statutory requirements for large-scale solar development. The proposed measures would encourage the project to better follow the impact mitigation hierarchy of ensuring impact avoidance and mitigation are fulfilled before offsetting is pursued.

Table 51 Measures to mitigate and manage impacts

Measures to mitigate and manage impacts	Action	Outcome	Timing	Responsibility
Displacement of resident fauna	A Biodiversity Management Plan (BMP) would be prepared and implemented as part of the CEMP. It will include: • Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas. • Species lists for potential revegetation works • Maintenance and monitoring requirements. • Pre-clearing survey requirements. • Clearing protocols. • Procedures for unexpected threatened species finds and fauna handling. • Location of fauna furniture and escape structures adjacent to forested areas, and away from main public roads and access. • Protocols to monitor the vegetation condition and habitat values of any such retained vegetation. • Provisions for corrective actions should a decline in vegetation or habitat condition be detected. • Prescriptions for the protection and ongoing management of the occurrences of Pine Donkey Orchid within the development footprint. • Inclusion of relevant subplans, including but not limited to vegetation management plan, rehabilitation and fauna management plan.	Effective management of resident flora, fauna and ecological communities to minimise direct and indirect impacts.	Pre-construction, construction, and post construction.	The Applicant /contractor.
Indirect impacts on native vegetation and habitat	• Exclusion zones, including flashing on perimeter fencing to restrict climbing fauna and escape structures near forested areas and retained vegetation should fauna become trapped. • Frog exclusion fencing would be set up at the limit of clearing and surrounding riparian corridors to be retained. • Weed species would be managed as part of the Biosecurity Management Plan prepared as part of the Project's CEMP and Operation Environmental Management Plan (OEMP) and it will include measures to .reduce the risk of spreading weeds and pathogens, and other biosecurity items into or out of the impact area upon implementation.	Effective management of potential indirect impacts such that they do not occur or are minimal.	Pre-construction and construction.	The Applicant /contractor.

Measures to mitigate and manage impacts	Action	Outcome	Timing	Responsibility
	• Shading and artificial light impacts would be minimised through detailed design. • All material stockpiles, vehicle parking and machinery storage, and other ancillary works are to be located within areas considered impacted within the current assessment and not be located within retained vegetation outside the impact area unless an updated impact assessment is undertaken. • Dust suppression is to be undertaken as required using water sprays, water carts or other media on: – Unpaved work areas subject to traffic or wind. – Sand, spoil and aggregate stockpiles. – During the loading and unloading of dust generating materials. • Consider biodiversity as sensitive receivers in noise and vibration management plan. • Noise will be managed as part of the CEMP. • Lighting will be designed in general accordance with Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting. • Two stage pre-clearing protocols, including pre-clearing inspections, establishment of exclusion zones and on-ground identification of specific habitat features to be retained and/ or relocated. • All employees, contractors and subcontractors working on site must undertake an environmental site induction prior to commencement of works. The detail of the induction will be developed as part of the CEMP, OEMP and Decommissioning Plan. • Construction areas, not required for operational purposes, will be rehabilitated following completion of construction works. • Protection for fauna mortality due to entrapment within cable trenching will be minimised by: • Minimising to the extent practicable the period the trench is open – Providing opportunities for fauna to egress the trench, such as trench plugs or other appropriate mechanisms			

Measures to mitigate and manage impacts	Action	Outcome	Timing	Responsibility
	– Regular inspection of open trenches by suitably qualified personnel to remove trapped fauna as required, and prior to commencement of works if trenches were left open overnight.			
Mitigating prescribed biodiversity impacts	**Habitat connectivity** • Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas. • Considerations of a biodiversity corridor to occur within the subject land to aid in habitat connectivity and provide additional linkages to retained patches. • Pre-clearance clearing protocols. **Water bodies, water quality and hydrology** • Preparation of an adaptive management component of the BMP outlining a cycle of 'do, monitor, evaluate and respond'. Note this is, the foundation of adaptive management widely applied to terrestrial and aquatic ecosystem management. • Consider further design refinements to minimise impact to Sandy Creek. • Avoid works in waterways as far as practicable between November and March, in the event of increased flooding and increased potential of threatened fish present within the creeks. • Prepare a CEMP and OEMP that will: – Describe measures that will be employed to minimise soil erosion and the discharge of sediment and other pollutants from the site during construction of the Project. – Describe how water will be managed to achieve compliance with relevant consent and licence conditions. – Establish responsibilities and reporting requirements. – Establish surface water quantity and quality monitoring requirements. – Establish erosion and sedimentation controls within impacted sections of riparian corridors.	Effective management of prescribed impacts such that they do not occur or are minimal.	Pre-construction, construction and post-construction.	The Applicant /contractor.

Measures to mitigate and manage impacts	Action	Outcome	Timing	Responsibility
	• Establish trigger action response plans to enable progressive improvement. **Vehicle strike** • Speed limit for construction vehicles along relevant areas of Spring Ridge Road, Dapper Road and Sandy Creek Road, as well as site access roads, should be reduced to minimise increased risk of vehicle strike on fauna. • Speed limits within the subject land should be enforced for the life of the project. • Fauna species (particularly threatened species) susceptible to vehicle strike will be included in project inductions to increase knowledge of the wildlife occurring within the subject land. • A vehicle strike protocol, including details of local WIRES contacts will be created and made available to all staff. • Suitable speed limit reductions will be determined during preparation of the BMP.			
Adaptive management strategies proposed to monitor and respond to impacts on biodiversity values that are uncertain	• The CEMP would include an adaptive management component, for impacts on biodiversity that are uncertain such as: – Inadvertent impacts to native vegetation adjacent to the Development Footprint. – Introduction of pests, pathogens and weeds to native vegetation adjacent the Development Footprint and further afield. – Vehicle strikes.	Effective management of uncertain impacts to biodiversity by ensuring intervention can occur as needed.	Pre-construction, construction and post-construction.	The Applicant /contractor.
Protection and management of waterways and fish passage	• Waterway crossings will be designed and constructed to: – Consider the appropriate level of serviceability and flood immunity required for the Project – Consider local hydraulic conditions and minimise scour potential – Minimise local flooding impacts – Be consistent with relevant guidance including the *Guidelines for watercourse crossings on waterfront land* (DPE 2022a) and *Why do*			

Measures to mitigate and manage impacts	Action	Outcome	Timing	Responsibility
	Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull & Witheridge 2003). – Ensure no in-stream structures occur. • A protection zone will be applied for all creeks within the development footprint to protect remaining riparian vegetation from being impacted by the construction and operation of the Project. Riparian protection zone widths and activities allowed within those zones will be in line with the NRAR's Guidelines for Controlled Activities on waterfront land—Riparian corridors (DPE 2022e). • Earthworks associated with waterway crossing construction will only take place during periods of low/no flow periods to minimise disturbance and prevent poor downstream water quality. Fish passage will be maintained throughout the construction process utilising guidance from DPI			

7.1 Biodiversity Management Plan

A BMP will be implemented demonstrating adaptive management strategies to ensure key milestones are achieved. The BMP will be reviewed and approved by RDD prior to construction, and include the following project commitments:

- Protecting vegetation and fauna habitat outside the development footprint and managing the remaining remnant vegetation and fauna habitat within or surrounding the subject land toward a benchmark state using improve and maintain principles, minimising indirect impacts, especially to known threatened flora species and potential fauna species such as the Superb Parrot.
- Additional and appropriate measures to improve and maintain value to SAII communities.
- Demarcation of retained areas of vegetation and consideration of biodiversity corridors to improve connectivity.
- Installation of flashing on perimeter fencing to restrict climbing fauna and escape structures near forested areas and retained vegetation should fauna become trapped within the perimeter fencing.
- Ongoing vegetation monitoring of isolated retained vegetation areas including collection of BAM plots prior to construction (if no baseline data is applicable) and at year 1, year 2 and year 3 post construction.
- Training and education awareness for all construction staff and operational staff on key threatened species, both flora and fauna, relevant to the region and project.
- Contain relevant sub plans for overall weed and biosecurity management, groundcover) management, pest animal management and rehabilitation management.
- Fauna monitoring and management protocols including identification and reporting of fauna mortalities to the relevant authorities.
- Collection of detailed baseline weed data and ensuring no increase of key emerging weeds or invasive pests.
- Commit to ongoing consultation with LLS on fox control and baiting programs.
- Marking and identification of retained tree hollows and measures to minimise impacts to these features.
- Two stage pre-clearing protocols, including pre-clearing inspections, establishment of exclusion zones and on-ground identification of specific habitat features to be retained and/or relocated.
  - For example, occupation surveys for no go threatened flora areas, application of exclusion measures/deterrents prior to vegetation clearing / earthworks, works undertaken in presence of spotter/catcher.
- Monitoring of soil and water controls to prevent indirect impacts associated with water pollution.
- Clear performance targets and monitoring criteria.
- Corrective actions.
- Timing and responsibilities.
- Annual reporting requirements and consultation program with the relevant regulator.

A recommended outline of the BMP is provided below with further details demonstrated within the mitigation measures listed in Table 51.

- Introduction:
  - Background
  - Management scope and objectives.
- Planning requirements
- Construction and operational activities
- Habitat management:
  - Flora and fauna values
  - Soils
  - Weeds and pests (i.e. key emerging weeds and priority weeds)
  - Baseline data.
- Biodiversity mitigation measures
- Site specifics
  - Inductions
  - Erosion /sediment control
  - Retained vegetation and rehabilitation works.
- Adaptive management
  - Performance criteria, triggers, and responses
- Compliance management
- Review and Improvement.

7.2 Adaptive management strategy

Many impacts are difficult to predict or assess prior to commencement of a project and therefore the CEMP, OEMP or similar will contain an adaptive management component, particularly for the management of groundcover.

A ground cover management plan would be prepared that outline the management principles, mitigation measures and monitoring requirements during construction and operation of the Project, to ensure potential impacts from erosion and loss of land capability are minimised through the retention of ground cover. The guiding principle of the groundcover management plan would be to ensure stability of the soil surface, protecting it from erosion, weed infestation and a loss of soil capability. The groundcover management plan would aim to retain as much perennial grass cover as possible as this provides long term resilience and improved ecosystem functionality.

Adaptive management strategies will be receptive to any new and relevant data that may arise through ongoing assessment and monitoring. These strategies are key to the successful implementation of crucial objectives yet also allow flexibility to changing dynamics and ongoing feedback and results. The adaptive management strategies include measures to monitor predicted and uncertain impacts which will trigger adaptive management actions and allow for effective and quick responses. Management plans reviewed and approved by CPHR will contain key adaptive management components.

7.3 Mitigation cost estimates for significant impacts

Costs of mitigation as a result of significant impacts from the project will be included in the BMP (post approval) once final designs are known.

8 Impact summary

8.1 TECs and threatened species

This section outlines the impact summary for the project which has identified and assessed impacts on TECs and threatened species that are at risk of a SAII including:

- Addressing all criteria for each TEC listed as at risk of an SAII present on the subject land.
- Addressing all criteria for each threatened species at risk of an SAII present on the subject land.
- Documenting assumptions made and/or limitations to information.
- Documenting all sources of data, information, references used or consulted.
- Clearly justifying why any criteria could not be addressed.
- Identifying of impacts requiring offset.
- Identifying of impacts not requiring offset.
- Identifying of areas not requiring offset.

Figure 19 shows the location of threatened species at risk of an SAII within the subject land. Figure 20 shows the location of impacts requiring offset, impacts not requiring offset and areas not requiring assessment.

8.2 Serious and irreversible impacts

In accordance with Clause 6.7 of the BC Regulation an impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct because:

- Principle 1: It will cause a further decline of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.
- Principle 2: It will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size.
- Principle 3: It is an impact on the habitat of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution.
- Principle 4: The impacted species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity and therefore its members are not replaceable.

Two communities are considered to meet the above principles:

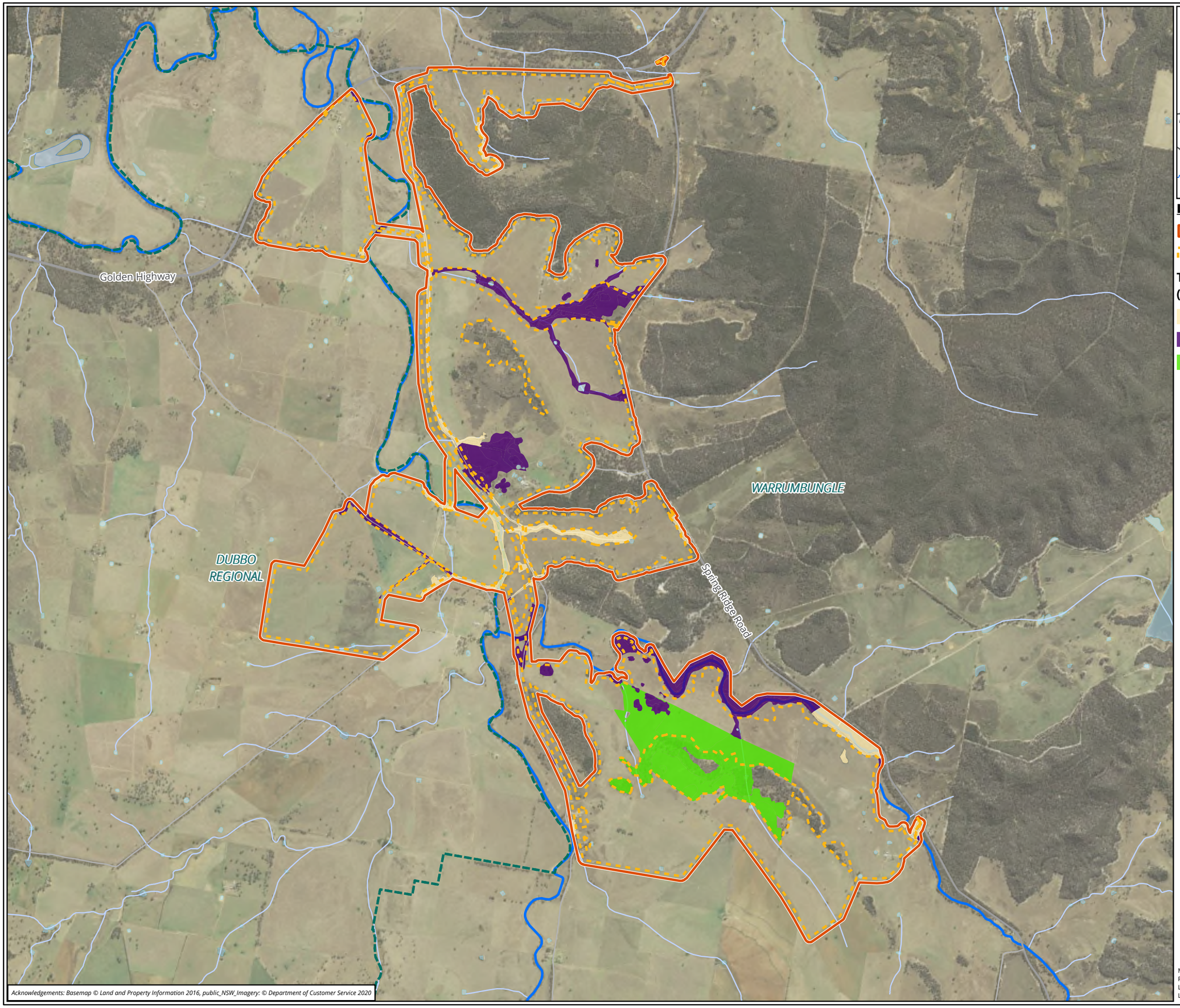
- Box-Gum Woodland
- Fuzzy Box Woodland

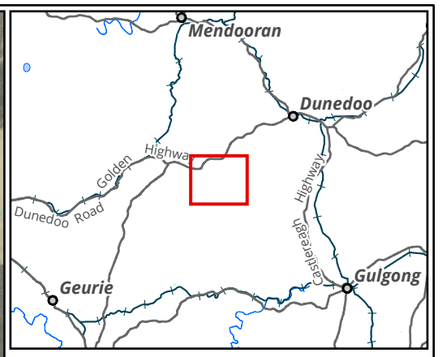
Detailed SAII assessment is provided in Appendix 5. A summary of the results of the SAII is provided below in Table 52. Despite substantial avoidance and minimisation throughout project design, and as a result of the location of these communities in the landscape (alongside creeklines and roadsides), it is assumed that SAII are considered likely. As a result, additional and appropriate measures will be developed in consultation with CPHR and detailed within the BMP.

Table 52 SAII summary

SAII entity	Summary of assessment
Box-Gum Woodland	Box Gum Woodland (PCT 281 and 599) is listed as a CEEC under EPBC Act and BC Act. The CEEC is listed in the BioNet Threatened Biodiversity Data Collection as an entity potentially subject to SAII in NSW. The CEEC is considered an entity at risk of SAII based on the following principles (DPIE 2019): • Principle 1: an ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline. • Principle 2: an ecological community that is observed, inferred or reasonably suspected to be severely degraded or disturbed. Impacts to BC Act Box Gum Woodlands under the current assessment include 108.44 ha of the CEEC in low, moderate and DNG conditions of PCT 281 and PCT 599. Approximately 56.88 ha (52%) has a VI of <15, and therefore considered not a viable portion of the TEC in accordance with the BAM, albeit, still meeting broad requirements of the scientific determination. Measures undertaken by the Applicant to avoid and minimise impact to the CEEC are provided within section 5 and section 7. The final development has been sited to avoid complete removal of the community within the subject land, with retention of 58.3% of this, amounting to around 151.55 ha. The majority of the impact to this CEEC occurs across low condition and DNG zones, with high condition zones avoided and over 80% of moderate condition zones avoided. Removal of this TEC within the development footprint currently occurs on the fringing edges of larger patches to be retained, and alongside a few isolated patches. Key areas of connectivity and moderate/high condition zones would be retained. The project is not expected to impact the overall long-term viability of this TEC within the subject land or broader assessment area. The area of Box-Gum Woodland proposed for removal amounts to around 3.65% of the potential 2,973.71 ha of mapped vegetation associated with Box-Gum Woodland within 10 km of the subject land. Within NSW there is around 58,864 ha of PCT 281 and PCT 599, the impacts within the development footprint equate to around 0.18 % of this area. Within a 500 m buffer there is around 309.8 ha of PCT 281 and PCT 599. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, following construction of the project. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the project. In addition to offset credit obligations, additional and appropriate measures to improve and maintain local Box-gum woodland values will be developed in consultation with CPHR and stipulated with the BMP.
Fuzzy Box Woodland	Fuzzy Box Woodland (PCT 201) is listed as an EEC under the BC Act. The EEC is listed in the BioNet Threatened Biodiversity Data Collection as an entity potentially subject to SAII in NSW. The EEC is considered an entity at risk of SAII based on the following principles (DPIE 2019): • Principle 1: an ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.

SAII entity	Summary of assessment
	• Principle 2: an ecological community that is observed, inferred or reasonably suspected to be severely degraded or disturbed. • Principle 3: an ecological community with a very limited geographic distribution. Impacts to Fuzzy Box Woodlands under the current assessment include 8.71 ha of the EEC in low and moderate condition PCT 201. These patches of the EEC remaining in the local area contribute to the long-term viability of the community. This EEC is limited in its distribution, and as such, all areas are considered important. Avoidance and minimization steps have been undertaken as part of the project design, with 86.37% of this TEC retained within the subject land. The majority of impacts to this EEC occur within low condition areas, with 93.41% of the moderate condition zone retained. Impacts are generally placed to occur on the edges of patches incurring an increase in edge effect and minor reduction in patch sizes. Some minor fragmentation within the subject land would occur, however, would still be connected by grassland species of PCT 201 beneath panels and overhead cabling. The proposed impacts within the development footprint make up around 2.25% of the 383.35 ha of associated PCTs within 10 km of the subject land. According to existing vegetation mapping by DPIE (DPIE 2016), there are several patches of Fuzzy Box Woodlands remaining within 500 m of the subject land of PCT 201. These areas equate to around 63.89 ha. The project will reduce the presence of this EEC within a 500 m radius, based solely on PCT 201 mapping, by 13.5%. The total area of the EEC to be impacted by the project equates to 0.14% of the estimated 6,000 ha remaining of this TEC within NSW. This impact occurs in the eastern portion of the EEC's geographic distribution. Connectivity is present along alluvial areas but is fragmented from agricultural practices. Some connectivity occurs from the subject land to the broader landscape. Remnant patches of Fuzzy Box Woodlands mapped across the subject land are directly connected to vegetation within the subject land. Connectivity within the landscape surrounding the subject land is high, with connectivity provided via riparian and alluvial areas from a network of watercourses and catchment feature leading to the Talbragar River in the north. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, following construction of the project. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the project. Indirect impacts from the project are considered unlikely given mitigation measures, including preparation of a CEMP, to be implemented. In addition to offset credit obligations, additional and appropriate measures to improve and maintain local Fuzzy Box woodland values will be developed in consultation with CPHR and stipulated with the BMP.





Legend

- Subject land
- Development footprint

Threatened ecological communities (BC Act)

- 201 - Fuzzy Gum Woodland
- 281 - Box Gum Woodland
- 599 - Box Gum Woodland

Figure 19.1 Serious and irreversible impacts

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

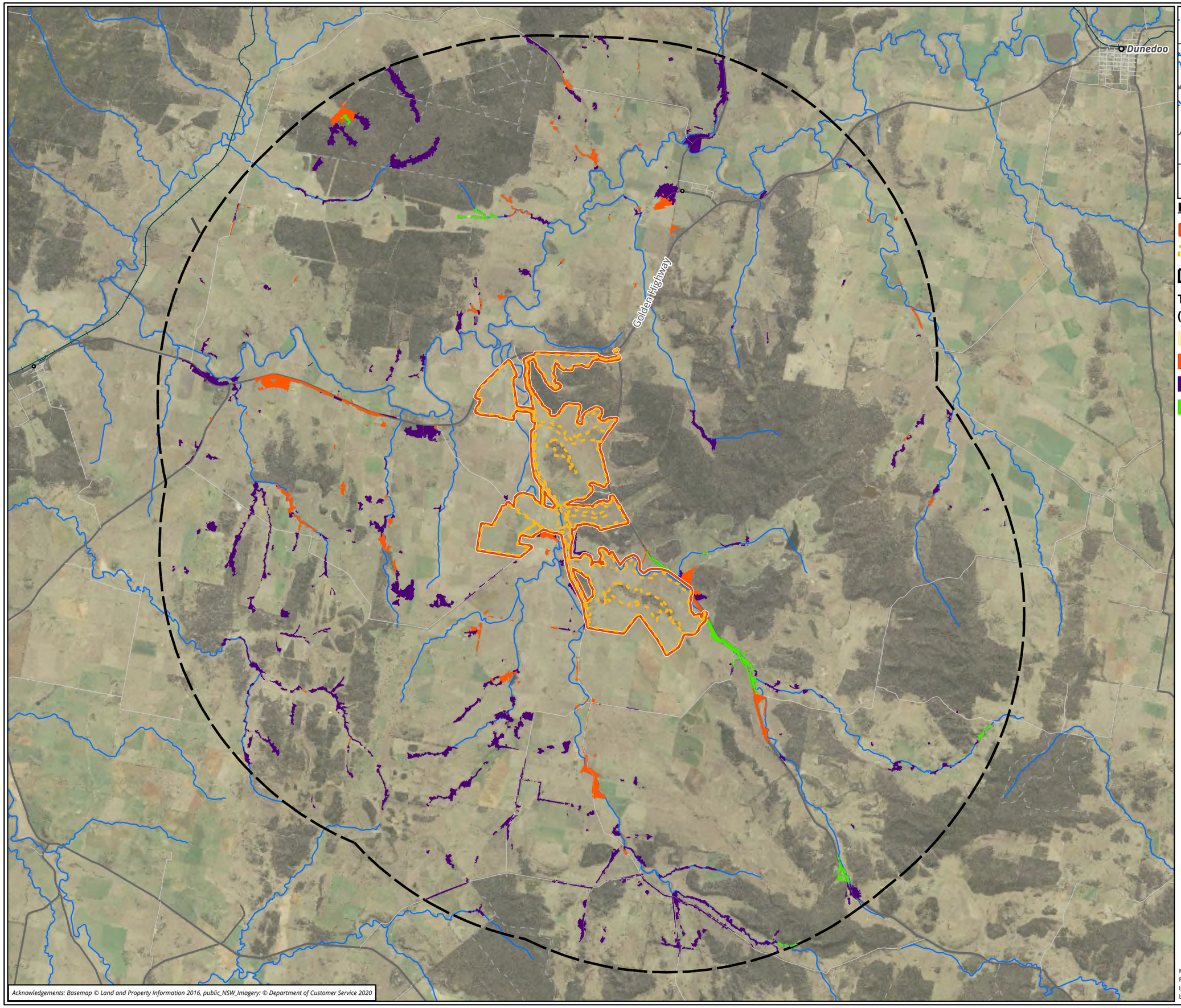
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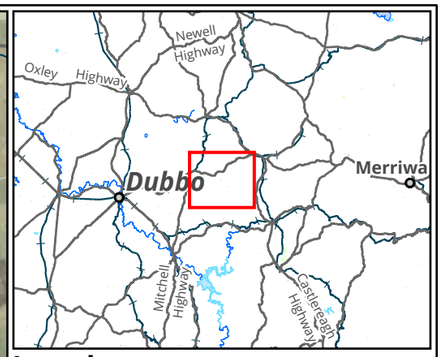
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APEM Group

Matter: 38235, Date: 27 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F17-21.aprx
Layout: 38235_F19.1_SAII_SL

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020





Legend

- Subject land
- Development footprint
- Subject land 10km buffer

Threatened ecological communities (SVTM, 2024)

- 201 - Fuzzy Box Woodland
- 202 - Fuzzy Box Woodland'
- 281 - Box Gum Woodland
- 599 - Box Gum Woodland

Figure 19.2 Serious and irreversible impacts within 50km of the subject land

0 1 2 3 4 5

Kilometers

Scale: 1:110,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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APEM Group

Matter: 38235, Date: 28 May 2025,
Prepared for: MP, Prepared by: JB, Last edited by: jbeckius
Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F17-21.aprx
Layout: 38235_F19.2_SAII_50km

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

8.3 Identification of impacts requiring offset

8.3.1 Impacts to native vegetation (ecosystem credits)

- As outlined in Section 9.2.1 of the BAM, the assessor must determine an offset for all impacts of projects on PCTs that are associated with a vegetation zone that has a vegetation integrity score of:
- ≥15, where the PCT is representative of an EEC or a CEEC.
- ≥17, where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or represents a vulnerable ecological community.
- ≥20, where the PCT does not represent a TEC and is not associated with threatened species habitat.

On this basis, all vegetation zones require offsetting, with the exception of PCT 599 DNG, as the associated vegetation integrity score for this zone is 14.4.

The offset requirement for the project was calculated using the BAM Calculator. Table 53 provides a summary of the ecosystem credit offsets required for impacts from the project within the development footprint.

Table 53 Total offsets required (ecosystem credits)

Vegetation zone ID	Vegetation zone	Area (ha)	Impact	VI score	Future VI score	Offset required	TEC	HBTs	Credit requirement
VZ1	81_Low	24.90	Direct	43	0.0	Yes	Yes	No	535
VZ2	81_Moderate	6.60	Direct	64.3	0.0	Yes	Yes	Yes	212
VZ3	201_Low	5.91	Direct	80.6	0.0	Yes	Yes	No	238
VZ4	201_Moderate	2.80	Direct	88.8	0.0	Yes	Yes	Yes	124
VZ5	281_Low	42.3	Direct	32.2	0.0	Yes	Yes	No	850
VZ6	281_Moderate	9.25	Direct	67.2	0.0	Yes	Yes	Yes	389
VZ7	440_Low	9.53	Direct	*78*	0.0	Yes	No	Yes	279
VZ8	440_Moderate	0.43	Direct	56.3	0.0	Yes	No	Yes	9
VZ9	467_Low	39.47	Direct	31.3	0.0	Yes	No	No	463
VZ10	467_Moderate	1.45	Direct	49.6	0.0	Yes	No	No	27
VZ11	467_Regrowth	46.45	Direct	34.5	0.0	Yes	No	Yes	602
VZ12	468_Moderate	3.97	Direct	55.7	0.0	Yes	No	Yes	83
VZ13	478_Moderate	1.00	Direct	42.8	0.0	Yes	No	Yes	16
VZ14	599_DNG	56.88	Direct	14.4	0.0	No	Yes	No	0

8.3.2 Impacts to threatened species and their habitat

As outlined in Section 9.2.2 of the BAM, an offset is also required for the impacts of projects on the habitat of threatened species assessed for ecosystem credits and associated with a PCT in a vegetation zone with a vegetation integrity score of ≥17.

The offset requirement for the project was calculated using the BAM Calculator. Table 54 provides a summary of the species credit offsets required for impacts from the project within the development footprint.

Table 54 Offsets required (species credits)

Species	Impact	Vegetation zone	Area (ha)	Biodiversity risk weighting	Credit requirement
Pine Donkey Orchid	Direct/Indirect	81_Low 81_Moderate 468_Moderate	1.7 1.7 1.1	2	91

Species polygons for the above two species credit species impacted by the project are illustrated in Figure 13.

8.3.3 Impacts to scattered trees

Offsets are required for the clearing of Class two (56 scattered trees) and Class three (110 scattered trees) scattered trees and demonstrated in Table 55.

Table 55 Scattered tree credits

PCT	No. Cleared	Credit requirement
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	55	43
201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	10	10
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats	56	45
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest	18	13
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	27	27

8.4 Identification of impacts not requiring offset

As outlined in Section 9.2.1 of the BAM, offsets are not required for impacts to vegetation zones that have a vegetation integrity score of <17, where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or represents a vulnerable ecological community, or <15, where the PCT is representative of an EEC or a CEEC.

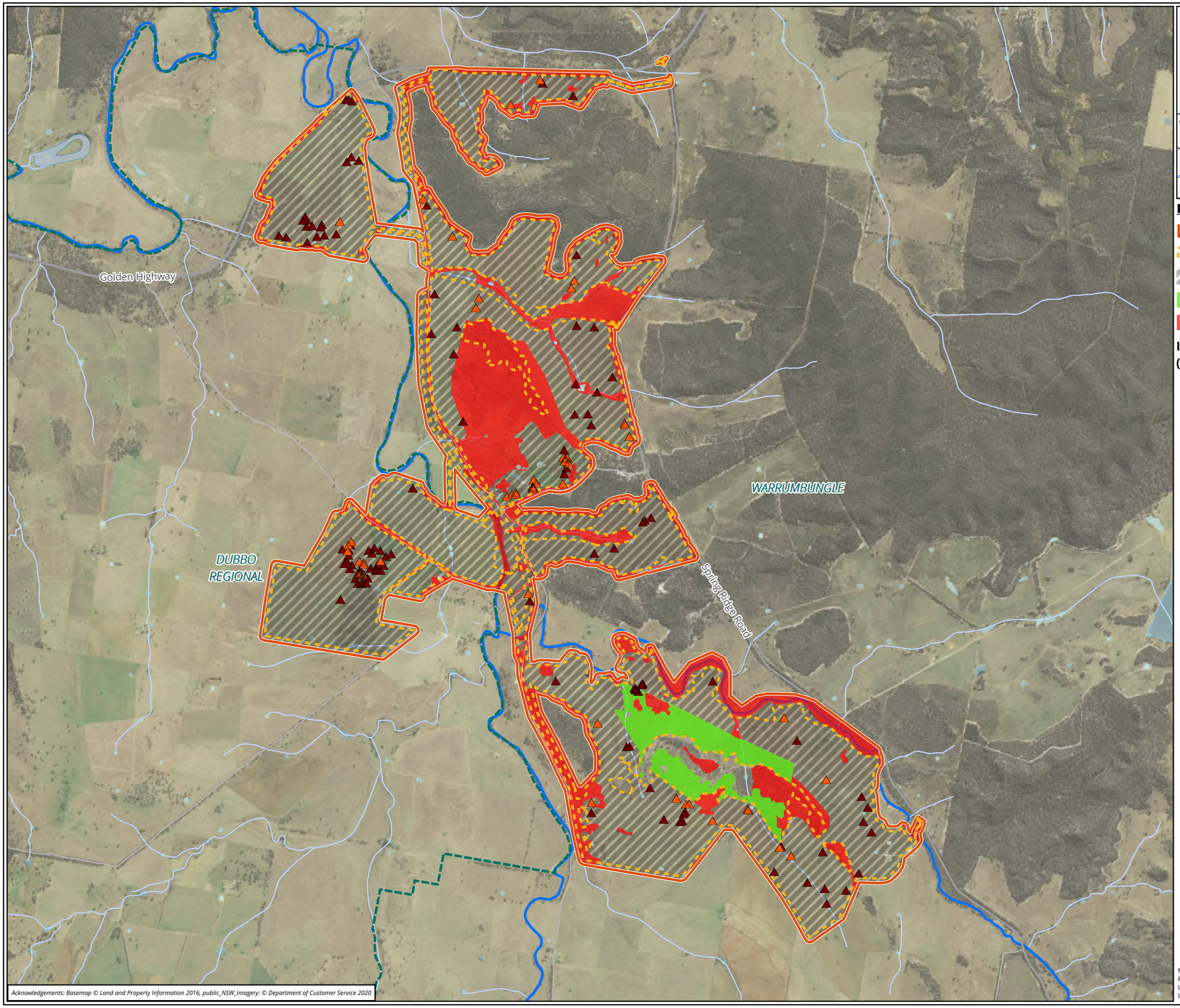
In this case, this is only applicable to PCT 599_DNG (VZ1) which has a VI score of 14.4.

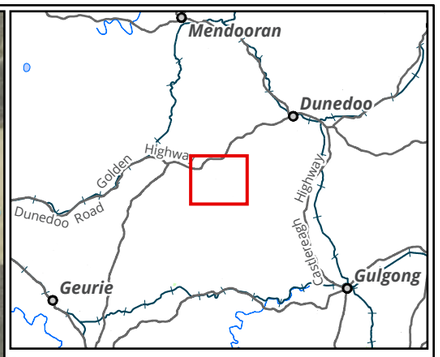
Indirect impacts do not require offsetting and are subject to detailed mitigation and management to improve and maintain vegetation within criteria set in the BMP, including groundcover management and adaptive management.

8.5 Identification of areas not requiring assessment

Following this assessment, the following areas do not require assessment in accordance with BAM:

- Areas of Category 1 - Exempt Land with exemptions of prescribed impacts as illustrated on Figure 5.





Legend

- Subject land
- Development footprint
- Areas not requiring assessment
- Impacts not requiring offset
- Impacts requiring offset

Impacts requiring offset (paddock tree class)

- 2
- 3

Figure 20 Impacts requiring or not requiring offset

0 500 1,000 1,500

Metres

Scale: 1:38,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

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APEM Group

Matter: 38235, Date: 27 May 2025

Prepared for: MP, Prepared by: JB, Last edited by: jbeckius

Location: P:\38200s\38235\Mapping\38235_Cobbora_SolarFarm_BDAR_F17-21.aprx

Layout: 38235_F20_Offset

Acknowledgements: Basemap © Land and Property Information 2016, public_NSW_Imagery: © Department of Customer Service 2020

9 Biodiversity Offset Strategy

9.1 Overview

In order to secure the biodiversity offset liability expected to be required for the project's residual unavoidable impacts, the Applicant has commenced investigations into the establishment of local Biodiversity Stewardship Sites.

It is the Applicants priority to set up local stewardship site/s as the first option to secure as much final credit obligation as possible. To date, investigations and discussions are currently underway with regard to retained land within the subject land, as well as several properties in the vicinity of the subject land. Desktop and on-ground assessment will commence soon to determine their suitability for establishment of Biodiversity Stewardship Sites, and to generate offset credits suitable for the project's requirements.

9.2 Offsetting obligations and options

As outlined above in Table 53 and Table 54 and summarised in Table 56 below, the project is expected to require offsets for residual unavoidable impacts to eight PCTs and one species credit species. Table 56 also provides a summary of the projects expected offset liability (assuming 100% loss of biodiversity values beneath solar arrays).

Table 56 Summary of project offset requirement (total)

Biodiversity value	Offset trading group (OTG)	Area impacted (Ha)	Credits required
PCT 81	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	31.5	747
PCT 201	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	8.71	362
PCT 281	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland)	51.56	1239
PCT 440	Western Slopes Dry Sclerophyll Forests - < 50% cleared group (including Tier 4 or higher threat status)	9.97	288
PCT 467	Western Slopes Dry Sclerophyll Forests - < 50% cleared group (including Tier 4 or higher threat status)	87.38	1092
PCT 468	Western Slopes Dry Sclerophyll Forests - < 50% cleared group (including Tier 4 or higher threat status)	3.97	83
PCT 478	Western Slopes Dry Sclerophyll Forests - < 50% cleared group (including Tier 4 or higher threat status)	1.00	16
PCT 599	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland)	56.88	0

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Table 57 Scattered tree credits

PCT	No. Cleared	Credit requirement
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	55	43
201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	10	10
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats	56	45
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest	18	13
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	27	27

Table 58 Offsets required (species credits)

Species	Area (ha)	Biodiversity risk weighting	Credit requirement
Pine Donkey Orchid	4.5	2	91

To secure the above offset liability, the Applicant has three broad options, which include:

- Payment to the Biodiversity Conservation Fund (the Fund) managed by the Biodiversity Conservation Trust (BCT).
- Purchase of credits from the open market.
- Establishment of a Biodiversity Stewardship Site(s) to generate credits for offsetting the project specifically.

Each of these options has some potential benefits and drawbacks, which are briefly outlined below.

Option 1: Payment to the Biodiversity Offset Fund managed by the BCT

Satisfying an offset obligation by paying to the Biodiversity Offset Fund (the Fund) has the major benefit of being an expedited and unambiguous way for the Applicant to meet their obligations. However, it does include increased costs associated with the 'Risk premium', and an administrative cost per credit added on top of the costs to source/generate the credits, calculated by the BCT. As such, Payment to the Fund is considered likely to be the most expensive option available to the Applicant, however it requires the least amount time and effort in offset security, which can both be substantial (e.g., compared to establishing a Stewardship Site).

Option 2: Purchase credits from the open market

Biodiversity credits exist in an open market-based system whereby an owner of a Biodiversity Stewardship Site, who has generated a range of biodiversity credits, lists their credits in an online database for proponents with a credit obligation to interrogate and enter into price negotiations with relevant credit holders. As an open market, the price of credits is set by supply and demand factors as well as requirements for credits generated at a Biodiversity Stewardship Site to be sold for at least the minimum portion each credit contributes to the management costs of that site (Part A cost, further detailed below). Initial credit sales must

all go to funding the management actions required to be undertaken at the Biodiversity Stewardship Site (the costing of which is termed the 'Total Fund Deposit' [TFD]), however once the TFD has been fully satisfied, any future credit sales are generally direct profit to the credit owner.

Potential benefits from procuring credits from the open market include a potential increase in offsetting options when applying the 'Like-for-Like' rules included in the BAM, and then further again with the 'Like for Like Variation Rules', as well as the ability to negotiate with sellers on price, potentially with multiple credit holders. Drawbacks include an ongoing general paucity of credits available on the market (which is particularly relevant to projects with large credit obligations), sellers setting a high price and being unwilling to negotiate, timeframes associated with negotiations, timeframes associated with procurement of a range of credit types (where required), timeframes to process sales, and additional credit 'transfer' and 'retirement' fees.

Option 3: Establish a Biodiversity Stewardship Site

Establishment of a Biodiversity Stewardship Site (or multiple sites) with the intention of generating credits to satisfy the project's offset obligation is considered likely to be the most suitable option available to the Applicant for the project. This is due to the expected quantum of offsets that will be required for the project, and the associated cost of securing those offsets through either the open credit market or via payment to the Fund. The suitability of this option is however dependent on securing land that is both suitable for the establishment of a Biodiversity Stewardship Site and supports PCTs/habitats considered Like-for-Like with those impacted by the project. Further information is provided below.

Option 4: Offsetting pathway for major energy transition projects in NSW

On 9 May 2025, the Biodiversity Conservation Regulation 2017 (BC Regulation) was amended to introduce a new offsetting pathway for major energy transition projects in NSW. There is now the option for proponents of eligible projects (defined below) to enter into Strategic Offset Delivery Agreements (SODAs) with the NSW Government to satisfy all or some of their biodiversity offset liability under their NSW planning approval.

This new option could potentially reduce the costs associated with satisfying biodiversity requirements, while also enhancing biodiversity outcomes, because the amended BC Regulation requires that measures taken under a SODA match or exceed the benefits to biodiversity values that purchasing offsets would have provided.

Proponents should consider whether they are eligible for a SODA and whether a SODA is a viable biodiversity offsetting pathway for their project. Proponents will be considered eligible if they are undertaking a project that is considered state significant development or infrastructure under the NSW EP&A Act and which constitutes:

- a priority transmission infrastructure project or REZ network infrastructure project within the meaning of the Electricity Infrastructure Investment Act 2020 (NSW) (EII Act);
- a renewable energy generation, storage, network or related infrastructure project within a renewable energy zone (REZ) (as defined under the EII Act); or
- infrastructure to which a long-term energy service agreement (as defined under the EII Act) applies.

Key points

- SODAs provide a new, flexible pathway for proponents of major energy transition projects in NSW to meet their biodiversity offset obligations under the Biodiversity Conservation Act 2016 (NSW) (BC Act) and the EP&A Act.
- By entering into a SODA:
  - the NSW DCCEEW (through the Environment Agency Head) will be responsible for undertaking particular biodiversity conservation actions specified in the SODA, which must include:
    - the retirement of like-for-like biodiversity credits; and/or
    - the funding of a biodiversity conservation action that would benefit the relevant threatened species or ecological communities;
    - these actions may be carried out in relation to the development as a whole or in stages and must be consistent with the conservation investment strategy that identifies priority investment areas and actions for a region
    - the proponent pays DCCEEW to undertake those actions
    - the proponent's requirement to retire biodiversity credits under the applicable planning approval would be deemed to be satisfied.
- However, SODAs can only be executed after the relevant planning approval is granted. Therefore, proponents will still need to undertake the same environmental assessment processes to ascertain their biodiversity offset liability.
- A proponent may determine that SODAs are the appropriate offset mechanism for them to comply with biodiversity offset obligations under a planning approval based on several factors, including:
    - that the SODA simplifies the ability to satisfy biodiversity offset requirements under the applicable planning approval by delegating obligations to the Environment Agency Head
    - the SODA has the potential to be a more cost-effective way of satisfying an approval holder's biodiversity offset obligation than purchasing offsets or paying into the Biodiversity Conservation Fund
    - the SODA mechanism supports the efficacy of the NSW Biodiversity Offset Scheme by maximising biodiversity outcomes in line with the applicable conservation investment strategy.

10 Assessment against biodiversity legislation

10.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's key piece of environmental legislation. The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (MNES) protected under the Act. Under the EPBC Act, activities that have potential to result in significant impacts on MNES must be referred to the Commonwealth Minister for the Environment and Water for assessment.

The project has been declared a Controlled Action under the EPBC Act (referral number 2022/09269) with the controlling provisions including listed threatened species and communities. The project will be assessed under the assessment bilateral agreement with NSW, and as such this BDAR also contains an assessment of the project's impacts to relevant MNES. Supplementary SEARs following declaration of the project as a controlled action were issued on 29 September 2022 and have been considered as part of this BDAR.

MNES relevant to the project are summarised in Table 59. In accordance with the supplementary SEARs, Table 60 contains a summary of impacts to relevant entities Appendix 2 and Appendix 6 contain a summary of all species predicted, as well as those that are known or have a moderate or greater likelihood of occurrence and where Significant Impact Criteria (SIC) assessments have been undertaken. Following avoidance of biodiversity values as demonstrated in Section 5, measures and offsets would be implemented to address residual and significant impacts under the EPBC Act and bilateral agreement. Table 61 and Table 62 summarise the impacts and residual offset respectively.

Table 59 Summary of the assessment of the project against the EPBC Act

Matter of NES	Project specifics	Potential for significant impact
Threatened species	This assessment has identified the following species have the potential to occur, or have been recorded to occur within the subject land and therefore, have the potential to be significantly impacted: • Brown Treecreeper (eastern subspecies) • Diamond Firetail • Superb Parrot • South-eastern Glossy Black-Cockatoo • Pink Cockatoo (eastern) • Southern Whiteface • South-eastern Hooded Robin • White-throated Needletail • Sloane's Froglet • Pink-tailed Legless Lizard • Large-eared Pied-bat • Corben's Long-eared Bat • Koala	Of all entities assessed, none are considered to have a significant impacts. Refer to Appendix 3 and Appendix 7, as well as Table 60 and Table 61

Matter of NES	Project specifics	Potential for significant impact
	• Spot-tailed Quoll • Grey-headed Flying-fox • *Tylophora linearis* • Leafless Indigo • Keith's Zieria • Fairy Bells • *Commersonia procumbens* • Bluegrass Additional to the species above the Supplementary SEARs identified the following species with the potential for significant impact: • Regent Honeyeater • Australasian Bittern • Painted Honeyeater • Swift Parrot • *Androcalva procumbens*	
Threatened ecological communities	This assessment has identified the following TECs occur: • Box-Gum Woodland • Grey Box Woodland	Of all entities assessed, none are considered to have a significant impacts. Refer to Appendix 3 and Appendix 7, as well as Table 60 and Table 61
Migratory species	This assessment identified White-throated Needletail as having the potential to occur and require further assessment. The supplementary SEARs identified Swift Parrot with the potential to be significantly impacted.	No migratory species were identified as having the potential to be significantly impacted.
National Heritage Places	The subject land contains no World Heritage Properties or National Heritage Places.	There are no national or world heritage places within or near the subject land. The project is unlikely to result in any direct or indirect impacts to national or world heritage.
Wetlands of international importance (Ramsar sites)	No Ramsar Wetlands have been identified within 100 km of the subject land. The closest Ramsar Wetland is the Macquarie Marshes, approximately 160 km north-west of the subject land.	Given the large geographical separation between Ramsar Wetlands and the subject land, no direct or indirect impacts to the wetlands are likely to occur as a result of the project. Potential impacts from the project are expected to be localised and not result in any direct or indirect impacts to the hydrological regime or ecological character of the identified wetlands. Therefore, direct and/or indirect impacts on this listed item are considered unlikely.

Table 60 Summary of relevant EPBC Act threatened species and ecological communities

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
Threatened ecological communities					
Box-Gum Woodland	Likely to be significant	Recorded within development footprint.	Yes	Impacts to this community have been avoided where possible, primarily through reduction of the subject land and avoidance of as many areas as possible within the development footprint. Impacts to this community occur along the fringes of derived grassland patches that did not meet the condition thresholds for listing and small isolated patches disconnected from larger extents from current and historic disturbance. Within the current design, 9.25 ha is proposed for removal, with the development footprint avoiding 92.55% of this MNES TEC within the subject land. An assessment of mapped vegetation within 10 km of the subject land determined around 2,973.71 ha of potential Box-Gum Woodland occurs. The impact within the development footprint amounts to 0.31% of this area.	Yes. Significant impact unlikely
Grey Box woodland	Likely to be significant	Recorded within development footprint.	Yes	Impacts to this community have been avoided where possible, primarily through reduction of the subject land and avoidance of as many areas as possible within the development footprint. Impacts to this community occur along the fringes of derived grassland patches that did not meet the condition thresholds for listing and small isolated patches disconnected from larger extents from current and historic disturbance. Within its current design, 6.60 ha is proposed for removal, with the development footprint avoiding 87.10 % of this TEC within the subject land. An assessment of mapped vegetation within 10 km of the subject land determined around 2,373.79 of potential Grey Box Woodland occur. The impact within the development footprint amounts to 0.27% of this area.	Yes. Significant impact unlikely
Threatened species					
Regent Honeyeater	May incur significant impact	Not within important habitat mapped area	Low	Surveys for Regent Honeyeater were undertaken as part of the diurnal bird surveys. The species was not recorded during these surveys, but has been recorded approximately 6 km from the subject land. It is noted that this record is over 100 years old now. The nearest record within 20 years occurs roughly 43 km to the east. Potential habitat for this species within the	Yes. Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				subject land is associated with PCTs 81, 281, 468, and 599. The project will result in the impact of 153 ha of potential habitat for the species. The habitat to be impacted is smaller isolated patches or fringes of larger remnant patches that will be retained by the project. The project will retain 499 ha of potential habitat within the subject land that is more consistent with preferred habitat of the species The impacts within the development footprint make up around 1.32% of the 11,510 potential habitat for this species within 10 km of the subject land. No areas of mapped important habitat for this species occur within the subject land or surrounds.	
Australasian Bittern	May incur significant impact	Surveyed. Unlikely to be present	Negligible	Australasian Bittern has not been recorded within the subject land with the nearest record occurring roughly 36 km to the north. There is no optimal habitat for the Australasian Bittern within the subject land and the species is not associated with any of the PCTs found within the subject land. It is unlikely for the species to utilise the subject land.	Yes Significant impact unlikely
Painted Honeyeater	May incur significant impact	Surveyed. Unlikely to be present	Negligible	This species was not identified during targeted surveys. This species has a specialised diet consisting mainly of mistletoe fruits. Minimal mistletoe was recorded within the subject land. The project would result in direct impacts to 14 ha of potential habitat. The National Recovery Plan also states that protection of Painted Honeyeater breeding and foraging habitats at the local, regional and landscape scale is also an important objective. The project would include the retention of 85 ha within the subject land. The impacts within the development footprint make up around 0.26% of potential habitat within 10 km of the subject land. It is considered unlikely that the amount of potential clearing would interfere substantially with the recovery of the species, particularly in the context of the higher quality areas of potential habitat that is being retained.	Yes Significant impact unlikely
Swift Parrot	May incur significant impact	Not within important habitat mapped area	Low	Swift Parrot was not recorded within the subject land during field surveys. Suitable habitat for this species is present within native woodland vegetation within PCTs 81, 201, 281, 440, 467, 468, 478, and 599 which provide foraging, shelter, movement and breeding resources. There was no evidence of breeding observed within the subject land. The subject land contains suitable foraging habitat for the swift parrot in the form of woodlands and grasslands where seed, nectar and fruits are available for foraging. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. The project would result in the removal of 194 ha of habitat. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat for this species within 10 km of the subject land.	
White-throated Needletail	NA	Moderate	Low	The species was not recorded during surveys within the subject land but the White-throated Needletail is wide spread throughout east and south-eastern Australia occurring from the Torres Strait to Tasmania. The species has no definitive habitat and as such all habitat is potential habitat. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. Majority of the areas to be impacted are areas of open grasses which while may be utilised are not favoured by the species as much as wooded areas. The species is almost exclusively aerial with limited records of roosting occurring within Australia. As such the project will have a minimal impact on the species ability to fly through the landscape. The project will result in the removal of 194 ha of habitat. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat for this species within 10 km of the subject land. This species shows a preference for migrating along higher areas of elevation along eastern Australia. The habitat adjacent to and east of the subject land is higher in elevation and may be used as a part of a greater flyway. The operational impacts of the project are not considered likely to impact this species.	Yes Significant impact unlikely
Brown Treecreeper (eastern sub species)	NA	Recorded adjacent to the subject land	Moderate	The Brown Treecreeper was recorded directly adjacent to the subject land during surveys for the project. It is associated with PCTs 81, 201, 281, 440, 468 and 599 within the subject land. The major threats to the subspecies are habitat loss and fragmentation, habitat degradation and territorial competition with Noisy Miners. The Brown Treecreeper is reliant on hollows in standing trees and tree stumps for nesting. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation.	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				Within the subject land, 503 ha of which represents potential habitat would be retained. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land. Direct impacts to 162 ha of potential habitat for the Brown Treecreeper would occur due to the project. Although these areas represent potential habitat for Brown Treecreeper, they occur as mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat, and are heavily degraded and as such are of lesser quality for Brown Treecreeper. The Brown Treecreeper is noted that it is absent from heavily degraded woodland (Cth DCCEEW 2023a).	
Diamond Firetail	NA	Recorded within the subject land	Moderate	Diamond Firetail was recorded during surveys and records occur directly adjacent to the subject land. The species is thought to be sedentary, though some populations move locally. The subject land contains habitat suitable for the Diamond Firetail, which prefers open forests and lightly timbered habitats, including farmland and grassland with scattered trees. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat within 10 km of the subject land. The project would result in direct impacts to 194 ha of potential breeding and foraging habitat for Diamond Firetail.	Yes Significant impact unlikely
Superb Parrot	May incur significant impact	Recorded within the subject land	Foraging habitat only	Superb Parrot was recorded foraging onsite. Suitable habitat for this species is present within grazing land, and native woodland and grassland vegetation within PCTs 81, 201, 281, 440, 467, 468, 478, and 599 which provide foraging, shelter and movement resources within this region. There was no evidence of breeding observed within the subject land and key breeding habitat is located south mainly in the NSW South Western Slopes and Riverina bioregions. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site would be impacted. Approximately 353 ha of native vegetation, which represents potential foraging habitat for the Superb Parrot will	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				be retained within the subject land. Around 194 ha of foraging habitat would be impacted. The impacts within the development footprint make up around 0.85% of the potential 22,710 ha of mapped habitat within 10 km of the subject land. The operational phase of the project is considered compatible with the foraging activity of Superb Parrots, which would still be able to exploit seasonal grassland resources following construction of the project, most likely within retained patches of vegetation, between panel alignments and along fringing areas of the solar array and APZs. This has been noted previously at the Beryl Solar Farm, near Gulgong in NSW, by the Assessor. As large areas of similar habitat exist in the landscape, it is unlikely that the foraging habitat within the subject land is critical to the species' survival. Impacts to this habitat would be offset in accordance with the BAM. There is a low likelihood that the project would decrease the availability of habitat to the extent that the species is likely to decline.	
South-eastern Glossy Black-cockatoo	May incur significant impact	Surveyed, however	Low	The species was not recorded during these surveys, but is known to occur within the broader locality. Foraging and potential breeding habitat is represented by large hollows and woodland communities within PCT's 81,201,440,467,468 and 599. The subject land contains habitat suitable for the species, which are dependent on large hollow-bearing trees. Hollow-bearing trees are present within the subject land and 30 may be removed. Of the 30 hollow-bearing trees to be removed, only four suitably large enough hollows will be removed. The project would result in the direct impact of 142 ha of potential habitat for the Glossy Black-Cockatoo. Within the subject land 413 ha of potential habitat will be retained. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land. The potential habitat to be cleared is associated with smaller isolated patches and fringes of larger patches of higher quality habitat.	Yes Significant impact unlikely
Pink Cockatoo (eastern)	NA	Surveyed. Unlikely to be present	Negligible	Surveys for eastern Pink Cockatoo were undertaken as part of the diurnal bird surveys. The species was not recorded during these surveys, but has been recorded in the greater Dubbo area. Foraging and breeding habitat is represented by large hollows and woodland communities within PCTs 81 and 201. No known breeding habitat will be impacted by the project. 30 hollow-bearing trees may be removed as part of the project, of which only four suitably large enough hollows will be removed. No breeding has been recorded in these hollows either historically or during the current survey.	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
Southern Whiteface	NA	Moderate	Moderate	Southern Whiteface was not recorded within the subject land with the nearest known record occurring roughly 9 km south of the subject land. Suitable habitat for this species is available in woodland, scattered trees and open farmland associated with PCTs 81 and 468. Within the subject land, 154 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km of the subject land. Direct impacts to 35 ha of potential habitat would occur as a result of the project. This habitat being removed occurs as smaller patches and the edges of larger patches. Higher quality areas along water courses and larger remnants have been largely avoided. There is a low likelihood that the project would result in any disruption to the breeding cycle. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants, representing the most suitable breeding habitat for Southern Whiteface	Yes Significant impact unlikely
South-eastern Hooded Robin	NA	Moderate	Low	The South-eastern Hooded Robin was not recorded during surveys but records from 2011 occur directly adjacent to the subject land. The South-eastern Hooded Robin is associated with PCTs 81, 201, 281 and 599. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. Within the subject land, 327 ha of which represents potential habitat would be retained. The impacts to 92 ha of potential habitat within the development footprint make up around 2.89% of the 3,173 ha of potential habitat within 10 km of the subject land. Direct impacts to 92 ha of habitat associated with the South-eastern Hooded Robin would occur, although these areas lack the complexity needed by the species and are not likely to be utilized. No known breeding habitat would be removed.	Yes Significant impact unlikely
Sloane's Froglet	NA	Surveyed. Unlikely to be present	Negligible	The species was not recorded within the subject land as part of the targeted survey effort, with the nearest record occurring roughly 73 km west of the subject land. Suitable habitat is not present within the subject land but the species is associated with PCT 81 on site. This species is considered unlikely to occur.	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
Pink-tailed Legless Lizard	May incur significant impact	Low	Low	Targeted surveys were completed for this species within the subject land, and the species was not identified. Although suitable habitat was identified, it is unlikely a population of this species is present. Around 295 ha of potentially suitable habitat for this species has been retained within the subject land. This impact equates to around 1.35% of the potential habitat for this species within 10 km of the subject land. Based on the literature review and population assessment of the closest identified populations, and management plans from national parks and state conservation areas between the nearest population and the subject land, this species is not expected to occur.	Yes Significant impact unlikely
Large-eared Pied-bat	May incur significant impact	Surveyed. Unlikely to be present	Low	The species was not recorded during surveys on the subject land. This species inhabits low to mid elevation dry open forest and woodland close to roosting sites. It is associated with PCTs 201, 281, 440, 468 and 599 within the subject land. The project will remove 75 ha of foraging habitat that is associated with the species under the BAM in the form of PCT 201, 281, 440, 468 and 599. These areas occur as smaller isolated patches and scattered trees or on the fringes of larger areas. The species relies on habitat close to roosting sites which occur in caves, crevices in cliffs and old mine sites in well-timbered areas containing gullies. These features do not occur on the subject land so it is unlikely that the species would be utilising the subject land for roosting or breeding. The project will retain 279 ha of habitat associated with the species which constitutes of large well-timbered foraging areas within the subject land.	Yes Significant impact unlikely
Corben's Long-eared Bat	May incur significant impact	Potentially recorded within the subject land	Low	The subject land contains habitat marginally suitable for the species with numerous hollow-bearing trees present. Tree hollows used as maternity sites, however, these sites generally occur in dense forested areas as such the majority of the hollow-bearing scattered trees are unlikely to be considered suitable breeding habitat for this species. Roosting generally occurs under bark and in dry fissures of branches The project will impact 54 ha of low-quality potential habitat for the species which occurs as smaller isolated patches or fringes of large patches. The project would retain 278 ha of larger patches of woodland which is considered more preferential for the species. The impacts within the development footprint make up around 0.53 ha of 10,078 ha of potential habitat which constitutes high quality, large remnant woodland patches more likely to be utilised by the species within 10km of the subject land. 30 hollow-bearing trees would be removed by the project which could be utilized for the species	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				to roost in. However, 55% of hollows within the subject land would be retained. The hollows that are being removed occur in areas of small isolated patches or in scattered trees not likely to be utilised by the species. The project would remove habitat that is unlikely to the utilised by the species and retain habitat that is preferential to the species.	
Koala	Likely to be significant	Surveyed. Unlikely to be present	Negligible	Koala were not detected during detailed surveys but have been recorded approximately 11 km from the subject land. Suitable habitat is broadly available within woodland communities PCTs 81, 201, 281,440, 467, 468, and 599. Feed tree species present are secondary feed trees such as Blakely's Red Gum *Eucalyptus blakelyi*, White Box *Eucalyptus albens*, Western Grey Box *Eucalyptus microcarpa* and in relatively small, fragmented patches away from key corridors that contain preferred habitat in this region. Extensive surveys were completed between 2022 – 2024. This species was not detected and is not considered to occur within the subject land. The project would not result in impacts to any primary feed trees but would impact upon 194 ha of woodland that constitute potential secondary koala foraging habitat.	Yes Significant impact unlikely
Spot-tailed Quoll	NA	Surveyed. Unlikely to be present	Negligible	Targeted surveys did not detect this species between 2022 -2024. The nearest record of this species is over 12 km from the subject land, on the edge of woodland and forest that forms part of the greater Goonoo Conservation Area, an extremely large tract of habitat. This species is not considered to occur within the subject land.	No Significant impact unlikely
Grey-headed Flying-fox	May incur significant impact	Surveyed. Unlikely to be present	Low	The species was not recorded during surveys and the nearest record occurs roughly 33 km to the east of the subject land. Potential foraging habitat is represented by PCTs 81, 281, 440, 468 and 599. No camps have previously been recorded within the subject land and no roosting flying-foxes were present during field investigation. The closest Grey-headed Flying-fox camp is located 33 km east (DAWE 2021). Given the distance of these camps, and the highly mobile nature of the species (known to travel up to 50 km whilst foraging]) the subject land is only likely to represent occasional transient forage habitat for the species. The project would result in the removal of 97 ha of predominately low to moderate quality woodland that provides foraging habitat for the species. The project would retain 289 ha of higher quality larger patches of woodland that the species would still be able to utilise.	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
Tylophora linearis	Likely to be significant	Surveyed. Unlikely to be present	Negligible	Targeted surveys for *Tylophora linearis* were conducted across the development footprint in February and November 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. Isolated records occur in some locations 20-40+ km from the subject land in the Goonoo State Conservation Area. This species is not considered to occur within the subject land.	No Significant impact unlikely
Leafless Indigo	NA	Surveyed. Unlikely to be present	Negligible	Targeted surveys for *Indigofera efoliata* were conducted across the development footprint in October 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81 and PCT 468. *Indigofera efoliata* has not been recorded within 10 kilometres of the subject land. This species is not considered to occur within the subject land.	Yes Significant impact unlikely
Keith's Zieria	Likely to be significant	Recorded adjacent to the subject land	Low	Targeted surveys for *Zieria ingramii* were conducted across the development footprint in February and November 2023. The species was detected within the broader landscape of the subject land; however it was not recorded within the development footprint. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 440, PCT 467 and PCT 468. *Zieria ingramii* has been recorded numerous times within 350 metres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population. The species was not detected within the subject land.	Yes Significant impact unlikely
Fairy Bells	May incur significant impact	Surveyed. Unlikely to be present	Negligible	Targeted surveys for *Homoranthus darwinioides* were conducted across the development footprint in February and November 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81, PCT 440	Yes Significant impact unlikely

MNES	DCCEEW consideration	Updated likelihood of occurrence based on assessment	Potential impacts	Rationale	SIC self-assessment undertaken / result (Appendix 6)
				and PCT 468. *Homoranthus darwinioides* has been detected once within 4.3 kilometres of the subject land. This species is not considered to occur within the subject land.	
Androcalva (commersonia) procumbens	May incur significant impact	Surveyed. Unlikely to be present	Negligible	Targeted surveys for *Commersonia procumbens* were conducted across the development footprint in February and November 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. The majority of records for this species occur within the Goonoo State Conservation Area where a population is known to occur. Some fringing records occur outside of the Goonoo State Conservation Area. A small population is recorded around 7.5 km west of the subject land in a TSR along the Golden Highway. This species is not considered to occur within the subject land.	Yes Significant impact unlikely
Bluegrass	May incur significant impact	Surveyed. Unlikely to be present	Negligible	Targeted surveys for *Dichanthium setosum* were conducted across the development footprint in February 2023 and November 2022/2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81, PCT 201, PCT 281, and PCT 599. *Dichanthium setosum* has been detected once within 2.5 kilometres of the subject land in an nearby solar farm development site. This species is not considered to occur within the subject land.	Yes Significant impact unlikely

Table 61 Summary table of impacts for MNES

Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
Threatened ecological communities					
Box-Gum Woodland	Direct Indirect	Life of project	Direct impact to 9.25 ha Indirect impact to 116.21 ha within the subject land	Local	In total, 1,239 credits for PCT281 commensurate with Box-Gum Woodland TEC will be offset and will be offset in accordance NSW/EPBC bilateral agreement. This would include impacts associated with the 9.25 ha.
Grey Box woodland	Direct Indirect	Life of project	Direct impacts to 6.60 ha Indirect impacts to 87.54 ha within the subject land	Local	In total, 747 credits for PCT81 commensurate with Box-Gum Woodland TEC will be offset and will be offset in accordance NSW/EPBC bilateral agreement. This would include impacts associated with the 6.60 ha.
Threatened species					
Regent Honeyeater	Direct Indirect	Life of project	Direct impacts to 153 ha potential foraging habitat Indirect impacts to 499 ha of remaining woodland/forest within subject land	Local	No species credit species retired under the BAM, no areas of mapped important habitat present. Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
Australasian Bittern	No impact species unlikely to occur	N/A	N/A	N/A	N/A
Painted Honeyeater	Direct Indirect	Life of project	Direct impact to 14 ha of potential habitat Indirect impacts to 85 ha of remaining woodland/forest within subject land		Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
Swift Parrot	Direct Indirect	Life of project	Direct impacts to 194 ha potential foraging habitat Indirect impacts to 353 ha of remaining woodland/forest within subject land	Local	No species credit species retired under the BAM, no areas of mapped important habitat present. Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
White-throated Needletail	Direct Indirect	Life of project	Direct impacts to 194 ha potential foraging habitat Indirect impacts to 353 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Brown Treecreeper (eastern sub species)	Direct Indirect	Life of project	Direct impacts to 162 ha of potential and known habitat Indirect impacts to 503 ha of remaining	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits

Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
			woodland/forest within subject land		**PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Diamond Firetail	Direct Indirect	Life of project	Direct impacts to 194 ha potential foraging habitat Indirect impacts to 353 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Superb Parrot	Direct Indirect	Life of project	Direct impacts to 194 ha potential foraging habitat Indirect impacts to 353 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
South-eastern Glossy Black-cockatoo	Direct Indirect	Life of project	Removal of four suitable hollows Direct impact to 142 ha of potential habitat Indirect impact to 413 of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Pink Cockatoo (eastern)	Direct Indirect	Life of project	Removal of four suitable hollows Direct impact to 40.07 ha of potential habitat Indirect impact to 117.08 of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Southern Whiteface	Direct Indirect	Life of project	Direct impacts to 35 ha potential foraging habitat Indirect impacts to 154 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits

Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
					PCT 440 - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
South-eastern Hooded Robin	Direct Indirect	Life of project	Direct impacts to 92 ha potential foraging habitat Indirect impacts to 327 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Sloane's Froglet	No impact species unlikely to occur	N/A	N/A	N/A	N/A
Pink-tailed Legless Lizard	Direct Indirect	Life of project	Direct impacts to potential microhabitats	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
Large-eared Pied-bat	Direct Indirect	Life of project	Direct impacts to 75 ha potential habitat	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Corben's Long-eared Bat	Direct Indirect	Life of project	Direct impacts to 54 ha potential habitat Direct removal of 30 HBTs Indirect impacts to 278 ha of remaining woodland/forest within subject land Indirect impacts to 38 HBTs within the subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Koala	Direct Indirect	Life of project	Direct impacts to scattered and fragmented, up to 194 ha potential secondary foraging habitat Indirect impacts to 353 ha of remaining	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
			woodland/forest within subject land		**PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Spot-tailed Quoll	Direct Indirect	Life of project	Direct impacts to 194 ha potential secondary foraging habitat Indirect impacts to 353 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Grey-headed Flying-fox	Direct Indirect	Life of project	Direct impacts to 97 ha potential foraging habitat Indirect impacts to 289 ha of remaining woodland/forest within subject land	Local	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Tylophora linearis	No impact species unlikely to	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits;

Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
	occur				**PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Leafless Indigo	No impact species unlikely to occur	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits.
Keith's Zieria	No impact species unlikely to occur	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits

Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
					PCT 468 - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Fairy Bells	No impact species unlikely to occur	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Commersonia procumbens	No impact species unlikely to occur	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits **PCT 281** - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits
Bluegrass	No impact species unlikely to occur	NA	NA	NA	Ecosystem species credit retired under bilateral agreement for potential foraging and micro habitat include the following credits; **PCT 81** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **747** credits **PCT 201** - Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions **362** credits

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Name of MNES	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting (significant or not)
					PCT 281 - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) **1,239** credits **PCT 440** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **288** credits **PCT 467** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **1,092** credits **PCT 468** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **83** credits **PCT 478** - Western Slopes Dry Sclerophyll Forests - < 50% cleared group **16** credits.

Table 62 Summary table of offsets for MNES

Name of MNES	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS/BDAR)
Threatened ecological communities					
Box Gum Woodland	PCT 281	9.25	389	Yes – Like for like credits	Sections 3.1.10, 5.4, 6.1 and 10.1. Appendix 5 and Appendix 6.
Grey Box Woodland	PCT 81	6.60	212	Yes – Like for like credits	Sections 3.1.10, 5.4, 6.1 and 10.1. Appendix 6.
Threatened species					
Regent Honeyeater (foraging)	PCTs 81, 281, 468, and 599	143	2,069	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Painted Honeyeater	PCTs 440, and 468	14	371	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Swift Parrot (foraging)	PCTs 81, 201, 281, 440, 467, 468, 478, and 599	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.

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Name of MNES	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS/BDAR)
White-throated Needletail	PCTs 81, 201, 281, 440, 467, 468, 478, and 599 (Generally aerial only)	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Brown Treecreeper (eastern sub species)	PCTs 81, 201, 281, 440, 468 and 599	162	2,719	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Diamond Firetail	PCTs 81, 201, 281, 440, 467, 468, 478, and 599	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Superb Parrot	PCTs 81, 201, 281, 440, 467, 468, 478, and 599	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
South-eastern Glossy Black-cockatoo	PCT's 81, 201, 440, 467, 468 and 599	142	2,572	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Pink Cockatoo (eastern)	PCT's 81 and 201	40	1,109	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Southern Whiteface	PCTs 81 and 468	35	830	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
South-eastern Hooded Robin	PCTs 81, 201, 281	92	2,348	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Pink-tailed Legless Lizard	Microhabitats within PCT 281, 440, 468 and 599	Direct impacts to potential microhabitats	1,610	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Large-eared Pied-bat	PCTs 201, 281, 440, 468 and 599	75	1,972	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1.
Corben's Long-eared Bat	PCTs 81, 201, 440,468 and 599	54	1265	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.

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Name of MNES	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS/BDAR)
Koala	PCTs 81, 201, 281,440, 467, 468, and 599	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.
Spot-tailed Quoll	PCTs 81, 201, 281, 440, 467, 468, 478, and 599	194	3,827	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1.
Grey-headed Flying-fox	PCTs 81, 281, 440, 468 and 599	97	2,357	Yes – retired via ecosystem credits for BioNet associated PCTs	Section 4, 5.4, 6.1 and 10.1. Appendix 6.

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10.2 *Environmental Planning and Assessment Act 1979*/Environmental Planning and Assessment Regulation 2021

The Project is SSD and development consent is being sought under Section 4 of the NSW EP&A Act. An EIS is a requirement of the development assessment process.

SEARs were issued for Project on 11 September 2022. In August 2022, DPHI published the Large-scale Solar Energy Guidelines for State Significant Development. The guideline now applies to the Cobbora Solar Farm. Following this requirement, an addendum to the SEARs was issued on 15 February 2023. Updated SEARs were issued 16 October 2023. These were extended on 7 November 2024 (SSD-2491142).

This BDAR will be submitted to the Minister for Planning and Public Spaces as part of the EIS. A Response to Submission (RTS) and associated agency responses are expected to be issued.

10.3 State Environmental Planning Policies

10.3.1 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 3: Koala habitat protection 2020

Chapter 3 of State Environmental Planning Policy (Biodiversity and Conservation) 2021, applies to identified LGAs in areas not zoned as RU1 Primary Production, RU2 Rural Landscape or RU3 Forestry. Within these rural land zonings, the former State Environmental Planning Policy (Koala Habitat Protection) 2020 (Koala SEPP 2020) continues to apply. The development footprint occurs on rural zoning so the Koala SEPP 2020 would be relevant to the project; however, this chapter only applies to development applications where Council is the consent authority, which is not the case for the project.

The aims of Chapter 3 Koala Habitat Protection 2020 and Chapter 4 Koala Habitat Protection 2021 are to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

These aims and considerations have been addressed in accordance with the BAM and the BC Act, as well as the Commonwealth EPBC Act, in preparation of this BDAR. Habitat surveys, targeted surveys and opportunistic surveys have been undertaken for Koala to ascertain their presence within the subject land. Measures to avoid and minimise impacts to the secondary feed trees have been employed. No evidence of Koala was identified during the survey effort competed from 2022 -2024.

10.4 Local Land Services Act 2013 and Local Land Services Amendment Act 2016

The LLS Act defines 'Category 1-Exempt Land' as areas of the State to which Part 5A of the LLS Act applies, which are designated as the 'native vegetation regulatory map', prepared and published under the LLS Act. An assessment of non-native vegetation or areas exempt from further assessment was undertaken in accordance with section 6.8(3) of the BC Act, which states that any assessment relating to biodiversity is to exclude the clearing of native vegetation and loss of habitat on Category 1-Exempt Land (within the meaning of Part 5A of the Local Land Services Amendment Act 2016 (LLS Act). This excludes any impacts prescribed by the regulations under section 6.3. Additionally, in accordance with section 1.5 of the BAM, biodiversity values that do not need to be assessed include: (d) biodiversity values associated with the assessment of the

impacts of any clearing of native vegetation and loss of habitat on category 1-exempt land (within the meaning of Part 5A of the LLS Act), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC regulation.

10.5 Biodiversity Conservation Act 2016

The BC Act requires that the BAM be applied to all projects that trigger the BOS, and that a BDAR is required to be submitted to the approval authority. This project is SSD and, therefore, the BOS applies in accordance with Section 7.9 of the BC Act. A BDAR is required, prepared in accordance with the BAM (DPIE 2020a).

10.6 Biosecurity Act 2015

The Biosecurity Act provides for the identification, classification and control of priority weeds with the purpose of determining if a biosecurity risk is likely to occur. A biosecurity risk is defined as the risk of a biosecurity impact occurring, which for weeds includes the introduction, presence, spread or increase of a pest into or within NSW or any part of the State. A pest plant has the potential to; harm or reduce biodiversity or out-compete other organisms for resources, including food, water, nutrients, habitat and sunlight.

The General Biosecurity Duty as outlined in the Biosecurity Act states:

- *All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Two priority weeds for the Central West LLS Region have been recorded in the subject land and are listed in Table 63, along with their associated Duty. Weed management practices and mitigation will be detailed within the BMP.

Table 63 Priority weeds within the subject land

Scientific name	Common name	Relevant biosecurity duty
Opuntia stricta	Common Pear/Prickly Pear	General Biosecurity Duty. Regional recommended measures. Prohibition on certain dealings.
Hypericum perforatum	St John's Wort	Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.

10.7 Water Management Act 2000

The WM Act provides for the sustainable and integrated management of the state's water. The WM Act is supported by a series of interpretation guidelines which provide design considerations and overarching management measures for works on waterfront land. These considerations and management measures should be considered when planning and undertaking the proposed works. To which the following guidelines are relevant:

- Guidelines for watercourse crossings on waterfront land (DPE 2022a).
- Guidelines for outlet structures on waterfront land (DPE 2022b).
- Guidelines for laying pipes and cables in watercourses on waterfront land (DPE 2022c).
- Guidelines for instream works on waterfront land (DPE 2022d).

Under the WM Act an approval is required to undertake controlled activities on waterfront land, unless that activity is otherwise exempt under Section 91E of the WM Act. Under the MW Act waterfront land is defined as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark. All watercourses within the subject land (Figure 2) form part of the catchment for the Talbragar River. Two perennial creeks, Sandy Creek and Lahey's Creek bisect the subject land. Sandy Creek flows directly into the Talbragar River north of the subject land and runs south-north through the subject land. Lahey's Creek is a tributary of Sandy Creek, starting south of the subject land and running parallel to Spring Ridge Road in the east, before cutting west to join with Sandy Creek

The project is a SSD, it is therefore exempt from the requirement to obtain a Controlled Activity Approval for activities on or under waterfront land. Therefore, works proposed within the mapped riparian corridor will be assessed as part of the EIS. Fourteen undefined, unnamed non-perennial first SSO watercourses occur within the subject land. Three non-perennial second SSO watercourses occur, including Blackheath Creek. Lahey's Creek is defined as a fourth SSO perennial watercourse. Sandy Creek is defined as a fifth SSO perennial watercourse (Water NSW 2018).

The proposed works are generally consistent with the riparian corridor matrix under the NSW Natural Resources Access Regular (NRAR) (2022e), for the second SSO – fifth SSO waterways within the subject land. Infrastructure is proposed in areas of mapped first SSO waterways.

10.8 Fisheries Management Act 1994

The FM Act provides for the protection and conservation of aquatic species and their habitat throughout NSW. Impacts to threatened species, populations and communities, and critical habitats listed under the FM Act must be assessed through an Assessment of Significance process.

Sandy Creek (fifth order) and Lahey's Creek (fourth order) are mapped as Key Fish Habitat by the NSW DPI. These watercourses are classified as habitat for the threatened Southern Purple-spotted Gudgeon *Mogurnda adspersa* (DPI 2022). Talbragar River is also mapped as habitat for the threatened Eel Tailed Catfish *Tandanus tandanus* (DPI 2022), however the latter will not be impacted.

PV Arrays are only proposed to occur over first SSO streams within the subject land. These undefined, unnamed watercourses have been subject to a history of disturbance from cropping and grazing are largely devoid of native vegetation. In some areas, defined bed and banks are reduced due to agricultural practices. Despite a history of disturbance, these watercourses are likely to still have pooled or a low level of running water during high or prolonged rainfall events. These watercourses are generally unlikely to host fish habitat but feed water catchment into larger connected systems including Lahey's Creek and Sandy Creek.

Development and infrastructure has largely been avoided for Lahey's Creek and Sandy Creek. One creek crossing across Lahey's Creek is proposed in the south-east where an existing road access point is present from Spring Ridge Road. An easement is proposed over Lahey's Creek just prior to its connection to Sandy Creek. This would include 33 kV poles either side of the creek (set back a minimum of 25 metres from riparian vegetation where possible) and overhead cable connection. The 330 kV easement running north-south would also cross at this point, with 330 kV towers set back a minimum of 40 metres from riparian areas. Two 33 kV

easements with poles set back from the riparian vegetation is proposed over Sandy Creek in the north-west of the subject land. One 12 metre-wide road crossing is proposed through a section of Sandy Creek in the west of the subject land, aerial imagery indicates an existing crossing is not located within this area. Up to three bridge crossing structures will be required, one - two over Sandy Creek and one over Lahey's Creek. No piers or columns will be located within the creek, with a clear span across the creek.

No optimal fish habitat would be lost, with waterways highly ephemeral, and farm dams significantly modified by historical agricultural land use, stock trampling, poor water quality and the presence of *Gambusia*. In the current design, around 31 of the approximately 45 dams are proposed for removal or modification. Stringent mitigation measures are recommended regarding run-off, sedimentation and siltation.

A flood assessment has been completed for the project, analysing flood events and high rainfall peaks through hydraulic modelling. The flood assessment outlined erosion and sediment control methods required from construction to decommissioning.

Up to three bridge structures will be constructed, one – two across Sandy Creek and one across Lahey's Creek. Construction of the bridge structures will include bridge deck levels tying into the natural ground level at each respective creek embankment. No piers or columns will be located within the creek, with a clear span across the creek. No instream work would be completed as part of the crossing constructions.

Consultation under Part 7 of the FM Act is likely to be required and recommended, where NSW DPI is required to assess all projects that involve structures that span the full width of a waterway (including pipe crossings) or modifies the velocity or quantity of water or may temporarily block fish passage. Mitigation measures will be implemented to ensure impacts within the subject land do not result in indirect impacts to waterways in the broader locality. As the waterways are highly ephemeral, they do not support aquatic ecological communities frequently, and with mitigation measures implemented, fish passage is unlikely to be impeded by the project.

An assessment of significant impact under Part 7, Division 6, Clause 220ZZ of the FM Act has been completed for Southern Purple Spotted Gudgeon below. A significant impact is considered unlikely on this species as:

- The proposed works will not incur an increase in or constitute a key threatening process.
- The proposed works will not interfere with the recovery of this species population.
- The proposed works are not considered likely to have an adverse impact of habitat for this species.
- No instream structures would be installed, no blockage fish passage would occur and no reduction or change flows or fish habitat would occur as a result of the bridge structures.
- The habitat to be modified is unlikely to be considered important to the long-term survival of this species.
- No fragmentation, blockage of fish passage or isolation of habitat would occur as a result of the project.

10.8.1 Part 7 Assessment Southern Purple Spotted Gudgeon

The following section provides a test of significant impact as outlined in Part 7, Division 6, Clause 220ZZ of the FM Act for freshwater species listed under the FM Act with the potential to be impacted by the project.

The threatened western population for Southern Purple Spotted Gudgeon is indicated by the NSW DPI as having the potential to occur within the subject land. Targeted surveys for this species were not completed by Biosis. As such, an assessment of the potential for impact to this species has been completed below.

Table 64 Part 7 Assessment Southern Purple Spotted Gudgeon

The following factors must be taken into account in making a decision on the potential impact:	
Criteria	**Outcome**
(a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The Southern Purple Spotted Gudgeon is a benthic species found in a variety of habitats, including rivers, creeks, billabongs, and streams with slow-moving or still waters and low turbidity. They rely on cover such as aquatic vegetation, overhanging riverbank vegetation, leaf litter, rocks, or snags. Most remnant populations in NSW occur in small to medium-sized streams. The species primarily feeds on terrestrial insects and their larvae, worms, small fish, tadpoles, and some plant matter. Males reach maturity at around 4.5 cm, while females mature at about 5 cm. Males perform an elaborate courtship display, and spawning takes place in summer when water temperatures are warmer. Females can lay multiple batches of eggs per season, with each batch containing 30 to 1,300 eggs. These small, elongated, sticky, transparent eggs are deposited in clusters on solid surfaces such as rocks, wood, or broadleaf plants. The male guards and fans the eggs until they hatch, which takes 3 to 8 days. The habitat within Sandy Creek and Lahey's Creek may be suitable for breeding of this species. The project has taken avoid and minimise steps to ensure the majority of development has been set back from waterfront land for these watercourses. Up to three bridge structures will be constructed, one – two across Sandy Creek and one across Lahey's Creek. Construction of the bridge structures will include bridge deck levels tying into the natural ground level at each respective creek embankment. No piers or columns will be located within the creek with a clear span across the creek. No instream work would be completed as part of the crossing constructions. No instream works would occur. Measures outlined in the CEMP and Flood Assessment will ensure no run-off, changes to surface water drainage or downstream sedimentation or pollution occur with the waterways within or connected to (such as the Talbragar River) the subject land.
(b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	N/A
(c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed: **(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is**	N/A

The following factors must be taken into account in making a decision on the potential impact:	
likely to be placed at risk of extinction, or **(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction**	
(d) in relation to the habitat of a threatened species, population or ecological community: **(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and** **(ii) whether an area of habitat is likely to become fragmented or isolated to the long-term survival of the species, population or ecological community in the locality;** **(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**	i) Up to three bridge structures will be constructed. Bridge deck levels will tie into the natural ground level at each respective creek embankment. No piers or columns will be located within the creek with a clear span across the creek. No instream work would be completed as part of the crossing constructions. No instream works would occur. All other areas covered by the development footprint include overhead cables attached to poles set back from riparian vegetation and would not incur impacts within the watercourse. ii) No areas of habitat would become fragmented or isolated. No temporary or permanent blockage of fish passage would occur from the project iii) The habitat to be removed is likely to be of minor importance in comparison to the habitat likely to be provided by the connected Talbragar River.
(e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)	As noted above up to three crossings would be installed, with no instream works proposed. . All other areas covered by the development footprint include overhead cables attached to poles set back from riparian vegetation and would not incur impacts within the watercourse. This impact is not considered an action that is likely to have an adverse impact on any critical habitat for this species.
(f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan	A recovery plan or threat abatement plan has not been drafted for this species. A priority action statement has not been drafted. Conservation and recovery actions listed under the DPI Primfact for this species include: • Undertake surveys to establish the location of remaining populations of Southern Purple Spotted Gudgeon in the western drainages of NSW. • Allocate environmental water flows in regulated rivers to restore natural seasonal flow patterns, and to reduce the impact of cold-water pollution downstream of dams. The proposed action will not interfere with the recovery of this species.

The following factors must be taken into account in making a decision on the potential impact:	
(g) Whether the action proposed constitutes or is part of a key threatened process or is likely to result in the operation of, or increase the impact of, a key threatening process.	Key threatening process under the FM Act are: • Degradation of native riparian vegetation along NSW water courses. • Hook and line fishing in areas important for the survival of threatened fish species. • Human-caused climate change. • Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams. • Introduction of fish to waters within a river catchment outside their natural range. • Introduction of non-indigenous fish and marine vegetation to the coastal waters of NSW. • Removal of large woody debris from NSW rivers and streams. • The current shark meshing program in NSW waters. The proposed action would impact riparian vegetation from the proposed bridge structure constructions, however these structures will not alter the natural flow or water regimes of Sandy Creek or Laheys Creek, or alter fish passage during construction or operation. The project may contribute to human caused climate change through the removal of vegetation, however, the project is a renewable energy production operation and as such is considered to aid in the green movement away from energy sources known to exacerbate climate change such as coal.

Conclusion

A significant impact on this species is considered unlikely where:

- The proposed works will not incur an increase in or constitute a key threatening process.
- The proposed works will not interfere with the recovery of this species population.
- The proposed works are not considered likely to have an adverse impact of habitat for this species.
- No instream structures would be installed, no blockage fish passage would occur and no reduction or change flows or fish habitat would occur as a result of the bridge structures.
- The habitat to be modified is unlikely to be considered important to the long-term survival of this species.
- No fragmentation, blockage of fish passage or isolation of habitat would occur as a result of the project.

11 Biodiversity credit report

Offsetting through the transfer and retirement of biodiversity credits, or paying into the BCT Offset Fund, is required for the current assessment for impacts to all vegetation zones, with exception to one vegetation zone scoring a VI of <15. A biodiversity credit report is provided on the following pages.

BAM Credit Summary Report

Proposal Details

Assessment Id
00037580/BAAS17051/25/00054157

Proposal Name
Cobbora Solar Farm -DF_Full Dev

BAM data last updated *
28/10/2024

Assessor Name
Mitchell Palmer

Report Created
31/07/2025

BAM Data version *
Current classification (live - default) (80)

Assessor Number
BAAS17051

BAM Case Status
Finalised

Date Finalised
31/07/2025

Assessment Revision
4

BOS entry trigger

Assessment Type
Major Projects

* 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 SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion												
14	599_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	14.4	14.4	56.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0
											Subtotal	**0**
Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)												
9	467_Low	Not a TEC	31.3	31.3	39.5	PCT Cleared - 17%	High Sensitivity to Gain			1.50		463
10	467_Moderate	Not a TEC	49.6	49.6	1.4	PCT Cleared - 17%	High Sensitivity to Gain			1.50		27

11	467_Regrowth	Not a TEC	34.5	34.5	46.4	PCT Cleared - 17%	High Sensitivity to Gain			1.50		602
											Subtotal	**1092**
Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion												
3	201_Low	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	80.6	80.6	5.9	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	238
4	201_Moderate	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	88.8	88.8	2.8	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	124
											Subtotal	**362**

Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)												
12	468_Moderate	Not a TEC	55.7	55.7	4	PCT Cleared - 33%	High Sensitivity to Gain			1.50		83
											Subtotal	**83**
Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion												
13	478_Moderate	Not a TEC	42.8	42.8	1	PCT Cleared - 29%	High Sensitivity to Gain			1.50		16
											Subtotal	**16**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
7	440_Low	Not a TEC	78	78.0	9.5	PCT Cleared - 34%	High Sensitivity to Gain			1.50		279
8	440_Moderate	Not a TEC	56.3	56.3	0.43	PCT Cleared - 34%	High Sensitivity to Gain			1.50		9
											Subtotal	**288**

Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
5	281_Low	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	32.2	32.2	42.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	850

6	281_Moderate	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	67.2	67.2	9.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	389
											Subtotal	**1239**
Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion												
1	81_Low	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	43	43.0	24.9	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		535

2	81_Moderate	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	64.3	64.3	6.6	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		212
											Subtotal	**747**
											Total	**3827**

Species credits for threatened species

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 SAII	Species credits
Diuris tricolor / Pine Donkey Orchid (Flora)									
81_Low	43.0	43.0	1.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	27
81_Moderate	64.3	64.3	1.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	41

468_Moderate	55.7	55.7	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	23
								Subtotal	**91**

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00037580/BAAS17051/25/00054562		28/10/2024
Assessor Name	Report Created	BAM Data version *
Mitchell Palmer	31/07/2025	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS17051	Finalised	31/07/2025
Assessment Revision	BOS entry trigger	Assessment Type
2	Major Project	Scattered Trees

* 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.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion			
3	True	26.0	26
2	False	1.0	1
			27
201-Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion			
3	True	9.0	9
2	False	1.0	1
			10
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)			
3	False	1.0	1
3	False	2.0	2
3	False	3.0	2
3	False	1.0	1
2	False	2.0	1
2	False	3.0	2
2	False	5.0	3

2	False	1.0	1
			13
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			
3	True	4.0	4
3	False	5.0	4
3	True	24.0	24
3	True	1.0	1
2	False	9.0	5
2	False	12.0	6
2	False	1.0	1
			45
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion			
3	False	1.0	1
3	True	19.0	19
3	False	14.0	11
2	False	8.0	4
2	False	1.0	1
2	False	1.0	1
2	False	10.0	5
2	False	1.0	1
			43
			138

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Anthochaera phrygia Regent Honeyeater

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00037580/BAAS17051/25/00054157

Proposal Name
Cobbora Solar Farm -DF_Full Dev

BAM data last updated *
28/10/2024

Assessor Name
Mitchell Palmer

Assessor Number
BAAS17051

BAM Data version *
Current classification (live - default) (80)

Proponent Names

Report Created
31/07/2025

BAM Case Status
Finalised

Assessment Revision
4

BOS entry trigger

Assessment Type
Major Projects

Date Finalised
31/07/2025

* 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.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	201-Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

BAM Biodiversity Credit Report (Like for like)

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	31.5	747	0	747
201-Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	8.7	362	0	362
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	51.6	389	850	1239
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	10.0	279	9	288
467-Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	Not a TEC	87.4	463	629	1092

468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Not a TEC	4.0	83	0	83
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	1.0	0	16	16
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	56.9	0	0	0

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 267, 3405	-	81_Low	Yes	535	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 267, 3405	-	81_Moderate	Yes	212	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

201-Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	201_Low	Yes	238	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	201_Moderate	Yes	124	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597,	-	281_Low	No	850	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281,	-	281_Moderate	Yes	389	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	440_Low	Yes	279	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	440_Moderate	No	9	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

467-Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo)	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	467_Low	Yes	463	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	467_Moderate	No	27	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	467_Regrowth	No	602	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774,					

	3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	468_Moderate	Yes	83	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	478_Moderate	No	16	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	599_DNG	No	0	Talbragar Valley, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147,					

	4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Diuris tricolor / Pine Donkey Orchid	**81_Low, 81_Moderate, 468_Moderate**	4.5	91.00

Credit Retirement Options

Like-for-like credit retirement options

Diuris tricolor / Pine Donkey Orchid	Spp	IBRA subregion
	Diuris tricolor / Pine Donkey Orchid	Any in NSW

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APPENDICES

Appendix 1 Survey methods

Appendix 1.1 Nomenclature

The flora taxonomy (classification) used in this report follows the most recent Flora of NSW (Harden 1992, Harden 1993, Harden 2000, Harden 2002). All doubtful species names were verified with the online Australian Plant Name Index (Australian National Botanic Gardens & Australian National Herbarium 2007). Flora species, including threatened species and introduced flora species, are referred to by both their common and then scientific names when first mentioned. Subsequent references to flora species cite the common names only, unless there is no common name, for which scientific name will be used. Common names, where available, have been included in threatened species tables and the complete flora list in Appendix 3.

Names of vertebrates follow the Census of Australian Vertebrates (CAVs) maintained by the DCCEEW (DSEWPaC 2009). In the body of this report vertebrates are referred to by both their common and scientific names when first mentioned. Subsequent references to these species cite the common name only.

Appendix 1.2 Permits and licences

The flora and fauna assessment was conducted under the terms of Biosis' Scientific Licence issued by DPIE (SL100758, expiry date 30 June 2025). The BAM Assessment and quality review of the BDAR was carried out by Accredited Assessor Mitchell Palmer (BAAS17051).

Appendix 1.3 Limitations

As discussed throughout this BDAR in Section 3.1.7 and Section 4, field surveys were undertaken in accordance with the BAM (DPIE 2020a) with exception to the minor variation. Ecological surveys provide a sampling of flora and fauna at a given time and season. Factors influencing detectability of species during survey include species dormancy, seasonal conditions, ephemeral status of waterbodies, and migration and breeding behaviours of some fauna. Above average rainfall events in 2022, and substantial flooding of low lying areas throughout the subject land hindered field surveys in October and November 2022. In many cases, these factors do not present a significant limitation to assessing the overall biodiversity values of a site. Second season surveys in spring 2023 and 2024 were completed to reduce this limitation.

Surveys undertaken, combined with habitat assessments and desktop analysis are considered sufficient to reach the conclusions herein regarding this and all other species' likelihood of occurrence within the subject land.

Database searches, and associated conclusions on the likelihood of species to occur within the assessment area, are reliant upon external data sources and information managed by third parties.

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Appendix 2 BAM Candidate species and EPBC Act species assessment

Table A 1: Threatened flora species assessment

Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
Acacia ausfeldii		VU	Yes	Erect, spreading shrub growing east of Dubbo in the Mudgee-Gulgong area. Also found in the Brigalow Belt South, South Eastern Highlands and Sydney Basin bioregions. Grows on flat, undulating terrain and stony hills, primarily in Western Slopes Grassy Woodlands and Southern Tableland Dry Sclerophyll Forests. Grows on fertile and infertile soils on volcanic or sedimentary substrates.	High	Yes – Survey Completed during appropriate seasonal timeframes. Known nearby records and refence population confirmed	Low. Not recorded within subject land	Closest record is <10km. Known reference population was checked and confirmed for suitability of survey. Survey was undertaken across multiple seasons and not found within the subject land.
Commersonia procumbens	VU	VU	Yes	Prostrate shrub, endemic to NSW mainly found growing in the Dubbo-Medooran-Gilgandra region but also in the Pilliga and Nymagee areas with recent collections occurring in the Upper Hunter Region and in Goonoo State Conservation Area. A pioneer species which is often found growing in disturbed environments such as roadsides, quarry sites, gravel stockpiles and powerline easements in a variety of communities including North-west Slopes Dry Sclerophyll Forests, Pilliga Outwash Dry Sclerophyll Forests, Sand Plain Mulga Shrublands, Floodplain Transition Woodlands, Western Slopes	Medium	Yes – Survey Completed during appropriate seasonal timeframes	Low. Not recorded within subject land	Closest record is <10km. Suitable microhabitats were surveyed across multiple seasons and not found within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Grassy Woodlands and Northern Montane Heaths. Grows in sandy soils.				
Dichanthium setosum	VU	VU	Yes	Upright grass, growing on the New England Tablelands, Northwest Slopes and Plains, and the Central Western Slopes of NSW. Grows in moderately disturbed areas including cleared woodlands, roadside remnants and agricultural pasturelands in a variety of communities including Inland Riverine Forests, Northern Tableland Dry Sclerophyll Forests, Western Slopes Grassy Woodlands and Coastal Valley Grassy Woodlands. Grows on heavy black basaltic soils and red-brown loams with clay subsoils.	High	Yes – Survey Completed during appropriate seasonal timeframes. Known nearby records and reference population confirmed	Low. Not recorded within subject land	Closest record is <10km. Known reference population was checked and confirmed for suitability of survey. Survey was undertaken across multiple seasons and not found within the subject land.
Diuris tricolor		Vu	Yes	Terrestrial orchid with a sporadic distribution ranging from south of Narrandera stretching northwards through central western NSW towards the QLD border. Grows amongst grasses, sometimes in disturbed areas in a variety of communities including Pilliga Outwash Dry Sclerophyll Forests, Southern Tablelands Grassy Woodlands, North-west Alluvial Sand Woodlands and Floodplain Transition Woodlands. Grows on sand and red earth soils.	Recorded	Yes – Survey Completed during appropriate seasonal timeframes. Known nearby records and reference population confirmed	High	This species was recorded during surveys
Euphrasia arguta	CR	CR	No	Semi parasitic, erect annual herb restricted to the Nundle area of the NSW north-western slopes and tablelands. Historically this species has been collected from an area extending from	Negligible	Excluded – Geographical limitations	Negligible	Not known to occur within the locality. Known more so from northern and central tablelands.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Sydney to Bathurst and north to Walcha. Grows in grassy areas near rivers in a variety of communities including Upper Riverina Dry Sclerophyll Forests, Western Slopes Dry Sclerophyll Forests, Western Slopes Grassy Woodlands and Temperate Montane Grasslands.				Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.
Homoranthus darwinioides	VU	VU	Yes	Slender, hairless shrub with a population distributed between Dubbo and Putty. Also found west of Muswellbrook between Merriwa and Bylong and north of Muswellbrook at Goonoo State Forest. Grows on flat, sunny ridgetops, sloping ridgetops, gentle south facing slopes and depressions on roadsides in North-west Slopes Dry Sclerophyll Woodlands, Pilliga Outwash Dry Sclerophyll Forests, Sydney Hinterland Dry Sclerophyll Forests and Western Slopes Dry Sclerophyll Forests. Grows in gravelly, sandy or loamy sand soils.	Medium	Yes – Survey Completed during appropriate seasonal timeframes.	Low. Not recorded within subject land	Closest record is <10km. Suitable microhabitats were surveyed across multiple seasons and not found within the subject land.
Indigofera efoliata			Yes	Broom-like subshrub to 40 cm high, with a woody rootstock. Recorded in Goonoo State Forest in Eucalyptus crebra and Callitris glaucophylla dry sclerophyll forest, and in Eucalyptus microcarpa and Callitris glaucophylla tall woodland	Medium	Yes – Survey Completed during appropriate seasonal timeframes.	Low	Closest record is >10km. Suitable microhabitats were surveyed across multiple seasons and not found within the subject land.
Lepidium aschersonii	VU	VU	No	Erect, perennial herb confined to the central-western slopes and north-western plains regions including West Wyalong, Brigalow Nature Reserve.	Negligible	No – No habitat suitable within the subject land	Negligible	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Brigalow State Conservation Area, Leard State Conservation Area and Bobbiwaa State Conservation Area. Grows on ridges in a variety of communities including Inland Floodplain Swamps, Floodplain Transition Forests, Brigalow Clay Plain Woodlands, Semi-arid Sand Plain Woodlands and North-west Floodplain Woodlands. Grows in gilgai clays and grey loamy clays.				
Lepidium monoplocoides	EN	EN	No	Erect, annual herb with populations sparsely scattered throughout a widespread distribution spanning the semi-arid western plains. Historical records are numerous although recent records are confined to two collections from Broken Hill, in 1915 and 1950. Grows in areas receiving between 300 mm to 500 mm annual rainfall on periodically inundated and waterlogged habitats in a variety of communities including Inland Floodplain Shrublands, Floodplain Transition Woodlands, Inland Saline Lakes, Sand Plain Mallee Woodlands and Western Peneplain Woodlands. Grows on waterlogged grey-brown clays	Negligible	No – No habitat suitable within the subject land	Negligible	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.
Pomaderris queenslandica		EN	Yes	Scant Pomaderris is a medium-sized shrub 2 - 3m tall. The stems are whitish with tiny star-shaped hair clusters. Found in moist eucalypt forest or sheltered woodlands with a shrubby understorey, and occasionally along creeks.	Low	Yes – Survey Completed during appropriate seasonal timeframes	Low	Closest record is >10km. Suitable microhabitats were surveyed across multiple seasons and not found within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
Prasophyllum petilum	EN	EN	No	Terrestrial orchid restricted to five sites within NSW at Boorowa, Captains Flat, Ilford, a Travelling Stock Route at Delegate and 10 kilometres south-east of Muswellbrook. Found growing in open sites and patchy forest in Natural Temperate Grassland, Box-Gum Woodlands, Temperate Montane Grasslands, Southern Tableland Grassy Woodlands, Subalpine Woodlands, Tableland Clay Grassy Woodlands, Western Slopes Grassy Woodlands. This species is cryptic and most visible when flowering between October and December. Grows in fertile soils.	Negligible	No – No habitat suitable within the subject land	Negligible	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.
Pultenaea setulosa	VU		No	Medium sized erect shrub restricted to the Broad Sound in the Marlborough district south to Rockhampton and Mount Fairview in Queensland. Found growing on hillsides and ridges in open Eucalypt forest dominated by Broad-leaved Ironbark *Eucalyptus fibrosa*, Glen Geddes Bloodwood *Corymbia xanthope* and Clarkson's Bloodwood *Corymbia clarksiona*. Grows in soils derived from serpentine. Small sparsely downy forb distributed between Jerilderie and Deniliquin areas of the southern Riverine Plain as far north as Willandra National Park, near Broken Hill and between Dubbo and Mudgee. Found growing on level plains, floodplains and depressions in a variety of communities including Riverine	Negligible	No – No habitat suitable within the subject land	Negligible	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Chenopod Shrublands, Semi-arid Floodplain Shrublands, Western Slopes Grasslands, Brigalow Clay Plain Woodlands, Riverine Plain Woodlands and Inland Saline Lakes. Grows in heavy clay based soils ranging from grey, red and brown cracking clays to red-brown earths and loams.				
Swainsona murrayana	VU	VU	No	Small sparsely downy forb distributed between Jerilderie and Deniliquin areas of the southern Riverine Plain as far north as Willandra National Park, near Broken Hill and between Dubbo and Mudgee. Found growing on level plains, floodplains and depressions in a variety of communities including Riverine Chenopod Shrublands, Semi-arid Floodplain Shrublands, Western Slopes Grasslands, Brigalow Clay Plain Woodlands, Riverine Plain Woodlands and Inland Saline Lakes. Grows in heavy clay based soils ranging from grey, red and brown cracking clays to red-brown earths and loams.	Low	No – No habitat suitable within the subject land	Low	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.
Swainsona recta	EN	EN	No	Small erect perennial herb with a scattered distribution at Carcoar, Culcairn and Wagga Wagga from which it is possibly extinct and from Queanbeyan and Wellington - Mudgee areas where it is still extant. Found growing on stony hillsides and in the grassy understorey of Upper Riverina Dry Sclerophyll Forests, Western Slopes Dry Sclerophyll Forests, Temperate Montane Grasslands,	Low	No – No habitat suitable within the subject land Known nearby records and reference population confirmed	Low	Habitat for this species is not present within the subject land. The species is not associated with any PCT's present within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Floodplain Transition Woodlands, Southern Tableland Grassy Woodlands and Western Slopes Grassy Woodlands				
Swainsona sericea		VU	Yes	Small prostrate or erect perennial herb with a distribution spanning from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains with an additional outlying population in the far north-west of NSW. Found growing in a variety of communities including Natural Temperate Grasslands, Snow Gum Eucalyptus pauciflora Woodlands on the Monaro, Box-Gum Woodland, New England Dry Sclerophyll Forests, North-west Slopes Dry Sclerophyll Woodlands, North-west Plain Shrublands, Western Slopes Grasslands, Floodplain Transition Woodlands and Subalpine Woodlands.	Medium	Yes – Survey Completed during appropriate seasonal timeframes.	Low. Not recorded within subject land	Closest record is <10km. Known reference population was checked and confirmed for suitability of survey. Survey was undertaken across multiple seasons and not found within the subject land.
Thesium australe	VU	VU	No	Small, straggling herb with a distribution comprising of small populations scattered along the coast of eastern NSW including the Northern and Southern Tablelands, Tasmania, Queensland and eastern Asia. A root parasite found growing on damp sites in grassland, grassy woodlands and coastal headlands often in association with Kangaroo Grass Themeda triandra in a variety of communities including New England Dry Sclerophyll Forests, Western Slopes Grasslands, Northern Tableland Wet Sclerophyll Forests, Brigalow Clay Plain	Low	Yes – Survey Completed during appropriate seasonal timeframes.	Low	Closest record is >10km. Suitable microhabitats were surveyed across multiple seasons and not found within the subject land.

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Species	Status		BAM predicted SCS	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC						
				Woodlands, Subalpine Woodlands and Maritime Grasslands.				
Tylophora linearis	EN	VU	Yes	Slender, hairless twiner distributed throughout the central western region of NSW with records from Goonoo, Pilliga West, Pilliga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie Nature Reserve, Goobang National Park and Hiawatha State Forest. Found growing at low elevations on flats in a variety of communities including North-west Slopes Dry Sclerophyll Woodlands, Yetman Dry Sclerophyll Forests, Floodplain Transition Woodlands and Western Slopes Grassy Woodlands. Grows in sedimentary soils.	Medium	Yes – Survey Completed during appropriate seasonal timeframes.	Low	Closest record is <10km. previous nearby records were surveyed for but could not be located. Survey was undertaken across multiple seasons and not found within the subject land.
Zieria ingramii	EN	EN	Yes	Small, slender shrub confined to Goonoo State Conservation Area approximately 40 kilometres north-east of Dubbo and an additional record from Kings Plains National Park 48 kilometres south of Inverell. Found growing on gentle slopes in Northern Montane Heaths and Western Slopes Dry Sclerophyll Forests. Grows in red-brown and yellow-brown sandy loam soils.	Recorded	Yes – Survey Completed during appropriate seasonal timeframes.	Low	This species was recorded during surveys, however all impacts to this species have been avoided.

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Table A 2: Threatened fauna species assessment – BAM Candidate and EPBC only

Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Birds										
Common Sandpiper	Mi		No	Migratory	PMST, BioNet	In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. The sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines (Higgins 1999).	Low	Excluded – vagrant, General diurnal bird surveys undertaken	Negligible	No records of Common Sandpiper occur within 10km of the subject land. Suitable habitat may include grassland and riparian woodland, however, the subject land is unlikely to provide habitat frequented by the species, with only few populations known west of the Great Dividing Range.
Regent Honeyeater	CE	CR	No, species assessed as not on site.		PMST, BioNet	Regent Honeyeaters are semi-nomadic, occurring in temperate eucalypt woodlands and open forests. Most	Medium	General diurnal bird survey undertaken.	Low	No records of Regent honeyeater occur within 10km of the subject land. The

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						records are from box-ironbark eucalypt forest associations and wet lowland coastal forests. Nectar and fruit from mistletoes are also eaten. This species usually nest in tall mature eucalypts and sheoaks.		No important mapped areas		subject land is not mapped as an important area for the species and however, does contain suitable habitat present within the subject land.
Southern Whiteface	VU	VU	No		BioNet	Southern whitefaces occupy open acacia or eucalypt-dominated woodlands and shrublands on ranges, foothills, lowlands, and plains. This species favours open woodlands and shrublands with low tree densities and a herbaceous litter cover or grassy understory.	Medium	General diurnal bird surveys undertaken.	Low	No records within 10 km, however suitable habitat is present within the subject land.
Fork-tailed Swift	Mi		No	Migratory		Almost exclusively aerial (foraging). The Fork-tailed Swift breeds in Asia but migrates to Australia from September to April. Individuals or flocks can be observed hawking for insects at varying heights from only a few metres from the ground and up to 300 metres high.	Low	General diurnal bird surveys undertaken.	Negligible	No records within 10 km, species is almost entirely aerial.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Dusky Woodswallow		VU	No		PMST, BioNet	Primarily inhabits dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Medium	General diurnal bird surveys undertaken.	Low	Records within 10 km and suitable habitat present but species not recorded during surveys.
Australasian Bittern	EN	EN	No			The Australasian Bittern is distributed across south-eastern Australia. Often found in terrestrial and estuarine wetlands, generally where there is permanent water with tall, dense vegetation including *Typha spp*. and *Eleoacharis spp*. Typically, this bird forages at night on frogs, fish and invertebrates, and remains inconspicuous during the day. The breeding season extends from October to	Negligible	No – No suitable habitat present within the subject land.	Negligible	No records within 10 km and no suitable habitat present and therefore species is unlikely to occur within the subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						January with nests being built amongst dense vegetation on a flattened platform of reeds.				
Sharp-tailed Sandpiper	VU, Mi		No	Migratory		This species is a migratory visitor to Australia and spends its breeding season in Siberia. In the non-breeding season, the Sharp-tailed Sandpiper is known to occur mostly in the south-east of Australia but has been found on coastlines all throughout the country.	Negligible	No – No suitable habitat present within the subject land.	Negligible	No records within 10 km and no suitable habitat present and therefore species is unlikely to occur within the subject land.
Curlew Sandpiper	CR, Mi	CR	No	Migratory		Inhabits sheltered intertidal mudflats. Also in non-tidal swamps, lagoons and lakes near the coast. Infrequently recorded inland.	Negligible	No – No suitable habitat present within the subject land.	Negligible	No records within 10 km and no suitable habitat present and therefore species is unlikely to occur within the subject land.
Pectoral Sandpiper	Mi		No	Migratory		Scarce, but regular visitor, usually recorded in summer from November to March. Widespread but scattered records in Australia. Usually found in fresh to saline wetlands, floodplains, swamps, estuaries and lagoons, sometimes with emergent or	Negligible	No – No suitable habitat present within the subject land.	Negligible	No records within 10 km and no suitable habitat present and therefore species is unlikely to occur within the subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						fringing vegetation such as grass.				
Gang-gang Cockatoo	EN	EN	No			In summer, occupies tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. Also occur in subalpine Snow Gum woodland and occasionally in temperate or regenerating forest. In winter, occurs at lower altitudes in drier, more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. It requires tree hollows in which to breed.	Low	General diurnal bird surveys undertaken. .	Low	No records within 10 km however, suitable habitat present within subject land.
South-eastern Glossy Black-Cockatoo	VU	VU	Yes		PMST, BioNet	Inhabits forest with low nutrients, characteristically with key Allocasuarina species. Tends to prefer drier forest types. Often confined to remnant patches in hills and gullies. Breed in hollows stumps or limbs, either living or dead.	Recorded	General diurnal bird surveys undertaken.	High	Species recorded within study area and suitable habitat present.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Speckled Warbler		VU	No		PMST, BioNet	The Speckled Warbler occurs on the hills and tablelands of the Great Dividing Range. Found in eucalypt and cypress woodlands with a grassy understorey, often on ridges or gullies. The species nests on the ground in grass tussocks, dense litter and fallen branches. They forage on the ground for arthropods and seeds.	Medium	General diurnal bird surveys undertaken.	Low	Species recorded within 10 km and suitable habitat present within the subject land, but species not recorded during surveys.
Spotted Harrier		VU	No		PMST, BioNet	The Spotted Harrier is found throughout Australia but rarely in densely forested and wooded habitat of the escarpment and coast. Preferred habitat consists of open and wooded country with grassland nearby for hunting. Habitat types include open grasslands, acacia and mallee remnants, spinifex, open shrublands, saltbush, very open woodlands, crops and similar low vegetation. The Spotted Harrier is more common in drier inland areas, nomadic part migratory and dispersive, with movements	Medium	General diurnal bird surveys undertaken	Low	Species recorded within 10 km and suitable habitat present within subject land but species not recorded during surveys.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						linked to the abundance of prey species. Nesting occurs in open or remnant woodland and unlike other harriers, the Spotted Harrier nests in trees.				
Brown Treecreeper (eastern subspecies)	VU	VU	No		PMST, BioNet	Lives in eucalypt woodlands, especially areas of relatively flat open woodland typically lacking a dense shrub layer, with short grass or bare ground and with fallen logs or dead trees present.	Recorded	General diurnal bird surveys undertaken.	High	Species recorded within subject land and suitable habitat present.
Varied Sittella		VU	No		PMST, BioNet	The Varied Sittella is a sedentary species which inhabits a wide variety of dry eucalypt forests and woodlands, usually with either shrubby understorey or grassy ground cover or both, in all climatic zones of Australia. Usually inhabit areas with rough-barked trees, such as stringybarks or ironbarks, but also in mallee and acacia woodlands, paperbarks or mature Eucalypts. The Varied Sittella feeds on arthropods gleaned from bark, small branches and twigs. It builds a cup-shaped nest of plant fibres	Medium	General diurnal bird surveys undertaken.	Low	Species recorded within 10 km and suitable habitat present but species not recorded during surveys

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						and cobweb in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.				
White-fronted Chat		VU	No		PMST, BioNet	The White-fronted Chat occupies foothills and lowlands below 1000 m above sea level. In NSW it occurs mostly in the southern half of the state, occurring in damp open habitats along the coast, and near waterways in the western part of the state. The White-fronted Chat is found in damp open habitats, particularly wetlands containing saltmarsh areas that are bordered by open grasslands or lightly timbered lands. Along the coastline, they are found in estuarine and marshy grounds with vegetation less than 1 m tall. The species is also observed in open grasslands and sometimes in low shrubs bordering wetland areas. Inland, the species is often observed in open grassy plains, saltlakes and saltpans that are along the margins of	Low	General diurnal bird surveys undertaken.	Low	Species recorded within 10 km however, only marginal habitat within subject that is unlikely to be utilized by species.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						rivers and waterways. In Victoria White-fronted Chats have been observed breeding from late July through to early March. Nests are built in low vegetation and in the Sydney region nests have also been observed in low isolated mangroves. An Endangered Population occurs in the Sydney Metropolitan CMA area, at Newington Nature Reserve near Homebush and at Towra Point Nature Reserve.				
Grey Falcon	VU	VU	No			Found over open country and wooded lands of tropical and temperate Australia. Mainly found on sandy and stony plains of inland drainage systems with lightly timbered acacia scrub.	Low	General diurnal bird surveys undertaken.	Low	Species not recorded within 10 km however, some suitable habitat present within subject land.
Black Falcon		VU	No		PMST, BioNet	Mainly occur in woodlands and open country where can hunt. Often associated with swamps, rivers and wetlands. Nests in tall trees along watercourses.	High	General diurnal bird surveys undertaken.	Moderate	Species recorded directly adjacent to subject land and suitable habitat present.
Latham's Snipe,	VU, Mi	VU	No	Migratory		Typically found on wet soft ground or shallow water with good cover of tussocks. Often	Negligible	No – No suitable habitat	Negligible	No records within 10 km and no suitable habitat present and therefore species is

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						found in wet paddocks, seepage areas below dams.		present within the subject land.		unlikely to occur within the subject land.
Little Lorikeet		VU	No		PMST, BioNet	Distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range in NSW, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. Mostly occur in dry, open eucalypt forests and woodlands. They feed primarily on nectar and pollen in the tree canopy. Nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked eucalypts. Most breeding records come from the western slopes.	Medium	General diurnal bird surveys undertaken	Low	Species recorded within 10 km and suitable habitat present within subject land.
Painted Honeyeater	VU	VU	No			Found mainly in dry open woodlands and forests, where it is strongly associated with mistletoe. Often found on plains with scattered eucalypts and remnant trees on farmlands.	Low	General diurnal bird surveys undertaken	Low	Species not recorded within 10 km however, suitable habitat present within subject land.
White-bellied Sea-Eagle		VU	Yes			A migratory species that is generally sedentary in Australia, although immature	Low	Yes – Survey Completed during	Low	Species recorded within 10 km however, not

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						individuals and some adults are dispersive. Found in terrestrial and coastal wetlands; favouring deep freshwater swamps, lakes and reservoirs; shallow coastal lagoons and saltmarshes. It hunts over open terrestrial habitats. Feeds on birds, reptiles, fish, mammals, crustaceans and carrion. Roosts and makes nest in trees.		appropriate seasonal timeframes in addition to general diurnal bird surveys being completed.		recorded during general or targeted surveys in addition to only marginal habitat present within subject land
Little Eagle		VU	Yes		PMST, BioNet	The Little Eagle is most abundant in lightly timbered areas with open areas nearby providing an abundance of prey species. It has often been recorded foraging in grasslands, crops, treeless dune fields, and recently logged areas. The Little Eagle nests in tall living trees within farmland, woodland and forests.	High	Yes – Survey Completed during appropriate seasonal timeframes in addition to general diurnal bird surveys being completed.	Moderate	Species recorded directly adjacent to study area and suitable habitat present within subject land.
White-throated Needletail	VU, Mi	VU	Yes	Migratory	PMST, BioNet	A migratory species that is generally sedentary in Australia, although immature individuals and some adults are dispersive. Found in terrestrial and coastal	High	General diurnal bird surveys undertaken	Moderate	Species recorded directly adjacent to subject land and suitable habitat present.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						wetlands; favouring deep freshwater swamps, lakes and reservoirs; shallow coastal lagoons and saltmarshes. It hunts over open terrestrial habitats. Feeds on birds, reptiles, fish, mammals, crustaceans and carrion. Roosts and makes nest in trees.				
Swift Parrot	CR	EN	No, species assessed as not on site			The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Grey Box E. microcarpa, Grey Box E. moluccana and Blackbutt E. pilularis. This species is	Low	General diurnal bird surveys undertaken	Low	No records of species within 10 km however, suitable habitat present within subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.				
Malleefowl	VU	EN	No		PMST, BioNet	The malleefowl occurs in tall, dense mallee with a mean annual rainfall of 300 to 450mm (NPWS 1996). This species prefers areas with a light sandy to sandy loam soil, a dense but discontinuous canopy cover, dense and variable herb layer and open ground for easy of movement (NPWS 1996).	Low	General diurnal bird surveys undertaken	Low	Species recorded within 10 km however, only marginal habitat present within subject land and is unlikely to be utilized.
Pink Cockatoo (eastern)	EN	VU	Yes			Found mainly in semi-arid and arid regions, in dry woodlands, particularly mallee - casuarina assemblages. They breed in the hollows of large trees, often near watercourse.	Negligible	Targeted surveys in addition to general diurnal bird surveys	Negligible	Species not recorded within 10 km and no suitable habitat present within subject land. Was no recorded during surveys.
Square-tailed Kite		VU	Yes		PMST, BioNet	Typically inhabits coastal forested and wooded lands of tropical and temperate Australia. In NSW it is often associated with ridge and gully forests dominated by Eucalyptus longifolia, Corymbia maculata, E. elata, or	Low	Targeted surveys in addition to general diurnal bird surveys	Low	Species recorded one time within 10 km however, record is over 20 years old. Suitable habitat present within subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						E. smithii. Individuals appear to occupy large hunting ranges of more than 100 km2. They require large living trees for breeding, particularly near water with surrounding woodland /forest close by for foraging habitat. Nest sites are generally located along or near watercourses, in a tree fork or on large horizontal limbs.				
South-eastern Hooded Robin	EN	EN	No		PMST, BioNet	This species lives in a wide range of temperate woodland habitats, and a range of woodlands and shrublands in semi-arid areas.	High	General diurnal bird surveys undertaken	Moderate	Species recorded within the study area and suitable habitat present.
Yellow Wagtail	Mi		No	Migratory		Regular spring-summer visitor in north of Australia, rare vagrant or occasional visitor farther south. Found in marshes, damp paddocks, airfields, cultivated fields, lawns and estuaries.	Negligible	General diurnal bird surveys undertaken	Negligible	Species not recorded within 10km and no suitable habitat present within subject land.
Satin Flycatcher	Mi		No	Migratory		Migratory species that occurs in coastal forests, woodlands and scrubs during migration. Breeds in heavily vegetated gullies.	Negligible	General diurnal bird surveys undertaken	Negligible	Species not recorded within 10km and no suitable habitat present within subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Blue-winged Parrot	VU	VU	No			The Blue-winged Parrot is a small parrot found in Tasmania and southeast mainland Australia. Some populations are known to migrate to Tasmania from the mainland during summer months. The species feeds predominantly on the ground and occurs in savannah woodlands and grasslands.	Negligible	General diurnal bird surveys undertaken	Negligible	Species not recorded within 10km and no suitable habitat present within subject land.
Turquoise Parrot		VU	No		PMST, BioNet	Occurs in open woodlands and eucalypt forests with a ground cover of grasses and understorey of low shrubs. Generally found in the foothills of the Great Divide, including steep rocky ridges and gullies. Nest in hollow-bearing trees, either dead or alive; also in hollows in tree stumps. Prefer to breed in open grassy forests and woodlands, and gullies that are moist.	High	General diurnal bird surveys undertaken	High	Recorded directly adjacent to study area and suitable habitat present within subject land
Barking Owl		VU	Yes		PMST, BioNet	Generally found in open forests, woodlands, swamp woodlands, farmlands and dense scrub. Can also be found in the foothills and timber along watercourses in	Medium	Targeted surveys undertaken in addition to general	Low	Species recorded within 10 km and suitable habitat within subject land but species not

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						otherwise open country. Territories are typically 2000 ha in NSW habitats. Hunts small arboreal mammals or birds and terrestrial mammals when tree hollows are absent.		diurnal bird surveys		found during surveys.
Powerful Owl		VU	Yes		PMST, BioNet	The Powerful Owl occupies wet and dry eucalypt forests and rainforests. It may inhabit both un-logged and lightly logged forests as well as undisturbed forests where it usually roosts on the limbs of dense trees in gully areas. Large mature trees with hollows at least 0.5 m deep are required for nesting. Tree hollows are particularly important for the Powerful Owl because a large proportion of the diet is made up of hollow-dependent arboreal marsupials. Nest trees for this species are usually emergent with a diameter at breast height of at least 100 cm. It has a large home range of between 450 and 1450 ha.	Medium	Targeted surveys undertaken in addition to general diurnal bird surveys	Low	Species recorded within 10 km and suitable habitat within subject land but species not found during surveys.
Plains-wanderer	CR	EN	No			Plains-wanderers live in semi-arid, lowland native grasslands	Negligible	No, species excluded	Negligible	Species not recorded within 10 km and no

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						that typically occur on hard red-brown soils. Habitat structure appears to be more important than plant species composition. Preferred habitat typically comprises 50% bare ground, 10% fallen litter, and 40% herbs, forbs and grasses. They have been recorded in some agricultural land including unimproved pasture and cropping on long rotation.		due to lack of habitat present		suitable habitat present.
Scarlet Robin		VU	No		PMST, BioNet	The Scarlet Robin inhabits dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. During autumn and winter it moves to more open and cleared areas. The Scarlet Robin forages amongst logs and woody debris for insects. The nest is an open cup of plant fibres and cobwebs, sited in the fork of a tree.	Medium	General diurnal bird surveys undertaken	Low	Species recorded within 10 km and suitable habitat present but not recorded during surveys
Superb Parrot	VU	VU	Yes		PMST. BioNet	Found mainly in open, tall riparian River Red Gum forest or woodland. Often found in farmland including grazing land with patches of remnant vegetation. Forages primarily	Recorded	Targeted bird surveys in addition to general diurnal bird	Moderate	Species recorded within study area and suitable foraging habitat present, however outside of

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						in grassy box woodland, feeding in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants.		surveys undertaken		core breeding habitat.
Grey-crowned Babbler (eastern subspecies)		VU	No		PMST, BioNet	The eastern sub-species occurs on the western slopes of the Great Dividing Range, the western plains, woodlands in the Hunter Valley and locations on the north coast of NSW. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine, open Box Woodlands on alluvial plains and woodlands on fertile soils in coastal regions. Feeds on invertebrates and builds dome-shaped nests.	High	General diurnal bird surveys undertaken	Moderate	Species recorded directly adjacent to subject land and suitable habitat present.
Rufous Fantail	Mi		No	Migratory		Migratory species that prefers dense, moist undergrowth of tropical rainforests and scrubs. During migration it can stray into gardens and more open areas.	Negligible	General diurnal bird surveys undertaken	Negligible	Species not recorded within 10 km and no suitable habitat present within subject land.
Australian Painted Snipe	EN	EN	No			Usually found in shallow inland wetlands including farm dams, lakes, rice crops, swamps and waterlogged grassland. They	Negligible	General diurnal bird	Negligible	Species not recorded within 10 km and no suitable habitat

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						prefer freshwater wetlands but have been recorded in brackish waters. Forages on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter.		surveys undertaken		present within subject land.
Diamond Firetail	VU	VU	No		PMST, BioNet	The Diamond Firetail is widely distributed, found in a range of habitat types including open eucalypt forest, mallee and acacia scrubs. Often occur in vegetation along watercourses. Feeds exclusively on the ground on ripe grass and herb seeds, green leaves and insects.	Recorded	General diurnal bird surveys undertaken	Moderate	Species recorded within subject land and suitable habitat present. Work will only impact smaller isolated and fringe patches of less desirable habitat.
Masked Owl		VU	Yes		PMST, BioNet	The Masked Owl is found in range of wooded habitats that provide tall or dense mature trees with hollows suitable for nesting and roosting. It is mostly seen in open forests and woodlands adjacent to cleared lands. Prey includes hollow-dependent arboreal marsupials and terrestrial mammals.	Medium	Targeted surveys undertaken	Low	Species recorded within 10 km and suitable habitat present but species not recorded during targeted surveys.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Mammals										
Large-eared Pied Bat	EN	EN	Yes		PMST, BioNet	Occurs from the Queensland border to Ulladulla, with largest numbers from the sandstone escarpment country in the Sydney Basin and Hunter Valley. Primarily found in dry sclerophyll forests and woodlands, but also found in rainforest fringes and subalpine woodlands. Forages on small, flying insects below the forest canopy. Roosts in colonies of between three and 80 in caves, Fairy Martin nests and mines, and beneath rock overhangs, but usually less than 10 individuals. Likely that it hibernates during the cooler months. The only known existing maternity roost is in a sandstone cave near Coonabarabran.	Medium	Bat call analysis undertaken	Low	Species recorded within 10 km and suitable habitat present however, not recorded during bat call analysis on site.
Little Pied Bat		VU	No		PMST, BioNet	Occurs in mallee, dry open forest and woodland. This species roost mainly in tree hollows but may also roost in abandoned buildings. It often occurs in areas of highly ephemeral surface water and	Medium	Bat call analysis undertaken	Low	Species recorded within 10 km and suitable habitat present however, not recorded during bat call analysis on site

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						may travel up to 34 km in a night between the roost and water sources.				
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population	EN	VU	No			Occurs along the east coast of Australia and the Great Dividing Range. Uses a range of habitats including sclerophyll forests and woodlands, coastal heathlands and rainforests. Occasional sightings have been made in open country, grazing lands, rocky outcrops and other treeless areas. Habitat requirements include suitable den sites, including hollow logs, rock crevices and caves, an abundance of food and an area of intact vegetation in which to forage. Seventy per cent of the diet is medium-sized mammals, and also feeds on invertebrates, reptiles and birds. Individuals require large areas of relatively intact vegetation through which to forage. The home range of a female is between 180 and 1000 ha, while males have larger home ranges of between	Low	No	Low	Species not recorded within 10 km however, suitable habitat present.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						2000 and 5000 ha. Breeding occurs from May to August.				
Large Bent-winged Bat		VU	Yes		PMST, BioNet	Occurs from Victoria to Queensland, on both sides of the Great Dividing Range. Forms large maternity roosts (up to 100,000 individuals) in caves and mines in spring and summer. Individuals may fly several hundred kilometres to their wintering sites, where they roost in caves, culverts, buildings, and bridges. They occur in a broad range of habitats including rainforest, wet and dry sclerophyll forest, paperbark forest and open grasslands. Has a fast, direct flight and forages for flying insects (particularly moths) above the tree canopy and along waterways.	Recorded	Bat call analysis undertaken	Moderate	Species recorded within subject land and suitable habitat present. Work will only impact smaller isolated and fringe patches of less desirable habitat.
Corben's Long-eared Bat, South-eastern Long-eared Bat	VU	VU	Yes			Restricted to the Murray-Darling basin and western slopes. Found in a range of habitats including tall Eucalypt forests, mallee, open savanna and Black Box woodland, preferring habitats with a distinct canopy and cluttered, dense understorey. Roost in	Medium	Bat call analysis undertaken	Low	Species not recorded within 10 km although potentially recorded during bat call analysis. Suitable habitat present within subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						tree hollows and fissures and under exfoliating bark.				
Squirrel Glider		VU	No		PMST, BioNet	Generally occurs in dry sclerophyll forests and woodlands but is absent from dense coastal ranges in the southern part of its range. Requires abundant hollow-bearing trees and a mix of eucalypts, banksias and acacias. Within a suitable vegetation community at least one species should flower heavily in winter and one species of eucalypt should be smooth barked.	Low	Spotlight and camera trapping undertaken	Low	Species recorded within 10 km however, not recorded during targeted surveys and only marginal habitat present within subject land.
Koala	VU	VU	Yes		PMST, Bionet	In NSW the Koala mainly occurs on the central and north coasts with some populations in the western region. Koalas feed almost exclusively on eucalypt foliage, and their preferences vary regionally. Primary feed trees include Eucalyptus camaldulensis within the Riverina. They are solitary with varying home ranges.	Low	Targeted surveys undertaken	Low	Species has been recorded within 10 km however, was not recorded during targeted surveys and only marginal habitat present.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Grey-headed Flying-fox	VU	Vu	Yes			Occurs along the NSW coast, extending further inland in the north. This species is a canopy-feeding frugivore and nectarivore of rainforests, open forests, woodlands, melaleuca swamps and banksia woodlands. Roosts in large colonies, commonly in dense riparian vegetation.	Low	Targeted surveys undertaken	Low	Species not recorded within 10 km and not found during targeted surveys. However, suitable habitat present.
Yellow-bellied Sheathtail-bat		VU	No		PMST, BioNet	Found throughout NSW in habitats including wet and dry sclerophyll forest, open woodland, acacia shrubland, mallee, grasslands and desert. They roost in tree hollows in colonies and have also been observed roosting in animal burrows, abandoned Sugar Glider nests, cracks in dry clay, hanging from buildings and under slabs of rock. Forages for insects above the canopy in forests.	Recorded	Bat call analysis undertaken	Moderate	Species recorded during bat call analysis in subject land and suitable habitat present. Work will only impact smaller isolated and fringe patches of less desirable habitat
Reptiles and Amphibians										
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard	VU	VU	Yes			Fossorial species, which lives beneath surface rocks and occupies ant burrows. It feed on ants, particularly their eggs	Low	Targeted surveys undertaken	Low	Species not recorded within 10 km and not recorded during targeted surveys.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						and larvae. Thought to lay eggs within the ant nests under rocks that it uses as a source of food and shelter. Key habitat features are a cover of native grasses, particularly Kangaroo Grass (Themeda australis), sparse or no tree cover, little or no leaf litter, and scattered small rock with shallow embedment in the soil surface.				
Sloane's Froglet	EN	VU	Yes			Sloane's Froglet is a cryptic species, usually found only after rain. This species has a widely scattered distribution throughout the floodplains of the Murray-Darling Basin in NSW and has been recorded mostly in the Darling Riverine Plains, NSW South Western Slopes, and the Riverina bioregions. It is typically associated with periodically inundated grassland, woodland and disturbed areas.	Low	Targeted frog surveys undertaken	Low	Species not recorded within 10 km, not recorded during audiovisual surveys and only marginal habitat present.
Fish										

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
Flathead Galaxias	CR		No		CE – FM ACT	Flathead Galaxias are found in still or slow moving water bodies such as wetlands and lowland streams. The species has been recorded forming shoals. They have been associated with a range of habitats including rock and sandy bottoms and aquatic vegetation. Flathead Galaxias spawn in spring and lay slightly adhesive demersal eggs.	Low	No	Low	Species not recorded within 10 km and only marginal habitat present within subject land.
Trout Cod	EN				EN – FM ACT	The Trout Cod is endemic to the southern Murray-Darling river system, including the Murrumbidgee and Murray Rivers, and the Macquarie River in central NSW. Trout cod are often found close to cover and in relatively fast currents, especially in fairly deep water close to the bank, and often congregate around large woody debris (snags). They tend to remain at the one site and have small home ranges	Negligible	No	Negligible	Species not recorded within 10 km and no suitable habitat present.
Murray Cod	VU					The Murray Cods natural distribution extends throughout the Murray-Darling basin ranging west of the	Negligible	No	Negligible	Species not recorded within 10 km and no suitable habitat present.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						divide from south east Queensland, through NSW into Victoria and South Australia. It is found in the waterways of the Murray–Darling Basin in a wide range of warm water habitats that range from clear, rocky streams to slow flowing turbid rivers, billabongs and large deep holes. Murray Cod is entirely a freshwater species and will not tolerate high salinity levels.				
Macquarie Perch			No		EN – FM ACT	Macquarie Perch are found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury and Shoalhaven catchments. Macquarie perch are found in both river and lake habitats, especially the upper reaches of rivers and their tributaries	Low	No	No	Species not recorded within 10 km and only marginal habitat present.
Southern Purple Spotted Gudgeon			No		EN – FM ACT	The Southern Purple Spotted Gudgeon occurs in the Murray-Darling basin as well as parts of coastal northern NSW and Queensland. The				Mapped habitat occurs within the subject land.

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Species	Status		BAM predicted SCS	Migratory	Other Sources	Habitat Description	Potential occurrence in subject land	Survey required/ undertaken	Potential for impact	Conclusion and rationale
	EPBC	BC								
						western population of the Southern Purple Spotted Gudgeon was previously widespread in the Murray, Murrumbidgee and Lachlan River systems and tributaries of the Darling, but has experienced a significant decline in recent times. They are now considered to be rare in inland NSW				
Eel tailed catfish			No		EN – FM ACT	Eel Tailed Catfish are naturally distributed throughout the Murray-Darling Basin and in the Eastern drainages NSW north of Newcastle. Eel Tailed Catfish numbers in the Murray-Darling Basin have declined due to a range of impacts including invasive species, habitat degradation, cold water pollution and fishing pressures and are now virtually absent from the Murray, Murrumbidgee and Lachlan catchments. Mapped habitat occurs within the Talbragar River	Low	No	Low	No mapped habitat occurs within the subject land.

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Appendix 3 Flora

Appendix 3.1 BAM plot field data

Table A 3: BAM plot floristics

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plot	pct	area	patchsize	conditionclass	zone	easting	northing
38235_csf_21	81	-	100	Cat 1	55	711506	6438311
38235_csf_22	81	-	100	Cat 1	55	712047	6438056
38235_csf_nov2	81	24.88	100	Low	55	709699	6437704
38235_csf_nov22	81	24.88	100	Low	55	711717	6437432
38235_csf_nov3	81	24.88	100	Low	55	710944	6437700
38235_csf_nov6	81	24.88	100	Low	55	707658	6445650
38235_csf_100	81	6.55	100	Moderate	55	710041	6441859
38235_csf_nov1	81	6.55	100	Moderate	55	709526	6437747
38235_csf_nov4	81	6.55	100	Moderate	55	708877	6445608
38235_csf_04	201	5.91	100	Low	55	709919	6440591
38235_csf_24	201	5.91	100	Low	55	713599	6435974
38235_201Low_Dum	201	5.91	100	Low	55	708325	6440069
38235_csf_05	201	2.73	100	Moderate	55	709559	6440583
38235_csf_07	201	2.73	100	Moderate	55	708320	6440064
38235_csf_nov19	201	2.73	100	Moderate	55	710559	6440648
38235_csf_nov20	201	2.73	100	Moderate	55	712260	6438584
38235_csf_nov5	201	2.73	100	Moderate	55	708369	6444765
38235_csf_nov7	201	2.73	100	Moderate	55	707793	6442830
38235_csf_104	281	-	100	Cat 1	55	709487	6443306
38235_csf_nov18	281	-	100	Cat 1	55	709863	6441960
38235_csf_nov9	281	-	100	Cat 1	55	708748	6443381
38235_csf_102	281	42.28	100	Low	55	709780	6443062
38235_csf_112	281	42.28	100	Low	55	708378	6441403
38235_csf_26	281	42.28	100	Low	55	711418	6438863
38235_csf_nov15	281	42.28	100	Low	55	708642	6441360
38235_csf_nov8	281	42.28	100	Low	55	708420	6443315
38235_csf_08	281	9.25	100	Moderate	55	709098	6438169
38235_csf_09	281	9.25	100	Moderate	55	709246	6439379
38235_csf_103	281	9.25	100	Moderate	55	709656	6443272
38235_csf_113	281	9.25	100	Moderate	55	708521	6441515
38235_csf_115	281	9.25	100	Moderate	55	709094	6439702
38235_csf_14	281	9.25	100	Moderate	55	710358	6438708
38235_csf_25	281	9.25	100	Moderate	55	711615	6438802
38235_csf_nov17	281	9.25	100	Moderate	55	709954	6443125
38235_csf_19	440	9.53	100	Low	55	711777	6437683
38235_440Low_Dum1	440	9.53	100	Low	55	711797	6437685
38235_440Low_Dum2	440	9.53	100	Low	55	711787	6437688
38235_csf_20	440	0.43	100	Moderate	55	712190	6437201
38235_csf_nov21	440	0.43	100	Moderate	55	712065	6437415
38235_csf_108	467	39.47	100	Low	55	708989	6442217
38235_csf_nov10	467	39.47	100	Low	55	708243	6442589
38235_csf_nov11	467	39.47	100	Low	55	708495	6441823

38235_467Low_Dum	467	39.47	100	Low	55	708490	6441820
38235_csf_110	467	1.45	100	Moderate	55	708360	6442825
38235_csf_111	467	1.45	100	Moderate	55	708491	6442546
38235_csf_106	467	46.5	100	Regrowth	55	708336	6441969
38235_csf_107	467	46.5	100	Regrowth	55	708788	6442229
38235_csf_109	467	46.5	100	Regrowth	55	708345	6442370
38235_csf_nov12	467	46.5	100	Regrowth	55	708465	6442252
38235_csf_nov13	467	46.5	100	Regrowth	55	708970	6442022
38235_csf_06	468	3.92	100	Moderate	55	709120	6440171
38235_csf_101	468	3.92	100	Moderate	55	709900	6442963
38235_csf_105	468	3.92	100	Moderate	55	708255	6443747
38235_csf_18	468	3.92	100	Moderate	55	711501	6438015
38235_csf_nov14	468	3.92	100	Moderate	55	709375	6441609
38235_csf_01	478	0.99	100	Moderate	55	708855	6440927
38235_csf_02	478	0.99	100	Moderate	55	710068	6440960
38235_csf_11	599	56.88	100	DNG	55	710544	6437994
38235_csf_13	599	56.88	100	DNG	55	710168	6438525
38235_csf_15	599	56.88	100	DNG	55	710800	6438487
38235_csf_16	599	56.88	100	DNG	55	711259	6438229
38235_csf_17	599	56.88	100	DNG	55	711730	6438060

bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub
21	0	1	2	2	0	0	0.0	0.1
38	0	0	10	1	0	0	0.0	0.0
270	2	1	7	7	0	0	11.0	1.0
238	1	3	4	3	0	0	20.0	1.2
283	2	1	4	5	0	0	17.0	0.1
160	0	1	7	7	1	1	0.0	3.0
150	4	6	10	11	2	1	38.2	5.6
210	1	2	10	6	1	1	15.0	1.3
190	2	4	9	4	1	1	17.0	2.4
238	1	3	17	9	1	1	5.0	0.5
131	1	0	2	2	0	1	20.0	0.0
1	3	4	10	12	1	2	18.0	2.0
275	3	3	12	13	1	1	20.1	5.2
279	2	3	10	10	0	2	25.0	2.2
336	6	3	4	8	0	1	36.0	16.0
133	2	7	6	13	1	3	30.0	14.7
70	2	2	1	7	0	0	11.0	5.1
160	1	2	7	3	1	2	15.0	0.4
220	0	0	7	0	0	0	0.0	0.0
167	0	1	7	3	0	0	0.0	0.1
20	0	0	8	2	1	0	0.0	0.0
80	0	2	11	1	1	0	0.0	2.5
100	1	4	11	3	1	2	20.0	1.9
85	0	0	10	2	0	0	0.0	0.0
260	1	0	6	6	0	0	0.1	0.0
30	1	0	7	1	0	0	8.0	0.0
328	2	3	14	10	0	2	0.3	0.3
262	2	0	7	2	0	1	40.0	0.0
240	1	2	13	5	1	1	15.0	5.2
160	1	2	13	8	0	0	8.0	0.7
151	4	1	8	12	0	2	0.9	0.1
250	1	2	7	5	0	1	5.0	0.3
64	2	1	11	9	0	1	5.3	0.1
260	3	5	10	8	1	1	13.1	11.1
114	1	6	14	7	1	1	0.1	81.7
1	5	11	8	8	1	2	61.0	22.0
1	5	11	8	8	1	2	61.0	22.0
115	2	4	17	4	0	0	10.3	0.4
45	3	7	9	5	0	0	31.0	13.5
140	0	2	9	2	1	1	0.0	2.2
140	0	5	10	6	1	1	0.0	8.3
40	0	0	7	1	0	0	0.0	0.0

1	5	11	8	8	1	2	61.0	22.0
270	4	4	13	4	1	0	27.1	4.2
250	3	10	10	1	0	0	15.0	60.1
70	2	2	7	2	1	0	0.2	25.2
10	2	3	9	4	1	0	0.2	30.3
180	1	7	13	7	0	0	0.2	38.1
330	2	10	10	8	0	0	0.3	78.5
330	1	7	9	9	0	0	2.0	58.4
348	2	9	16	10	0	0	10.1	1.1
340	3	8	7	6	1	0	37.0	29.2
120	3	1	4	6	1	0	29.0	0.1
115	3	10	15	5	0	0	15.1	1.3
20	3	4	12	6	1	0	15.1	4.7
201	3	9	9	10	1	1	11.1	6.2
294	3	2	5	5	0	0	16.1	0.2
301	0	1	16	7	1	1	0.0	0.1
11	0	0	11	3	1	0	0.0	0.0
206	0	0	5	5	1	0	0.0	0.0
106	0	0	14	5	0	1	0.0	0.0
309	0	0	7	4	0	0	0.0	0.0

strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9
0.2	0.2	0.0	0.0	0	0	28.6	0.0	0
8.9	0.1	0.0	0.0	0	0	12.0	0.0	0
10.5	1.0	0.0	0.0	3	0	52.0	10.0	0
5.4	0.3	0.0	0.0	1	0	29.0	16.0	0
42.3	0.5	0.0	0.0	1	1	52.0	0.0	0
8.2	50.6	0.1	0.1	0	0	14.0	0.0	0
25.5	3.3	0.3	0.1	1	4	15.0	14.0	1
38.5	0.6	0.1	0.1	1	1	14.0	3.0	0
24.7	0.4	0.1	0.1	0	0	38.0	8.0	1
55.2	0.9	0.1	0.1	1	0	9.0	9.0	0
90.1	0.6	0.0	0.1	1	0	32.0	28.0	0
43.0	7.0	0.0	1.0	2	1	30.0	41.0	1
44.1	1.4	0.1	0.1	0	0	57.0	14.0	0
61.1	1.1	0.0	0.2	0	0	66.0	12.0	1
28.2	0.8	0.0	0.1	8	0	23.0	95.0	0
14.6	12.1	0.1	0.3	1	3	5.8	40.0	1
15.0	0.7	0.0	0.0	2	0	35.0	17.0	0
24.4	10.7	0.1	0.2	3	1	46.0	24.0	0
22.7	0.0	0.0	0.0	0	0	11.0	0.0	0
15.7	0.3	0.0	0.0	0	0	3.6	0.0	0
24.4	0.2	0.1	0.0	0	0	10.0	0.0	0
31.5	0.1	2.0	0.0	0	0	3.0	0.0	0
22.5	0.3	0.1	0.2	0	0	23.0	0.0	1
17.0	0.2	0.0	0.0	0	0	15.0	0.0	0
15.6	0.6	0.0	0.0	0	0	19.0	0.0	0
26.8	0.1	0.0	0.0	1	0	26.0	9.0	0
21.9	1.1	0.0	0.2	0	0	20.0	0.0	0
74.3	0.2	0.0	0.1	3	1	9.0	18.0	0
5.5	0.9	0.1	0.1	0	0	20.0	4.5	0
31.9	0.8	0.0	0.0	0	0	16.0	5.0	0
40.9	1.3	0.0	0.2	0	0	11.0	3.0	1
33.3	0.5	0.0	0.1	2	2	93.0	23.0	0
38.8	1.0	0.0	0.1	2	0	35.0	2.0	0
18.6	1.2	0.1	0.1	0	0	2.6	1.0	1
12.4	0.7	0.2	0.1	0	0	8.4	0.0	0
5.0	0.0	0.0	1.0	1	1	70.0	60.0	1
5.0	0.0	0.0	1.0	1	1	70.0	60.0	1
68.4	0.5	0.0	0.0	0	0	28.0	31.0	1
16.6	0.5	0.0	0.0	2	0	21.0	53.0	1
36.7	0.2	0.1	0.1	0	0	23.0	0.0	0
28.3	0.6	0.1	0.1	0	0	10.0	0.0	0
31.2	0.1	0.0	0.0	0	0	32.0	0.0	0

5.0	0.0	0.0	1.0	1	1	70.0	60.0	1
15.0	0.5	0.2	0.0	0	0	24.0	19.0	0
9.1	0.1	0.0	0.0	0	0	31.0	3.0	1
31.3	0.2	0.4	0.0	0	0	5.0	0.0	0
24.9	0.4	0.1	0.0	0	0	21.0	0.0	0
10.3	0.7	0.0	0.0	0	0	13.0	1.0	0
4.5	0.8	0.0	0.0	0	0	7.0	0.0	0
3.2	0.9	0.0	0.0	0	0	4.0	12.0	0
36.9	1.3	0.0	0.0	2	0	41.4	8.0	0
13.0	0.6	0.1	0.0	0	0	27.0	5.5	1
41.2	0.6	0.1	0.0	0	1	10.0	56.0	0
10.0	0.5	0.0	0.0	0	0	86.0	26.0	0
10.3	0.6	0.1	0.0	0	0	22.0	3.0	0
15.9	3.9	0.1	0.1	1	0	51.0	17.0	0
5.5	0.5	0.0	0.0	0	0	10.8	6.0	1
75.3	0.7	0.1	0.1	0	0	6.0	0.0	0
87.1	0.3	0.1	0.0	0	0	3.6	0.0	0
61.5	0.5	0.1	0.0	0	0	2.4	0.0	0
28.0	0.5	0.0	0.1	0	0	9.0	0.0	0
87.5	0.4	0.0	0.0	0	0	3.2	0.0	0

funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
0	0	0	0	0	0.0
0	0	0	0	0	80.1
0	0	0	0	1	0.6
0	1	1	1	0	0.0
0	0	1	1	1	0.2
0	0	0	0	0	10.0
1	1	1	4	1	0.1
0	0	0	1	1	1.0
1	1	0	0	1	0.5
0	0	0	0	1	0.1
1	1	1	1	0	0.1
0	0	0	0	0	0.0
1	1	1	0	0	0.1
1	1	1	0	1	0.1
1	1	1	1	0	1.0
1	1	1	1	0	0.0
0	0	0	1	0	0.1
1	0	1	1	1	4.0
0	0	0	0	0	30.2
0	0	0	0	0	10.2
0	0	0	0	0	12.0
0	0	0	0	1	0.1
1	1	0	0	1	1.0
0	0	0	0	0	0.1
0	0	0	0	0	2.3
0	0	0	1	0	25.0
0	0	0	1	1	0.1
0	0	0	1	0	0.1
0	1	1	0	1	0.0
0	0	0	0	1	0.4
0	0	0	0	1	1.4
1	1	0	0	0	0.0
0	0	0	0	1	0.6
1	0	0	0	1	1.0
0	1	0	0	1	0.0
0	0	0	0	0	0.0
0	0	0	0	0	0.0
1	1	1	0	0	0.0
1	1	1	1	0	0.0
0	0	0	0	0	1.0
0	0	0	0	0	1.3
0	0	0	0	0	15.7

0	0	0	0	0	0.0
0	0	1	0	1	0.0
1	1	1	0	1	0.5
0	0	0	0	1	2.0
0	0	0	0	1	1.0
0	0	0	0	0	0.0
0	0	0	0	1	0.0
0	0	0	0	1	0.0
0	1	1	1	1	0.0
1	1	1	0	1	0.0
1	1	1	0	0	0.0
0	1	1	0	1	0.0
1	1	0	0	1	0.1
1	1	1	0	1	0.0
0	0	0	0	1	0.0
0	0	0	0	0	0.0
0	0	0	0	0	0.2
0	0	0	0	0	0.0
0	0	0	0	0	0.0
0	0	0	0	0	0.2

Table A 4: BAM plot summary

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BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora solar farm bdar		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_01	Plot dimensions	50x20	Orientation of middle	201	
Easting 708855	Northing 6440928	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		440				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	9
	Grasses etc.	9
	Forbs	10
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	11.1
	Shrubs	6.2
	Grasses etc.	15.9
	Forbs	3.9
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	17
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	65	40	50	25	75
Average of the 5 subplots	51				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Sandy loam
Soil Colour	Light brown	Site Drainage	Free	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora solar farm bdar	38235_csf_01	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia triptera	N	0.3	4	
TG	Angophora floribunda	N	1	5	
GG	Aristida ramosa	N	0.1	20	
GG	Austrostipa densiflora	N	10	30	
GG	Austrostipa scabra subsp. scabra	N	0.1	30	
SG	Brachyloma daphnoides subsp.	N	0.1	2	
FG	Calotis cuneifolia	N	0.3	200	
SG	Cassinia laevis	N	5	80	
EG	Cheilanthes sieberi subsp.	N	0.1	1	
FG	Chrysocephalum semipapposum	N	0.3	100	
	Conyza bonariensis	E	0.1	1	
FG	Dianella revoluta var. revoluta	N	0.1	1	
FG	Dichondra repens	N	0.1	30	
GG	Echinopogon caespitosus var.	N	0.1	2	
TG	Eucalyptus macrorhyncha	N	10	3	
TG	Eucalyptus sideroxylon	N	0.1	1	
FG	Gonocarpus tetragynus	N	2	100	
FG	Goodenia decurrens	N	0.2	30	
FG	Goodenia glabra	N	0.5	40	
OG	Hardenbergia violacea	N	0.1	6	
SG	Hibbertia obtusifolia	N	0.1	10	
GG	Juncus subsecundus	N	0.1	1	
	Lepidium africanum	E	0.1	1	
GG	Lomandra filiformis subsp.	N	0.3	100	
SG	Melichrus urceolatus	N	0.1	2	
GG	Microlaena stipoides var.	N	3	300	
SG	Platysace ericoides	N	0.1	2	
SG	Prostanthera howelliae	N	0.3	20	
SG	Pultenaea microphylla	N	0.1	5	
SG	Pultenaea spinosa	N	0.1	2	
GG	Rytidosperma monticola	N	0.2	40	
GG	Rytidosperma pallidum	N	2	20	
FG	Stypandra glauca	N	0.1	10	
FG	Thysanotus tuberosus subsp.	N	0.1	1	
FG	Wahlenbergia stricta	N	0.2	100	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora Solar farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_02	Plot dimensions	50x20	Orientation of middle	294	
Easting 710068	Northing 6440961	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	2
	Grasses etc.	5
	Forbs	5
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	16.1
	Shrubs	0.2
	Grasses etc.	5.5
	Forbs	0.5
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	6
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	15	2	20	2	15
Average of the 5 subplots	10.8				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Sandy clay
Soil Colour	Light brown	Site Drainage	Free	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora Solar farm BDAR	38235_csf_02	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	15	20	
GG	Aristida ramosa	N	0.3	100	
GG	Austrostipa densiflora	N	4	100	
GG	Austrostipa scabra subsp. scabra	N	1	50	
TG	Callitris glaucophylla	N	0.1	1	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia sifton	N	0.1	5	
FG	Dampiera adpressa	N	0.1	3	
TG	Eucalyptus sideroxylon	N	1	10	
FG	Euchiton involucratus	N	0.1	2	
FG	Goodenia glabra	N	0.1	20	
SG	Hibbertia obtusifolia	N	0.1	2	
	Hypochaeris radicata	E	0.1	1	
GG	Lomandra leucocephala subsp.	N	0.1	2	
GG	Thyridolepis mitchelliana	N	0.1	1	
FG	Wahlenbergia stricta subsp.	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora Solar Farm		High	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_03	Plot dimensions	50x20	Orientation of middle	327	
Easting 710887	Northing 6440132	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		478				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	5
	Grasses etc.	6
	Forbs	4
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	26.3
	Shrubs	1.1
	Grasses etc.	15.7
	Forbs	0.5
	Ferns	0.1
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	2
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	22
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	95	65	98	80	95
Average of the 5 subplots	86.6				

Notes	98

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora Solar Farm BDAR	38235_csf_03	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	5	40	
GG	Aristida jerichoensis var.	N	0.1	20	
GG	Aristida ramosa	N	0.2	100	
TG	Callitris glaucophylla	N	1	2	
FG	Calotis cuneifolia	N	0.1	30	
SG	Cassinia laevis	N	0.3	60	
SG	Cassinia sifton	N	0.5	40	
EG	Cheilanthes sieberi subsp.	N	0.1	1	
FG	Dianella revoluta var. revoluta	N	0.2	50	
TG	Eucalyptus nubila	N	20	4	
TG	Eucalyptus polyanthemos	N	0.3	2	
GG	Gahnia aspera	N	0.1	5	
FG	Gonocarpus tetragynus	N	0.1	10	
FG	Goodenia glabra	N	0.1	30	
SG	Hibbertia obtusifolia	N	0.1	1	
SG	Indigofera australis	N	0.1	5	
SG	Melichrus urceolatus	N	0.1	1	
GG	Microlaena stipoides var.	N	0.2	30	
GG	Rytidosperma monticola	N	15	200	
GG	Rytidosperma pallidum	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_04	Plot dimensions	50x20	Orientation of middle	238	
Easting 709920	Northing 6440591	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	3
	Grasses etc.	17
	Forbs	9
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	5
	Shrubs	0.5
	Grasses etc.	55.2
	Forbs	0.9
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	9
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	5	20	5	10
Average of the 5 subplots	9				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay
Soil Colour	Brown	Site Drainage	Poor	Distance to nearest water	5m

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	O	No trees with signs of regrowth
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora Solar Farm BDAR	38235_csf_04	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	30	100	
GG	Aristida ramosa	N	0.3	100	
FG	Asperula conferta	N	0.1	50	
GG	Austrostipa scabra subsp. scabra	N	15	500	
GG	Austrostipa verticillata	N	0.3	30	
GG	Bothriochloa decipiens var.	N	0.5	50	
	Bromus catharticus	E	0.1	20	
	Bromus hordeaceus	E	10	200	
GG	Carex appressa	N	0.2	30	
	Carthamus lanatus	HTE	0.1	10	
SG	Cassinia sifton	N	0.1	2	
EG	Cheilanthes sieberi subsp.	N	0.1	5	
	Cirsium vulgare	E	0.1	2	
	Conyza bonariensis	E	0.1	10	
	Cyclospermum leptophyllum	E	0.1	5	
GG	Cynodon dactylon	N	0.1	1	
GG	Cyperus gracilis	N	0.1	1	
FG	Dichondra repens	N	0.1	40	
FG	Einadia nutans subsp. nutans	N	0.1	10	
GG	Eragrostis leptostachya	N	0.1	20	
SG	Eremophila debilis	N	0.1	10	
TG	Eucalyptus microcarpa	N	5	10	
FG	Euchiton involucratus	N	0.1	10	
FG	Euchiton sphaericus	N	0.1	20	
OG	Glycine tabacina	N	0.1	20	
FG	Hypericum gramineum	N	0.1	20	
	Hypochaeris radicata	E	0.1	1	
GG	Juncus subsecundus	N	1	60	
GG	Lachnagrostis filiformis	N	0.1	3	
	Lepidium africanum	E	0.1	10	
GG	Lomandra filiformis subsp.	N	1	20	
GG	Lomandra leucocephala	N	0.1	1	
SG	Maireana microphylla	N	0.3	7	
GG	Microlaena stipoides var.	N	1	100	
FG	Oxalis perennans	N	0.1	1	
GG	Panicum decompositum	N	0.3	50	
	Rumex crispus	E	0.1	2	
GG	Rytidosperma fulvum	N	0.1	20	
FG	Sida corrugata	N	0.1	1	
GG	Sporobolus creber	N	5	100	
FG	Veronica plebeia	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_05	Plot dimensions	50x20	Orientation of middle	275	
Easting 709560	Northing 6440583	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	3
	Grasses etc.	12
	Forbs	13
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	20.1
	Shrubs	5.2
	Grasses etc.	44.1
	Forbs	1.4
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	14
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	30	80	70	40	65
Average of the 5 subplots	57				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay loam
Soil Colour	Brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora Solar Farm BDAR	38235_csf_05	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia caesiella	N	5	20	
TG	Acacia linearifolia	N	0.1	2	
GG	Anthosachne scabra	N	0.1	10	
GG	Aristida vagans	N	0.1	20	
GG	Austrostipa scabra subsp. scabra	N	40	1000	
GG	Austrostipa verticillata	N	0.2	10	
GG	Bothriochloa decipiens var.	N	0.1	2	
FG	Calotis cuneifolia	N	0.2	60	
FG	Calotis lappulacea	N	0.1	30	
	Carthamus lanatus	HTE	0.1	1	
EG	Cheilanthes sieberi subsp.	N	0.1	5	
FG	Chrysocephalum semipapposum	N	0.1	10	
	Cirsium vulgare	E	0.1	2	
	Conyza bonariensis	E	0.1	20	
FG	Einadia nutans	N	0.1	2	
	Eleusine indica	E	0.1	1	
TG	Eucalyptus conica	N	15	1	
TG	Eucalyptus microcarpa	N	5	1	
FG	Euchiton sphaericus	N	0.1	20	
FG	Euphorbia drummondii	N	0.1	10	
OG	Glycine clandestina	N	0.1	2	
FG	Goodenia glabra	N	0.1	20	
GG	Lachnagrostis filiformis	N	0.1	10	
	Lepidium africanum	E	0.1	1	
GG	Lomandra filiformis subsp.	N	0.1	2	
GG	Lomandra spp.	N	0.1	2	
SG	Maireana microphylla	N	0.1	1	
GG	Panicum decompositum	N	0.1	1	
GG	Panicum effusum	N	0.1	10	
FG	Phyllanthus virgatus	N	0.1	1	
GG	Rytidosperma fulvum	N	3	100	
	Scutellaria racemosa	E	0.1	1	
FG	Sida corrugata	N	0.1	20	
SG	Solanum cinereum	N	0.1	1	
FG	Stackhousia viminea	N	0.1	2	
GG	Thyridolepis mitchelliana	N	0.1	2	
FG	Veronica plebeia	N	0.1	2	
FG	Vittadinia muelleri	N	0.1	5	
FG	Wahlenbergia stricta	N	0.1	30	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora Solar farm bdar		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_06	Plot dimensions	50x20	Orientation of middle	348	
Easting 709120	Northing 6440171	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		468				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	9
	Grasses etc.	16
	Forbs	10
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	10.1
	Shrubs	1.1
	Grasses etc.	36.9
	Forbs	1.3
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	1
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	8
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	80	22	40	45	20
Average of the 5 subplots	41.4				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	Free	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora Solar farm bdar	38235_csf_06	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia caesiella	N	0.1	2	
SG	Acacia hakeoides	N	0.1	1	
GG	Aristida benthamii var.	N	5	200	
GG	Austrostipa densiflora	N	0.5	40	
GG	Austrostipa scabra subsp. scabra	N	10	100	
SG	Bursaria spinosa subsp. spinosa	N	0.3	20	
TG	Callitris endlicheri	N	0.1	1	
FG	Calotis cuneifolia	N	0.2	60	
SG	Cassinia sifton	N	0.1	10	
GG	Cymbopogon refractus	N	0.2	20	
GG	Digitaria spp.	N	0.1	5	
FG	Einadia nutans	N	0.1	5	
GG	Eragrostis brownii	N	0.1	10	
GG	Eragrostis elongata	N	0.1	2	
TG	Eucalyptus sideroxylon	N	10	1	
GG	Gahnia aspera	N	0.1	10	
FG	Gonocarpus elatus	N	0.1	1	
FG	Gonocarpus tetragynus	N	0.2	30	
FG	Goodenia glabra	N	0.1	20	
FG	Goodenia spp.	N	0.2	30	
SG	Hibbertia obtusifolia	N	0.1	10	
GG	Juncus subsecundus	N	0.1	1	
FG	Laxmannia gracilis	N	0.1	40	
GG	Lomandra filiformis subsp.	N	0.1	10	
GG	Lomandra multiflora subsp.	N	0.1	10	
SG	Melichrus urceolatus	N	0.1	1	
GG	Microlaena stipoides var.	N	10	200	
GG	Panicum decompositum	N	0.1	1	
GG	Panicum effusum	N	0.1	10	
SG	Prostanthera howelliae	N	0.1	10	
SG	Pultenaea foliolosa	N	0.1	2	
SG	Pultenaea spinosa	N	0.1	1	
GG	Rytidosperma pallidum	N	10	30	
GG	Thyridolepis mitchelliana	N	0.3	50	
FG	Wahlenbergia communis	N	0.1	40	
FG	Wahlenbergia stricta	N	0.1	20	
FG	Xerochrysum viscosum	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm bdar		High	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_07	Plot dimensions	50x20	Orientation of middle	279	
Easting 708321	Northing 6440064	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	3
	Grasses etc.	10
	Forbs	10
	Ferns	0
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	25
	Shrubs	2.2
	Grasses etc.	61.1
	Forbs	1.1
	Ferns	0
	Other	0.2
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	12
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	80	50	65	65	70
Average of the 5 subplots	66				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay loam
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm bdar	38235_csf_07	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida benthamii var.	N	0.1	1	
FG	Arthropodium spp.	N	0.1	10	
GG	Austrostipa scabra subsp. falcata	N	60	1000	
GG	Austrostipa verticillata	N	0.1	10	
GG	Bothriochloa decipiens var.	N	0.1	5	
FG	Calotis lappulacea	N	0.1	20	
	Capsella bursa-pastoris	E	0.1	1	
SG	Cassinia sifton	N	0.1	1	
FG	Dampiera adpressa	N	0.1	2	
FG	Dichondra repens	N	0.2	500	
FG	Einadia nutans	N	0.1	30	
SG	Eremophila debilis	N	2	100	
TG	Eucalyptus conica	N	20	10	
TG	Eucalyptus microcarpa	N	5	10	
OG	Glycine clandestina	N	0.1	30	
OG	Glycine tabacina	N	0.1	20	
GG	Lomandra multiflora subsp.	N	0.1	1	
SG	Maireana microphylla	N	0.1	1	
	Marrubium vulgare	E	0.1	2	
FG	Oxalis perennans	N	0.1	1	
GG	Panicum effusum	N	0.2	50	
GG	Paspalidium distans	N	0.1	5	
	Paspalum dilatatum	HTE	0.1	1	
GG	Rytidosperma monticola	N	0.1	20	
FG	Sida corrugata	N	0.1	20	
GG	Sporobolus creber	N	0.2	30	
GG	Themeda triandra	N	0.1	2	
	Verbena bonariensis	E	0.1	2	
FG	Veronica plebeia	N	0.1	1	
FG	Vittadinia cuneata var. cuneata	N	0.1	10	
FG	Vittadinia muelleri	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm bdar		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_08	Plot dimensions	50x20	Orientation of middle	328	
Easting 709099	Northing 6438169	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	3
	Grasses etc.	14
	Forbs	10
	Ferns	0
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	0.3
	Shrubs	0.3
	Grasses etc.	21.9
	Forbs	1.1
	Ferns	0
	Other	0.2
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	15	15	20	40
Average of the 5 subplots	20				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm bdar	38235_csf_08	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Angophora floribunda	N	0.1	10	
GG	Aristida benthamii var.	N	0.1	5	
FG	Arthropodium spp.	N	0.1	10	
GG	Austrostipa densiflora	N	0.2	20	
GG	Austrostipa scabra subsp. falcata	N	0.2	50	
FG	Calotis lappulacea	N	0.1	10	
SG	Cassinia sifton	N	0.1	2	
	Centaurium erythraea	E	0.1	20	
	Conyza bonariensis	E	0.1	10	
SG	Cryptandra amara	N	0.1	6	
SG	Daviesia ulicifolia	N	0.1	2	
GG	Dichelachne micrantha	N	0.2	50	
FG	Einadia nutans	N	0.1	2	
GG	Eragrostis elongata	N	0.1	5	
GG	Eragrostis leptostachya	N	0.1	20	
TG	Eucalyptus melliodora	N	0.2	10	
FG	Euchiton sphaericus	N	0.1	20	
GG	Eulalia aurea	N	20	500	
FG	Euphorbia drummondii	N	0.1	2	
GG	Fimbristylis dichotoma	N	0.1	20	
GG	Gahnia aspera	N	0.2	10	
OG	Glycine clandestina	N	0.1	20	
OG	Glycine tabacina	N	0.1	10	
FG	Hypericum gramineum	N	0.1	20	
	Hypochaeris radicata	E	0.1	1	
	Juncus cognatus	E	0.1	1	
GG	Lachnagrostis filiformis	N	0.1	1	
GG	Lomandra filiformis subsp.	N	0.1	10	
GG	Lomandra leucocephala subsp.	N	0.1	1	
	Lysimachia arvensis	E	0.1	2	
FG	Oxalis perennans	N	0.1	1	
GG	Panicum effusum	N	0.3	100	
	Paspalum dilatatum	HTE	0.1	2	
	Rumex crispus	E	0.1	1	
FG	Sida corrugata	N	0.1	2	
GG	Thyridolepis mitchelliana	N	0.1	10	
	Trifolium dubium	E	0.1	1	
	Verbena bonariensis	E	0.1	2	
FG	Wahlenbergia communis	N	0.2	30	
FG	Wahlenbergia stricta	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm bdar		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_09	Plot dimensions	50x20	Orientation of middle	262	
Easting 709246	Northing 6439380	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	0
	Grasses etc.	7
	Forbs	2
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	40
	Shrubs	0
	Grasses etc.	74.3
	Forbs	0.2
	Ferns	0
	Other	0.1
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	3
50 - 79 cm	1
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	18
No. trees with hollows	1

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	15	10	5	5
Average of the 5 subplots	9				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay
Soil Colour	Dark brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm bdar	38235_csf_09	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Angophora floribunda	N	10	2	
GG	Austrostipa scabra subsp. falcata	N	0.1	20	
GG	Austrostipa verticillata	N	70	1000	
	Bromus catharticus	E	5	200	
GG	Carex appressa	N	1	10	
	Conyza bonariensis	E	0.1	2	
	Conyza canadensis var.	E	0.1	2	
TG	Eucalyptus conica	N	30	4	
OG	Glycine tabacina	N	0.1	1	
GG	Lomandra filiformis subsp.	N	1	10	
	Marrubium vulgare	E	0.1	10	
	Modiola caroliniana	E	0.1	5	
FG	Oxalis exilis	N	0.1	1	
GG	Paspalidium aversum	N	0.1	10	
GG	Paspalum distichum	N	2	100	
	Polygonum aviculare	E	0.1	1	
	Rumex crispus	E	0.1	1	
	Setaria pumila	E	0.1	10	
	Sida rhombifolia	E	0.1	2	
	Sisymbrium officinale	E	0.1	20	
	Solanum nigrum	E	0.1	2	
	Sonchus oleraceus	E	0.1	10	
	Trifolium dubium	E	0.1	1	
GG	Typha orientalis	N	0.1	10	
FG	Urtica incisa	N	0.1	20	
	Xanthium occidentale	HTE	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora Solar Farm		High	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_10	Plot dimensions	50x20	Orientation of middle	72	
Easting 710501	Northing 6440253	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	10
	Grasses etc.	12
	Forbs	9
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	18.3
	Shrubs	4.3
	Grasses etc.	32.4
	Forbs	0.9
	Ferns	0.1
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	23
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	45	45	65	75	80
Average of the 5 subplots	62				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay loam
Soil Colour	Brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora Solar Farm BDAR	38235_csf_10	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	0.2	6	
SG	Acacia sertiformis	N	0.1	1	
GG	Austrostipa densiflora	N	15	100	
GG	Austrostipa scabra subsp. falcata	N	0.5	60	
TG	Callitris endlicheri	N	15	30	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia laevis	N	3	50	
SG	Cassinia sifton	N	0.3	40	
EG	Cheilanthes sieberi subsp.	N	0.1	4	
	Conyza bonariensis	E	0.1	2	
TG	Eucalyptus polyanthemos	N	0.1	2	
TG	Eucalyptus sideroxylon	N	3	2	
GG	Gahnia aspera	N	5	30	
FG	Gonocarpus tetragynus	N	0.1	5	
FG	Goodenia glabra	N	0.1	20	
SG	Hibbertia obtusifolia	N	0.1	5	
GG	Lachnagrostis filiformis	N	0.1	1	
FG	Laxmannia gracilis	N	0.1	5	
GG	Lepidosperma laterale	N	0.2	10	
GG	Lomandra filiformis subsp.	N	0.1	1	
GG	Lomandra multiflora subsp.	N	0.1	5	
SG	Melichrus urceolatus	N	0.1	1	
GG	Microlaena stipoides var.	N	10	300	
SG	Olearia microphylla	N	0.1	1	
SG	Ozothamnus diosmifolius	N	0.3	10	
GG	Panicum decompositum	N	0.1	5	
FG	Phyllanthus virgatus	N	0.1	10	
SG	Pimelea linifolia subsp. caesia	N	0.1	2	
SG	Platysace ericoides	N	0.1	2	
FG	Poranthera microphylla	N	0.1	2	
SG	Pultenaea spinosa	N	0.1	1	
GG	Rytidosperma monticola	N	0.2	20	
GG	Rytidosperma pallidum	N	1	30	
FG	Stackhousia viminea	N	0.1	1	
FG	Stypandra glauca	N	0.1	1	
GG	Thyridolepis mitchelliana	N	0.1	10	
FG	Veronica plebeia	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora		DNG	Mitch and Dylan			
Zone 55	Datum GDA94	Plot ID	38235_csf_100	Plot dimensions	50x20	Orientation of middle	150	
Easting 710042	Northing 6441859	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	6
	Grasses etc.	10
	Forbs	11
	Ferns	2
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	38.2
	Shrubs	5.6
	Grasses etc.	25.5
	Forbs	3.3
	Ferns	0.3
	Other	0.1
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	4
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	14
No. trees with hollows	4

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	10	5	10	30
Average of the 5 subplots	15				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Silty loam
Soil Colour	Brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora	38235_csf_100	Mitch and Dylan

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia hakeoides	N	1		
SG	Acacia penninervis	N	1		
SG	Acacia spectabilis	N	0.5	3	
TG	Allocasuarina luehmannii	N	5		
GG	Anthosachne scabra	N	1		
GG	Austrostipa scabra	N	10		
GG	Austrostipa setacea	N	1		
GG	Austrostipa verticillata	N	10		
TG	Brachychiton populneus subsp.	N	0.2		
FG	Calotis cuneifolia	N	0.1	10	
FG	Calotis lappulacea	N	0.1	10	
SG	Cassinia sifton	N	2		
EG	Cheilanthes distans	N	0.1	5	
EG	Cheilanthes sieberi	N	0.2	200	
FG	Chrysocephalum apiculatum	N	0.1	20	
	Cirsium vulgare	E	0.1	4	
	Conyza spp.	E	0.1		
FG	Dianella longifolia	N	0.4	5	
GG	Dichelachne micrantha	N	0.1	2	
FG	Dichondra repens	N	0.1	300	
FG	Einadia nutans	N	0.1	20	
SG	Eremophila debilis	N	1		
TG	Eucalyptus conica	N	3		
TG	Eucalyptus microcarpa	N	30		
FG	Euphorbia drummondii	N	0.1	5	
OG	Glycine clandestina	N	0.1	50	
	Hypericum perforatum	HTE	0.1	10	
GG	Juncus subsecundus	N	0.2	20	
	Lactuca spp.	E	0.1	1	
	Marrubium vulgare	E	0.3	20	
	Opuntia stricta	E	0.1	5	
GG	Panicum effusum	N	0.1	10	
SG	Phyllanthus hirtellus	N	0.1	20	
FG	Plantago varia	N	0.1	10	
GG	Rytidosperma fulvum	N	2		
GG	Rytidosperma tenuius	N	1		
FG	Sida corrugata	N	0.1	40	
GG	Sporobolus creber	N	0.1	10	
	Verbena bonariensis	E	0.1	10	
FG	Vittadinia cuneata	N	0.1	10	
FG	Xerochrysum viscosum	N	2		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora solar farm		Moderate	Mgp and dm			
Zone 55	Datum GDA94	Plot ID	38235_csf_101	Plot dimensions	50x20	Orientation of middle	340	
Easting 709901	Northing 6442964	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	8
	Grasses etc.	7
	Forbs	6
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	37
	Shrubs	29.2
	Grasses etc.	13
	Forbs	0.6
	Ferns	0.1
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	5.5
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	95	30	0	5	5
Average of the 5 subplots	27				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	Sheep in paddock
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora solar farm	38235_csf_101	Mgp and dm

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia spectabilis	N	0.2	2	
SG	Acacia triptera	N	7		
GG	Aristida vagans	N	10		
GG	Austrostipa densiflora	N	0.5	30	
TG	Callitris endlicheri	N	30		
FG	Calotis cuneifolia	N	0.1	2	
SG	Calytrix tetragona	N	1	3	
SG	Cassinia laevis	N	3		
SG	Cassinia sifton	N	7		
EG	Cheilanthes sieberi	N	0.1	50	
FG	Dianella revoluta	N	0.1	2	
TG	Eucalyptus blakelyi	N	2		
TG	Eucalyptus dawsonii	N	5		
GG	Gahnia aspera	N	1		
FG	Gonocarpus tetragynus	N	0.1	20	
FG	Goodenia glabra	N	0.1	50	
FG	Hypericum gramineum	N	0.1	1	
SG	Melichrus urceolatus	N	5		
SG	Micromyrtus sessilis	N	1		
GG	Panicum effusum	N	0.1	2	
SG	Pultenaea microphylla	N	5		
GG	Rytidosperma fulvum	N	0.2	50	
GG	Rytidosperma monticola	N	1		
GG	Rytidosperma setaceum	N	0.2	20	
FG	Stackhousia muricata	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora solar farm		Low	MP and DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_102	Plot dimensions	50x20	Orientation of middle	80	
Easting 709781	Northing 6443063	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	2
	Grasses etc.	11
	Forbs	1
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	2.5
	Grasses etc.	31.5
	Forbs	0.1
	Ferns	2
	Other	0
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	0	0	5	5
Average of the 5 subplots	3				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Dark brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Sheep in paddock
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora solar farm	38235_csf_102	MP and DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida vagans	N	1		
GG	Austrostipa densiflora	N	15		
	Bidens pilosa	HTE	0.1	5	
GG	Bothriochloa macra	N	1		
GG	Bromus spp.	N	1		
GG	Carex inversa	N	0.1	20	
SG	Cassinia sifton	N	2		
EG	Cheilanthes sieberi	N	2	1000	
	Chondrilla juncea	E	0.1	1	
GG	Cymbopogon refractus	N	5		
GG	Fimbristylis dichotoma	N	0.2	100	
FG	Hypericum gramineum	N	0.1	5	
	Hypochaeris radicata	E	0.1	1	
GG	Juncus subsecundus	N	3		
SG	Micromyrtus sessilis	N	0.5	1	
GG	Panicum effusum	N	0.1	5	
GG	Paspalidium spp.	N	0.1	5	
GG	Sporobolus creber	N	5		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/01/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_103	Plot dimensions	50x20	Orientation of middle	240	
Easting 709657	Northing 6443272	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	2
	Grasses etc.	13
	Forbs	5
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	15
	Shrubs	5.2
	Grasses etc.	5.5
	Forbs	0.9
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	4.5
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	25	15	15	25
Average of the 5 subplots	20				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		**Slope**	0	**Soil Surface Texture**	Loam
Soil Colour	Brown	**Site Drainage**	.	**Distance to nearest water**	30

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Sheep
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/01/2023	Cobbora solar farm	38235_csf_103	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia uncinata	N	0.2	1	
	Aira spp.	E	0.1	8	
GG	Anthosachne scabra	N	0.1	5	
GG	Aristida ramosa	N	0.1	5	
GG	Aristida vagans	N	0.4	50	
FG	Calotis cuneifolia	N	0.1	2	
GG	Carex appressa	N	0.3	3	
SG	Cassinia sifton	N	5		
	Centaurium erythraea	E	0.1	10	
EG	Cheilanthes sieberi	N	0.1	100	
GG	Chloris truncata	N	0.1	4	
	Conyza spp.	E	0.1	20	
GG	Cymbopogon refractus	N	1		
FG	Dichondra repens	N	0.4	1000	
GG	Eragrostis brownii	N	0.1	20	
TG	Eucalyptus blakelyi	N	15		
GG	Fimbristylis dichotoma	N	0.5	100	
OG	Glycine clandestina	N	0.1	10	
FG	Haloragis heterophylla	N	0.2	500	
FG	Hypericum gramineum	N	0.1	30	
	Hypochaeris radicata	E	0.1	20	
GG	Juncus subsecundus	N	0.5	50	
GG	Lomandra longifolia	N	0.2	2	
	Lysimachia arvensis	E	0.1	30	
GG	Panicum effusum	N	0.1	10	
	Poa annua	E	0.1	30	
GG	Setaria spp.	N	0.1	5	
	Sonchus oleraceus	E	0.1	2	
GG	Sporobolus creber	N	2		
	Tolpis barbata	E	0.1	20	
FG	Wahlenbergia spp.	N	0.1	4	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm		Moderate	Mgp and Dm			
Zone 55	Datum GDA94	Plot ID	38235_csf_104	Plot dimensions	50x20	Orientation of middle	220	
Easting 709488	Northing 6443306	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	7
	Forbs	0
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	22.7
	Forbs	0
	Ferns	0
	Other	0
High Threat Weed cover		30.2

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	0	20	15	10	10
Average of the 5 subplots	11				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	.	Distance to nearest water	200

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	Old cattle track
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm	38235_csf_104	Mgp and Dm

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa verticillata	N	0.1	5	
GG	Bothriochloa macra	N	0.5	50	
	Bromus hordeaceus	E	10		
GG	Carex appressa	N	5		
	Chondrilla juncea	E	0.1	4	
GG	Cynodon dactylon	N	1		
	Heliotropium amplexicaule	HTE	0.1	20	
	Hypericum perforatum	HTE	0.1	2	
	Hypochaeris radicata	E	0.1	20	
GG	Juncus subsecundus	N	15		
	Lolium perenne	E	0.3	30	
GG	Panicum effusum	N	0.1	10	
	Paspalum dilatatum	HTE	30		
	Setaria parviflora	E	10		
GG	Sporobolus creber	N	1		
	Tolpis barbata	E	0.1	10	
	Trifolium angustifolium	E	0.2	50	
	Verbena bonariensis	E	2		
	Vulpia myuros	E	1		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_105	Plot dimensions	50x20	Orientation of middle	120	
Easting 708255	Northing 6443748	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	1
	Grasses etc.	4
	Forbs	6
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	29
	Shrubs	0.1
	Grasses etc.	41.2
	Forbs	0.6
	Ferns	0.1
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	56
No. trees with hollows	1

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	15	5	10	15
Average of the 5 subplots	10				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Dark brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	Cow tracks, patties and some stumpy tussocks
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm	38235_csf_105	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa verticillata	N	30		
	Bromus hordeaceus	E	0.1		
FG	Calotis cuneifolia	N	0.1		
	Capsella bursa-pastoris	E	0.1		
EG	Cheilanthes sieberi	N	0.1		
	Chondrilla juncea	E	0.1	10	
	Conyza spp.	E	0.1		
GG	Cynodon dactylon	N	10		
FG	Dysphania pumilio	N	0.1	6	
	Echium plantagineum	E	0.1	2	
FG	Einadia nutans	N	0.1		
TG	Eucalyptus blakelyi	N	3		
TG	Eucalyptus crebra	N	25		
TG	Eucalyptus sideroxylon	N	1		
	Gamochaeta calviceps	E	0.1		
	Hypochaeris radicata	E	0.1		
GG	Juncus subsecundus	N	0.2		
SG	Maireana microphylla	N	0.1		
	Malva parviflora	E	0.1		
FG	Oxalis perennans	N	0.1		
FG	Rumex brownii	N	0.1		
	Setaria parviflora	E	0.1		
	Solanum nigrum	E	0.1		
GG	Sporobolus creber	N	1		
	Trifolium angustifolium	E	0.1		
	Verbena bonariensis	E	0.1		
FG	Wahlenbergia gracilis	N	0.1		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_106	Plot dimensions	50x20	Orientation of middle	70	
Easting 708336	Northing 6441970	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	2
	Grasses etc.	7
	Forbs	2
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0.2
	Shrubs	25.2
	Grasses etc.	31.3
	Forbs	0.2
	Ferns	0.4
	Other	0
High Threat Weed cover		2

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	0	5	10	10	0
Average of the 5 subplots	5				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	NR	Cleared veg
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Tracks and grazed veg
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora solar farm	38235_csf_106	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa scabra	N	15		
GG	Bothriochloa macra	N	1		
SG	Cassinia sifton	N	25		
EG	Cheilanthes sieberi	N	0.4	200	
	Chondrilla juncea	E	0.2	10	
	Conyza spp.	E	0.6	100	
GG	Cymbopogon refractus	N	10		
TG	Eucalyptus microcarpa	N	0.1	2	
TG	Eucalyptus nubila	N	0.1	2	
GG	Fimbristylis dichotoma	N	0.1	20	
	Hypericum perforatum	HTE	2		
	Hypochaeris radicata	E	0.2	60	
GG	Juncus subsecundus	N	0.1	50	
SG	Melichrus urceolatus	N	0.2	1	
GG	Rytidosperma setaceum	N	0.1	10	
	Salvia verbenaca	E	0.1	10	
	Setaria parviflora	E	0.1	5	
GG	Sporobolus creber	N	5		
	Verbena bonariensis	E	0.5	20	
FG	Wahlenbergia communis	N	0.1	10	
FG	Wahlenbergia gracilis	N	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_107	Plot dimensions	50x20	Orientation of middle	10	
Easting 708789	Northing 6442230	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	3
	Grasses etc.	9
	Forbs	4
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0.2
	Shrubs	30.3
	Grasses etc.	24.9
	Forbs	0.4
	Ferns	0.1
	Other	0
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	25	35	15	10
Average of the 5 subplots	21				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	NR	Cleared veg
Cultivation (inc. pasture)		O	
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Tracks and grazed veg
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_107	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
	Aira elegantissima	E	0.1	20	
GG	Anthosachne scabra	N	0.2	20	
GG	Austrostipa scabra	N	10		
GG	Bothriochloa macra	N	1		
SG	Cassinia laevis	N	0.2	1	
SG	Cassinia sifton	N	30		
EG	Cheilanthes sieberi	N	0.1	30	
FG	Dichondra repens	N	0.1	20	
TG	Eucalyptus crebra	N	0.1	2	
TG	Eucalyptus nubila	N	0.1	1	
GG	Fimbristylis dichotoma	N	0.1	10	
GG	Gahnia aspera	N	2		
FG	Gonocarpus tetragynus	N	0.1	2	
	Hypericum perforatum	HTE	1		
GG	Juncus subsecundus	N	1		
SG	Melichrus urceolatus	N	0.1	2	
GG	Panicum effusum	N	0.1	20	
GG	Rytidosperma spp.	N	0.5	100	
	Salvia verbenaca	E	0.1	20	
GG	Sporobolus creber	N	10		
FG	Stypandra glauca	N	0.1	1	
FG	Xerochrysum viscosum	N	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_108	Plot dimensions	50x20	Orientation of middle	140	
Easting 708989	Northing 6442218	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	2
	Grasses etc.	9
	Forbs	2
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	2.2
	Grasses etc.	36.7
	Forbs	0.2
	Ferns	0.1
	Other	0.1
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	10	25	10	60
Average of the 5 subplots	23				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	5	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Cows
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_108	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.2	20	
GG	Austrostipa densiflora	N	1		
GG	Austrostipa scabra	N	4		
GG	Bothriochloa macra	N	1		
FG	Calotis cuneifolia	N	0.1	1	
FG	Calotis lappulacea	N	0.1	2	
SG	Cassinia sifton	N	2		
EG	Cheilanthes sieberi	N	0.1	50	
OG	Convolvulus spp.	N	0.1	10	
	Conyza spp.	E	0.1	20	
GG	Cymbopogon refractus	N	0.2	20	
GG	Cyperus spp.	N	0.1	5	
	Hypericum perforatum	HTE	1		
GG	Juncus subsecundus	N	0.1	2	
SG	Maireana microphylla	N	0.2	3	
	Opuntia stricta	E	0.2	5	
GG	Rytidosperma spp.	N	0.1	10	
GG	Sporobolus creber	N	30		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_109	Plot dimensions	50x20	Orientation of middle	180	
Easting 708346	Northing 6442370	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	7
	Grasses etc.	13
	Forbs	7
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0.2
	Shrubs	38.1
	Grasses etc.	10.3
	Forbs	0.7
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	1
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	15	10	5	5	30
Average of the 5 subplots	13				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	2	Soil Surface Texture	Sandy loam
Soil Colour	Light brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	NR	Cleared veg piles and bare ground
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Cows in paddock and grazed veg present
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_109	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia decora	N	3		
GG	Aristida vagans	N	1		
GG	Austrostipa scabra	N	1		
SG	Bursaria spinosa	N	2		
TG	Callitris endlicheri	N	0.2	5	
FG	Calotis cuneifolia	N	0.1	2	
SG	Cassinia sifton	N	30		
GG	Cymbopogon refractus	N	2		
FG	Dianella revoluta	N	0.1	2	
GG	Digitaria brownii	N	0.5	50	
GG	Eragrostis brownii	N	0.5	50	
GG	Fimbristylis dichotoma	N	0.1	8	
GG	Gahnia aspera	N	1		
FG	Goodenia hederacea	N	0.1	5	
FG	Hypericum gramineum	N	0.1	10	
GG	Juncus subsecundus	N	0.2	10	
SG	Lissanthe strigosa	N	0.5	10	
SG	Melichrus urceolatus	N	0.1	1	
SG	Micromyrtus sessilis	N	2		
GG	Panicum decompositum	N	1		
GG	Panicum effusum	N	1		
GG	Panicum simile	N	0.5	50	
SG	Pultenaea spp.	N	0.5	10	
GG	Rytidosperma spp.	N	0.5	50	
	Salvia verbenaca	E	0.1	20	
GG	Sporobolus creber	N	1		
FG	Stypandra glauca	N	0.1	1	
FG	Vittadinia cuneata var. cuneata	N	0.1	2	
FG	Wahlenbergia communis	N	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora Solar Farm		DNG	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_11	Plot dimensions	50x20	Orientation of middle	301	
Easting 710545	Northing 6437994	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	1
	Grasses etc.	16
	Forbs	7
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0.1
	Grasses etc.	75.3
	Forbs	0.7
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	5	5	5	10
Average of the 5 subplots	6				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay loam
Soil Colour	Brown to red	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora Solar Farm BDAR	38235_csf_1 1	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.2	10	
GG	Aristida calycina var. calycina	N	0.1	10	
FG	Arthropodium spp.	N	0.1	1	
GG	Austrostipa scabra subsp. scabra	N	0.3	200	
GG	Bothriochloa macra	N	0.5	100	
	Bromus hordeaceus	E	0.1	10	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia sifton	N	0.1	1	
	Centaurium erythraea	E	0.1	2	
EG	Cheilanthes sieberi subsp.	N	0.1	10	
GG	Cleistochloa subjuncea	N	0.1	1	
GG	Dichelachne micrantha	N	0.2	10	
GG	Digitaria spp.	N	0.1	2	
GG	Eragrostis elongata	N	0.1	2	
GG	Eragrostis leptostachya	N	0.2	50	
GG	Fimbristylis dichotoma	N	0.1	10	
OG	Glycine clandestina	N	0.1	1	
FG	Hypericum gramineum	N	0.1	30	
	Juncus bufonius	E	0.1	10	
GG	Juncus subsecundus	N	0.1	10	
GG	Lachnagrostis filiformis	N	0.1	5	
	Lysimachia arvensis	E	0.1	1	
FG	Mentha diemenica	N	0.1	3	
FG	Microtis spp.	N	0.1	10	
GG	Panicum decompositum	N	1	200	
GG	Panicum effusum	N	2	300	
FG	Phyllanthus virgatus	N	0.1	5	
GG	Rytidosperma monticola	N	0.2	20	
GG	Sporobolus creber	N	70	500	
FG	Thysanotus tuberosus subsp.	N	0.1	1	
	Trifolium angustifolium	E	0.1	30	
	Verbena bonariensis	E	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_110	Plot dimensions	50x20	Orientation of middle	270	
Easting 708361	Northing 6442825	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	4
	Grasses etc.	13
	Forbs	4
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	27.1
	Shrubs	4.2
	Grasses etc.	15
	Forbs	0.5
	Ferns	0.2
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	19
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	30	20	20	10	40
Average of the 5 subplots	24				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	1	Soil Surface Texture	Loam
Soil Colour	Light brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_110	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Allocasuarina luehmannii	N	10		
GG	Aristida vagans	N	1		
GG	Austrostipa densiflora	N	0.1	10	
GG	Austrostipa scabra	N	10		
GG	Austrostipa verticillata	N	2		
SG	Bursaria spinosa	N	2		
TG	Callitris endlicheri	N	2		
FG	Calotis cuneifolia	N	0.2	30	
SG	Cassinia laevis	N	0.1	1	
SG	Cassinia sifton	N	2		
EG	Cheilanthes sieberi	N	0.2	50	
FG	Chrysocephalum apiculatum	N	0.1	10	
	Conyza spp.	E	20		
GG	Digitaria brownii	N	0.1	20	
GG	Eragrostis brownii	N	0.1	10	
TG	Eucalyptus crebra	N	0.1	1	
TG	Eucalyptus nubila	N	15		
GG	Fimbristylis dichotoma	N	0.1	20	
GG	Gahnia aspera	N	1		
FG	Goodenia spp.	N	0.1	10	
GG	Juncus subsecundus	N	0.2	60	
GG	Lepidosperma spp.	N	0.1	3	
SG	Melichrus urceolatus	N	0.1	2	
GG	Panicum decompositum	N	0.1	10	
GG	Panicum effusum	N	0.1	10	
GG	Rytidosperma spp.	N	0.1	10	
	Salvia verbenaca	E	0.1	50	
FG	Wahlenbergia spp.	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_111	Plot dimensions	50x20	Orientation of middle	250	
Easting 708491	Northing 6442546	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	10
	Grasses etc.	10
	Forbs	1
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	15
	Shrubs	60.1
	Grasses etc.	9.1
	Forbs	0.1
	Ferns	0
	Other	0
High Threat Weed cover		0.5

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	3
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	30	10	25	50	40
Average of the 5 subplots	31				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	2	Soil Surface Texture	Loam
Soil Colour	Light brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Cattle tracks and patties
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_111	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia decora	N	1		
SG	Acacia triptera	N	1		
SG	Allocasuarina gymnanthera	N	5		
GG	Aristida vagans	N	1		
GG	Austrostipa scabra	N	5		
GG	Austrostipa spp.	N	1		
SG	Bursaria spinosa	N	2		
TG	Callitris endlicheri	N	10		
SG	Calytrix tetragona	N	0.1	1	
SG	Cassinia sifton	N	50		
TG	Eucalyptus dwyeri	N	3		
TG	Eucalyptus nubila	N	2		
GG	Eulalia aurea	N	0.1	5	
GG	Gahnia aspera	N	1	10	
	Hypericum perforatum	HTE	0.5	20	
GG	Juncus subsecundus	N	0.2	40	
GG	Lepidosperma spp.	N	0.1	1	
SG	Lissanthe strigosa	N	0.2	3	
SG	Melichrus urceolatus	N	0.1	2	
SG	Micromyrtus sessilis	N	0.2	3	
GG	Panicum decompositum	N	0.1	5	
GG	Panicum effusum	N	0.1	20	
SG	Pultenaea spp.	N	0.5	10	
GG	Rytidosperma spp.	N	0.5	50	
	Salvia verbenaca	E	0.1	20	
FG	Stypandra glauca	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_112	Plot dimensions	50x20	Orientation of middle	100	
Easting 708379	Northing 6441403	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	4
	Grasses etc.	11
	Forbs	3
	Ferns	1
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	20
	Shrubs	1.9
	Grasses etc.	22.5
	Forbs	0.3
	Ferns	0.1
	Other	0.2
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	90	10	0	5
Average of the 5 subplots	23				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Light brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	Cow patties and tracks
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_112	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia uncinata	N	0.3	3	
	Aira elegantissima	E	0.1	10	
TG	Angophora floribunda	N	20		
GG	Aristida vagans	N	1		
GG	Austrostipa densiflora	N	2		
GG	Austrostipa scabra	N	5		
GG	Austrostipa verticillata	N	2		
FG	Calotis cuneifolia	N	0.1	5	
SG	Calytrix tetragona	N	0.3	2	
SG	Cassinia sifton	N	1		
EG	Cheilanthes sieberi	N	0.1	50	
	Conyza spp.	E	0.1	20	
GG	Eragrostis leptostachya	N	0.1	2	
GG	Gahnia aspera	N	10		
OG	Glycine clandestina	N	0.1	10	
OG	Grona varians	N	0.1	20	
FG	Hypericum gramineum	N	0.1	4	
	Hypericum perforatum	HTE	1		
GG	Juncus subsecundus	N	0.1	10	
	Lactuca spp.	E	0.1	3	
GG	Lomandra glauca	N	0.1	3	
GG	Lomandra leucocephala subsp.	N	0.1	1	
SG	Melichrus urceolatus	N	0.3	5	
GG	Rytidosperma spp.	N	0.1	10	
	Salvia verbenaca	E	0.1	20	
GG	Sporobolus creber	N	2		
	Verbena bonariensis	E	0.2	10	
FG	Vittadinia cuneata var. cuneata	N	0.1	4	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_113	Plot dimensions	50x20	Orientation of middle	160	
Easting 708522	Northing 6441516	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	2
	Grasses etc.	13
	Forbs	8
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	8
	Shrubs	0.7
	Grasses etc.	31.9
	Forbs	0.8
	Ferns	0
	Other	0
High Threat Weed cover		0.4

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	5
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	40	10	0	10
Average of the 5 subplots	16				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	P	Soil Surface Texture	Loam
Soil Colour	Red-brown	Site Drainage	.	Distance to nearest water	125

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora solar farm	38235_csf_113	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
FG	Alternanthera angustifolia	N	0.1	50	
GG	Aristida vagans	N	0.3	30	
GG	Austrostipa scabra	N	0.1	6	
GG	Austrostipa verticillata	N	25		
	Avena spp.	E	0.2	20	
	Brassica spp.	E	0.1	10	
	Bromus catharticus	E	0.1	4	
FG	Calotis cuneifolia	N	0.1	10	
	Capsella bursa-pastoris	E	0.1	50	
	Carthamus lanatus	HTE	0.1	4	
SG	Cassinia sifton	N	0.2	2	
GG	Chloris truncata	N	0.1	10	
	Chondrilla juncea	E	0.1	10	
GG	Cynodon dactylon	N	5		
GG	Cyperus spp.	N	0.1	1	
FG	Dichondra repens	N	0.1	100	
GG	Eragrostis brownii	N	0.1	4	
GG	Eragrostis leptostachya	N	0.1	5	
TG	Eucalyptus blakelyi	N	8		
FG	Euphorbia drummondii	N	0.1	20	
	Hypericum perforatum	HTE	0.3	50	
	Hypochaeris radicata	E	0.1	2	
GG	Juncus subsecundus	N	0.2	60	
GG	Lachnagrostis filiformis	N	0.1	4	
SG	Maireana microphylla	N	0.5	7	
	Malva parviflora	E	0.1	10	
	Marrubium vulgare	E	0.1	10	
FG	Oxalis perennans	N	0.1	50	
GG	Panicum effusum	N	0.2	30	
FG	Rumex brownii	N	0.1	6	
	Setaria parviflora	E	0.1	4	
FG	Sida corrugata	N	0.1	20	
	Sonchus oleraceus	E	0.1	5	
GG	Sporobolus creber	N	0.5	30	
GG	Thyridolepis mitchelliana	N	0.1	10	
	Verbena bonariensis	E	0.1	4	
FG	Wahlenbergia gracilis	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora solar farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_114	Plot dimensions	50x20	Orientation of middle	40	
Easting 709926	Northing 6437830	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	1
	Grasses etc.	12
	Forbs	3
	Ferns	1
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	20
	Shrubs	0.1
	Grasses etc.	41.9
	Forbs	0.9
	Ferns	0.1
	Other	0.2
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	47
No. trees with hollows	3

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	80	40	60	60
Average of the 5 subplots	50				

Notes	2 medium stick nests in plot

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	1	Soil Surface Texture	Loam
Soil Colour	Red-brown	Site Drainage	.	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	Sheep droppings and tracks
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora solar farm	38235_csf_114	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa densiflora	N	20		
GG	Austrostipa scabra	N	0.3	30	
GG	Austrostipa verticillata	N	10		
FG	Calotis cuneifolia	N	0.7	30	
	Carthamus lanatus	HTE	0.1	1	
EG	Cheilanthes sieberi	N	0.1	20	
OG	Convolvulus spp.	N	0.1	4	
GG	Echinopogon caespitosus	N	0.1	20	
FG	Einadia nutans	N	0.1	10	
GG	Eragrostis brownii	N	0.1	20	
GG	Eragrostis leptostachya	N	0.1	10	
TG	Eucalyptus blakelyi	N	20		
GG	Gahnia aspera	N	5		
OG	Grona varians	N	0.1	10	
FG	Laxmannia gracilis	N	0.1	1	
GG	Lomandra glauca	N	0.1	1	
SG	Maireana microphylla	N	0.1	3	
GG	Panicum decompositum	N	5		
GG	Panicum effusum	N	0.1	5	
GG	Sporobolus creber	N	1		
GG	Thyridolepis mitchelliana	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_115	Plot dimensions	50x20	Orientation of middle	151	
Easting 709094	Northing 6439702	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	1
	Grasses etc.	8
	Forbs	12
	Ferns	0
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	0.9
	Shrubs	0.1
	Grasses etc.	40.9
	Forbs	1.3
	Ferns	0
	Other	0.2
High Threat Weed cover		1.4

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	3
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	10	10	15	15
Average of the 5 subplots	11				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora Solar Farm BDAR	38235_csf_115	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
FG	Alternanthera denticulata	N	0.1	20	
TG	Angophora floribunda	N	0.1	1	
GG	Anthosachne scabra	N	0.2	30	
GG	Aristida benthamii var.	N	0.1	2	
FG	Asperula conferta	N	0.1	10	
GG	Austrostipa verticillata	N	10	100	
GG	Bothriochloa decipiens var.	N	0.1	10	
	Bromus catharticus	E	5	200	
	Bromus hordeaceus	E	3	200	
FG	Calotis lappulacea	N	0.1	10	
GG	Carex appressa	N	0.3	20	
	Carthamus lanatus	HTE	0.2	30	
SG	Cassinia sifton	N	0.1	1	
FG	Centella asiatica	N	0.1	30	
	Cirsium vulgare	E	0.1	2	
	Conyza bonariensis	E	0.2	30	
FG	Dichondra repens	N	0.1	30	
FG	Einadia nutans	N	0.1	2	
GG	Eragrostis leptostachya	N	0.1	1	
TG	Eucalyptus blakelyi	N	0.3	2	
TG	Eucalyptus melliodora	N	0.3	1	
TG	Eucalyptus microcarpa	N	0.2	1	
FG	Geranium solanderi var.	N	0.1	2	
OG	Glycine clandestina	N	0.1	30	
OG	Glycine tabacina	N	0.1	20	
FG	Haloragis heterophylla	N	0.2	60	
FG	Hydrocotyle laxiflora	N	0.1	2	
	Hypericum perforatum	HTE	0.2	30	
	Hypochaeris radicata	E	0.1	10	
GG	Juncus subsecundus	N	0.1	10	
	Marrubium vulgare	E	0.1	1	
GG	Microlaena stipoides var.	N	30	300	
	Modiola caroliniana	E	0.1	20	
	Paspalum dilatatum	HTE	1	30	
	Plantago lanceolata	E	0.1	30	
	Rumex crispus	E	0.1	10	
	Setaria pumila	E	0.1	1	
FG	Sida corrugata	N	0.1	2	
	Sisymbrium officinale	E	0.3	100	
	Solanum nigrum	E	0.1	5	
	Sonchus oleraceus	E	0.1	5	
	Taraxacum officinale	E	0.1	2	
	Trifolium angustifolium	E	0.2	10	

	Trifolium repens	E	0.1	10	
FG	Wahlenbergia communis	N	0.1	20	
FG	Wahlenbergia stricta	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	31/01/2023	Cobbora Solar Farm		High	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_12	Plot dimensions	50x20	Orientation of middle	92	
Easting 710326	Northing 6438386	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	5
	Grasses etc.	19
	Forbs	10
	Ferns	1
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	35
	Shrubs	0.6
	Grasses etc.	27
	Forbs	1
	Ferns	0.1
	Other	0.2
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	3
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	33
No. trees with hollows	2

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	80	70	60	60	50
Average of the 5 subplots	64				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay sandy loam
Soil Colour	Redish brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	31/01/2023	Cobbora Solar Farm BDAR	38235_csf_12	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Allocasuarina gymnanthera	N	0.1	5	
GG	Aristida calycina var. calycina	N	0.1	30	
GG	Austrostipa densiflora	N	2	50	
GG	Austrostipa scabra subsp. scabra	N	0.2	50	
GG	Austrostipa setacea	N	0.1	10	
GG	Austrostipa verticillata	N	0.5	20	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia laevis	N	0.1	2	
SG	Cassinia sifton	N	0.1	2	
EG	Cheilanthes sieberi subsp.	N	0.1	20	
	Conyza bonariensis	E	0.1	10	
FG	Dichondra repens	N	0.1	20	
SG	Dodonaea boroniifolia	N	0.1	2	
GG	Echinopogon caespitosus	N	1	50	
FG	Einadia nutans	N	0.1	5	
TG	Eucalyptus blakelyi	N	35	20	
FG	Euchiton involucratus	N	0.1	10	
GG	Fimbristylis dichotoma	N	0.1	2	
GG	Gahnia aspera	N	1	20	
OG	Glycine clandestina	N	0.1	2	
OG	Glycine tabacina	N	0.1	1	
FG	Gonocarpus elatus	N	0.1	2	
FG	Gonocarpus tetragynus	N	0.1	20	
FG	Goodenia glabra	N	0.1	10	
FG	Hypericum gramineum	N	0.1	10	
	Hypochaeris radicata	E	0.1	1	
GG	Juncus homalocaulis	N	0.1	5	
GG	Juncus subsecundus	N	0.1	30	
GG	Lomandra filiformis subsp.	N	0.1	20	
GG	Lomandra multiflora subsp.	N	0.1	5	
GG	Microlaena stipoides var.	N	20	500	
GG	Panicum decompositum	N	1	30	
GG	Panicum effusum	N	0.2	50	
SG	Pultenaea foliolosa	N	0.2	20	
GG	Rytidosperma fulvum	N	0.1	10	
GG	Rytidosperma pallidum	N	0.1	2	
FG	Sida corrugata	N	0.1	2	
	Solanum nigrum	E	0.1	2	
	Sonchus oleraceus	E	0.1	1	
GG	Sporobolus creber	N	0.1	5	
GG	Thyridolepis mitchelliana	N	0.1	40	
FG	Wahlenbergia stricta	N	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		DNG	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_13	Plot dimensions	50x20	Orientation of middle	11	
Easting 710169	Northing 6438526	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	11
	Forbs	3
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	87.1
	Forbs	0.3
	Ferns	0.1
	Other	0
High Threat Weed cover		0.2

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	5	1	2	5
Average of the 5 subplots	3.6				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay loam
Soil Colour	Brown red	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_13	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.2	30	
GG	Austrostipa setacea	N	0.1	20	
GG	Bothriochloa decipiens var.	N	1	50	
	Carthamus lanatus	HTE	0.1	10	
	Centaurium erythraea	E	0.1	10	
EG	Cheilanthes sieberi subsp.	N	0.1	5	
	Chondrilla juncea	E	0.1	10	
	Cyclospermum leptophyllum	E	0.1	2	
FG	Einadia nutans	N	0.1	5	
FG	Epilobium hirtigerum	N	0.1	1	
GG	Eragrostis leptostachya	N	0.1	10	
	Gamochaeta calviceps	E	0.1	1	
	Hypericum perforatum	HTE	0.1	10	
GG	Juncus homalocaulis	N	0.1	30	
GG	Juncus subsecundus	N	0.1	20	
GG	Lachnagrostis filiformis	N	0.1	3	
	Lactuca serriola	E	0.1	1	
FG	Mentha diemenica	N	0.1	20	
GG	Microlaena stipoides var.	N	5	300	
GG	Panicum decompositum	N	0.3	60	
GG	Rytidosperma fulvum	N	0.1	20	
	Sonchus oleraceus	E	0.1	4	
GG	Sporobolus creber	N	80	3000	
	Trifolium angustifolium	E	0.3	50	
	Verbena bonariensis	E	0.2	30	
	Vulpia myuros	E	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	COBBORA Solar Farm		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_14	Plot dimensions	50x20	Orientation of middle	250	
Easting 710359	Northing 6438708	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	2
	Grasses etc.	7
	Forbs	5
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	5
	Shrubs	0.3
	Grasses etc.	33.3
	Forbs	0.5
	Ferns	0
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	2
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	23
No. trees with hollows	2

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	95	80	95	95	100
Average of the 5 subplots	93				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Sandy clay loam
Soil Colour	Red to dark brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	COBBORA Solar Farm BDAR	38235_csf_14	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.1	20	
GG	Austrostipa scabra subsp. falcata	N	15	300	
GG	Austrostipa verticillata	N	5	100	
GG	Bothriochloa decipiens var.	N	0.2	50	
FG	Calotis cuneifolia	N	0.1	10	
FG	Calotis lappulacea	N	0.1	10	
SG	Cassinia sifton	N	0.1	2	
	Conyza bonariensis	E	0.1	10	
FG	Dichondra repens	N	0.1	50	
FG	Einadia nutans	N	0.1	10	
GG	Eragrostis leptostachya	N	2	200	
TG	Eucalyptus melliodora	N	5	4	
FG	Euphorbia drummondii	N	0.1	3	
OG	Glycine clandestina	N	0.1	20	
	Lepidium africanum	E	0.1	20	
SG	Maireana microphylla	N	0.2	20	
	Marrubium vulgare	E	0.1	3	
GG	Panicum effusum	N	10	300	
	Sisymbrium officinale	E	0.1	2	
GG	Sporobolus creber	N	1	50	
	Trifolium angustifolium	E	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		DNG	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_15	Plot dimensions	50x20	Orientation of middle	206	
Easting 710801	Northing 6438488	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	5
	Forbs	5
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	61.5
	Forbs	0.5
	Ferns	0.1
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	3	2	2	3	2
Average of the 5 subplots	2.4				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_15	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa scabra subsp. falcata	N	0.1	20	
GG	Bothriochloa decipiens var.	N	1	50	
	Bromus hordeaceus	E	2	100	
EG	Cheilanthes sieberi subsp.	N	0.1	30	
	Conyza bonariensis	E	0.1	10	
	Conyza canadensis var.	E	0.1	2	
FG	Dichondra repens	N	0.1	50	
GG	Eragrostis leptostachya	N	0.3	60	
	Eragrostis mexicana	E	3	100	
FG	Hypericum gramineum	N	0.1	30	
	Hypochaeris radicata	E	0.1	20	
GG	Juncus subsecundus	N	0.1	10	
FG	Mentha diemenica	N	0.1	10	
FG	Oxalis perennans	N	0.1	2	
	Rumex crispus	E	0.1	2	
GG	Sporobolus creber	N	60	1000	
	Verbena bonariensis	E	0.1	20	
FG	Wahlenbergia stricta	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		DNG	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_16	Plot dimensions	50x20	Orientation of middle	106	
Easting 711259	Northing 6438229	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	14
	Forbs	5
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	28
	Forbs	0.5
	Ferns	0
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	5	5	10	20
Average of the 5 subplots	9				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Sandy clay
Soil Colour	Yellow brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_16	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.2	50	
GG	Aristida calycina var. calycina	N	0.1	10	
GG	Aristida vagans	N	0.1	30	
GG	Austrostipa scabra subsp. scabra	N	5	100	
GG	Bothriochloa decipiens var.	N	2	50	
	Bromus hordeaceus	E	0.2	40	
GG	Chloris truncata	N	1	60	
	Conyza bonariensis	E	0.1	5	
GG	Dichelachne micrantha	N	0.1	10	
FG	Dichondra repens	N	0.1	20	
GG	Eragrostis eriopoda	N	0.1	5	
FG	Euchiton sphaericus	N	0.1	10	
GG	Fimbristylis dichotoma	N	0.1	10	
OG	Glycine clandestina	N	0.1	5	
	Hypochaeris radicata	E	0.1	10	
GG	Juncus australis	N	0.1	2	
GG	Lachnagrostis filiformis	N	0.1	10	
FG	Oxalis perennans	N	0.1	2	
GG	Panicum decompositum	N	4	200	
	Rumex crispus	E	0.1	5	
GG	Rytidosperma fulvum	N	0.1	4	
	Setaria pumila	E	0.1	30	
FG	Sida corrugata	N	0.1	10	
GG	Sporobolus creber	N	15	500	
	Trifolium angustifolium	E	0.1	5	
FG	Wahlenbergia communis	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		DNG	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_17	Plot dimensions	50x20	Orientation of middle	309	
Easting 711731	Northing 6438061	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	7
	Forbs	4
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	87.5
	Forbs	0.4
	Ferns	0
	Other	0
High Threat Weed cover		0.2

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	2	2	5	5	2
Average of the 5 subplots	3.2				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Sandy clay
Soil Colour	Yellow brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_17	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida ramosa	N	0.2	20	
GG	Bothriochloa decipiens var.	N	3	100	
	Bromus hordeaceus	E	0.2	40	
	Carthamus lanatus	HTE	0.1	10	
	Conyza bonariensis	E	0.1	4	
FG	Dichondra repens	N	0.1	20	
GG	Eragrostis leptostachya	N	0.1	10	
FG	Euchiton sphaericus	N	0.1	7	
	Hypericum perforatum	HTE	0.1	10	
GG	Juncus homalocaulis	N	0.1	30	
FG	Mentha diemenica	N	0.1	10	
GG	Panicum decompositum	N	4	200	
	Rumex crispus	E	0.1	2	
GG	Rytidosperma fulvum	N	0.1	30	
GG	Sporobolus creber	N	80	3000	
	Trifolium angustifolium	E	0.1	10	
	Vulpia myuros	E	0.1	20	
FG	Wahlenbergia stricta	N	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		High	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_18	Plot dimensions	50x20	Orientation of middle	115	
Easting 711502	Northing 6438016	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	10
	Grasses etc.	15
	Forbs	5
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	15.1
	Shrubs	1.3
	Grasses etc.	10
	Forbs	0.5
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	26
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	80	85	90	85	90
Average of the 5 subplots	86				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Sandy clay loam
Soil Colour	Redish brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_18	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	0.1	1	
GG	Aristida calycina var. calycina	N	0.5	50	
GG	Austrostipa densiflora	N	1	40	
GG	Austrostipa scabra subsp. scabra	N	0.5	70	
SG	Brachyloma daphnoides subsp.	N	0.1	10	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia laevis	N	0.1	30	
SG	Cassinia sifton	N	0.3	40	
GG	Dichelachne micrantha	N	4	100	
GG	Digitaria spp.	N	0.1	2	
SG	Dodonaea viscosa subsp.	N	0.1	2	
TG	Eucalyptus blakelyi	N	10	6	
TG	Eucalyptus sideroxylon	N	5	2	
GG	Gahnia aspera	N	0.2	10	
FG	Goodenia glabra	N	0.1	10	
SG	Hibbertia obtusifolia	N	0.1	10	
GG	Lepidosperma laterale	N	0.1	1	
GG	Lomandra filiformis subsp.	N	0.1	20	
GG	Lomandra leucocephala subsp.	N	0.1	3	
GG	Lomandra multiflora subsp.	N	0.1	5	
GG	Microlaena stipoides var.	N	1	100	
SG	Ozothamnus diosmifolius	N	0.1	1	
GG	Panicum decompositum	N	0.1	20	
GG	Panicum effusum	N	0.1	10	
SG	Phebalium squamulosum	N	0.1	2	
SG	Pimelea linifolia	N	0.1	5	
SG	Platysace ericoides	N	0.1	1	
FG	Poranthera microphylla	N	0.1	1	
SG	Prostanthera rotundifolia	N	0.2	20	
GG	Rytidosperma caespitosum	N	0.1	5	
GG	Rytidosperma pallidum	N	2	50	
FG	Wahlenbergia communis	N	0.1	20	
FG	Xerochrysum viscosum	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_19	Plot dimensions	50x20	Orientation of middle	114	
Easting 711777	Northing 6437684	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	6
	Grasses etc.	14
	Forbs	7
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0.1
	Shrubs	81.7
	Grasses etc.	12.4
	Forbs	0.7
	Ferns	0.2
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	5	10	5	2
Average of the 5 subplots	8.4				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Sandy clay loam
Soil Colour	Yellow to Light brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_19	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	0.1	1	
GG	Anthosachne scabra	N	0.1	20	
GG	Austrostipa densiflora	N	0.3	60	
GG	Austrostipa scabra subsp. scabra	N	0.1	30	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia sifton	N	80	1000	
EG	Cheilanthes sieberi subsp.	N	0.2	40	
FG	Dampiera adpressa	N	0.1	2	
GG	Dichelachne micrantha	N	0.3	50	
FG	Dichondra repens	N	0.1	20	
GG	Entolasia stricta	N	0.1	20	
GG	Eragrostis elongata	N	0.1	10	
GG	Gahnia aspera	N	0.2	20	
OG	Glycine clandestina	N	0.1	1	
FG	Gonocarpus elatus	N	0.1	10	
FG	Goodenia glabra	N	0.1	30	
SG	Hibbertia obtusifolia	N	0.1	20	
FG	Hypericum gramineum	N	0.1	20	
GG	Juncus subglaucus	N	0.1	2	
GG	Lomandra multiflora subsp.	N	0.1	20	
SG	Melichrus urceolatus	N	0.1	1	
GG	Microlaena stipoides var.	N	10	200	
SG	Micromyrtus ciliata	N	1	60	
GG	Panicum decompositum	N	0.5	200	
	Poa annua	E	0.1	10	
SG	Pultenaea foliolosa	N	0.3	20	
SG	Pultenaea microphylla	N	0.2	30	
GG	Rytidosperma fulvum	N	0.3	100	
GG	Sporobolus creber	N	0.1	1	
GG	Thyridolepis mitchelliana	N	0.1	10	
FG	Thysanotus tuberosus subsp.	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_20	Plot dimensions	50x20	Orientation of middle	115	
Easting 712190	Northing 6437202	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	4
	Grasses etc.	17
	Forbs	4
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	10.3
	Shrubs	0.4
	Grasses etc.	68.4
	Forbs	0.5
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	0
Length of logs (m)	31
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	50	60	10	10
Average of the 5 subplots	28				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay sand loam
Soil Colour	Redish brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_20	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Allocasuarina luehmannii	N	0.3	1	
GG	Anthosachne scabra	N	0.1	1	
GG	Aristida ramosa	N	0.2	50	
GG	Austrostipa densiflora	N	0.4	100	
GG	Austrostipa scabra subsp. scabra	N	0.2	50	
GG	Austrostipa setacea	N	3	100	
GG	Austrostipa verticillata	N	0.1	5	
GG	Bothriochloa decipiens var.	N	0.2	20	
TG	Callitris endlicheri	N	10	8	
FG	Calotis cuneifolia	N	0.2	10	
SG	Cassinia sifton	N	0.1	10	
	Conyza bonariensis	E	0.1	10	
FG	Dampiera adpressa	N	0.1	1	
GG	Dichelachne micrantha	N	0.1	10	
GG	Digitaria brownii	N	3	60	
FG	Einadia nutans	N	0.1	10	
GG	Eragrostis elongata	N	30	20	
GG	Eragrostis leptostachya	N	0.1	20	
GG	Gahnia aspera	N	0.2	30	
FG	Gonocarpus tetragynus	N	0.1	5	
	Hypochaeris radicata	E	0.1	2	
GG	Juncus subsecundus	N	0.2	50	
GG	Lachnagrostis filiformis	N	0.1	9	
GG	Microlaena stipoides var.	N	30	500	
SG	Ozothamnus diosmifolius	N	0.1	1	
GG	Panicum decompositum	N	0.2	40	
SG	Prostanthera rotundifolia	N	0.1	10	
SG	Pultenaea microphylla	N	0.1	1	
GG	Sporobolus creber	N	0.3	50	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	01/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_21	Plot dimensions	50x20	Orientation of middle	21	
Easting 711507	Northing 6438312	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	1
	Grasses etc.	2
	Forbs	2
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0.1
	Grasses etc.	0.2
	Forbs	0.2
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	50	70	1	2
Average of the 5 subplots	28.6				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay
Soil Colour	Dark brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	01/02/2023	Cobbora Solar Farm BDAR	38235_csf_21	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
	Bromus hordeaceus	E	0.1	20	
SG	Cassinia sifton	N	0.1	2	
	Conyza bonariensis	E	10	500	
	Gamochaeta calviceps	E	0.1	10	
FG	Hypericum gramineum	N	0.1	30	
GG	Lachnagrostis filiformis	N	0.1	20	
	Lysimachia arvensis	E	0.1	1	
GG	Panicum decompositum	N	0.1	5	
	Rumex crispus	E	0.1	5	
	Trifolium angustifolium	E	0.1	10	
	Vulpia myuros	E	40	1000	
FG	Wahlenbergia communis	N	0.1	40	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_22	Plot dimensions	50x20	Orientation of middle	38	
Easting 712047	Northing 6438057	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	10
	Forbs	1
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	8.9
	Forbs	0.1
	Ferns	0
	Other	0
High Threat Weed cover		80.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	15	15	10	10	10
Average of the 5 subplots	12				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay
Soil Colour	Dark brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora Solar Farm BDAR	38235_csf_22	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa scabra subsp. scabra	N	0.1	5	
	Chloris gayana	HTE	80	2000	
	Chondrilla juncea	E	0.1	20	
	Conyza bonariensis	E	0.1	2	
	Cyclospermum leptophyllum	E	0.1	10	
GG	Cynodon dactylon	N	1	50	
GG	Digitaria brownii	N	2	200	
GG	Echinopogon caespitosus	N	0.1	1	
GG	Eragrostis elongata	N	0.1	10	
GG	Eragrostis leptostachya	N	0.1	10	
	Hypericum perforatum	HTE	0.1	10	
	Hypochaeris radicata	E	0.1	10	
GG	Juncus homalocaulis	N	0.1	1	
GG	Juncus subglaucus	N	0.1	2	
GG	Juncus subsecundus	N	0.3	50	
	Rumex crispus	E	0.1	2	
GG	Sporobolus creber	N	5	100	
	Trifolium angustifolium	E	0.1	5	
	Verbena bonariensis	E	0.1	5	
	Vulpia myuros	E	0.1	30	
FG	Wahlenbergia stricta	N	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_23	Plot dimensions	50x20	Orientation of middle	126	
Easting 713379	Northing 6435774	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	1
	Forbs	4
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	0.3
	Forbs	0.4
	Ferns	0
	Other	0.1
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	90	95	95	95	95
Average of the 5 subplots	94				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Gentle	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	Good	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora Solar Farm BDAR	38235_csf_23	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
FG	Calotis cuneifolia	N	0.1	20	
FG	Chrysocephalum semipapposum	N	0.1	1	
	Conyza bonariensis	E	10	100	
OG	Glycine tabacina	N	0.1	1	
FG	Hypericum gramineum	N	0.1	40	
	Juncus bufonius	E	10	500	
GG	Juncus subsecundus	N	0.3	50	
	Lolium perenne	E	0.1	1	
FG	Rhodanthe stricta	N	0.1	10	
	Vulpia myuros	E	0.1	30	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora Solar Farm		Moderate	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_24	Plot dimensions	50x20	Orientation of middle	131	
Easting 713600	Northing 6435974	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	0
	Grasses etc.	2
	Forbs	2
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	20
	Shrubs	0
	Grasses etc.	90.1
	Forbs	0.6
	Ferns	0
	Other	0.1
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	1
30 - 49 cm	1
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	28
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	30	40	40	30
Average of the 5 subplots	32				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flar	Soil Surface Texture	Clay sand loam
Soil Colour	Redish brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora Solar Farm BDAR	38235_csf_24	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa verticillata	N	90	500	
	Bromus catharticus	E	1	50	
GG	Carex appressa	N	0.1	1	
	Conyza bonariensis	E	0.1	10	
	Cyclospermum leptophyllum	E	0.1	1	
FG	Einadia trigonos	N	0.4	100	
TG	Eucalyptus conica	N	20	10	
OG	Glycine tabacina	N	0.1	1	
	Marrubium vulgare	E	3	100	
	Sonchus oleraceus	E	0.1	1	
FG	Urtica incisa	N	0.2	30	
	Xanthium spinosum	HTE	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_25	Plot dimensions	50x20	Orientation of middle	64	
Easting 711616	Northing 6438802	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	1
	Grasses etc.	11
	Forbs	9
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	5.3
	Shrubs	0.1
	Grasses etc.	38.8
	Forbs	1
	Ferns	0
	Other	0.1
High Threat Weed cover		0.6

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	2
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	2
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	75	30	30	10	30
Average of the 5 subplots	35				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat on creek bed	Soil Surface Texture	Sandy clay loam
Soil Colour	Light brown	Site Drainage	Poor	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora Solar Farm BDAR	38235_csf_25	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
FG	Alternanthera angustifolia	N	0.1	5	
GG	Anthosachne scabra	N	0.2	30	
GG	Aristida calycina	N	0.1	1	
FG	Asperula conferta	N	0.1	5	
GG	Austrostipa verticillata	N	0.5	50	
	Bromus hordeaceus	E	0.1	20	
FG	Calotis lappulacea	N	0.1	2	
GG	Carex appressa	N	30	100	
	Chondrilla juncea	E	0.1	1	
	Cirsium vulgare	E	0.3	30	
	Conyza bonariensis	E	0.1	10	
	Conyza canadensis var.	E	0.1	1	
FG	Einadia trigonos	N	0.2	40	
TG	Eucalyptus blakelyi	N	0.3	2	
TG	Eucalyptus melliodora	N	5	1	
OG	Glycine clandestina	N	0.1	20	
	Hypericum perforatum	HTE	0.2	30	
GG	Juncus subglaucus	N	0.2	100	
GG	Juncus subsecundus	N	0.2	30	
GG	Lachnagrostis filiformis	N	0.1	5	
	Lactuca serriola	E	0.1	1	
SG	Maireana microphylla	N	0.1	1	
	Marrubium vulgare	E	0.1	10	
GG	Microlaena stipoides var.	N	5	300	
	Modiola caroliniana	E	0.1	2	
	Paspalum dilatatum	HTE	0.3	100	
GG	Paspalum distichum	N	2	200	
	Phalaris aquatica	E	0.1	2	
	Plantago lanceolata	E	0.1	1	
FG	Rumex brownii	N	0.1	1	
	Rumex crispus	E	0.1	10	
GG	Rytidosperma fulvum	N	0.2	40	
	Setaria pumila	E	0.2	20	
FG	Sida corrugata	N	0.1	10	
	Sisymbrium officinale	E	0.1	20	
	Solanum nigrum	E	0.1	2	
GG	Themeda triandra	N	0.3	20	
	Trifolium repens	E	0.1	2	
FG	Veronica plebeia	N	0.1	2	
FG	Wahlenbergia communis	N	0.1	1	
FG	Wahlenbergia stricta	N	0.1	10	
	Xanthium spinosum	HTE	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	02/02/2023	Cobbora Solar Farm		Low	TOH, PP			
Zone 55	Datum GDA94	Plot ID	38235_csf_26	Plot dimensions	50x20	Orientation of middle	85	
Easting 711419	Northing 6438864	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type						EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	10
	Forbs	2
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	17
	Forbs	0.2
	Ferns	0
	Other	0
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	20	5	10	20
Average of the 5 subplots	15				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Flat	Soil Surface Texture	Clay sand loam
Soil Colour	Redish brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	02/02/2023	Cobbora Solar Farm BDAR	38235_csf_26	TOH, PP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida ramosa	N	0.2	20	
GG	Bothriochloa decipiens var.	N	3	20	
	Bromus hordeaceus	E	50	1000	
	Centaurium erythraea	E	0.1	2	
	Chondrilla juncea	E	0.1	3	
	Cirsium vulgare	E	0.2	30	
	Conyza bonariensis	E	0.2	30	
	Cyclospermum leptophyllum	E	0.1	3	
GG	Cynodon dactylon	N	0.5	100	
	Echium plantagineum	E	0.1	2	
GG	Eragrostis leptostachya	N	0.2	20	
GG	Juncus australis	N	0.1	5	
GG	Juncus subsecundus	N	0.4	30	
GG	Lomandra filiformis subsp.	N	0.2	10	
GG	Microlaena stipoides var.	N	10	300	
	Modiola caroliniana	E	0.2	30	
FG	Oxalis perennans	N	0.1	1	
GG	Paspalidium aversum	N	0.4	40	
FG	Rumex brownii	N	0.1	1	
GG	Sporobolus creber	N	2	60	
	Verbena bonariensis	E	0.3	50	
	Xanthium spinosum	HTE	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	28/11/2023	Cobbora		Moderate	Mgp			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov1	Plot dimensions	50x20	Orientation of middle	210	
Easting 709526	Northing 6437748	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	2
	Grasses etc.	10
	Forbs	6
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	15
	Shrubs	1.3
	Grasses etc.	38.5
	Forbs	0.6
	Ferns	0.1
	Other	0.1
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	3
No. trees with hollows	1

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	15	15	20	10
Average of the 5 subplots	14				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Slight	Soil Surface Texture	Brown loam clay
Soil Colour	Brown	Site Drainage	Slight	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			Adjacent to cropped area
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora	38235_csf_nov1	Mgp

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	5		
GG	Aristida vagans	N	0.1	8	
GG	Bothriochloa macra	N	15		
	Bromus hordeaceus	E	0.2	20	
FG	Calotis cuneifolia	N	0.1	10	
SG	Cassinia laevis	N	1		
EG	Cheilanthes sieberi	N	0.1	5	
FG	Dichondra repens	N	0.1	100	
FG	Einadia nutans	N	0.1	20	
TG	Eucalyptus microcarpa	N	15		
GG	Eulalia aurea	N	0.1	1	
OG	Grona varians	N	0.1	10	
	Hypericum perforatum	HTE	1	20	
	Hypochaeris radicata	E	0.2	10	
GG	Juncus spp.	N	0.3	20	
SG	Maireana microphylla	N	0.3	6	
GG	Panicum simile	N	1		
GG	Rytidosperma fulvum	N	10		
GG	Rytidosperma pallidum	N	1		
GG	Rytidosperma racemosum	N	5		
FG	Sida corrugata	N	0.1	1	
GG	Sporobolus creber	N	1		
	Vulpia myuros	E	1	100	
FG	Wahlenbergia gracilis	N	0.1	10	
FG	Wahlenbergia stricta	N	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Other	DM 7 MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov10	Plot dimensions	50x20	Orientation of middle	140	
Easting 708243	Northing 6442590	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		467				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	5
	Grasses etc.	10
	Forbs	6
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	8.3
	Grasses etc.	28.3
	Forbs	0.6
	Ferns	0.1
	Other	0.1
High Threat Weed cover		1.3

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	30	5	5	0
Average of the 5 subplots	10				

Notes	Rocky

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	2 degrees NNE aspect	Soil Surface Texture	Clay
Soil Colour	Red brown	Site Drainage	Moderate	Distance to nearest water	600 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	R	Piled trees
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov10	DM 7 MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia decora	N	2	1	
SG	Acacia triptera	N	1	1	
	Alternanthera pungens	HTE	0.1	5	
GG	Aristida calycina	N	0.1	9	
GG	Aristida ramosa	N	0.5	30	
GG	Austrostipa densiflora	N	1		
GG	Austrostipa scabra	N	1		
GG	Bothriochloa macra	N	10		
FG	Calotis cuneifolia	N	0.1	3	
	Carthamus lanatus	HTE	0.2	20	
SG	Cassinia sifton	N	5		
EG	Cheilanthes sieberi	N	0.1	20	
FG	Cymbonotus lawsonianus	N	0.1	3	
GG	Cymbopogon refractus	N	0.2	6	
GG	Eragrostis leptostachya	N	0.2	30	
GG	Fimbristylis dichotoma	N	0.1	50	
OG	Glycine clandestina	N	0.1	20	
FG	Goodenia hederacea	N	0.1	2	
	Hypericum perforatum	HTE	1		
	Hypochaeris radicata	E	1	100	
	Lolium perenne	E	20		
SG	Micromyrtus sessilis	N	0.2	2	
	Opuntia stricta	E	0.2	2	
GG	Panicum simile	N	0.2	8	
SG	Phyllanthus hirtellus	N	0.1	5	
	Polygonum aviculare	E	0.1	50	
GG	Sporobolus creber	N	15		
	Tolpis barbata	E	0.3	100	
FG	Tricoryne elatior	N	0.1	3	
	Trifolium angustifolium	E	5		
	Trifolium arvense	E	1		
FG	Wahlenbergia gracilis	N	0.1	2	
FG	Wahlenbergia stricta	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Other	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov11	Plot dimensions	50x20	Orientation of middle	40	
Easting 708495	Northing 6441823	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	7
	Forbs	1
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	31.2
	Forbs	0.1
	Ferns	0
	Other	0
High Threat Weed cover		15.7

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	20	60	40	30
Average of the 5 subplots	32				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	1 degree SW aspect	Soil Surface Texture	Clay loam
Soil Colour	Dark brown	Site Drainage	Moderate	Distance to nearest water	250 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	NR	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov11	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
	Alternanthera pungens	HTE	0.5	100	
	Brassica spp.	E	0.4	20	
	Bromus hordeaceus	E	0.3	20	
GG	Carex appressa	N	10		
	Carthamus lanatus	HTE	0.2	10	
	Conyza bonariensis	E	0.1	2	
GG	Cynodon dactylon	N	10		
GG	Eragrostis elongata	N	0.1	3	
GG	Fimbristylis dichotoma	N	0.1	6	
FG	Haloragis heterophylla	N	0.1	10	
	Hordeum leporinum	E	0.1	20	
	Hypochaeris radicata	E	5		
GG	Juncus subsecundus	N	2		
GG	Juncus usitatus	N	4		
	Lolium perenne	E	20		
	Lysimachia arvensis	E	0.1	10	
	Paspalum dilatatum	HTE	15		
	Poa annua	E	0.1	8	
	Polygonum aviculare	E	0.1	20	
GG	Sporobolus creber	N	5		
	Taraxacum officinale	E	0.1	8	
	Verbena bonariensis	E	1		

BAM Plot Data Sheet					Site Sheet no:1 of 2		
		Survey Name		Veg Zone ID	Recorders		
Date	29/11/2023	Cobbora Solar Farm		Other	DM & MGP		
Zone 55	Datum GDA94	Plot ID	38235_csf_nov12	Plot dimensions	50x20	Orientation of middle	330
Easting 708465	Northing 6442253	IBRA region	Brigalow Belt South	Photo #			
Plant Community Type		467				EEC: None	Confidence M

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	10
	Grasses etc.	10
	Forbs	8
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0.3
	Shrubs	78.5
	Grasses etc.	4.5
	Forbs	0.8
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	5	5	10	10
Average of the 5 subplots	7				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern	Low rocky ridgetop	Slope	0	Soil Surface Texture	Loam
Soil Colour	Red brown	Site Drainage	Good	Distance to nearest water	580 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	NR	Regrowth
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	
Fire damage			
Storm damage			

Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov12	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia decora	N	2		
SG	Acacia uncinata	N	0.2	2	
GG	Aristida calycina	N	0.3	20	
GG	Aristida ramosa	N	0.2	2	
SG	Bursaria spinosa	N	0.2	1	
TG	Callitris endlicheri	N	0.1	1	
FG	Calotis cuneifolia	N	0.1	10	
SG	Calytrix tetragona	N	0.1	1	
GG	Carex inversa	N	0.1	20	
SG	Cassinia sifton	N	75		
FG	Chrysocephalum apiculatum	N	0.1	20	
SG	Cryptandra amara var. amara	N	0.1	1	
GG	Cymbopogon refractus	N	0.2	10	
FG	Dianella spp.	N	0.1	3	
TG	Eucalyptus nubila	N	0.2	1	
GG	Fimbristylis dichotoma	N	0.2	30	
GG	Gahnia aspera	N	2		
FG	Gonocarpus tetragynus	N	0.1	20	
FG	Goodenia hederacea	N	0.1	20	
SG	Hakea decurrens	N	0.1	1	
FG	Hypericum gramineum	N	0.1	6	
GG	Juncus subsecundus	N	0.1	10	
SG	Lissanthe strigosa	N	0.3	7	
	Lolium perenne	E	1		
SG	Melichrus urceolatus	N	0.3	4	
SG	Micromyrtus sessilis	N	0.2	3	
	Opuntia stricta	E	0.1	3	
GG	Panicum simile	N	1		
GG	Rytidosperma fulvum	N	0.2	30	
GG	Rytidosperma pallidum	N	0.2	20	
FG	Sida corrugata	N	0.1	20	
FG	Tricoryne elatior	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Other	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov13	Plot dimensions	50x20	Orientation of middle	330	
Easting 708971	Northing 6442023	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		467				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	7
	Grasses etc.	9
	Forbs	9
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	2
	Shrubs	58.4
	Grasses etc.	3.2
	Forbs	0.9
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	12
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	0	5	5	10	0
Average of the 5 subplots	4				

Notes	Rocky

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern	Rocky ridgetop	Slope	2 degrees SSE aspect	Soil Surface Texture	Clay loam
Soil Colour	Red brown	Site Drainage	Good	Distance to nearest water	500 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	NR	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov13	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia triptera	N	2		
SG	Acacia uncinata	N	1		
GG	Aristida calycina	N	0.2	20	
GG	Aristida ramosa	N	0.1	5	
GG	Austrostipa densiflora	N	0.3	30	
GG	Austrostipa scabra	N	0.1	6	
SG	Brachyloma daphnoides	N	0.1	3	
FG	Calotis cuneifolia	N	0.1	20	
SG	Cassinia laevis	N	15		
SG	Cassinia sifton	N	40		
FG	Dianella revoluta	N	0.1	3	
GG	Eragrostis leptostachya	N	0.1	10	
TG	Eucalyptus dwyeri	N	2		
GG	Gahnia aspera	N	1		
FG	Gonocarpus tetragynus	N	0.1	10	
FG	Goodenia bellidifolia	N	0.1	10	
FG	Goodenia hederacea	N	0.1	20	
SG	Hakea decurrens	N	0.1	1	
SG	Hibbertia obtusifolia	N	0.2	10	
GG	Microlaena stipoides	N	0.1	10	
	Opuntia stricta	E	0.1	2	
GG	Panicum simile	N	0.3	30	
FG	Pomax umbellata	N	0.1	20	
	Setaria pumila	E	0.2	20	
GG	Sporobolus creber	N	1		
FG	Tricoryne elatior	N	0.1	10	
FG	Wahlenbergia gracilis	N	0.1	20	
FG	Xerochrysum bracteatum	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Low	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov14	Plot dimensions	50x20	Orientation of middle	20	
Easting 709376	Northing 6441610	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		467				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	4
	Grasses etc.	12
	Forbs	6
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	15.1
	Shrubs	4.7
	Grasses etc.	10.3
	Forbs	0.6
	Ferns	0.1
	Other	0
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	3
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	0	40	30	30	10
Average of the 5 subplots	22				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	1 degree N aspect	Soil Surface Texture	Sandy loam
Soil Colour	Red brown	Site Drainage	Good	Distance to nearest water	520 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	O	
Cultivation (inc. pasture)			
Soil erosion	1	R	
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov14	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Allocasuarina spp.	N	0.1	2	
	Alternanthera pungens	HTE	0.1	20	
GG	Aristida calycina	N	0.2	10	
GG	Aristida ramosa	N	0.3	20	
GG	Austrostipa densiflora	N	0.1	3	
GG	Austrostipa scabra	N	1	30	
GG	Austrostipa verticillata	N	1		
SG	Bursaria spinosa	N	0.2	2	
TG	Callitris endlicheri	N	5		
FG	Calotis cuneifolia	N	0.1	1	
SG	Cassinia sifton	N	0.2	3	
EG	Cheilanthes sieberi	N	0.1	20	
GG	Cynodon dactylon	N	0.2	10	
FG	Einadia nutans	N	0.1	6	
GG	Enteropogon acicularis	N	0.1	4	
GG	Eragrostis elongata	N	0.1	2	
GG	Eragrostis leptostachya	N	0.1	10	
TG	Eucalyptus sideroxylon	N	10		
GG	Gahnia aspera	N	2		
FG	Goodenia bellidifolia	N	0.1	10	
FG	Goodenia hederacea	N	0.1	6	
SG	Maireana microphylla	N	4		
	Opuntia stricta	E	0.2	2	
SG	Pultenaea foliolosa	N	0.3	7	
GG	Rytidosperma pallidum	N	0.2	10	
FG	Sida corrugata	N	0.1	3	
GG	Sporobolus creber	N	5		
FG	Stackhousia muricata	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Low	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov15	Plot dimensions	50x20	Orientation of middle	260	
Easting 708642	Northing 6441360	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	0
	Grasses etc.	6
	Forbs	6
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0.1
	Shrubs	0
	Grasses etc.	15.6
	Forbs	0.6
	Ferns	0
	Other	0
High Threat Weed cover		2.3

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	40	30	10	5	10
Average of the 5 subplots	19				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern	Wide drainage line	Slope	0	Soil Surface Texture	Clay loam
Soil Colour	Red brown	Site Drainage	Poor	Distance to nearest water	130 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov15	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
FG	Alternanthera denticulata	N	0.1	1	
FG	Alternanthera nana	N	0.1	1	
	Alternanthera pungens	HTE	0.1	6	
TG	Angophora floribunda	N	0.1	1	
GG	Austrostipa scabra	N	0.1	8	
GG	Austrostipa verticillata	N	15		
	Brassica spp.	E	10		
GG	Carex inversa	N	0.1	10	
	Carthamus lanatus	HTE	2		
	Chondrilla juncea	E	0.2	7	
	Conyza bonariensis	E	0.1	8	
GG	Cynodon dactylon	N	0.2	20	
	Eragrostis cilianensis	E	0.1	2	
	Hordeum leporinum	E	15		
GG	Juncus usitatus	N	0.1	1	
	Lolium perenne	E	7		
	Lysimachia arvensis	E	0.1	6	
	Marrubium vulgare	E	0.1	10	
GG	Microlaena stipoides	N	0.1	10	
	Modiola caroliniana	E	0.1	6	
FG	Oxalis perennans	N	0.1	20	
FG	Portulaca oleracea	N	0.1	1	
FG	Rumex brownii	N	0.1	10	
	Silybum marianum	E	0.1	10	
FG	Tetragonia tetragonioides	N	0.1	1	
	Tribulus terrestris	E	3		
	Xanthium spinosum	HTE	0.2	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Moderate	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov16	Plot dimensions	50x20	Orientation of middle	350	
Easting 710189	Northing 6441346	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		467				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	4
	Shrubs	7
	Grasses etc.	2
	Forbs	2
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	32
	Shrubs	12
	Grasses etc.	1.1
	Forbs	0.2
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	3
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	32
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	50	90	90	20	100
Average of the 5 subplots	70				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Sandy loam
Soil Colour	Dull brown	Site Drainage	Good	Distance to nearest water	750 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	NR	
Cultivation (inc. pasture)			
Soil erosion	1	R	
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov16	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	2		
SG	Acacia uncinata	N	0.3	2	
GG	Aristida calycina	N	1		
TG	Callitris endlicheri	N	10		
SG	Cassinia quinquefaria	N	0.2	2	
SG	Cassinia sifton	N	4		
TG	Eucalyptus crebra	N	15		
TG	Eucalyptus sideroxylon	N	5		
FG	Goodenia glabra	N	0.1	2	
SG	Hibbertia obtusifolia	N	0.4	10	
FG	Laxmannia gracilis	N	0.1	6	
SG	Melichrus urceolatus	N	2		
SG	Ozothamnus diosmifolius	N	0.1	2	
SG	Pultenaea spinosa	N	5		
GG	Rytidosperma pallidum	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Moderate	Mgp and blh			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov17	Plot dimensions	50x20	Orientation of middle	260	
Easting 709955	Northing 6443125	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		467				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	5
	Grasses etc.	10
	Forbs	8
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	13.1
	Shrubs	11.1
	Grasses etc.	18.6
	Forbs	1.2
	Ferns	0.1
	Other	0.1
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	1
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	1	1	1	5
Average of the 5 subplots	2.6				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Nil	Soil Surface Texture	Brown loam
Soil Colour	Brown	Site Drainage	Minimal	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov17	Mgp and blh

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Allocasuarina spp.	N	0.1	1	
GG	Aristida calycina	N	1		
GG	Aristida ramosa	N	3		
GG	Austrostipa densiflora	N	0.2	10	
GG	Austrostipa scabra	N	3		
GG	Bothriochloa macra	N	4		
TG	Callitris glaucophylla	N	3		
SG	Cassinia quinquefaria	N	1		
SG	Cassinia sifton	N	5		
EG	Cheilanthes sieberi	N	0.1	50	
GG	Cymbopogon refractus	N	0.2	20	
GG	Eragrostis elongata	N	0.1	10	
GG	Eragrostis leptostachya	N	1		
TG	Eucalyptus blakelyi	N	10		
GG	Gahnia aspera	N	6		
OG	Glycine clandestina	N	0.1	6	
FG	Goodenia glabra	N	0.1	10	
FG	Goodenia hederacea	N	0.1	20	
SG	Hibbertia obtusifolia	N	1		
FG	Hypericum gramineum	N	0.1	10	
	Hypericum perforatum	HTE	1		
FG	Laxmannia gracilis	N	0.1	5	
SG	Melichrus urceolatus	N	4		
SG	Phyllanthus hirtellus	N	0.1	20	
	Polygonum aviculare	E	0.1	50	
FG	Sida corrugata	N	0.5	100	
FG	Stackhousia muricata	N	0.1	20	
GG	Themeda triandra	N	0.1	1	
FG	Thysanotus tuberosus	N	0.1	2	
	Tolpis barbata	E	0.2	50	
FG	Wahlenbergia stricta	N	0.1	20	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Low	MGP BLH			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov18	Plot dimensions	50x20	Orientation of middle	167	
Easting 709864	Northing 6441961	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	1
	Grasses etc.	7
	Forbs	3
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0.1
	Grasses etc.	15.7
	Forbs	0.3
	Ferns	0
	Other	0
High Threat Weed cover		10.2

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	2	1	5	5
Average of the 5 subplots	3.6				

Notes	PCT 81 on road verge

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0br	Soil Surface Texture	Brown loam
Soil Colour	Brown	Site Drainage	Minimal	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2		
Fire damage			
Storm damage			
Weediness	2		
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov18	MGP BLH

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida vagans	N	0.1	6	
GG	Austrostipa scabra	N	5		
GG	Bothriochloa macra	N	1		
	Brassica spp.	E	0.2	20	
	Capsella bursa-pastoris	E	0.1	6	
	Carthamus lanatus	HTE	10		
	Chondrilla juncea	E	0.1	1	
	Conyza spp.	E	1		
FG	Cotula australis	N	0.1	10	
GG	Cynodon dactylon	N	0.5		
	Echinochloa crus-galli	E	5		
	Hordeum leporinum	E	10		
	Hypericum perforatum	HTE	0.2	20	
	Hypochaeris radicata	E	1		
GG	Juncus subsecundus	N	3		
GG	Juncus usitatus	N	0.1	1	
	Lepidium africanum	E	0.1	20	
	Lolium perenne	E	20		
SG	Maireana microphylla	N	0.1	1	
FG	Oxalis perennans	N	0.1	50	
FG	Pseudognaphalium luteoalbum	N	0.1	10	
	Sonchus oleraceus	E	0.1	20	
GG	Sporobolus creber	N	6		
	Tolpis barbata	E	0.1	5	
	Verbena bonariensis	E	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Moderate	MGP BLH			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov19	Plot dimensions	50x20	Orientation of middle	336	
Easting 710559	Northing 6440649	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	6
	Shrubs	3
	Grasses etc.	4
	Forbs	8
	Ferns	0
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	36
	Shrubs	16
	Grasses etc.	28.2
	Forbs	0.8
	Ferns	0
	Other	0.1
High Threat Weed cover		1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	5
50 - 79 cm	3
30 - 49 cm	8
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	95
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	35	20	30	10
Average of the 5 subplots	23				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Sand loam clay
Soil Colour	Brown	Site Drainage	Minimal	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness	1		
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov19	MGP BLH

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
TG	Acacia linearifolia	N	1	1	
SG	Acacia spectabilis	N	5		
GG	Aristida ramosa	N	0.1	10	
GG	Austrostipa densiflora	N	0.1	6	
GG	Austrostipa verticillata	N	25		
FG	Calotis cuneifolia	N	0.1	20	
SG	Cassinia sifton	N	10		
FG	Dianella revoluta	N	0.1	2	
SG	Eremophila debilis	N	1		
TG	Eucalyptus blakelyi	N	5	1	
TG	Eucalyptus conica	N	3	1	
TG	Eucalyptus melliodora	N	3	1	
TG	Eucalyptus microcarpa	N	20		
TG	Eucalyptus sideroxylon	N	4	1	
GG	Gahnia aspera	N	3		
OG	Glycine clandestina	N	0.1	20	
FG	Hydrocotyle laxiflora	N	0.1	6	
	Hypochaeris radicata	E	0.1	10	
	Lolium perenne	E	1		
FG	Opercularia diphylla	N	0.1	2	
FG	Oxalis perennans	N	0.1	40	
	Paspalum dilatatum	HTE	1		
FG	Senecio quadridentatus	N	0.1	1	
FG	Solanum spp.	N	0.1	2	
FG	Xerochrysum viscosum	N	0.1	2	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	28/11/2023	Cobbora		Low	Mgp			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov2	Plot dimensions	50x20	Orientation of middle	270	
Easting 709700	Northing 6437704	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	1
	Grasses etc.	7
	Forbs	7
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	11
	Shrubs	1
	Grasses etc.	10.5
	Forbs	1
	Ferns	0
	Other	0
High Threat Weed cover		0.6

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	3
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	10
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	50	40	60	60	50
Average of the 5 subplots	52				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Slight	Soil Surface Texture	Loam
Soil Colour	Red brown	Site Drainage	Slight	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)	2	R	
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness	2	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora	38235_csf_nov2	Mgp

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
	Alternanthera pungens	HTE	0.1	3	
GG	Anthosachne scabra	N	1		
GG	Aristida vagans	N	0.3	20	
GG	Austrostipa scabra	N	3		
GG	Austrostipa verticillata	N	5		
	Bromus diandrus	HTE	0.3	30	
TG	Callitris glaucophylla	N	10		
FG	Calotis lappulacea	N	0.2	20	
	Carthamus lanatus	HTE	0.2	20	
GG	Cynodon dactylon	N	1		
FG	Dichondra repens	N	0.3	1000	
FG	Einadia nutans	N	0.1	20	
TG	Eucalyptus microcarpa	N	1		
FG	Euphorbia drummondii	N	0.1	9	
	Glandularia aristigera	E	0.2	100	
	Hordeum spp.	E	25		
GG	Juncus usitatus	N	0.1	1	
	Lepidium africanum	E	0.1	50	
	Lolium perenne	E	10		
SG	Maireana microphylla	N	1		
	Malva parviflora	E	0.1	5	
	Marrubium vulgare	E	0.1	3	
	Onopordum acanthium subsp.	E	0.1	3	
FG	Pseudognaphalium luteoalbum	N	0.1	6	
FG	Senecio quadridentatus	N	0.1	3	
FG	Sida corrugata	N	0.1	20	
	Sonchus oleraceus	E	0.1	2	
GG	Sporobolus creber	N	0.1	10	
	Vulpia myuros	E	5		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		High	Mgp blh			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov20	Plot dimensions	50x20	Orientation of middle	133	
Easting 712260	Northing 6438585	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	7
	Grasses etc.	6
	Forbs	13
	Ferns	1
	Other	3
Sum of Cover of native vascular plans by growth form group	Trees	30
	Shrubs	14.7
	Grasses etc.	14.6
	Forbs	12.1
	Ferns	0.1
	Other	0.3
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	4
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	0
Length of logs (m)	40
No. trees with hollows	3

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	4	7	2	8	8
Average of the 5 subplots	5.8				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	alluvial brown loam
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	10m

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov20	Mgp blh

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
SG	Acacia decora	N	3		
GG	Aristida ramosa	N	1		
FG	Asperula conferta	N	0.1	100	
GG	Austrostipa densiflora	N	1		
GG	Austrostipa scabra	N	10		
GG	Austrostipa verticillata	N	0.5	20	
FG	Calotis cuneifolia	N	0.1	20	
SG	Cassinia sifton	N	10		
EG	Cheilanthes sieberi	N	0.1	50	
OG	Convolvulus spp.	N	0.1	20	
FG	Dianella revoluta	N	8		
FG	Dichondra repens	N	0.1	500	
SG	Eremophila debilis	N	1		
TG	Eucalyptus blakelyi	N	5		
TG	Eucalyptus conica	N	25		
OG	Glycine clandestina	N	0.1	100	
OG	Grona varians	N	0.1	50	
SG	Hibbertia obtusifolia	N	0.2	10	
FG	Hydrocotyle laxiflora	N	0.1	50	
SG	Leucopogon spp.	N	0.2	2	
SG	Maireana microphylla	N	0.1	2	
SG	Melichrus urceolatus	N	0.2	2	
FG	Opercularia diphylla	N	0.1	10	
GG	Rytidosperma fulvum	N	0.1	5	
GG	Rytidosperma pallidum	N	2		
FG	Sida corrugata	N	0.1	8	
FG	Stackhousia muricata	N	0.1	20	
FG	Swainsona spp.	N	0.1	8	
FG	Vittadinia spp.	N	0.1	3	
FG	Wahlenbergia luteola	N	0.1	10	
FG	Wahlenbergia stricta	N	0.1	20	
FG	Xerochrysum viscosum	N	3		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Moderate	Mgp blh			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov21	Plot dimensions	50x20	Orientation of middle	45	
Easting 712065	Northing 6437416	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		440				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	7
	Grasses etc.	9
	Forbs	5
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	31
	Shrubs	13.5
	Grasses etc.	16.6
	Forbs	0.5
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	2
30 - 49 cm	7
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	0
Length of logs (m)	53
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	5	10	30	20	40
Average of the 5 subplots	21				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Low rise	Soil Surface Texture	Sandy loam
Soil Colour	Dark brown	Site Drainage	Moderate	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov21	Mgp blh

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida calycina	N	2		
GG	Austrostipa densiflora	N	1		
GG	Austrostipa scabra	N	7		
GG	Austrostipa setacea	N	0.1	10	
GG	Austrostipa verticillata	N	0.2	5	
TG	Callitris endlicheri	N	15		
FG	Calotis lappulacea	N	0.1	1	
SG	Cassinia laevis	N	3		
SG	Cassinia sifton	N	10		
FG	Dichondra repens	N	0.1	500	
SG	Dodonaea viscosa	N	0.1	1	
FG	Einadia nutans	N	0.1	30	
TG	Eucalyptus macrorhyncha	N	10		
TG	Eucalyptus sideroxylon	N	6		
GG	Gahnia aspera	N	1		
	Lolium perenne	E	1		
SG	Ozothamnus diosmifolius	N	0.1	1	
GG	Panicum effusum	N	0.1	1	
SG	Phebalium squamulosum	N	0.1	5	
SG	Platysace ericoides	N	0.1	1	
SG	Prostanthera rotundifolia	N	0.1	10	
GG	Rytidosperma pallidum	N	0.2	20	
GG	Sporobolus creber	N	5		
FG	Wahlenbergia spp.	N	0.1	10	
FG	Wahlenbergia stricta	N	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Low	Mgp blh			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov22	Plot dimensions	50x20	Orientation of middle	238	
Easting 711718	Northing 6437432	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	3
	Grasses etc.	4
	Forbs	3
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	20
	Shrubs	1.2
	Grasses etc.	5.4
	Forbs	0.3
	Ferns	0
	Other	0
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	10
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	16
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	40	35	30	20	20
Average of the 5 subplots	29				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Low	Soil Surface Texture	Sandy loam
Soil Colour	Red	Site Drainage	Minimal	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	3	R	
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov22	Mgp blh

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa scabra	N	0.2	20	
GG	Austrostipa verticillata	N	5		
	Brassica spp.	E	0.1	8	
SG	Bursaria spinosa	N	0.1	1	
	Capsella bursa-pastoris	E	0.1	2	
FG	Einadia nutans	N	0.1	10	
TG	Eucalyptus microcarpa	N	20		
FG	Euphorbia drummondii	N	0.1	3	
GG	Gahnia aspera	N	0.1	1	
	Hordeum leporinum	E	0.1	10	
SG	Lissanthe strigosa	N	0.1	2	
	Lolium perenne	E	0.2	20	
SG	Maireana microphylla	N	1		
GG	Rytidosperma spp.	N	0.1	1	
FG	Sida corrugata	N	0.1	6	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	30/11/2023	Cobbora		Moderate	Mgp blh			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov23	Plot dimensions	50x20	Orientation of middle	100	
Easting 711171	Northing 6437901	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		599				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	3
	Shrubs	1
	Grasses etc.	7
	Forbs	7
	Ferns	1
	Other	3
Sum of Cover of native vascular plans by growth form group	Trees	22
	Shrubs	0.1
	Grasses etc.	32.2
	Forbs	2
	Ferns	0.1
	Other	0.3
High Threat Weed cover		0

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	3
30 - 49 cm	6
20 - 29cm	1
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	48
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	15	5	10	15
Average of the 5 subplots	11				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Drainage through site at approx 38m	Soil Surface Texture	Alluvial sandy loam
Soil Colour	Red	Site Drainage	High	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	30/11/2023	Cobbora	38235_csf_nov23	Mgp blh

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Aristida ramosa	N	1		
GG	Austrostipa scabra	N	5		
GG	Austrostipa verticillata	N	20		
GG	Carex inversa	N	0.1	6	
EG	Cheilanthes sieberi subsp.	N	0.1	10	
OG	Convolvulus spp.	N	0.1	5	
FG	Dichondra repens	N	0.5	1000	
FG	Einadia nutans	N	0.1	20	
TG	Eucalyptus blakelyi	N	1		
TG	Eucalyptus melliodora	N	15		
TG	Eucalyptus microcarpa	N	6		
GG	Gahnia aspera	N	3		
OG	Glycine clandestina	N	0.1	30	
OG	Grona varians	N	0.1	20	
FG	Hydrocotyle laxiflora	N	0.1	20	
	Hypochaeris radicata	E	0.1	8	
GG	Lomandra filiformis	N	0.1	1	
	Lysimachia arvensis	E	0.1	2	
FG	Oxalis perennans	N	0.1	10	
	Paronychia brasiliana	E	0.1	6	
SG	Phyllanthus hirtellus	N	0.1	6	
FG	Plantago debilis	N	0.1	10	
	Polygonum aviculare	E	0.1	5	
FG	Sida corrugata	N	1		
GG	Sporobolus creber	N	3		
FG	Wahlenbergia stricta	N	0.1	1	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	28/11/2023	Cobbora		Moderate	Mgp			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov3	Plot dimensions	50x20	Orientation of middle	283	
Easting 710945	Northing 6437701	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence H	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	1
	Grasses etc.	4
	Forbs	5
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	17
	Shrubs	0.1
	Grasses etc.	42.3
	Forbs	0.5
	Ferns	0
	Other	0
High Threat Weed cover		0.2

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	1
30 - 49 cm	1
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	0
No. trees with hollows	1

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	25	70	65	50	50
Average of the 5 subplots	52				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	Slight	Soil Surface Texture	Brown loam
Soil Colour	Brown	Site Drainage	Nil	Distance to nearest water	

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)			
Cultivation (inc. pasture)	1		Adjacent to cropped paddock
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora	38235_csf_nov3	Mgp

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa scabra subsp. scabra	N	5		
GG	Austrostipa verticillata	N	30		
	Avena fatua	E	0.3	50	
GG	Bothriochloa macra	N	0.3	50	
	Bromus hordeaceus	E	0.1	20	
TG	Callitris glaucophylla	N	7		
	Carthamus lanatus	HTE	0.2	50	
FG	Dichondra repens	N	0.1	200	
	Echium plantagineum	E	0.1	5	
TG	Eucalyptus microcarpa	N	10		
FG	Euphorbia drummondii	N	0.1	10	
FG	Goodenia hederacea subsp.	N	0.1	7	
	Hypochaeris radicata	E	0.1	10	
	Lolium perenne	E	10		
SG	Maireana microphylla	N	0.1	1	
	Schkuhria pinnata var.	E	0.1	10	
FG	Sida corrugata	N	0.1	7	
GG	Sporobolus creber	N	7		
	Trifolium arvense	E	0.1	10	
FG	Wahlenbergia stricta	N	0.1	8	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	28/11/2023	Cobbora Solar Farm		Moderate	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov4	Plot dimensions	50x20	Orientation of middle	190	
Easting 708878	Northing 6445608	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	4
	Grasses etc.	9
	Forbs	4
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	17
	Shrubs	2.4
	Grasses etc.	24.7
	Forbs	0.4
	Ferns	0.1
	Other	0.1
High Threat Weed cover		0.5

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	1
10 - 19 cm	1
5 - 9 cm	1
< 5 cm	1
Length of logs (m)	8
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	30	80	20	40
Average of the 5 subplots	38				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	2 degrees NNE aspect	Soil Surface Texture	Clay loam
Soil Colour	Red brown	Site Drainage	Moderate	Distance to nearest water	300 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora Solar Farm	38235_csf_nov4	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.2	20	
GG	Aristida calycina	N	0.1	1	
GG	Austrostipa scabra	N	3		
GG	Austrostipa verticillata	N	5		
GG	Bothriochloa macra	N	1		
FG	Calotis cuneifolia	N	0.1	7	
FG	Calotis lappulacea	N	0.1	40	
SG	Cassinia sifton	N	2		
EG	Cheilanthes sieberi	N	0.1	10	
FG	Dichondra repens	N	0.1	300	
	Echium plantagineum	E	0.1	2	
GG	Eragrostis leptostachya	N	0.2	20	
TG	Eucalyptus melliodora	N	2		
TG	Eucalyptus microcarpa	N	15		
GG	Fimbristylis dichotoma	N	0.1	10	
OG	Glycine clandestina	N	0.1	30	
	Hypericum perforatum	HTE	0.5	10	
	Lolium perenne	E	1		
SG	Maireana microphylla	N	0.1	1	
SG	Melichrus urceolatus	N	0.2	2	
GG	Panicum simile	N	0.1	5	
SG	Pultenaea foliolosa	N	0.1	1	
FG	Sida corrugata	N	0.1	10	
GG	Sporobolus creber	N	15		

BAM Plot Data Sheet							Site Sheet no:1 of 2
		Survey Name		Veg Zone ID	Recorders		
Date	28/11/2023	Cobbora Solar Farm		Moderate	MGP & DM		
Zone 55	Datum GDA94	Plot ID	38235_csf_nov5	Plot dimensions	50x20	Orientation of middle	70
Easting 708369	Northing 6444765	IBRA region	Brigalow Belt South	Photo #			
Plant Community Type		201				EEC: None	Confidence M

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	2
	Shrubs	2
	Grasses etc.	1
	Forbs	7
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	11
	Shrubs	5.1
	Grasses etc.	15
	Forbs	0.7
	Ferns	0
	Other	0
High Threat Weed cover		0.1

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	0
50 - 79 cm	2
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	17
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	40	80	5	30	20
Average of the 5 subplots	35				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	125 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	NR	
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora Solar Farm	38235_csf_nov5	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Austrostipa verticillata	N	15		
	Brassica spp.	E	0.1	20	
FG	Calotis lappulacea	N	0.1	10	
	Capsella bursa-pastoris	E	0.1	10	
	Carthamus lanatus	HTE	0.1	10	
	Centaurea solstitialis	E	0.1	10	
FG	Dichondra repens	N	0.1	100	
FG	Dysphania pumilio	N	0.1	3	
	Echium plantagineum	E	4		
FG	Einadia nutans	N	0.1	20	
FG	Einadia trigonos	N	0.1	10	
TG	Eucalyptus conica	N	10		
TG	Eucalyptus melliodora	N	1	1	
	Hordeum leporinum	E	40		
	Lepidium africanum	E	0.1	50	
SG	Maireana microphylla	N	5		
	Marrubium vulgare	E	3		
	Modiola caroliniana	E	0.1	3	
	Opuntia stricta	E	0.1	2	
FG	Rumex brownii	N	0.1	5	
SG	Sclerolaena birchii	N	0.1	1	
	Sonchus oleraceus	E	0.1	20	
FG	Urtica incisa	N	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	28/11/2023	Cobbora Solar Farm		Low	MGP & DM			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov6	Plot dimensions	50x20	Orientation of middle	160	
Easting 707659	Northing 6445651	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		81				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	1
	Grasses etc.	7
	Forbs	7
	Ferns	1
	Other	1
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	3
	Grasses etc.	8.2
	Forbs	50.6
	Ferns	0.1
	Other	0.1
High Threat Weed cover		10

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	10	20	10	10	20
Average of the 5 subplots	14				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	1 degree SSW aspect	Soil Surface Texture	Clay loam
Soil Colour	Red brown	Site Drainage	Good	Distance to nearest water	250 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	2	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	1	R	
Fire damage			
Storm damage			
Weediness	2	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	28/11/2023	Cobbora Solar Farm	38235_csf_nov6	MGP & DM

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	1		
GG	Aristida vagans	N	1		
GG	Austrostipa densiflora	N	1		
GG	Austrostipa scabra	N	2		
GG	Austrostipa verticillata	N	1		
GG	Bothriochloa macra	N	0.2	20	
	Brassica spp.	E	0.3	20	
	Bromus catharticus	E	0.4	20	
FG	Calotis lappulacea	N	0.1	8	
EG	Cheilanthes sieberi	N	0.1	20	
	Chondrilla juncea	E	0.1	2	
OG	Convolvulus spp.	N	0.1	30	
	Conyza bonariensis	E	0.1	2	
	Echium plantagineum	E	0.3	20	
FG	Einadia nutans	N	50		
FG	Euphorbia drummondii	N	0.1	20	
	Glandularia aristigera	E	0.1	7	
	Hypericum perforatum	HTE	10		
	Hypochaeris radicata	E	0.5	100	
	Lolium perenne	E	20		
	Lysimachia arvensis	E	0.1	10	
SG	Maireana microphylla	N	3		
	Modiola caroliniana	E	0.3	10	
FG	Oxalis perennans	N	0.1	100	
FG	Rumex brownii	N	0.1	10	
	Salvia verbenaca	E	7		
FG	Sida corrugata	N	0.1	10	
	Sonchus oleraceus	E	0.5	20	
GG	Sporobolus creber	N	2		
	Trifolium arvense	E	1		
	Trifolium repens	E	1		
	Verbascum spp.	E	0.1	2	
	Verbena bonariensis	E	15		
FG	Wahlenbergia stricta	N	0.1	5	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Moderate	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov7	Plot dimensions	50x20	Orientation of middle	160	
Easting 707793	Northing 6442830	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		201				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	2
	Grasses etc.	7
	Forbs	3
	Ferns	1
	Other	2
Sum of Cover of native vascular plans by growth form group	Trees	15
	Shrubs	0.4
	Grasses etc.	24.4
	Forbs	10.7
	Ferns	0.1
	Other	0.2
High Threat Weed cover		4

BAM Attribute (1000m2 plot)	
DBH	# Tree Stems Count
80+ cm	1
50 - 79 cm	2
30 - 49 cm	2
20 - 29cm	0
10 - 19 cm	1
5 - 9 cm	0
< 5 cm	1
Length of logs (m)	24
No. trees with hollows	1

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	60	80	20	40	30
Average of the 5 subplots	46				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern		Slope	0	Soil Surface Texture	Loam
Soil Colour	Brown	Site Drainage	Poor	Distance to nearest water	200 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	O	Fringing paddockx cleared and old logs stacked up
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock			
Fire damage			
Storm damage			
Weediness	1	R	
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov7	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Anthosachne scabra	N	0.1	10	
GG	Austrostipa scabra	N	1		
GG	Austrostipa verticillata	N	20		
	Brassica spp.	E	0.3	20	
	Bromus catharticus	E	2		
FG	Calotis lappulacea	N	0.1	2	
EG	Cheilanthes sieberi	N	0.1	20	
OG	Convolvulus spp.	N	0.1	2	
GG	Cyperus gracilis	N	0.1	10	
FG	Einadia nutans	N	0.6	100	
SG	Eremophila debilis	N	0.2	6	
TG	Eucalyptus conica	N	15		
OG	Glycine clandestina	N	0.1	20	
GG	Juncus spp.	N	2		
	Lolium perenne	E	10		
SG	Maireana microphylla	N	0.2	3	
GG	Microlaena stipoides	N	0.2	50	
	Opuntia stricta	E	0.1	2	
	Paspalum dilatatum	HTE	4		
GG	Rytidosperma pallidum	N	1		
FG	Sida corrugata	N	10		
	Vulpia myuros	E	1		

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Low	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov8	Plot dimensions	50x20	Orientation of middle	30	
Easting 708420	Northing 6443316	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		281				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	1
	Shrubs	0
	Grasses etc.	7
	Forbs	1
	Ferns	0
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	8
	Shrubs	0
	Grasses etc.	26.8
	Forbs	0.1
	Ferns	0
	Other	0
High Threat Weed cover		25

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	1
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	9
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	40	20	30	20
Average of the 5 subplots	26				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern	Drainage line	Slope	0	Soil Surface Texture	Loam
Soil Colour	Dull brown	Site Drainage	Poor	Distance to nearest water	60 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness			
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov8	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
	Brassica spp.	E	0.2	20	
	Bromus catharticus	E	1		
	Capsella bursa-pastoris	E	0.1	20	
GG	Carex appressa	N	15		
GG	Carex inversa	N	0.1	50	
	Cyclospermum leptophyllum	E	0.1	10	
GG	Cynodon dactylon	N	10		
GG	Cyperus difformis	N	0.5	30	
GG	Cyperus gracilis	N	0.1	5	
	Echium plantagineum	E	0.1	20	
TG	Eucalyptus melliodora	N	8		
	Hypochaeris radicata	E	0.1	20	
GG	Juncus usitatus	N	1		
GG	Lachnagrostis filiformis	N	0.1	10	
FG	Laxmannia gracilis	N	0.1	10	
	Lepidium africanum	E	0.1	50	
	Lolium perenne	E	20		
	Paspalum dilatatum	HTE	25		
	Polygonum aviculare	E	0.1	10	
	Schkuhria pinnata var.	E	0.1	30	
	Sonchus oleraceus	E	0.1	10	
	Taraxacum officinale	E	0.1	10	

BAM Plot Data Sheet								Site Sheet no: 1 of 2
		Survey Name		Veg Zone ID	Recorders			
Date	29/11/2023	Cobbora Solar Farm		Other	DM & MGP			
Zone 55	Datum GDA94	Plot ID	38235_csf_nov9	Plot dimensions	50x20	Orientation of middle	20	
Easting 708749	Northing 6443382	IBRA region	Brigalow Belt South	Photo #				
Plant Community Type		0				EEC: None	Confidence M	

BAM Attribute (400m2 plot)		Sum values
Count of Native Richness	Trees	0
	Shrubs	0
	Grasses etc.	8
	Forbs	2
	Ferns	1
	Other	0
Sum of Cover of native vascular plans by growth form group	Trees	0
	Shrubs	0
	Grasses etc.	24.4
	Forbs	0.2
	Ferns	0.1
	Other	0
High Threat Weed cover		12

BAM Attribute (1000m2 plot)	# Tree Stems Count
DBH	
80+ cm	0
50 - 79 cm	0
30 - 49 cm	0
20 - 29cm	0
10 - 19 cm	0
5 - 9 cm	0
< 5 cm	0
Length of logs (m)	0
No. trees with hollows	0

BAM Attibute (1 x 1m plots)	Litter cover (%)				
Subplot score (% in each)	20	10	10	5	5
Average of the 5 subplots	10				

Notes	

Physiography + site features that may help in determining PCT and Management Zone

Landform Pattern	Low plain	Slope	0	Soil Surface Texture	Clay loam
Soil Colour	Brown	Site Drainage	Moderate	Distance to nearest water	250 metres

Plot Disturbance	Severity code	Age code	Observational evidence
Clearing inc. logging)	3	O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/livestock	2	R	
Fire damage			
Storm damage			
Weediness	1		
Other			

400 m2 plot: Sheet 2 of 2		**Survey Name**	**Plot ID**	**Recorders**
Date	29/11/2023	Cobbora Solar Farm	38235_csf_nov9	DM & MGP

GF Code	Genus species	N,E or HTE	Cover	Abund	Stratum
GG	Bothriochloa macra	N	2		
	Bromus hordeaceus	E	1		
GG	Carex appressa	N	10		
	Carthamus lanatus	HTE	2		
EG	Cheilanthes sieberi	N	0.1	10	
GG	Cynodon dactylon	N	1		
GG	Cyperus difformis	N	0.3	20	
FG	Dichondra repens	N	0.1	20	
GG	Fimbristylis dichotoma	N	0.1	20	
	Hypochaeris radicata	E	10		
GG	Juncus subsecundus	N	5		
GG	Juncus usitatus	N	1		
	Lolium perenne	E	25		
	Lysimachia arvensis	E	0.1	20	
FG	Oxalis perennans	N	0.1	100	
	Paspalum dilatatum	HTE	10		
GG	Sporobolus creber	N	5		
	Taraxacum officinale	E	0.1	3	
	Tolpis barbata	E	0.1	1	
	Verbena bonariensis	E	0.2	6	
	Vulpia myuros	E	0.5	50	

Appendix 4 Fauna

Table A 5: Fauna species recorded at the subject land

Scientific Name	Common Name	EPBC Act status	NSW status
Birds			
Struthidea cinerea	Apostlebird		
Alisterus scapularis	Australian King-Parrot		
Gymnorhina tibicen	Australian Magpie		
Corvus coronoides	Australian Raven		
Acrocephalus australis	Australian Reed-Warbler		
Chenonetta jubata	Australian Wood Duck		
Pica pica	Black-billed Magpie		
Coracina novaehollandiae	Black-faced Cuckoo-shrike		
Falco berigora	Brown Falcon		
Cincloramphus cruralis	Brown Songlark		
Phaps chalcoptera	Common Bronzewing		
Sturnus vulgaris	Common Starling		
Ocyphaps lophotes	Crested Pigeon		
Stagonopleura guttata	Diamond Firetail	V	V
Platycercus eximius	Eastern Rosella		
Dromaius novaehollandiae	Emu		
Cacomantis flabelliformis	Fan-tailed Cuckoo		
Eolophus roseicapilla	Galah		
Cracticus torquatus	Grey Butcherbird		
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)		V
Microeca fascinans	Jacky Winter		
Dacelo novaeguineae	Laughing Kookaburra		
Corvus bennetti	Little Crow		
Philemon citreogularis	Little Friarbird		
Grallina cyanoleuca	Magpie-lark		
Falco cenchroides cenchroides	Nankeen Kestrel		
Philemon corniculatus	Noisy Friarbird		
Manorina melanocephala	Noisy Miner		
Anas superciliosa	Pacific Black Duck		
Cracticus nigrogularis	Pied Butcherbird		
Anthochaera carunculata	Red Wattlebird		
Psephotus haematonotus	Red-rumped Parrot		
Aprosmictus erythropterus	Red-winged Parrot		
Cincloramphus mathewsi	Rufous Songlark		
Pachycephala rufiventris	Rufous Whistler		
Ninox novaeseelandiae	Southern Boobook		

Scientific Name	Common Name	EPBC Act status	NSW status
Chthonicola sagittata	Speckled Warbler		
Pardalotus punctatus	Spotted Pardalote		
Pardalotus striatus	Striated Pardalote		
Cacatua galerita	Sulphur-crested Cockatoo		
Malurus cyaneus	Superb Fairy-wren		
Polytelis swainsonii	Superb Parrot	V	V
Podargus strigoides	Tawny Frogmouth		
Raptor sp.	Unidentified Raptor		
Sericornis frontalis	White-browed Scrubwren		
Ardea pacifica	White-necked Heron		
Melithreptus albogularis	White-throated Honeyeater		
Cormobates leucophaea	White-throated Treecreeper		
Corcorax melanorhamphos	White-winged Chough		
Lalage sueurii	White-winged Triller		
Rhipidura leucophrys	Willie Wagtail		
Acanthiza chrysorrhoa	Yellow-rumped Thornbill		
Manorina flavigula	Yellow-throated Miner		
Mammals			
Lepus capensis occidentalis	Brown Hare		
Rabbit sp.	Brown Hare\Rabbit		
Chalinolobus morio	Chocolate Wattled Bat		
Pseudocheirus peregrinus	Common Ringtail Possum		
Ozimops ridei	Eastern Free-tailed Bat		
Macropus giganteus	Eastern Grey Kangaroo		
Chalinolobus gouldii	Gould's Wattled Bat		
Scotorepens balstoni	Inland Broad-nosed Bat		
Miniopterus orianae oceanensis	Large Bent-winged Bat		
Vespadelus darlingtoni	Large Forest Bat		
Scotorepens greyii	Little Broad-nosed Bat		
Vespadelus vulturnus	Little Forest Bat		
Ozimops lumsdenae	Northern Free-tailed Bat		V
Oryctolagus cuniculus	Rabbit		
Osphranter rufus	Red Kangaroo		
Ozimops planiceps	South-eastern Free-tailed Bat		
Vespadelus regulus	Southern Forest Bat		
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat		V
Trichosurus sp.	brushtail possum		
Reptiles			
Amphibolurus muricatus	Jacky Lizard		
Varanus varius	Lace Monitor		
Furina ornata	Orange-naped Snake		

Scientific Name	Common Name	EPBC Act status	NSW status
Pseudechis porphyriacus	Red-bellied Black Snake		
Ctenotus robustus	Robust Ctenotus		
Nebulifera robusta	Robust Velvet Gecko		
Morethia boulengeri	South-eastern Morethia Skink		
Carlia tetradactyla	Southern Rainbow-skink		
Pseudechis guttatus	Spotted Black Snake		
Diplodactylus vittatus	Wood Gecko		
Frogs			
Litoria latopalmata	Broad-palmed Frog		
Crinia signifera	Common Eastern Froglet		
Litoria rubella	Desert Tree Frog		
Limnodynastes dumerilii	Eastern Banjo Frog		
Platyplectrum ornatum	Ornate Burrowing Frog		
Litoria peronii	Peron's Tree Frog		

Appendix 5 SAII

Appendix 5.1 White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The Box Gum Woodlands (PCT 281 and 599) is listed as a CEEC under EPBC Act and BC Act. The CEEC is listed in the BioNet Threatened Biodiversity Data Collection as an entity potentially subject to Serious and Irreversible Impact (SAII) in NSW. The CEEC is considered an entity at risk of SAII based on the following principles (DPIE 2019):

Principle 1: an ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.

Principle 2: an ecological community that is observed, inferred or reasonably suspected to be severely degraded or disturbed.

Given the absence of definitive impact thresholds stated for the community, the potential for a SAII will be determined by the consent authority, guided by the additional assessment provided below in Table A.1.

Table A.1 Assessment of SAII for Box Gum Woodlands CEEC

<table>
<tr><th>Information required (BAM Section 9.1.1)</th><th>Response</th></tr>
<tr><td>1. Impacts to the CEEC and the action and measures taken to avoid the direct and indirect impact on the CEEC at risk of an SAII.</td><td>Impacts to BC Act Box Gum Woodlands under the current proposal include 108.44 ha of the CEEC in various conditions outlined below.

Table A.2 BC Act Box Gum Woodland zones development footprint
<table>
<tr><th>PCT</th><th>Zone</th><th>Area (ha)</th><th>VI score</th></tr>
<tr><td>281</td><td>Low</td><td>42.30</td><td>32.2</td></tr>
<tr><td>281</td><td>Moderate</td><td>9.25</td><td>67.2</td></tr>
<tr><td>599</td><td>DNG</td><td>56.88</td><td>14.4</td></tr>
</table>
Measures undertaken by the Applicant to avoid and minimize impact to the CEEC are provided in the BDAR within section 5. Specifically, the final footprint has been selected, in part, to avoid and minimise impacts to the native vegetation and flora and fauna habitats present within the subject land as much as constructability constraints would allow.
The final footprint has been sited to avoid complete removal of the community within the subject land, with retention of 58.3% of this TEC within the subject land, amounting to around 151.55 ha. The majority of the impact to this CEEC occurs across low and DNG zones (with VI scores of 32.2 and 14.4 respectively), with higher condition zones avoided and over 80% of moderate condition zones avoided, outlined below.</td></tr>
</table>

Information required (BAM Section 9.1.1)	Response

Table A.3 BC Act Box Gum Woodland % of zones retained

PCT	Zone	VI Score	SL (ha)	DF (ha)	% Retained
281	Low	32.2	87.94	42.30	51.89
281	Moderate	67.2	46.84	9.25	80.25
599	DNG	14.4	90.12	56.88	36.99
599	High	100*	4.97	0.00	100.00
599	Moderate	82.5	30.21	0.00	99.67

*Benchmark data used as part of the assessment.

Removal of this TEC within the development footprint currently occurs on the fringing edges of larger patches to be retained, an alongside a few isolated patches. Impacts are largely restricted to lower condition areas,91% of which is classified as ow condition and 52 % of which have been assessed to have a VI Score of 14.4, which is considered of such low condition and ecological integrity that offsets are not required under the BOS. Key areas of connectivity and moderate/high condition zones will be retained. The proposed works is not expected to impact the overall long-term viability of this TEC within the subject land or broader assessment area.

The area of Box-Gum Woodland proposed for removal amounts to around 3.65% of the potential 2,973.71 ha of mapped vegetation associated with Box-Gum Woodland within 10km of the subject land.

2a. evidence of reduction in geographic distribution, as the current total geographic extent of the CEEC in NSW and the estimated reduction in geographic extent of the CEEC since 1970 (not including impacts of the proposal). TBDC or other sources. (SAII Principle 1)

Species and ecological communities that have undergone large reductions or are likely to undergo large reductions in the future are considered to be at greater risk of extinction than those that have undergone or are likely to undergo smaller reductions (NSW Threatened Species Scientific Committee 2018).

To be considered under this principle, the ecological community should have been observed, estimated, inferred, or reasonably suspected to have undergone, or be projected to undergo, a very large reduction in distribution, being:

- ≥80% reduction where the reduction is over a 50-year period (i.e., since 1970), either in the past, future, or any part of the past, present and future (DPIE 2019).

The CEEC originally occurred extensively in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria (Beadle 1981). However, there are significant gaps in the knowledge about both the historic and current extent of its geographic distribution. Box Gum Woodlands has been extensively cleared for across its range for agriculture. The Committee judge that less than 5 % of the original extent of the ecological remains of sufficient condition and size to being included in the listed CEEC, having undergone a decline of 95 % or more.

Whilst there is no guidance as to the proportion of this reduction in distribution that has occurred in the last 50 years (i.e. since 1970), the fact that the CEEC is noted in the SAII guidance document (DPIE 2019) as being subject to Principle 1, infers that it has occurred in recent times, and therefore at a rapid rate.

According to existing vegetation mapping by DPIE (DPIE 2016) and the listing advice for Box Gum Woodlands (Threatened Species Scientific Committee 2006), the

Information required (BAM Section 9.1.1)	Response
	current extent of the CEEC is approximately 416,325 ha. The original extent of the CEEC is uncertain but is estimated to have been approximately 5,011,655 ha pre-European settlement. This is a total reduction of approximately 92 %, however this number is considered an under-estimate of the decline of the CEEC.
2b. extent of reduction in ecological function for the CEEC using evidence that describes the degree of environmental degradation or disruption to biotic processes. (SAII Principle 2)	Reduction in ecological function relates to the IUCN principle of "very small population size" which for ecological communities means communities have very high levels of either environmental degradation or disruption of biotic processes, and interactions have an increased risk of failure to sustain their characteristic native species assemblages (Bland et al. 2016). Ecological communities that are considered to have a very large degree of environmental degradation or disruption of biotic processes or interactions are those with: • ≥90% extent and severity where the disruption or impacts are measured since 1970. • ≥80% extent and severity where the disruption or impacts are over a 50-year period, either in the past, future, or any part of the past, present and future (as per (Bland et al. 2016) (DPIE 2019). **A. change in community structure and, ii. Change in species composition.** Since European settlement the community has been largely cleared and thinned across its original extent for agriculture. The remaining extent of the CEEC is highly fragmented, occurring in small, isolated patches within a cleared environment, or within a landscape of other disturbed woodlands. The structure of the community in high quality patches remains relatively unchanged, however these instances are estimated to be less than 5 % of the original extent. A large proportion of remaining Box Gum Woodlands has been highly modified and have been impacted through removal of understorey and thinning of canopy species, resulting in some areas consisting only of scattered trees. Impacts such as weed invasion, dumping, soil compaction and altered hydrology have also drastically degraded the original structure of the CEEC. It can be inferred that the CEEC as a whole has undergone substantial changes to community structure and species composition. **iii. disruption of ecological processes, iv. Invasion and establishment of exotic species, v. degradation of habitat, and vi fragmentation of habitat** The BC Act Final Determination for the community states that it has undergone a very large reduction in geographic distribution, having been extensively cleared throughout its range (TSSC 2006). Much of the remaining patches of the CEEC consist of small, isolated and highly fragmented patches in predominantly cleared landscapes and exhibit highly modified understory. Continuing threats to the community include clearing for agricultural land use, grazing of domestic stock, invasion by exotic species, water pollution and fragmentation. Historical clearing and thinning of this community have resulted in the degradation of habitat within the region by reducing the available areas of intact native vegetation. Removal of vegetation includes follow-on effects such as lowering potential hollow recruitment as trees senesce and die, leading to reduced resources for fauna species. Habitat across the distribution of Box Gum

Information required (BAM Section 9.1.1)	Response
	Woodlands is highly fragmented due to land clearing, farming and rural development. Whilst there is no guidance as to the proportion of the degradation that has occurred in the last 50 years (i.e. since 1970), the fact that the CEEC is noted in the SAII guidance document (DPIE 2019) as being subject to Principle 2, infers that it has occurred in recent times.
2c. evidence of restricted geographic distribution, based on the CEEC's geographic range in NSW. **(SAII Principle 3)**	**A. extent of occurrence, ii. Area of occupancy, and iii. Number of threat-defined locations** The geographical distribution of ecological communities is defined by the area of occupancy (sensu Bland et al. 2016). Ecological communities with a very limited geographic distribution have an area of occupancy of less than or equal to two 10 x 10 km grid cells (200 km^2) or an extent of occurrence of ≤1000 km^2 (sensu Bland et al. 2016) and one of the following: • An observed or inferred continuing decline in: – A measure of spatial extent appropriate to the ecological community. – A measure of environmental quality appropriate to characteristic biota of the ecological community. – A measure of disruption to biotic interactions appropriate to the characteristic biota of the ecological community. • Observed or inferred threatening processes that are likely to cause continuing declines in geographic distribution, environmental quality or biotic interactions within the next 20 years. • An ecological community exists at one location (DPIE 2019). The extent of occurrence of Box Gum Woodlands is very large, occurring along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria (Threatened Species Scientific Committee 2006). The total extent of occurrence is approximately 416,325 ha, and its area of occupancy is unknown, but is expected to be severely impacted by clearing and degradation. Although there is evidence to suggest that the overall area of occupancy of the CEEC has declined, the CEEC cannot be observed, inferred or reasonably suspected to meet the first criteria listed above, for having a restricted geographic distribution. Overall, the ecological community is subject to a range of ongoing threats including clearing, fragmentation and other damage associated with inappropriate fire regimes, weed invasion, nutrient loading and changes to hydrology. These threats are expected to increase, and the effects of climate change is also likely to exacerbate the severity of many existing threats. However, Box Gum Woodlands, in its current state, is considered unlikely to be a CEEC with a restricted geographic distribution, thus the ecological community does not meet SAII Principle 3.
2d. evidence that the CEEC is unlikely to respond to management. **(SAII Principle 4)**	There is currently no evidence to suggest that Box Gum Woodlands is unlikely to respond to management. Those entities listed as unlikely to respond to management (and thus are irreplaceable) tend to include species where the ability to control key threats is negligible and known reproductive characteristics that severely limit their ability to increase the existing population (DPIE 2019). Ecological communities as a whole do not align well with these criteria, and specifically Box Gum Woodlands CEEC does not exhibit either of these traits, thus it does not meet

Information required (BAM Section 9.1.1)	Response
	SAII Principle 4.
3. Where the TBDC indicates data is 'unknown' or 'data deficient' for a CEEC, the assessor must record this in the BDAR or BCAR.	• Not applicable.
4a. the impact on the geographic extent of the CEEC, by estimating the total area of the CEEC to be impacted by the proposal.	As discussed above, the current extent of occurrence of Box Gum Woodlands is approximately 416,325 ha. The CEEC is known to occur from the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria. The proposed development will result in the removal of approximately 108.44 ha of the CEEC, predominantly very low ecological condition. The total area of the CEEC to be impacted by the proposal equates to 0.02% of total area of Box Gum Woodlands within NSW and 3.65% within 10km of the subject land. Within NSW there is around 58,864 ha of PCT 281 and PCT 599, the impacts within the development footprint equate to around 0.18% of this area. Indirect impacts from the current proposal are low given mitigation measures, including preparation of a CEMP, will be implemented.
4b. the extent that the proposed impacts are likely to contribute to further environmental degradation or the disruption of biotic processes of the CEEC.	**A. estimating the size of any remaining, but now isolated, areas of the CEEC, including areas of the CEEC within 500 m of the development footprint or equivalent area for other types of proposals.** According to existing vegetation mapping by DPIE (DPIE 2016), and initial reporting for the proposed developments south, east and north of the subject land, there are several patches of Box Gum Woodlands remaining within 500 m of the subject land. Within a 500 m buffer there is around 309.8 ha of PCT 281 and PCT 599. Several large, higher-quality patches of the CEEC are present within the local area, and within areas avoided by the proposed works within and adjacent to the subject land. Many of these areas are physically connected to the subject land. **ii. describing the impacts on connectivity and fragmentation of the remaining areas of CEEC measured by:** • **distance between isolated areas of the CEEC, presented as the average distance if the remnant is retained AND the average distance if the remnant is removed as proposed, and** • **estimated maximum dispersal distance for native flora species characteristic of the CEEC, and** • **other information relevant to describing the impact on connectivity and fragmentation, such as the area to perimeter ratio for remaining areas of the CEEC as a result of the development.** Several remnant patches of Box Gum Woodlands are mapped across the subject land that are directly connected to vegetation within the subject land. The connectivity within the landscape surrounding the subject land is high, with connectivity provided via vegetated road reserves, riparian areas and the large tract of vegetation directly to the east. Native flora species with wind-borne genetic material, pollinated by larger flying

Information required (BAM Section 9.1.1)	Response
	insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development. The impacted and contagious patches of the CEEC occurs as edged effected remnants, large and medium sized patches and very low condition DNG, and as such the development will not result in substantial changes to the area to perimeter ratio for the retained vegetation. Exotic species were recorded across all patches within the subject land, albeit in lower densities in the higher quality patches. Box Gum Woodlands to be removed within the subject land contain several hollow-bearing trees that provide potential roosting habitat for threatened fauna species. Thus, the proposed development will result in a reduction of habitat features within the subject land. Construction will result in localised disturbance to soil, however hydrology and topography are expected to remain in a similar state. Mitigation measures would ensure that downstream indirect impacts (such as sediment and nutrient transportation) would be controlled and managed appropriately through a CEMP. **iii. describing the condition of the CEEC according to the vegetation integrity score for the relevant vegetation zone(s) (Section 4.3). The assessor must also include the relevant composition, structure and function condition scores for each vegetation zone.** BC Act Box Gum Woodlands within the subject land occurs as PCT 281 and PCT 599 across all condition zones. Diagnostic tree species were identified across all condition states, however the midstory and understorey varied depending on condition, with higher weed densities occurring within the DNG and low condition states. Exotic species accounted for on average a low percentage of the understorey species in the high condition patch of CEEC. The proposed works will alter the community structure and composition of the vegetation to be removed. The vegetation structure and composition within the areas to be retained is expected to remain the same with weed and disease control measures outlined and regulated within the CEMP. The impacts resulting from the current development footprint to the CEEC occurs as two PCTs and various condition states. These include: • PCT 281: – Low: ▪ Composition condition score: 40.0 ▪ Structure condition score: 46.2 ▪ Function condition score: 18 ▪ Presence of hollow-bearing trees: No ▪ VI score: 32.2 – Moderate: ▪ Composition condition score: 80.5 ▪ Structure condition score: 79.1 ▪ Function condition score: 47.7 ▪ Presence of hollow-bearing trees: Yes

Information required (BAM Section 9.1.1)	Response
	▪ VI score: 67.2 • PCT 599: – DNG: ▪ Composition condition score: 49.2 ▪ Structure condition score: 60.6 ▪ Function condition score: 0.8 ▪ Presence of hollow-bearing trees: No ▪ VI score: 14.4 It should be noted that majority of the impacts are to PCT 559 DNG, which occurs in such a poor ecological state that it does not required offsetting under the BOS, as well as PCT281_Low, which is in a highly modified condition state.

Appendix 5.2 Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions

Fuzzy Box Woodland (PCT 201) is listed as an EEC under the BC Act. The EEC is listed in the BioNet Threatened Biodiversity Data Collection as an entity potentially subject to Serious and Irreversible Impact (SAII) in NSW. The EEC is considered an entity at risk of SAII based on the following principles (DPIE 2019):

Principle 1: an ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.

Principle 2: an ecological community that is observed, inferred or reasonably suspected to be severely degraded or disturbed.

Principle 3: an ecological community with a very limited geographic distribution.

Given the absence of definitive impact thresholds stated for the community, the potential for a SAII will be determined by the consent authority, guided by the additional assessment provided below in Table A.4.

Table A.4 Assessment of SAII for Fuzzy Box Woodland EEC

<table>
<tr><th>Information required (BAM Section 9.1.1)</th><th>Response</th></tr>
<tr><td>1. Impacts to the EEC and the action and measures taken to avoid the direct and indirect impact on the EEC at risk of an SAII.</td><td>Impacts to Fuzzy Box Woodlands under the current proposal include 8.71 ha of the EEC in various conditions outlined below.

Table A.5 Fuzzy Box Woodland zones
<table>
<tr><th>PCT</th><th>Zone</th><th>Area (ha)</th><th>VI</th></tr>
<tr><td>201</td><td>Low</td><td>5.91</td><td>80.6*</td></tr>
<tr><td>201</td><td>Moderate</td><td>2.80</td><td>88.8</td></tr>
</table>
*Benchmark data used due to plot number deficiencies in accordance with the BAM. These patches of the EEC remaining in the local area contribute to the long-term viability of the community. This EEC is limited in its distribution, and as such, all areas are considered important.</td></tr>
</table>

Information required (BAM Section 9.1.1)	Response
	Avoidance and minimisation steps have been undertaken as part of the project design, with 86.37 % of this TEC retained within the subject land. The final footprint has been selected, in part, to minimise impacts to the native vegetation and flora and fauna habitats present within the subject land as much as constructability constraints would allow. The majority of impacts to this EEC occur within low condition areas, with 93.41% of the moderate condition zone retained. Impacts are generally placed to occur on the edges of patches incurring an increase in edge effect and minorly reducing patch sizes. Some minor fragmentation within the subject land would occur, however, development proposed in these areas would still be connected by grassland species of PCT 201 beneath panels and overhead cabling. The proposed impacts within the development footprint make up around 2.25% of the 383.35 ha of associated PCTs within 10km of the subject land.
2a. evidence of reduction in geographic distribution, as the current total geographic extent of the EEC in NSW and the estimated reduction in geographic extent of the EEC since 1970 (not including impacts of the proposal). TBDC or other sources. (SAII Principle 1)	Species and ecological communities that have undergone large reductions or are likely to undergo large reductions in the future are considered to be at greater risk of extinction than those that have undergone or are likely to undergo smaller reductions (NSW Threatened Species Scientific Committee 2018). To be considered under this principle, the ecological community should have been observed, estimated, inferred, or reasonably suspected to have undergone, or be projected to undergo, a very large reduction in distribution, being: • ≥80% reduction where the reduction is over a 50-year period (i.e., since 1970), either in the past, future, or any part of the past, present and future (DPIE 2019). It is estimated that less than 5% of the original extent of this EEC remains. With the original extent estimated to cover alluvial soils from the NSW/Victorian border in the south near Albury through to the QLD/NSW border near Goondiwindi, with an east-west distribution reaching out to Bourke in the west and Muswellbrook in the east. The current extent is generally centralized around Dubbo, Narromine, Parkes and Forbs. Whilst there is no guidance as to the proportion of this reduction in distribution that has occurred in the last 50 years (i.e. since 1970), the fact that the EEC is noted in the SAII guidance document (DPIE 2019) as being subject to Principle 1, infers that it has occurred in recent times, and therefore at a rapid rate. According to existing vegetation mapping, NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b), and the listing advice for Fuzzy Box Woodlands (Threatened Species Scientific Committee 2006), the current extent of the EEC is approximately 6,000 ha (30% accuracy). The original extent of the EEC is uncertain but is estimated to have been approximately 28,650 ha pre-European settlement. This is a total reduction of approximately 94 %, however this number is considered an under-estimate of the decline of the EEC.
2b. extent of reduction in ecological function for the EEC using evidence that describes the degree of environmental degradation or disruption to biotic processes. (SAII Principle 2)	Reduction in ecological function relates to the IUCN principle of "very small population size" which for ecological communities means communities have very high levels of either environmental degradation or disruption of biotic processes, and interactions have an increased risk of failure to sustain their characteristic native species assemblages (Bland et al. 2016). Ecological communities that are considered to have a very large degree of environmental degradation or disruption of biotic processes or interactions are

Information required (BAM Section 9.1.1)	Response
	those with: • ≥90% extent and severity where the disruption or impacts are measured since 1970. • ≥80% extent and severity where the disruption or impacts are over a 50-year period, either in the past, future, or any part of the past, present and future (as per (Bland et al. 2016) (DPIE 2019). The Final Determination for this this TEC states *'In view of the above the Scientific Committee is of the opinion that Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions is likely to become extinct in nature in New South Wales unless the circumstances and factors threatening its survival cease to operate'* **B. change in community structure and, ii. Change in species composition.** Since European settlement the community has been largely cleared and thinned across its original extent for agriculture. The remaining extent of the EEC is highly fragmented, occurring in small, isolated patches within a cleared environment, or within a landscape of other disturbed woodlands, with weed invasion. The structure of the community in high quality patches remains relatively unchanged, however these instances are estimated to be less than 5 % of the original extent. A large proportion of remaining Fuzzy Box Woodlands has been highly modified and have been impacted through removal of understorey and thinning of canopy species, resulting in some areas consisting only of scattered trees, derived grassland condition states or fragmentated patches. Impacts such as weed invasion, soil compaction and altered hydrology have also drastically degraded the original structure of the EEC. It can be inferred that the EEC as a whole has undergone substantial changes to community structure and species composition. **iii. disruption of ecological processes, iv. Invasion and establishment of exotic species, v. degradation of habitat, and vi fragmentation of habitat** The BC Act Final Determination for the community states that it has undergone a very large reduction in geographic distribution, having been extensively cleared throughout its range (TSSC 2006). Much of the remaining patches of the EEC consist of small, isolated and highly fragmented patches in predominantly cleared landscapes and exhibit highly modified understory's. Continuing threats to the community include clearing for agricultural land use, grazing of domestic stock, invasion by exotic species, water pollution and fragmentation. Historic clearing and thinning of this community have resulted in the degradation of habitat within the region by reducing the available areas of intact native vegetation. Removal of vegetation includes follow-on effects such as senescence of relict plants, lack of regeneration due to grazing, lack of fire and weed invasion. Whilst there is no guidance as to the proportion of the degradation that has occurred in the last 50 years (i.e. since 1970), the fact that the EEC is noted in the SAII guidance document (DPIE 2019) as being subject to Principle 2, infers that it has occurred in recent times.
2c. evidence of restricted geographic distribution, based on the EEC's geographic range in NSW.	**B. extent of occurrence, ii. Area of occupancy, and iii. Number of threat-defined locations** The geographical distribution of ecological communities is defined by the area of occupancy (sensu Bland et al. 2016). Ecological communities with a very limited

Information required (BAM Section 9.1.1)	Response
(SAII Principle 3)	geographic distribution have an area of occupancy of less than or equal to two 10 x 10 km grid cells (200 km^2) or an extent of occurrence of ≤1000 km^2 (sensu Bland et al. 2016) and one of the following: • An observed or inferred continuing decline in: – A measure of spatial extent appropriate to the ecological community. – A measure of environmental quality appropriate to characteristic biota of the ecological community. – A measure of disruption to biotic interactions appropriate to the characteristic biota of the ecological community. • Observed or inferred threatening processes that are likely to cause continuing declines in geographic distribution, environmental quality or biotic interactions within the next 20 years. • An ecological community exists at one location (DPIE 2019). The extent of occurrence of Fuzzy Box Woodlands is restricted. The total extent of occurrence is approximately 6,000 ha, and its area of occupancy is unknown, but is expected to be severely impacted by clearing and degradation. There is evidence to suggest that the overall area of occupancy of the EEC has declined, the EEC is likely to be observed, inferred or reasonably suspected to meet the first criteria listed above, for having a restricted geographic distribution. The EEC is noted in the SAII guidance document (DPIE 2019) as being subject to Principle 3, confirms this EEC has a restricted distribution.
2d. evidence that the EEC is unlikely to respond to management. **(SAII Principle 4)**	There is currently no evidence to suggest that Fuzzy Box Woodlands is unlikely to respond to management. Those entities listed as unlikely to respond to management (and thus are irreplaceable) tend to include species where the ability to control key threats is negligible and known reproductive characteristics that severely limit their ability to increase the existing population (DPIE 2019). Ecological communities as a whole do not align well with these criteria, and specifically Fuzzy Box Woodlands EEC does not exhibit either of these traits, thus it does not meet SAII Principle 4.
3. Where the TBDC indicates data is 'unknown' or 'data deficient' for a EEC, the assessor must record this in the BDAR or BCAR.	• Not applicable.
4a. the impact on the geographic extent of the EEC, by estimating the total area of the EEC to be impacted by the proposal.	As discussed above, the current extent of occurrence of Fuzzy Box Woodlands is approximately 6,000 ha. The subject land falls within the current extent which is generally centralized around Dubbo, Narromine, Parkes and Forbs. The proposed development will result in the removal of approximately 8.71 ha of the EEC from the subject land as PCT 201. The proposed impacts within the development footprint make up around 2.25% of the 383.35 ha of associated PCTs within 10km of the subject land. The total area of the EEC to be impacted by the proposal equates to 0.14% of the estimated 6,000 ha remaining of this TEC within NSW. This impact occurs in the eastern portion of the EEC's geographic distribution. Indirect impacts from the current proposal are considered unlikely given mitigation measures, including preparation of a CEMP, will be implemented.

Information required (BAM Section 9.1.1)	Response
4b. the extent that the proposed impacts are likely to contribute to further environmental degradation or the disruption of biotic processes of the EEC.	**B. estimating the size of any remaining, but now isolated, areas of the EEC, including areas of the EEC within 500 m of the development footprint or equivalent area for other types of proposals.** According to existing vegetation mapping, NSW State Vegetation Type Map C2.0.M2.1 (NSW DCCEEW 2024b), there are several patches of Fuzzy Box Woodlands (comprising PCT 201) remaining within 500 m of the subject land. These areas equate to around 63.89 ha. Connectivity is present along alluvial areas but is fragmented from agricultural practices. Some connectivity occurs from the subject land to the broader landscape. The proposed development will reduce the presence of this EEC within a 500 m areas, based solely on PCT 201 mapping by 13.5%. **ii. describing the impacts on connectivity and fragmentation of the remaining areas of EEC measured by:** • **distance between isolated areas of the EEC, presented as the average distance if the remnant is retained AND the average distance if the remnant is removed as proposed, and** • **estimated maximum dispersal distance for native flora species characteristic of the EEC, and** • **other information relevant to describing the impact on connectivity and fragmentation, such as the area to perimeter ratio for remaining areas of the EEC as a result of the development.** Remnant patches of Fuzzy Box Woodlands mapped across the subject land are directly connected to vegetation within the subject land. The connectivity within the landscape surrounding the subject land is high, with connectivity provided via riparian and alluvial areas from a network of watercourses and catchment features leading to the Talbragar River in the north. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development. The impacted and contagious patches of the EEC occur as edged effected remnants, large and medium sized patches and low condition areas dominated by grassland, and as such the development will not result in substantial changes to the area to perimeter ratio for the retained vegetation. Exotic species were recorded across all patches within the subject land, albeit in lower densities in the higher quality patches. Construction will result in localised disturbance to soil, however hydrology and topography are expected to remain in a similar state. Mitigation measures would ensure that downstream indirect impacts (such as sediment and nutrient transportation) would be controlled and managed appropriately through a CEMP. **iii. describing the condition of the EEC according to the vegetation integrity score for the relevant vegetation zone(s) (Section 4.3). The assessor must also include the relevant composition, structure and function condition scores**

Information required (BAM Section 9.1.1)	Response
	for each vegetation zone. Fuzzy Box Woodlands within the subject land occurs as PCT 201. This PCT occurs in two condition zones, low and moderate. Diagnostic tree species were identified across all condition states, however the midstory and understorey varied depending on condition, with higher weed densities occurring within the planted and low condition states. The proposed works will alter the community structure and composition of the vegetation to be removed, however, much of the vegetation within the subject land is fragmented by existing infrastructure and agricultural land. The EEC occurs as three PCTs and various condition states. These include: • PCT 201: – Moderate: ▪ Composition condition score: 89.6 ▪ Structure condition score: 90.7 ▪ Function condition score: 86 ▪ Presence of hollow-bearing trees: Yes ▪ VI score: 88.8 – Low: ▪ Composition condition score: 85 ▪ Structure condition score: 90.4 ▪ Function condition score: 68 ▪ Presence of hollow-bearing trees: No ▪ VI score: 80.6* *Benchmark plot data was used in the low condition as a precautionary measure as a result of a plot deficit. This is over inflating the actual condition of this zone which without the inclusion of benchmark plot data has a VI score of 41

Appendix 6 Significant Impact Criteria assessments

The following section provides for Significant Impact Criteria assessments as outlined in the *Matters of National Environmental Significance: Significant impact guidelines 1.1* Commonwealth of Australia) for species that have likelihood of impact or occurrence rated as moderate or uncertain.

Appendix 6.1 Painted Honeyeater *Grantiella picta*

Species background

Painted Honeyeater is listed as vulnerable under the EPBC Act. It has a specialised diet consisting mainly of mistletoe fruits, but also includes nectar (from flowering mistletoe, eucalypts and possibly banksias) and arthropods (DAWE 2021a). Painted Honeyeater is endemic to mainland Australia, found on the inland slopes of the Great Dividing Range from the Grampians, Victoria to Roma, Queensland. The species exhibits dispersive, seasonal north-south movements governed principally by the fruiting of mistletoe (Barea L.P & Watson D.M 2007). Many birds move after breeding to semi-arid regions such as north-eastern South Australia, central and western Queensland, and central Northern Territory.

The species inhabits mistletoes in eucalypt forests, woodlands, riparian woodlands of Black Box and River Red Gum, preferring a higher number of mature trees as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrower strips. The key threat to the species is habitat loss in both breeding and non-breeding habitats. Degraded private lands used for agriculture or grazing provide small opportunities for Painted Honeyeaters to persist in fragmented landscapes, but with many landowners considering mistletoes as a pest their ongoing removal threatens the survival of the species.

Occurrence in subject land

Surveys for eastern Painted Honeyeater were undertaken as part of the diurnal bird surveys. Painted Honeyeater was not recorded during these surveys. PCTs associated with the species were recorded within the subject land however, minimal mistletoe was recorded.

Low quality habitat for this species is present within grazing land, and native woodland and grassland vegetation within PCTs, 440, and 468,

SIC assessment for Painted Honeyeater

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.

SIC assessment for vulnerable species
There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Painted Honeyeater. Important populations of Painted Honeyeater have not been defined in the Commonwealth Conservation Advice (DoE 2015a). There are no recognised subpopulations and due to its dispersive movements it is considered to comprise a single population (Garnett, Szabo, & Dutson 2011). The number of individuals is estimated to be <10,000 and the population is thought to be in decline (DAWE 2021a). As it is considered a single population, individuals occurring within the subject land would be part of an 'important population' for the purpose of the SIC assessment. Factors likely to contribute to a long-term decrease in the size of the important population of the Painted Honeyeater primarily relate to habitat loss, land clearance, and decreased abundance of mistletoe that is a vital foraging and breeding resource for the species. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. An abundance of mistletoe was not observed within the subject land. Within the subject land, 86 ha of which represents potential habitat would be retained. Direct impacts to 194 ha native vegetation would occur as result of the project, 14 ha of which represent potential habitat. The impacts within the development footprint make up around 3.65% of the potential habitat for this species within 10km of the subject land. Although these areas represent potential habitat for Painted Honeyeater, they occur as mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat, and as such are of lesser quality for Painted Honeyeater. No Painted Honeyeaters were recorded in this habitat, and mistletoe was rarely observed. Numerous Painted Honeyeaters were recorded roughly 43 km to the south east of the subject land. This has been taken into account when assessing the relative importance of the areas being removed for Painted Honeyeaters, in line with the recommendations in the National Recovery Plan (DAWE 2021a). Given that Painted Honeyeater prefers large remnants of vegetation and selects nest sites in habitats where mistletoe prevalence and parasitism rates are high, combined with the absence of both current and historic records for the species in the subject land it is considered unlikely that the project would lead to a long-term decrease in the size of the population.
Reduce the area of occupancy of an important population.
The area of occupancy for Painted Honeyeater is thought to have declined but is not defined in the National Recovery Plan (DAWE 2021a). The project would result in direct impacts to 194 ha of native vegetation, 14 ha of which represent potential habitat for Painted Honeyeater. However, the areas being removed are mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat, the majority of which would be retained. No Painted Honeyeaters were recorded in this habitat, and Mistletoe was sparsely present. There are also no historic records for the species within the subject land or areas immediately adjacent to it. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land, 86 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.26% of the potential habitat for this species within 10km of the subject land. This has been taken into account when assessing the relative importance of the areas being removed for Painted Honeyeaters, in line with the recommendations in the National Recovery Plan (DAWE 2021a). Based on the size and quality of the areas proposed for removal, and their context in the broader landscape and areas to be retained, the project would result in a negligible reduction to the area of occupancy for the species.
Fragment an existing important population into two or more populations.

SIC assessment for vulnerable species

Due to its complex movement patterns typified by migration and local nomadism, the Painted Honeyeater has what is effectively a single national population. The species is highly mobile, with individuals moving freely through areas of unsuitable and marginal habitat to seek out and exploit favourable habitat patches. The project would result in direct impacts to 194 ha of habitat for Painted Honeyeater. The areas of vegetation being removed are smaller isolated patches or the fringing areas of larger patches, and as such would not impact on the connectivity of habitat within the broader landscape for this species.

Adversely affect habitat critical to the survival of a species.

Habitat critical to the survival of the species identified in the National Recovery Plan includes:

- Known or likely breeding habitat in Boree/Weeping Myall, Brigalow woodlands, box-gum woodlands and box-ironbark forests on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland.
- All preferred foraging species within known and likely foraging habitat particularly mistletoes of the genus Amyema growing on forest and woodland eucalypts and acacias.
- All Key Biodiversity Areas for Painted Honeyeater.
- Suitable habitat in future climate niches as information becomes available.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land, 86 ha of suitable vegetation considered potential habitat would be retained, and an additional 5,366 ha within 10 km of the subject land will also remain. As this is consistent with the definition of critical habitat for the species, this represents a large area of retention in comparison to the vegetation being impacted by the project.

Direct impacts to 194 ha native vegetation are predicted. However, the areas being removed are mostly smaller isolated patches which are considered less suitable for the species, or the fringing areas of larger patches of habitat. No Painted Honeyeaters were recorded in this habitat, and Mistletoe was sparsely present suggesting it is less likely to be suitable as breeding habitat. There are also no historic records for the species within the subject land or areas immediately adjacent to it.

This has been taken into account when assessing the relative importance of the areas being removed for Painted Honeyeaters, in line with the recommendations in the National Recovery Plan (DAWE 2021a). In the broader landscape context, records are concentrated east of the subject land. The habitat being removed does not meet the definition of critical habitat, its relative importance in the landscape is likely to be less than the areas being retained in both the subject land itself and within the broader landscape context.

The National Recovery Plan lists Key Biodiversity Areas (KBAs) relevant to the Painted Honeyeater, which do not include the subject land or nearby surrounds.

There is no current information on habitat associated with future climate niches.

Given that the habitat being impacted is largely smaller patches, or the fringes of larger patches, that do not contain abundant Mistletoe, combined with an absence of both current and historical records within and in close proximity to the subject land, it is overall considered unlikely that the project would result in a significant adverse impact to critical habitat for the Painted Honeyeater.

Disrupt the breeding cycle of an important population.

The project is expected to result in the removal of 14 ha of potential habitat. This habitat is associated with smaller patches of woodland or the fringes of larger patches, and is considered less suitable for Painted Honeyeater. The species selects nest sites in habitats where mistletoe prevalence and parasitism rates are high, which was not observed in the areas of habitat being removed, suggestion these areas are unlikely to represent preferred breeding habitat. The 14 ha of potential habitat to be removed therefore constitutes a very small proportion of available breeding habitat throughout the species' range. Within the subject land, 86 ha of vegetation not considered potential breeding habitat would be

SIC assessment for vulnerable species
retained. The impacts within the development footprint make up around 0.26% of potential habitat within 10 km of the subject land. Due to the removal of vegetation not being considered breeding habitat the project is unlikely to disrupt the breeding cycle of an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The project is expected to result in the removal of 14 ha of potential habitat. This habitat is associated with smaller patches of woodland or the fringes of larger patches, and is considered less suitable for Painted Honeyeater. This habitat is not considered to be quality Painted Honeyeater habitat and it is unlikely that removal of this habitat would result in species decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
There are no known diseases causing potential species decline to the Painted Honeyeater, or diseases to its preferred food source, mistletoe. The project would be unlikely to result in any increased risk of disease transmission to Painted Honeyeater such that the species would be at risk of decline. The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
Habitat loss and degradation is a key threat to the species. The project would result in direct impacts to 14 ha of potential habitat. The National Recovery Plan also states that protection of Painted Honeyeater breeding and foraging habitats at the local, regional and landscape scale is also an important objective. The project would include the retention of 85 ha within the subject land. The impacts within the development footprint make up around 0.26% of potential habitat within 10 km of the subject land. It is considered unlikely that the amount of potential clearing would interfere substantially with the recovery of the species, particularly in the context of the higher quality areas of potential habitat that is being retained.
Conclusion.
Based on the assessment above, it is concluded that Painted Honeyeater is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures

SIC assessment for vulnerable species
are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.2 Sloane's Froglet *Crinia sloanei*

Species background

Sloane's Froglet is listed as endangered under the EPBC Act. The species has declined in both distribution and abundance in NSW, but has persisted in two strongholds in Albury and the Corowa regions (Knight 2013). The species lives and breeds in permanent waterbodies including oxbows off creeks and rivers, farm dams, large and small natural wetlands constructed frog ponds and temporary puddles. Wetlands that contain riparian and aquatic vegetation are preferred by the species (TSSC 2019a). It is most often found in riparian environments that contain grasses and reeds that are of medium height and have small stem diameter, which is essential as the species lays its eggs attached to vegetation. A connection between breeding and refuge sites is also needed for the species to survive. In the study are these specific requirements are not met and only a restricted area of marginal habitat occurs.

Breeding occurs during winter to early spring where to males call in water depths of 1 to 31 cm.

The main threats to Sloane's Froglet are fragmentation and degradation of habitat and water (TSSC 2019b).

Occurrence in subject land

Surveys for the species were conducted between July and August of 2022. The species was not recorded within the subject land with the nearest record occurring roughly 73 km west of the subject land. Suitable habitat is not present within the subject land, however the species is associated with PCT 81 within the subject land.

SIC assessment for critically endangered or endangered species
Lead to a long-term decrease in the size of a population.
There is a low likelihood that the project would lead to a long term decrease in the size of the population of the species. The species has two known strongholds that occur in Albury and the Corowa region. There are no estimates for the number of individuals remaining. The main threat causing declines of the species is habitat loss, fragmentation and degradation. The species requires specific environmental factors for survival including, shallow permanent water bodies, an abundance of medium height vegetation with small diameters and the ability to move from breeding habitat to refuge sites. Impacts that result in the decline of these requirements are considered likely to contribute to a decrease in the size of a population. No suitable habitat is located withing the subject land and the nearest record is an historic record and located roughly 73 km to the west. The project will impact 31.4 ha of PCT 81 which is associated with the species, however suitable habitat did not occur within this PCT. The project will incur impacts within a section of Sandy Creek, however, this creek line is not suitable breeding habitat for the species. Due to the lack of suitable habitat, the lack of any records present within the locality and no individuals found during surveys it is unlikely that the species utilises the subject land. As such it the project will not result in a long term decrease

SIC assessment for critically endangered or endangered species
in the size of a population.
Reduce the area of occupancy of the species.
The species area of occupancy has not been defined, but is considered to have undergone a decline with two strongholds for the species being located in Albury and the Corowa region. No suitable habitat was recorded within the subject land and the species was not found during targeted surveys, there are no records within the locality and as such it is unlikely that the species utilizes the subject land. Due to this it is unlikely that the project will result in the reduction of area of occupancy of the species.
Fragment an existing population into two or more populations.
The subject land has no suitable habitat for the species present, the species was not detected during targeted surveys and there are no records within the locality with the nearest record occurring roughly 73 km to the west and is over 30 years old. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. As such it is unlikely that the project will fragment an existing population into two or more populations.
Adversely affect habitat critical to the survival of a species.
Habitat critical to the survival of the species is habitat that meets its specific environmental requirements. These are riparian environments that contain grasses and reeds that are of medium height and have small stem diameter, which is essential as the species lays its eggs attached to vegetation. A connection between breeding and refuge sites is also needed for the species to survive. The subject land did not contain any habitat that meets these requirements. As such the project is unlikely to result adversely affecting habitat critical to the survival of the species.
Disrupt the breeding cycle of a population.
The species was not detected during targeted surveys and no suitable habitat is present within the subject land. Riparian habitat is not being impacted by the project however, 31.4 ha of PCT 81 will be impacted. This PCT did not contain any suitable habitat for the species. Due to the lack of records of the species, the lack of suitable habitat and lack of detection during targeted surveys it is unlikely that the species utilizes the subject land. Therefore, the project is unlikely to disrupt the breeding cycle of a population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species was not detected during targeted surveys and no suitable habitat is present within the subject land. Riparian habitat is not being impacted by the project however, 31.4 ha of PCT 81 will be impacted. This PCT did not contain any suitable habitat for the species. As no quality habitat is present within the subject land it is unlikely that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.

SIC assessment for critically endangered or endangered species
Introduce disease that may cause the species to decline.
The project does not include any known mechanism that would result in the establishment of disease (i.e. Chytrid fungus) which is potential harmful to the species that is not already present in the area. The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere with the recovery of the species.
There is no recovery plan for the species however, habitat fragmentation, loss and degradation are the main factors contributing to the decline in the species. So, any actions that impact these could interfere with the recovery of the species. The subject land did not contain any suitable habitat for the species and the species was not detected during targeted surveys. It is unlikely to utilize the subject land. Therefore, the project is unlikely to interfere with the recovery of the species.
Conclusion.
Based on the assessment above, it is concluded that Sloane's Froglet is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.3 Superb Parrot *Polytelis swainsonii*

Species background

Superb Parrot is listed as vulnerable under the EPBC Act. Superb Parrots are absent from large areas of the Riverina and northern Victoria, confined to the Barmah forest area with the core distribution being west of the Great Dividing Range in NSW from Canberra, Goulburn and as far west as Nyngan and Swan Hill. There are only three main breeding areas: an area of the south-west slopes bounded by Molong, Rye Park, Yass, Coolac, Cootamundra and Young (NSW); along the Murrumbidgee River, between Wagga Wagga and Toganmain Station, and farther north at Goolgowi (NSW); and along the Murray and Edward Rivers, from east of Barmah and Millewa State Forest to south of Taylors Bridge (NSW and Victoria) (DSE 2011.

The species occurs in box-gum and acacia woodlands and riverine woodlands. They mostly feed on the ground on fruits and seeds from a variety of plants but also feed extensively in shrubs and trees. In the Riverina area, the Superb Parot nests in loose colonies in large, living or dead trees with many hollow branches, typically near watercourses. The same nest hollows are used in successive years, often by the same pair (DSE 2011).

It was formerly considered that there were two separate populations of the Superb Parrot, one in southern NSW and northern Victoria, and the other further north in NSW (Forshaw & Cooper 1981), but it is now

apparent that only a single population exists (Forshaw & Cooper 2002; Garnett & Crowley 2000; Higgins 1999; Webster & Ahern 1992).

Major threats to the superb Parrot are loss and degradation of habitat, competition for nest hollows, road kills, illegal removal of wild birds, Psittacine beak and feather disease (PBFD) and climate change (DSE 2011.

Occurrence in subject land

Superb parrot was recorded foraging onsite. Suitable habitat for this species is present within grazing land, and native woodland and grassland vegetation within PCTs 81, 201, 281, 440, 467, 468, 478, and 599 which provide foraging, shelter, movement and breeding resources. There was no evidence of breeding observed within the subject land and key breeding habitat is located south mainly in the NSW South Western Slopes and Riverina bioregions.

SIC assessment for Superb Parrot

SIC assessment for vulnerable species

Lead to the long-term decrease in the size of an important population of a species.

There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Superb Parrot. There are no recognised subpopulations for the Superb Parrot and the species is considered to comprise a single population. Recent estimates suggest the population consists of approximately 20,000 mature individuals, and is considered to be in decline (DSE 2011). Individuals occurring within the subject land would therefore be considered to be part of an 'important population' for the purpose of this SIC assessment.
The main cause of population decline for Superb Parrot is habitat loss, particularly breeding habitat and nest sites in large hollow-bearing trees. Core breeding habitat is associated with the Barmah-Millewa River Red Gum Forest and Murrumbidgee Red Gum forest Key Biodiversity Areas (KBA), as well as the South-west Slopes of NSW KBA. Impacts to these critical habitat locations are a primary threat to the species (DSE 2011).
The nearest identified breeding location for this species, according to the National Recovery Plan is over 70 km south of the project (DSE 2011. Breeding is not expected to occur within the subject land, despite this, area searches were completed during the appropriate season within the subject land to confirm that breeding individuals were not present. The targeted survey did not identify any breeding sites. This is reflected through records, where, during the breeding months (September – December) records of this species are concentrated near known breeding locations, with only a few scattered records near the subject land. Outside of this period, records of foraging individuals are scattered throughout the known range (BIRD DATA).

The subject land contains suitable foraging habitat for the Superb Parrot in the form of woodlands and grasslands where seed, nectar and fruits are available for foraging. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore the most likely foraging habitat for this species, was avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. The project will result in the removal of 194 ha of habitat. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85 % of the potential 22,710 ha of mapped habitat within 10 km of the subject land.

Superb Parrot is a hollow-nesting species, and the project would result in impacts to 30 hollow-bearing trees. However, these are considered unlikely breeding habitat for the Superb Parrot, which is known to prefer riparian forests for breeding, particularly in the Barmah Forest in Victoria and the Millewa and Moira forests in NSW, as well as stretches of the Murrumbidgee River near Wagga Wagga and Darlington Point in NSW (DSE 2011), over 70 km south of the subject land. No evidence of breeding was recorded during surveys for Superb Parrot, though other common species were

SIC assessment for vulnerable species
observed occupying hollows. Hollow-bearing trees subject to removal are considered less suitable for Superb Parrot as they are not associated with preferred riparian vegetation (River Red Gum). The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land. No records occur within the subject site of breeding by this species. As there are no impacts to breeding habitat, and only minor impacts to areas of foraging habitat in the context of the broader landscape, there is a low likelihood that the project would lead to the long-term decrease in the size of the population of Superb Parrot.
Reduce the area of occupancy of an important population.
The Superb Parrot is highly mobile, and their exact movements are not fully understood. An ongoing decline has been documented across their range, which is projected to further contract and undergo a south-eastern shift in response to climate change. The area of occupancy for the species has not been defined however, actions that remove critical habitat are considered likely to reduce the area of occupancy (DSE 2011). Critical habitat primarily refers to breeding habitat (tree hollows in riparian areas), and suitable foraging habitat in proximity to breeding areas. Breeding of this species is not considered to occur within the subject land, and as such, foraging habitat within the subject land is not within proximity to breeding habitat. The project would not include the removal of areas of critical habitat for the Superb Parrot. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore the most likely habitat for this species, were avoided as much as possible. Within the subject land, 353 ha of suitable vegetation would be retained. Around 194 ha of foraging habitat would be impacted. The impacts within the development footprint make up around 0.85 % of the potential 22,710 ha of mapped potential habitat within 10 km of the subject land. The project would also result in direct impact to 194 ha of foraging habitat within the development footprint. Given the vast areas of similar or better-quality habitat in the surrounding landscape, and no habitat considered critical habitat present, there is a low likelihood that the project would reduce the area of occupancy of an important population of Superb Parrot.
Fragment an existing important population into two or more populations.
The Superb Parrot is a mobile species, capable of undertaking large movements as it migrates seasonally between breeding and non-breeding areas (DSE 2011). Individuals can also move through the landscape matrix to exploit favourable habitat patches and seasonal resources. The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land. Higher quality feeding habitats in the form of woodland areas with nectar, fruit and seed resources and adjacent grassland areas have largely been avoided and buffered during the design process. There would be direct impacts to 194 ha of habitat, but it is unlikely that these impacts would result in any barriers to movement for the species such that it would fragment the population. The areas being removed are smaller isolated patches or the fringing areas of larger patches, and as such would not impact on the connectivity of habitat within the broader landscape for this mobile species.
Adversely affect habitat critical to the survival of a species.
Key Biodiversity Areas (KBAs) defined in the National Recovery Plan are considered critical for supporting the long-term persistence of the species. Other critical habitat is associated with areas containing riparian woodlands, with suitable large, hollow-bearing trees for nesting and breeding. The project is not within a KBA and does not involve the removal of riparian woodlands that could be considered breeding habitat critical to the survival of the species.

SIC assessment for vulnerable species

194 ha that could be considered potential habitat for Superb Parrot is to be removed. This habitat occurs as smaller isolated patches on the edges of larger patches, and is likely of lesser quality than larger, intact remnants and is therefore not consistent with habitat critical to the survival of the species.

30 hollow-bearing tree are anticipated to require removal as part of the project. No breeding has been recorded in these hollows either historically or during the current survey. There is a low likelihood that these trees represent critical habitat to the species' survival, particularly in the broader landscape context where it is likely individuals would target hollow-bearing trees in riparian vegetation for nesting.

Within the subject land, 353 ha of high quality foraging vegetation would be retained. Around 194 ha of foraging habitat would be impacted, The impacts within the development footprint make up around 0.85 % of the potential 22,710 ha of mapped potential habitat within 10 km of the subject land. These larger, intact patches are likely to be more critical to the survival of the species than those being removed.

As described in the National Recovery Plan, where habitat cannot be avoided it should be offset. Under the BAM, foraging habitat for Superb Parrot impacted by the project would generate ecosystem credits that would be retired prior to construction.

The project would not include the removal of areas of critical habitat for the Superb Parrot.

Disrupt the breeding cycle of an important population.

No known breeding habitat will be impacted by the project. 30 hollow-bearing trees are being removed however, this is considered unlikely to be utilised by Superb Parrot as they are not associated with riparian habitat and are more than 70 km north of the nearest known core breeding area. The project is considered unlikely that the project would result in any disruption to the breeding cycle of the population.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely foraging habitat for this species, was avoided as much as possible. Additionally, no known breeding site will be impacted. The project would result in the removal of 194 ha of habitat within the development footprint, however this is substantially mitigated. Approximately 353 ha of native vegetation, which does represent potential foraging habitat for the Superb Parrot will be retained within the subject land. Around 194 ha of foraging habitat would be impacted. The impacts within the development footprint make up around 0.85 % of the potential 22,710 ha of mapped habitat within 10 km of the subject land. The operational phase of the project is considered compatible with the foraging activity of Superb Parrots, which would still be able to exploit seasonal grassland resources following construction of the project, most likely within retained patches of vegetation, between panel alignments and along on fringing areas of the solar array and APZs. This has been noted previously at the Beryl Solar Farm, near Gulgong in NSW, by the assessorM. As large areas of similar habitat exist in the landscape, it is unlikely that the foraging habitat within the subject land is critical to the species' survival. Impacts to this habitat would be offset in accordance with the BAM. There is a low likelihood that the project would decrease the availability of habitat to the extent that the species is likely to decline.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control.

It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.

SIC assessment for vulnerable species
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
Habitat loss is a key threat to the Superb Parrot, particularly removal of critical breeding resources associated with large, hollow-bearing trees in riparian areas. The project would result in direct impacts to 194 ha of potential foraging habitat and the removal of 30 hollow-bearing trees, however none of this vegetation is considered suitable breeding habitat for Superb Parrot. The project would include the retention of 353 ha of woodland vegetation within the subject land. The impacts within the development footprint make up around 0.85 % of the potential 22,710 ha of mapped habitat within 10 km of the subject land. As there is no impact to breeding habitat, foraging habitat would be retained, and modification to remaining areas of potential habitat is not considered likely to result in exclusion of the species, the project is unlikely to interfere with the recovery of the Superb Parrot. The recovery objectives outlined within the National Recovery Plan are: • Determine population trends in the Superb Parrot. • Increase the level of knowledge of the Superb Parrot's ecological requirements. • Develop and implement threat abatement strategies. • Increase community involvement in and awareness of the Superb Parrot recovery program. The project would not interfere with these objectives.
Conclusion.
Based on the assessment above, it is concluded that Superb Parrot is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.4 Eastern Pink Cockatoo *Lophochroa leadbeateri*

Eastern Pink Cockatoo is listed as endangered under the EPBC Act. The eastern Pink cockatoo lives in arid and semi-arid woodlands dominated by mulga (*Acacia aneura*), mallee and box eucalypts, slender cypress pine (*Callitris gracilis*) or belah (*Casuarina cristata*). Within these vegetation types, the subspecies main requirements are fresh surface water, and trees with suitable nesting hollows. The main threat causing the decline of the subspecies is habitat loss and degradation. A major aspect of habitat loss is the loss of large hollow-bearing trees which provide nest sites.

The subspecies occur in the Murray-Darling, Eyre and Bulloo River basins, from Isisford and Roma in the north, through western New South Wales to north-west Victoria and west to eastern South Australia.

Occurrence in subject land

Surveys for eastern Pink Cockatoo were undertaken as part of the diurnal bird surveys. The species was not recorded during these surveys, but has been recorded in the greater Dubbo area. Foraging and breeding habitat is represented by large hollows and woodland communities within PCT's 81 and 201.

SIC assessment for Pink Cockatoo

SIC assessment for Pink Cockatoo
Lead to the long-term decrease in the size of a population.
There is a low likelihood that the project would lead to a long-term decrease in the size of the population of the eastern Pink Cockatoo. The subspecies *Lophochroa leadbeateri leadbeateri* is commonly known as the Eastern Pink Cockatoo. It is considered to exist as a single population, with no sub-populations identified in the Conservation Advice for the species (Cth DCCEEW 2023b). The population has undergone a severe reduction, and was estimated at around 15,000 mature individuals in 2011. The main threat causing decline of the subspecies is habitat loss and degradation, particularly the removal of large hollow-bearing trees which are used for nesting. Eastern Pink Cockatoo requires large areas of intact woodland vegetation and corridors for movement across the landscape, with specific requirements for nesting tree species and hollow characteristics. Impacts that result in a decline of these requirements are considered likely to contribute to a decrease in the size of the population. The subject land contains habitat considered suitable for the subspecies. Large hollows occur in woodland communities within the site. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat for this species within 10 km of the subject land. Direct impacts to 194 ha of habitat and the removal four suitable hollows, would occur as a result of the project that could be considered potential habitat for the eastern Pink Cockatoo. This habitat being removed occurs as smaller isolated patches and the edges of larger patches. Higher quality areas along water courses and larger remnants have been largely avoided. Eastern Pink Cockatoo is a hollow-nesting species, and the project would result in the removal of 30 hollow-bearing trees, two of which were suitably large enough for the species. No evidence of breeding was recorded during surveys for Pink Cockatoo, and no historic records occur within the subject site of breeding by this species. It is considered unlikely that the species is utilising these hollows for breeding. As the project is unlikely to result in the loss or alteration of critical foraging or breeding habitat for this species, it is unlikely to lead to the long-term decrease in the size of the population of this subspecies.
Reduce the area of occupancy of the species
The species area of occupancy has not been defined, but is considered to have undergone a decline due to the ongoing loss and degradation of breeding habitat (Cth DCCEEW 2023b). Uncleared rangeland comprises much of its range, and it is thought that 20 – 30% of this range is still occupied. The eastern Pink Cockatoo prefers to feed in or close to wooded areas and utilise wooded corridors for movement through fragmented landscapes. Wooded areas are therefore likely to be key habitat for the species. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for this subspecies, were avoided as much as possible. This species on average contains one breeding pair every one kilometre apart, with no more than one breeding pair for every 30 square kilometres (3200 ha), as such, based on this, the subject land (2,188.02 ha) may only support one

SIC assessment for Pink Cockatoo

breeding pair There will be a direct impacts to 194 ha of native vegetation that could be considered potential habitat for the eastern Pink Cockatoo. This would constitute a minor reduction in the potential area of occupancy available to the species that is unlikely to represent a significant impact. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat for this species within 10 km of the subject land. The project is unlikely to reduce the area of occupancy for this species.

Fragment an existing population into two or more populations.

Eastern Pink Cockatoo are highly mobile and individuals can move through areas of less suitable and marginal habitat to seek out and exploit favourable habitat patches. The subspecies prefer to feed in or close to wooded areas, and use wooded areas for travel between feeding areas and nesting or roosting sites (Cth DCCEEW 2023b). These habitats have largely been avoided and buffered during the design process. There would be direct impacts to 194 ha of potential habitat, however these impacts are largely associated with smaller isolated patches or fringing areas of larger patches and are therefore considered less suitable for eastern Pink Cockatoo. The proposal is considered unlikely to result in fragmentation of the population, with suitable movement corridors being retained within the subject land and within the broader landscape context.

Adversely affect habitat critical to the survival of a species.

Eastern Pink Cockatoos inhabit a wide range of plant communities, mostly in arid and semi-arid woodlands, always within easy reach of surface water. Habitat critical to the survival of the eastern Pink cockatoo consist of:

- Arid and semi-arid woodlands dominated by mulga (Acacia aneura), mallee and box eucalypts, slender cypress pine (Callitris gracilis) or belah (Casuarina cristata).
- Known habitat containing suitable attributes, including potential habitat for the subspecies, especially where there are large mature trees with suitable hollows; and
- Surrounding matrix of these areas for the role of providing movement corridors for dispersal across the landscape.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. Areas of intact woodland have predominantly been avoided during the design process. There will be direct impacts to 194 ha of native vegetation, that could be considered potential habitat for the eastern Pink Cockatoo. This habitat occurs as smaller isolated patches and the edges of larger patches, and is therefore considered to be less suitable for the subspecies.

30 hollow-bearing trees may be removed as part of the project, of which only four suitably large enough hollows will be removed. No breeding has been recorded in these hollows either historically or during the current survey. There is a low likelihood that these trees represent critical habitat to the species' survival, particularly in the broader landscape context where it is likely individuals would target large, intact remnants for breeding.

Within the subject land, 353 ha of suitable vegetation would be retained The impacts within the development footprint make up around 0.85% of the 22,710 ha of potential habitat for this species within 10 km of the subject land. These larger, intact patches are likely to be more critical to the survival of the subspecies than those being removed, and thus the project is not expected to result in a significant impact to the species.

Disrupt the breeding cycle of a population.

No known breeding habitat will be impacted by the project. 30 hollow-bearing tree may be removed as part of the project, of which only four suitably large enough hollows will be removed. This species on average contains one breeding pair every one kilometre apart, with no more than one breeding pair for every 30 square kilometres (3200 ha), as such, based on this, the subject land (2,188.02 ha) may only support one breeding pair. It is considered unlikely that the project

SIC assessment for Pink Cockatoo
would result in any disruption to the breeding cycle of the population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted. Therefore, the magnitude of the impact is small in the context of other causes of habitat loss operating across the species' range and in isolation is unlikely to impact the species to the extent that it would cause a decline in the population.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
The main threat causing the decline of the subspecies is habitat loss and degradation. A major aspect of habitat loss is the loss of large hollow-bearing trees which provide nest sites. Actions that remove habitat critical to the survival of the subspecies would interfere with the recovery of the subspecies (Cth DCCEEW 2023b). The project would not be removing habitat critical to the survival of the subspecies, as no breeding habitat has been identified. High-quality woodland vegetation has largely been avoided, and this habitat is considered more likely to be critical to the subspecies' survival than that which is being removed.
Conclusion.
Based on the assessment above, it is concluded that Eastern Pink Cockatoo is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project: • Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population. • Will not disrupt the breeding cycle of a population, or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.5 Regent Honeyeater *Anthochaera phrygia*

Species background

Regent Honeyeater is listed as critically endangered under the EPBC Act. The species is endemic to mainland south-eastern Australia where it is now patchily distributed. The species is mainly associated with woodland of the inland sloped of NSW and Victoria but also occurs at key coastal sites in NSW. The species feeds mainly on nectar from key eucalypt species and mistletoes its movements are tied to the timing of flowering for these food tree species.

The main threat to the species is clearing, habitat fragmentation and degradation associated with agriculture and urban development. Other threats include firewood collection, invasive plants, grazing by livestock and predation by exotic predators. Woodland fragmentation has led to increased numbers of Noisy Friarbird and Red Wattlebird, which compete with Regent Honeyeaters for key nectar resources.

Regent Honeyeater is currently under increased pressure due to the 2019-2020 summer bushfires that occurred across the southern and eastern states of Australia. The DAWE has provided several resources in response to these fires including analyses of listed species habitat within fire affected areas (DEE 2020), as well as provisional lists of fauna that require urgent management intervention (DAWE 2020). Regent Honeyeater has been identified as one of the species requiring urgent management intervention. Given this context, any remaining areas of high quality Regent Honeyeater habitat are now critical to the conservation of the species.

Occurrence in the subject land

Surveys for Regent Honeyeater were undertaken as part of the diurnal bird surveys. The species was not recorded during these surveys, but has been recorded approximately 6 kilometers from the subject land. It is noted that this record is over 100 years old now. The nearest record within 20 years occurs roughly 43 km to the east. Potential habitat for this species within the subject land is associated with PCTs 81, 281, 468, and 599.

SIC assessment for Australian Painted Snipe

SIC assessment for critically endangered or endangered species
Lead to a long-term decrease in the size of a population.
There is a low likelihood that the project would lead to a long term decrease in the size of an important population of the Regent Honeyeater. Most records of the species come from box-ironbark associations, where the species prefers fertile sites with higher soil water content, including creeks, broad river valleys and lower slopes (DPE 2015). The species feeds on flowering tree species and Mistletoe. Key tree species were recorded on site and include Yellow Box and White Box however, the subject land lacked a presence of Mistletoes with only rarely scattered Mistletoes being recorded. The species was not recorded during surveys and known records within 10 km of the subject land are historic records over 100 years old. The project will result in the impact of 153 ha of potential habitat for the species. The habitat to be impacted is smaller isolated patches or fringes of larger remnant patches that will be retained by the project. The project will retain 499 ha of potential habitat within the subject land that is more consistent with preferred habitat of the species. The impacts within the development footprint make up around 1.32% of the 11,510 potential habitat for this species within 10 km of the subject land. While the vegetation to be impacted has the potential to be used by the species it does not form preferred habitat (DoE

SIC assessment for critically endangered or endangered species

2016), where the species tends to utilize areas of woodland/forest which is reflected in the records within the region. The species is known to travel large distances, and although its population is considered a single population its occurrence is patchy with limited breeding sites. Areas of larger patches, connectivity, creek lines and riparian zones will be retained by the project.
Due to these factors it is unlikely that the project will result in the long term decrease in the size of a population.

Reduce the area of occupancy of the species.

The species is a mobile species known to travel large distances in search of flowering trees in preferred woodland and forest types (DPE 2015). The project occurs within the known range of the species however, potential habitat to be impacted is not preferred habitat for the species. The threatened species strategy for this species in 2018 estimated the area of occupancy for this species to be around 300km^2 (DCCEEW 2018).
. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land the project would impact 153 ha of suboptimal potential habitat for the species in the form of smaller isolated patches and fringes of larger patches. The project will maintain 499 ha of preferred habitat for the species The impacts within the development footprint make up around 1.32% of the 11,510 potential habitat for this species within 10 km of the subject land. The species is unlikely to utilize the areas to be impacted due to the lower quality habitat that occurs within these areas. The species was not detected during surveys and the only records within 10 km of the project are historic records over 100 years old.
Due to these factors it is unlikely that the project will reduce the area of occupancy of the species.

Fragment an existing population into two or more populations.

The species is a mobile species known to travel large distances in search of flowering trees in preferred woodland and forest types. The potential habitat to be impacted by the project is not preferred habitat for the species, containing smaller isolated patches and fringes of larger patches in a landscape of cleared paddocks. Higher quality habitat in the form of larger woodland patches and well as creek lines and riparian zones will be retained by the project. The project would result in the impact to 153 ha of low-quality potential habitat for the species. These impacts are unlikely to result in barriers to the species movement as a highly mobile species known to fly large distances in search of flowering trees. Therefore, the project is unlikely to fragment and existing population into two or more populations.

Adversely affect habitat critical to the survival of a species.

Habitat critical to the survival of this species is defined in the Regent Honeyeater National Recovery Plan (Commonwealth of Australia 2016, p 11) as:

- no breeding or foraging habitat in areas where the species is likely to occur (as defined by the distribution map provided in Figure 1 of the Plan).
- Any newly discovered breeding or foraging locations.

While the Project will result in the removal of areas of woodland that support tree species known to be used by Regent Honeyeater, vegetation within the construction footprint does not constitute known or likely breeding or foraging habitat. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. The project will impact 153 ha of suboptimal potential habitat that occurs in smaller isolated patches or fringes of larger patches.

The species is unlikely to utilize the habitat to be impacted by the project as it is not preferred habitat for the species. 499 ha of higher preference habitat within the subject land will be retained by the project and is more likely to be utilized by the species than areas to be impacted. Due to these factors it is unlikely that the project will result in adversely affecting habitat critical to the survival of the species.

Disrupt the breeding cycle of a population.

SIC assessment for critically endangered or endangered species

The subject land does not incorporate any key Regent Honeyeater breeding areas. Keys areas noted by the national recovery plan include, Bundarra-Barraba, Hunter Valley/Central Coast, Capertee Valley and Chiltern (DoE 2016). Breeding of this species is not considered likely to occur within the subject land.
The nature of the proposed works would not lead to a reduction of breeding individuals, or incur any connectivity issues for breeding individuals moving through the landscape. The species is not likely to breed within the subject land. Therefore, the project is unlikely to disrupt the breeding cycle of a population.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted.
Removal of 153 ha of suboptimal habitat is unlikely to represent a significant loss of habitat for this species or contribute to their decline. 499 ha of higher quality areas of habitat will be retained as a result of the project's avoidance and minimisation measures, and the nature of the project would not preclude this species from occupying habitats within the subject land during favourable conditions. Therefore, the project is unlikely to modify, destroy, remover or isolate pr decrease the availability or quality of habitat to the extent that the species is likely to decline.

Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.

The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control.
It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.

Introduce disease that may cause the species to decline.

The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.

Interfere with the recovery of the species.

The objectives of the National Recovery Plan (DoE 2016) for this species outlines the need to reserve declining population trends and enhance the condition of habitat for this species. The strategies to achieve this are:

- Improve the extent and quality of regent honeyeater habitat.
- Bolster the wild population with captive-bred birds until the wild population becomes self-sustaining.
- Increase understanding of the size, structure, trajectory and viability of the wild population.
- Maintain and increase community awareness, understanding and involvement in the recovery program.

The project would impact 153 ha of suboptimal habitat unlikely to be utilized by the species. 499 ha of higher quality habitat is to be retained by the project. The project would not interfere with the objectives of the National Recovery Plan and as such it is unlikely to interfere with the recovery of the species.

Conclusion.

Based on the assessment above, it is concluded that the species is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works:

- Will not lead to the long-term decrease of an important population, reduce the areas of occupancy or fragment an existing important population.
- Will not disrupt the breeding cycle of an important population, the local population or species as a whole.

SIC assessment for critically endangered or endangered species

- Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread.
- Will not interfere will the recovery of the species.

Appendix 6.6 Southern Whiteface *Aphelocephala leucopsis*

Species background

Southern Whiteface is listed as vulnerable under the EPBC Act. The species is a small and stocky, thornbill-like bird with a brown dorsum, dark brown wings, a white belly and a black tail with narrow white tip. The species has characteristic facial markings, consisting of a white band across the forehead, with a darker streak along the top edge (Cth DCCEEW 2023c). The species lives in a wide range of open woodland and shrublands where there is an understorey of grasses and/or shrubs. Southern Whitefaces forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover. The species' diet consists of insects, spiders, and seeds. These birds usually forage in small groups, consisting of between two and eight individuals, but may be seen in larger flocks of up to 70, including mixed species feeding flocks (Cth DCCEEW 2023c).

The species occurs across most of mainland Australia, south of the tropics. While there are currently an estimated 477,000 mature individuals in the wild, the population has declined by an estimated 30 to 50% every ten years since 1999 (Cth DCCEEW 2023c). Habitat critical to the survival of Southern Whiteface includes areas of relatively undisturbed open woodland and shrublands with an understorey of shrubs and/or grasses, habitat with low tree density and an herbaceous understorey litter cover which provides essential foraging habitat, and living and dead trees with hollows and crevices which are essential for roosting and nesting. Habitat loss and fragmentation are considered the most likely causes of the species' current decline, through drought and extreme weather events also play a role.

Occurrence in subject land

Southern Whiteface was not recorded within the subject with the nearest known record occurring roughly 9 km south of the subject land. Suitable habitat for this species is available in woodland, scattered trees and open farmland associated with PCTs 81 and 468.

SIC assessment for Southern Whiteface

SIC assessment for vulnerable species

Lead to the long-term decrease in the size of an important population of a species.

There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Southern Whiteface. Important populations have not been defined in the Commonwealth Conservation Advice and a national recovery plan has not been prepared. The population is estimated to be 477,000 mature individuals in the wild, consisting of two subspecies: the south-east southern whiteface (410,000) and the south-west southern whiteface (67,000).
Habitat loss and fragmentation is the likely cause of species decline, as a result of intensive agriculture and increasing drought.
The subject land contains suitable habitat for the Southern Whiteface, which prefers open woodlands and shrublands

SIC assessment for vulnerable species
where there is an understorey of grasses or shrubs, or both. The species favours habitat with low tree densities an herbaceous understorey with litter cover. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Within the subject land, 154 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km. Direct impacts to 35 ha potential habitat would occur as a result of the project. This habitat being removed occurs as smaller patches and the edges of larger patches. Higher quality areas along water courses and larger remnants have been largely avoided. There is a low likelihood that the project would lead to the long-term decrease in the size of the population of the Southern Whiteface.
Reduce the area of occupancy of an important population.
No important populations have been identified for the Southern Whiteface. The extent of occurrence for the species is estimated to be 4,910,000 km^2, however the area of occupancy is contracting and is estimated to be 70,000 km^2. Reduced area of occupancy for the species is associated with the complete removal of habitat for intensive agriculture. Suitable habitat for this species occurs primarily in areas of open woodlands. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for this subspecies, were avoided as much as possible. There will be residual direct impacts to 35 ha potential habitat for the Southern Whiteface. This would constitute a minor reduction in the potential area of occupancy available to the species that is unlikely to represent a significant impact. The operational phase of the project is considered compatible with the foraging activity of the Southern Whiteface, which would still be able to exploit seasonal grassland resources following construction of the project, most likely within retained patches of vegetation, between panel alignments and along on fringing areas of the solar array and APZs. Within the subject land, 154 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km. The operation phase of the project is considered compatible with continuing occupation of the site by the Southern Whiteface, which would still be able to utilise habitats within the subject land. The project is therefore considered unlikely to significantly impact the area of occupancy of the Southern Whiteface.
Fragment an existing important population into two or more populations.
Southern Whitefaces are considered sedentary, but may move into wetter areas outside of their normal range during wetter years. It is unlikely that the project would result in fragmentation for the species. The operation phase of the project is considered compatible with continued occupation by Southern Whiteface, which would be able to utilise retained habitats within the subject land. Areas of habitat being removed are associated with small remnants and the fringes of larger remnants, which is unlikely to result in any barriers to movement. The species is able to move through open areas as well as lightly timbered woodlands, and it is unlikely that the project would result in a barrier to movement for the species.
Adversely affect habitat critical to the survival of a species.
The Conservation Advice for the Southern Whiteface defines habitat critical to its survival as: • Relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both; • Habitat with low tree densities and an herbaceous understory litter cover which provides essential foraging habitat;

SIC assessment for vulnerable species

- Living and dead trees with hollows and crevices which are essential for roosting and nesting.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. These areas are likely to represent the most suitable patches of habitat for Southern Whiteface including 154 ha of suitable vegetation retained within the subject land. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km.

Trees with hollows or crevices are important resources for nest building and Southern Whiteface breeding. The project may result in the removal of 30 hollow-bearing trees. Overall however, the majority of hollow-bearing trees have been avoided and would be retained, in addition to intact woodland areas that would contain suitable breeding resources for the Southern Whiteface. These trees are unlikely to be critical to the species' survival in the broader landscape context where large areas of suitable habitat will be retained including 154 ha of vegetation within the subject land. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km.

The operation phase of the project is considered compatible with ongoing occupation of the area by Southern Whiteface, which would be able to utilise grassland habitats following construction.

Disrupt the breeding cycle of an important population.

There is a low likelihood that the project would result in any disruption to the breeding cycle. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants, representing the most suitable breeding habitat for Southern Whiteface . Direct impacts to 35 ha of potential habitat would occur. No known breeding habitat would be removed however, the project may include removal of 30 hollow-bearing trees that represents a potential breeding resource for the species. Around 55% of hollow-bearing trees within the subject land, however, have been avoided and would be retained. Within the subject land, 154 ha of suitable breeding habitat would be retained. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km. It is considered unlikely that the areas subject to removal would result in disruption of the breeding cycle to the Southern Whiteface.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible

The project includes the removal of up to 35 ha of potential habitat for this species, as well as 30 hollow-bearing trees. Impacts as a result of the project are considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Within the subject land, 154 ha of suitable habitat would be retained. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km. Mitigation methods implemented as part of a Biodiversity Management Plan for the project will ensure that indirect impacts including weed establishment are minimised for the duration of the works.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control.

It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to

SIC assessment for vulnerable species
exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
There is currently no National Recovery Plan for the Southern Whiteface, however conservation and management priorities within the approved conservation advice for the species primarily relate to reducing clearing of critical habitat (particularly for agriculture), revegetation to expand and connect areas of existing habitat and minimising habitat degradation caused by livestock. The project would result in direct impacts to 35 ha of potential habitat and the removal of 30 hollow-bearing trees. The project would include the retention of 154 ha of woodland vegetation within the subject land. The impacts within the development footprint make up around 0.39% of the 8,851 ha of potential habitat within 10 km. The operation phase of the project is considered compatible with persistence of Southern Whiteface in the landscape, and would not present a barrier to movement. The project is not likely to interfere substantially with the recovery of the species.
Conclusion.
Based on the assessment above, it is concluded that Southern Whiteface is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.7 Diamond Firetail *Stagonopleua guttata*

Species background

The Diamond Firetail is listed as vulnerable under the EPBC Act. It is a large, striking finch with a bright red bill, and red eyes and rump. Diamond firetails occur on the south-east mainland of Australia from south-east Queensland to Eyre Peninsula, South Australia, and about 300 km inland from the sea. Diamond firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover. Diamond firetails usually occur in flocks of between 5 to 40, and occasionally more. The species appears to be sedentary, though some populations move locally. Their flight is

described as low and direct in long lines with slight undulations. Birds roost in dense shrubs or in smaller nests built especially for roosting (Cth DCCEEW 2024).

Diamond Firetails are distributed across the south-east mainland of Australia, from south-east Queensland to south-east South Australia. While there are currently an estimated 136,000 mature individuals in the wild, the species' population has declined by approximately 30 to 50% within the last 10 years (Cth DCCEEW 2024). The biggest contributor to this decline is the clearance of quality nesting and breeding habitat, though habitat degradation also plays a role.

Occurrence in subject land

Diamond Firetail was recorded during surveys and records directly adjacent to the subject land. The species is thought to be sedentary, though some populations move locally.

SIC assessment for Diamond Firetail

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Diamond Firetail. There are currently estimated to be 136,000 mature individuals in the wild, however the reliability of these estimates is low (Cth DCCEEW 2024) . No important populations have been identified for Diamond Firetail within the approved conservation advice for these species. The main threat causing local declines of Diamond Firetail populations is native vegetation clearance for large scale agriculture that has resulted in a decrease in the size and quality of important nesting and breeding habitats (Cth DCCEEW 2024). Overgrazing and the replacement of native perennial grasses with exotic annual grasses has also led to food shortages during autumn and winter. The subject land contains habitat suitable for the Diamond Firetail, which prefers open forests and lightly timbered habitats, including farmland and grassland with scattered trees. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Within the subject land,353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22.710 ha of potential habitat within 10 km of the subject land. The project will result in direct impacts to 194 ha of potential breeding and foraging habitat for Diamond Firetail. Given the expansive areas of native vegetation in the broader landscape, and the large patches of suitable habitat within the project area to be retained, the project is not expected to lead to long-term decreases in the size of the population of Diamond Firetail.
Reduce the area of occupancy of an important population.
No important populations have been identified for Diamond Firetail. The extent of occurrence is estimated at 1,500,000 km^2 and the area of occupancy is estimated at 25,000 km^2. Suitable habitat for this species occurs throughout the subject land in grasslands, lightly timbered and intact woodland remnants. Activity is likely to be concentrated in more remnant vegetation where suitable shrubs occur for shelter and roosting, however, contain low tree densities. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for species, were avoided as much as possible. There will be a direct impacts 194 ha represent potential breeding and foraging habitat for Diamond Firetail. Higher quality areas along water courses and larger remnants have been largely avoided and buffered. The habitat being removed occurs as smaller isolated patches and the edges of larger patches. This would constitute a minor reduction in

SIC assessment for vulnerable species
the potential area of occupancy available to the species that is unlikely to represent a significant impact. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the 22.710 ha of potential habitat within 10 km of the subject land. The project is therefore considered unlikely to significantly impact the area of occupancy for the Diamond Firetail.
Fragment an existing important population into two or more populations.
Diamond Firetail is thought to be mostly sedentary, though some populations do undergo local movements. It is unlikely that the project would result in fragmentation for the species. Areas of suitable habitat being removed include smaller isolated patches of woodland vegetation and the fringes of larger patches, which is unlikely to result in any barriers to movement. The operation phase of the project is considered compatible with the foraging activity of Diamond Firetail, which would still be able to utilise grassland habitats within the subject land. The species is able to move through open areas as well as lightly timbered woodlands, and it is unlikely that the project would result in a barrier to movement for the species.
Adversely affect habitat critical to the survival of a species.
The Conservation Advice for the Diamond Firetail defines habitat critical to its survival as: • Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; • low tree density, few large logs and little litter cover by high grass cover for foraging, roosting and breeding; • drooping she-oak within the Mt Lofty Ranges. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. These areas are likely to represent the most suitable patches of habitat for Diamond Firetail including 353 ha of suitable vegetation to be retained. The impacts within the development footprint make up around 0.85% of the 22.710 ha of potential habitat within 10 km of the subject land. The operation phase of the project is considered compatible with ongoing occupation of the area by Diamond Firetail, which would be able to utilise grassland habitats following construction, most likely within retained patches of vegetation, between panel alignments and along on fringing areas of the solar array and APZs. Due to this it is unlikely that the project would adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population.
Suitable foraging and breeding habitat for this species occurs throughout the subject land in grasslands, lightly timbered and intact woodland remnants. Activity is likely to be concentrated in more intact remnants where suitable shrubs occur for shelter, roosting and breeding. Breeding habitat is also associated with the stick nests of raptors, which were present, would be located in tall trees in the landscape. There is a low likelihood that the project would result in any disruption to the breeding cycle. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants, representing the most suitable breeding habitat for Diamond Firetail. Direct impacts to 194 ha of potential habitat would occur. As large areas of similar habitat exist in the landscape, and would be retained as part of the project, it is unlikely that the areas subject to removal would result in disruption of the breeding cycle of Diamond Firetail.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted.

SIC assessment for vulnerable species
The project includes the removal of up to 194 ha potential habitat. Once operational, the subject site would continue to provide potential habitat for this species in the form of open grasslands that may provide foraging resources or movement corridors through the landscape. Impacts as a result of the project are considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. In addition, mitigation methods implemented as part of a Biodiversity Management Plan for the project will be implemented to ensure that indirect impacts including weed establishment are minimised for the duration of the works.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
There is currently no National Recovery Plan Diamond Firetail, however recovery actions are outlined within the approved conservation advice for the species. Those relating to the project include: • Retain and protect woodland, open forest, grassland and mallee habitat from clearing, fragmentation and disturbance (areas of 200 ha or greater within woody vegetation are particularly significant). • Protect and maintain areas of high-quality habitat, which includes open forest, woodland, mallee and grasslands with a diverse ground layer dominated by a mixture of grass species which seed at different times of year (providing a year-round food supply) and provides scattered shrubs for shelter. • Retain mistletoe and scattered patches of dense shrubs for nesting habitat, particularly in areas close to water. While the project will result in the removal of potential habitat including areas considered habitat critical to the survival of these species, the area of habitat to be removed by the project is surrounded by contiguous areas of suitable foraging and breeding habitat, with similar or higher quality resources. The project is unlikely to pose a barrier to movement of the species within the broader locality. Given these factors it is considered unlikely that the project will interfere with the recovery of these species.
Conclusion.
Considering the above factors, it is unlikely that the proposed work will impose a significant impact Diamond Firetail as: • The project will not introduce any diseases or invasive species of Diamond Firetail. • The project will not interfere significantly with the recovery actions for the species. • The removal of native vegetation is considered to be a threat to the recovery and ongoing survival of the species however the project will impact up to 0.71 ha of potential woodland habitat, surrounded by large swathes of habitat that will be retained both within and adjacent to the project area, it is not likely to significantly impact the species. Based on the factors above, it is concluded that the project is unlikely to lead to a significant impact on the Diamond Firetail.

Appendix 6.8 Glossy Black-Cockatoo *Calyptorhynchus lathami*

Species background

Glossy Black-Cockatoo, vulnerable under the EPBC Act and BC Act, is a medium-sized cockatoo with a diagnostic combination of black-brown head, neck and underbody, red or orange-red panel in tail, and otherwise black plumage. Adult females also exhibit extensive patches of yellow feathering on head and neck.

The species is closely associated with *Allocasuarina* spp. and *Casuarina* spp. dominated woodlands, or open sclerophyll forest where the middle stratum is *Allocasuarina* spp. They feed almost exclusively on the seed of *Allocasuarina* spp. but occasionally also take wood-boring insect larvae. The species is dependent on hollow-bearing trees for breeding habitat as they nest in the hollows formed in the trunk, stump, spout or limbs of eucalypt trees, living or dead (Higgins 1999, NSW DCCEEW 2025a).

Occurrence in subject land

The species was not recorded during these surveys, but is known to occur within the subject land. Foraging and breeding habitat is represented by large hollows and woodland communities within PCT's 81,201,440,467,468 and 599.

SIC assessment for Glossy Black-Cockatoo

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Glossy Black-cockatoo. Glossy Black-cockatoo distribution is patchy and fragmented throughout its range, and is at risk of subpopulations becoming isolated. It is currently considered to occur as a single population consisting of approximately 7500 mature individuals. The main threat causing decline of the population is habitat loss, degradation and fragmentation. The subject land contains habitat suitable for the species, which are dependent on large hollow-bearing trees. Large hollow-bearing trees are present within the subject land and 30 are to be removed. Of the 30 hollow-bearing trees to be removed only four suitably large enough hollows will be removed. The project will result in the direct impact of 142 ha of potential habitat for the Glossy Black-Cockatoo. Withing the subject land 413 ha of potential habitat will be retained. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land. The potential habitat to be cleared is associated with smaller isolated patches and fringes of larger patches are higher quality habitat. Due to the abundance of habitat to be retained within the subject land and within 10 km and the small impact to suitable hollow-bearing trees it is unlikely that the project will result in the long term decrease in the size of an important population.
Reduce the area of occupancy of an important population.
Glossy-black Cockatoos are uncommon but widespread, with an area of occupancy of approximately 40,000 km^2. Glossy-black Cockatoos are associated with forested parts of the Great Dividing Range in NSW, with their distribution extending inland towards the Riverina but becoming increasingly scattered (Cth DCCEEW 2022a). The species has previously been recorded within the subject land. The Glossy Black-Cockatoo prefer to feed in or close to woodlands where they feed almost exclusively on species of she-oak (*Casuarina* and *Allocasuarina*). Within the subject land 142 ha of potential habitat will be impacted, with 413 ha to be

SIC assessment for vulnerable species
retained. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land.. The removal of 142 ha would constitute a minor reduction in the potential area of occupancy available to the species that is unlikely to represent a significant impact. Therefore, it is unlikely that the project will reduce the area of occupancy of an important population.
Fragment an existing important population into two or more populations.
Historic land clearance has been a significant cause of decline for Glossy Black-Cockatoo, leading to the loss of both feeding and breeding habitats. Wildfires have also caused further habitat loss and degradation. The distribution of the Glossy Black-Cockatoo is patchy and fragmented throughout its range, with loss of critical habitats recognised as a threat to the future of the species (Cth DCCEEW 2022a). The Glossy Black-Cockatoo is a highly mobile species that has been known to fly up to 12 km from nesting tree to food tree twice a day. The project will directly impact 142 ha of potential habitat. These impacts are largely associated with smaller isolated patches and fringes of larger remnant patches. The project would retain 413 ha of potential habitat. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land. Due to the high mobility of the species, the vegetation to be retained within the subject land as well as within 10 km and the isolation and fringe nature of the habitat to be removed it is unlikely the project will result in the fragmentation of an existing important population into two or more populations.
Adversely affect habitat critical to the survival of a species.
Habitat critical to the survival of the Glossy Black-Cockatoo includes areas that are necessary for foraging, breeding, roosting and dispersal such as vegetation types that include preferred feed trees (*Allocasuarina* spp. and *Casuarina* spp.) and suitable nesting hollows. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. There will be a direct impact to 142 ha of potential habitat for the species. This habitat occurs as smaller isolated patches and fringes of larger patches and is therefore considered to be less suitable for the species. 30 hollow-bearing trees are to be removed, however, only four suitably large enough hollows for the species will be impacted. There is a low likelihood that these trees represent critical habitat to the species' survival, particularly in the broader landscape context where it is likely individuals would target large, intact remnants for breeding. Within the subject land 413 ha of suitable habitat will be retained. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land.. These larger intact patches are likely to be more critical to the survival of the species than those being removed. Therefore, it is unlikely that the project with adversely affect habitat critical for the survival of the species.
Disrupt the breeding cycle of an important population.
No known breeding habitat will be impacted by the project. Four suitably large enough hollows may be removed as part of the project. No breeding has been recorded in these hollows either historically or during the current survey. Given the large amount of suitable habitat being retained, it is considered unlikely that the project would result in any disruption to the breeding cycle of the population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted. Therefore, the magnitude of the impact is small in the context of other causes of habitat loss operating across the species' range and in isolation is unlikely to impact the species to the extent that it would cause

SIC assessment for vulnerable species
a decline in the population.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
There is no National Recovery Plan for the Glossy Black-Cockatoo, however, Saving our Species (SoS) has developed a strategy to secure the species from extinction. Key management sites are being identified, located in various sites across NSW. The subject land is located outside the priority management sites. The proposed works will not impact on the recovery of the Glossy Black-Cockatoo or any areas mapped as priority management sites. Conservation Advice for the species identifies habitat loss, degradation and fragmentation from land clearing and wildfires as key threats to the species, as well as climate change. The project would result in the removal of 142 ha of potential habitat for the species. These impacts occur in areas of smaller isolated patches or fringes of larger remnant patches. The project will retain 413 ha of potential habitat. The direct impacts of the development footprint would impact 0.67% of the 20,922 ha of potential habitat within10 km of the subject land. The project will also result in the removal of four suitably large enough hollows for the species. Due to the habitat to be retained within the subject land and within 10 km as well as the minimal impact to potential breeding hollows it unlikely that the project would interfere substantially with the recovery of the species.
Conclusion.
Considering the above factors, it is unlikely that the proposed work will impose a significant impact on Glossy Black-Cockatoo or their habitats as: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species. Based on the factors above, it is concluded that the proposed works are unlikely to lead to a significant impact on the Glossy Black-Cockatoo.

Appendix 6.9 Koala *Phascolarctos cinereus*

Species background

Koala populations in Queensland, NSW and ACT are listed as endangered under the EPBC Act. Koalas occupy a range of eucalypt-dominated forest and woodland types throughout their range, but favour habitats that support key forage species in more mesic microhabitats. Altitude (< 800 metres above sea level) and temperature restrict the Koalas distribution, as does leaf moisture at the western and northern ends of the range.

Key threats to Koala include habitat fragmentation, predation by dogs, vehicle strikes and disease. Climate change may also be affecting Koala populations through increased temperatures causing heat stress and a reduction in the level of moisture within the leaves of browse trees.

Koala populations throughout Australia are currently under increased pressure due to the 2019-2020 summer bushfires that occurred across the southern and eastern states of Australia. DAWE has provided several resources in response to these fires including analyses of listed species habitat within fire affected areas (DEE 2020), as well as provisional lists of fauna that require urgent management intervention (DAWE 2020). Twelve percent of the likely and known distribution of the combined Koala populations across Australia have been identified as occurring within fire affected areas, and Koala has been identified as one of the species requiring urgent management intervention. Given this context, any remaining areas of high-quality Koala habitat are now critical to the conservation of the species.

Occurrence in subject land

Koala were not detected during detailed surveys but have been recorded approximately 11 kilometres from the subject land. Suitable habitat is broadly available within woodland communities PCTs 81, 201, 281,440, 467, 468, and 599. Feed tree species present are secondary feed trees such as Blakely's Red Gum *Eucalyptus blakelyi*, White Box *Eucalyptus albens*, Western Grey Box *Eucalyptus microcarpa* and in relatively small, fragmented patches away from key corridors that contain preferred habitat in this region.

SIC assessment for Koala

SIC assessment for Koala
Lead to the long-term decrease in the size of a population.
It is unlikely that the project would lead to a long-term decrease in the size of the Koala population. There is limited habitat present with the subject land, and no evidence of Koalas was found. The subject land is not considered an area of high koala occupancy, with the nearest record occurring 11 km from the subject land, and therefore not consistent with a critical koala population (DPIE 2020). The main causes of decline for koala populations is habitat loss, with vegetation clearance for urbanisation, grazing, agriculture and mining significantly reducing the koala's distribution (DAWE 2022a). Recent bushfires have also contributed to loss of both individuals and habitat, as well as climate change and drought (DAWE 2022a). Although there are feed trees present within the subject land, all of which are secondary feed trees and in relatively small, fragmented patches away from key corridors that contain preferred habitat in the region such as riparian woodlands. The project would not result in impacts to any primary feed trees but will impact upon 194 ha of woodland that constitute potential secondary koala foraging habitat. Patches of potential habitat subject to direct and indirect impacts are smaller isolated patches and are not contiguous with other suitable koala habitat. These areas of habitat are unlikely to represent

SIC assessment for Koala

critical resources for Koala in the landscape. Areas of higher quality including preferred feed trees and major connectivity routes such as riparian corridors have been avoided during the design process. It is therefore considered unlikely that the project would lead to a long-term decrease in the size of the koala population.

Reduce the area of occupancy of a population.

The area of occupancy for koala is estimated to be 19,428 km^2 and contracting (DAWE 2022a).

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. No preferred feed trees and major connectivity and movement corridors have been impacted. No primary habitat such as River Red Gums occurs within the subject land, with 194 ha of impacts to smaller isolated patches of secondary habitat as well as fringe habitat to larger patches. The project will retain 353 ha of potential secondary habitat. The impacts within the development footprint make up around 0.85% of the potential mapped habitat (22,710 ha) for this species within 10 km of the subject land. The operation phase and mitigation measure implemented by the project is also considered compatible with movement of koalas through the landscape. Based on the above, the project would have a negligible impact on the area of occupancy for Koala with consideration to the small area to be impacted relative to the larger tracts of remnant native vegetation within the vicinity. The species will continue to forage and breed in retained habitat outside of the subject land and the proposal will not represent a barrier to the movement of individuals.

Fragment an existing population into two or more populations.

Koala is a mobile and wide-ranging species and in this region is likely to occur across large home-ranges (DAWE 2022b). Koalas are capable of travelling large distances through unfavourable habitat to seek out preferred feed trees.

Due to the lack of primary feed trees within the subject and the relatively smaller isolated patches of secondary feed trees, the high mobility of Koalas and no records of Koalas within 10 km of the subject land it is unlikely that Koala utilize the subject land. Due to this it is unlikely that the project will result in the fragmentation of an existing population into two or more populations.

Adversely affect habitat critical to the survival of a species.

Habitat critical to the survival of a species is defined as: the areas that the species relies on to avoid or halt decline and promote the recovery of the species. Under the EPBC Act, the following factors and any other relevant factors may be considered when identifying habitat that is critical to the survival of a species:

- whether the habitat is used during periods of stress (examples: flood, drought or fire)
- whether the habitat is used to meet essential life cycle requirements (examples: foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes)
- the extent to which the habitat is used by important populations
- whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development
- whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements
- whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation
- any other way in which habitat may be critical to the survival of a listed threatened species or a listed threatened ecological community.

No primary feed trees for Koalas were recorded within the subject land with areas of secondary feed trees to be impacted occurring in smaller isolated patches away from key corridors that contain preferred habitat in this region.

This is unlikely to represent habitat critical to the survival of the species. It is possible that individuals may pass through the subject land on an occasional or transient basis, but it is unlikely that individuals would rely on these habitats for their long-term persistence in the landscape given the small and fragmented nature. Detailed constraints assessment and

SIC assessment for Koala
modelling of biodiversity values was undertaken to ensure areas of high biodiversity value that are most likely to be utilised by Koala would be retained as a result of the project. Therefore, it is unlikely that the project will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population.
The species was not detected during detailed surveys and the lack of available preferred trees suggests that breeding habitat is limited within the subject land. The project is unlikely to result in the disruption to the breeding cycle of the local population or the species as a whole.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Koalas were not recorded on site during surveys. No River Red Gums or preferred/primary habitat was present within the subject land. Approximately 194 ha of woodland containing secondary feed trees will be impacted. While there is a presence of secondary feed trees within the subject land, these are in relatively small, fragmented patches away from key corridors that contain preferred habitat in this region. It is possible that individuals may pass through the subject land on a seasonal or transient basis however, modification to these isolated, poor quality habitat patches is unlikely to lead to a decline in the species. Larger, intact remnants as well as connected vegetation corridors associated with riparian woodlands have been avoided in the design process and would be retained as a result of the project. Therefore, it is unlikely the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to result in the introduction of a disease (e.g., Chlamydia) that could reduce the reproductive output of Koala populations in or near the project area. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
The main threat to koalas is habitat loss and degradation, which is compounded by climate change, genetic isolation and disease (DAWE 2022b). Actions that remove critical koala habitat, such as intact remnants supporting high densities of koalas, could be considered as interfering with the recovery of the species. The project would not be removing habitat critical to the survival of the koala. The project would not impact any primary or preferred trees species for Koala, however, will impact 194 ha of woodland that contains secondary food tree resources. The project will retain 353 ha of woodland that contains secondary feed trees. The impacts within the development footprint make up around 0.85% of

SIC assessment for Koala
the potential mapped habitat (22,710 ha) for this species within 10 km of the subject land. The design phase of the project resulted in large areas of suitable koala habitat being retained. The operation of the project would also not create a barrier to koala movement. The project is considered unlikely to interfere substantially with the recovery of the species.
Conclusion.
In consideration of the above significant impact criteria, the proposal is not likely to significantly impact Koalas within the subject land or wider locality, as: • The project will result in impacts to marginal Koala foraging and dispersal habitat. Given the availability of similar resources within the locality, impacts are not considered to constitute a significant impact. • The project is unlikely to result in the introduction of a disease (e.g., Chlamydia) that could reduce the reproductive output of the Koala populations in or near the project area. • The project does not substantially contribute to a KTP for Koala or impact upon any of the priority conservation actions for the species.

Appendix 6.10 Australasian Bittern *Botaurus poiciloptilus*

Species background

The Australasian Bittern is listed as endangered under the EPBC Act. It is a large, stocky, thick-necked, heron-like bird and has a prominent black-brown stripe running down the side of the neck, the eyebrow is pale, and the chin and upper throat are white. In Australia, the Australasian Bittern occurs from south-east Queensland to south-east South Australia as far as the Adelaide Region, southern Eyre Peninsula, Tasmania and in the southwest of Western Australia (DEE 2019).

The Australasian Bittern has primarily been impacted by the loss of wetland habitat through the diversion of water away from wetlands; drainage of swamps; and clearing for urban and agricultural development. Habitat degradation due to factors such as reduced water quality, invasion by weeds, impacts from grazing animals and reduced water flows due to a changing climate are also impacting on Australasian Bittern survival and breeding success. Predation by introduced species may also be limiting survival but more research is required to determine the relative importance of this threat.

Occurrence in subject land

Australian Bittern has not been recorded within the subject land with the nearest record occurring roughly 36 km to the north. There is no optimal habitat for the Australasian Bittern within the subject land and the

species is not associated with any of the PCTs found within the subject land. It is unlikely for the species to utilise the subject land.

SIC assessment for Australasian Bittern

SIC assessment for Endangered species
Lead to the long-term decrease in the size of a population.
There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Australasian Bittern. It is estimated that there are 1300 mature Australasian Bittern individuals in Australia. These can be divided into two subpopulations, the south-eastern and the south-western subpopulations. The rice fields of the Riverina, including the Murrumbidgee and Coleambally Irrigation Areas support the largest known population of Australasian Bittern, and up to 59% of the national population (Cth DCCEEW 2022b). It is thought that the population has been in decline for over 30 years, associated with the loss of key breeding habitats. Current threats to the species are primarily associated with hydrological changes and habitat removal or modification, that would further reduce the availability and quality of breeding and foraging habitat for the species. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitats for Australasian Bittern, were avoided as much as possible. The species is not associated with any PCTs within the subject land under the BAM, and there is no suitable breeding habitat present as it does not contain densely vegetated wetlands with an abundance of reeds. Due to the lack of suitable habitat there is a low likelihood that the project would result in the long-term decrease in the size of the population of Australasian Bittern.
Reduce the area of occupancy of the species.
The area of occupancy for Australasian Bittern is thought to have declined by 70 percent between 1977 and 2008 as a result of habitat loss, particularly breeding grounds (Cth DCCEEW 2022b). Changing water regimes and the loss or modification of wetland habitats is considered an ongoing threatening process for the Australasian Bittern. The area of occupancy was estimated to be between 600 km^2 and 800 km^2 in 2000 (DEE 2019), but this has likely further declined as a result of subsequent wetland loss. Within the subject land, there is no suitable habitat present for the species. The project would not result in barriers or obstructions to movement in the landscape for the species. The species is unlikely to utilise the subject land, other than potentially transient during years of intense flooding. Therefore, it is unlikely that the project will reduce the area of occupancy of the species.
Fragment an existing population into two or more populations.
The project is considered unlikely to lead to fragmentation of an existing population into two or more populations. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. The project does not contain any suitable habitat for the species and is unlikely to be utilised by the species. The species is highly mobile and capable of travelling large distances to exploit suitable resources. The nature of the project would not preclude the species from occupying the area during favourable conditions such as flooding events, and would not create any barriers to movement for Australasian Bittern such that the population would become fragmented.
Adversely affect habitat critical to the survival of a species.

SIC assessment for Endangered species
Given that the Australasian Bittern is presumed to have undergone a severe reduction in numbers, based on historic habitat loss and degradation across the core part of its range, all natural habitat (including constructed wetlands with suitable habitat) in which the Australasian Bittern is known or likely to occur should be considered critical to the survival of the species (DEE 2019). The Australasian Bittern prefers wetlands with dense vegetation from 0.5-3.5 metres in height, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds as well as rice crops (Cth DCCEEW 2022b). The National Recovery Plan for the species defines critical habitat as any natural wetland habitat where the species is known or likely to occur (breeding or foraging habitat) within its known range. Critical habitat for the Australasian Bittern therefore does not occur within the subject land. Given that there is no suitable habitat present within the subject land, that the species in not associated with any PCTs found on the subject land under the BAM it is unlikely that the project would adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population.
The Australasian Bittern breeds from October to February in solitary pairs. However, sometimes several nests may be placed in close proximity to each other (Marchant & Higgins 1993). The species nests adjacent to relatively deep, densely vegetated freshwater swamps and pools, building its nests under dense cover over shallow water (Marchant & Higgins 1990). The species prefers to nest in vegetation that is up to 2.5 m tall and the nests are placed about 30 cm above the water level (Marchant & Higgins 1990). The nest is a shallow structure of dry or green reeds, within a clump of reeds in water or a swamp and is built on a platform of bent-over reeds. Despite occurring in a range of wetland types, breeding is known to occur in a much smaller sub-set of locations (Cth DCCEEW 2022b). Breeding has been confirmed in areas of the Riverina, predominantly the Coleambally Irrigation Area where irrigated rice crops provide optimal habitat for Australasian Bitterns. There is no breeding habitat present within the subject land and the subject land is unlikely to be utilized by the species. Therefore, it is unlikely that the project will disrupt the breeding cycle of a population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Quality habitat for the species includes areas that are necessary for foraging and breeding, such as vegetation types that include wetlands with dense reeds present. These habitats do not occur within the subject land. The project is therefore unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes. Invasive weeds species are not known to directly harm populations of Australasian Bittern, but do have potential to reduce quality of habitat in wetland areas. The risk of introduction of weed species will be mitigated by the implementation of good soil transportation practices throughout works that will be detailed in the Construction

SIC assessment for Endangered species
Environment Management Plan (CEMP).
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
A national recovery plan currently exists for Australasian Bittern. Actions outlined within the plan to aid in the recovery of the species relating to the project include: • Identify subpopulations of high conservation priority. • Identify key locations that require habitat protection and improvement. • Protect areas of 'habitat critical for survival' that are not currently managed for nature conservation. • Develop and implement a range of voluntary incentives for protecting Australasian Bittern habitat on private land. • Undertake wetland restoration activities, to create suitable habitats for Australasian Bittern. • Monitor habitat subject to restoration and enhancement. The subject land does not have any habitat critical for the survival of the species present. Key breeding areas for the species occur south in the Riverina. Due to the lack of habitat present and the key breeding area occurring south it is unlikely that the project will interfere substantially with the recovery of the species.
Conclusion
Considering the above factors, it is unlikely that the proposed work will impose a significant impact on the species or their habitats as: • Habitat within the subject land is unsuitable for Australasian Bittern, as it does not contain preferred foraging habitat or suitable breeding habitat. • The project would not impact on habitat critical to the species survival. • The project would not result in impacts to an important population. • The proposed works will not interfere with the recovery of the species or areas established by SoS as a priority management site. Based on the factors above, it is concluded that the proposed works are unlikely to lead to a significant impact on the species.

Appendix 6.11 Grey-headed Flying-fox *Pteropus poliocephalus*

Species background

Grey-headed Flying-fox is listed as Vulnerable under the Commonwealth EPBC Act. The Grey-headed Flying-fox trends with the distribution of plants with similar flowering and fruiting times, support regular annual cycles of migration (Eby & Lunney 2002). It can be associated with flowering eucalyptus dependant on seasonality. Key threats to the Grey-headed Flying-fox include habitat fragmentation and habitat degradation, low levels of mortality, exploitation and competition. The species is largely impacted by urban growth displacing individuals.

Grey-headed Flying-fox within the subject land

The species was not recorded during surveys and the nearest record occurs roughly 33 km to the east of the subject land. Potential foraging habitat is represented by PCTs 8, 281, 440, 468 and 599.

SIC assessment for Grey-headed Flying-fox

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
The project will result in the removal of 97 ha of predominately low to moderate quality woodland that provides foraging habitat for the species. While the proposal will result in the removal of potential foraging resources for Grey-headed Flying-fox, the total area of habitat being removed is considered low quality, non-breeding habitat. The species prefers large consolidated vegetation communities that produce significant foraging resources. Given the scale of the impact, and amount of low quality foraging habitat to be removed it is unlikely that it will lead to a long-term decrease in the size of an important Grey-headed Flying-fox population.
Reduce the area of occupancy of an important population.
The species is highly mobile and relatively widespread, roosting and maternity sites are well documented and conspicuous. No roosting or breeding habitat was recorded during field assessment. Due to the smaller isolated areas as well as fringes being impacted and no known camps within the locality the overall area of occupancy of the species is likely to remain unchanged. The species will continue to be able forage in retained habitat either side of the construction footprint and the development will not represent a barrier to the movement of individuals.
Fragment an existing important population into two or more populations.
The national population of the Grey-headed Flying-fox is considered a single population as it is a highly mobile species. The subject land contains low to moderate condition habitat and has large patches of higher quality vegetation directly adjacent to it to the east. This area is more likely to be utilized by the species as they prefer larger intact vegetation communities. The project will impact 97 ha of low quality habitat the occurs as smaller isolated patches or fringes on larger patches. The project will retain 289 ha of higher quality larger patches of woodland that the species will still be able to utilize. No camps have previously been recorded within the subject land and no roosting flying-foxes were present during field investigation. The closest Grey-headed Flying-fox camp is located 33 kilometres east (DAWE 2021). Given the distance of these camps, and the highly mobile nature of the species (known to travel up to 50 km whilst foraging]). Therefore, the project is unlikely to fragment an existing important population into two or more populations.
Adversely affect habitat critical to the survival of a species.

SIC assessment for vulnerable species
Habitat critical to the survival of the Grey-headed Flying-fox includes important breeding and foraging resources. Limiting foraging resources may constitute habitat critical for the survival of Grey-headed Flying-fox and may include areas with highly productive winter flowering tree species. It is considered unlikely that low to moderate condition habitat within the subject land would constitute habitat critical to the survival of the Grey-headed Flying-fox for the following reasons: • No camps will be impacted by the proposed development. • Low condition vegetation within the subject land is considered unlikely to be selected as a roosting site in the future as the vegetation patch is relatively small and partially fragmented. Therefore, the project is unlikely to adversely affect habitat critical to the survival of a species.
Disrupt the breeding cycle of an important population.
While the project may result in the removal of vegetation utilised for foraging by the species, the project will not result in the disruption to the breeding cycle of any local Grey-headed Flying-fox population or the species as a whole. The proposal will not provide further disturbance from noise or lighting pollution that will substantially interfere with the species' ability to reproduce successfully as the subject land is not within close proximity to breeding areas. Grey-headed Flying-foxes will continue to be able breed in camps unaffected by vegetation loss and as a result the breeding cycle of the population will not be disrupted.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Grey-headed Flying-foxes may utilise the subject land on occasion for foraging. The project will only impact smaller isolated patched of low quality habitat which may provide foraging resources at certain times of the year. The project will not impact on any existing camps and is unlikely to have an impact on nearby camps as this small patch is unlikely to produce sufficient foraging resources to support a large number of Flying-foxes. The subject land is surrounded by higher-quality resources as part of intact native vegetation within the locality (East of the subject land), therefore the project will only impact a very small number of resources within the broader landscape. The subject land is considered unlikely to be suitable for a future camp as the subject land is already partially fragmented. The species prefers intact vegetation inclusive of foraging resources within close proximity, higher quality habitat and lack of habitat features associated with Flying-fox camps, means the impact areas are unlikely to be utilized by the species. The proposed development will remove up to 97 ha of native vegetation, this will not fragment or isolate the population as it is already smaller isolated patches, and vegetation within the locality is largely intact and native. While the project will result in the removal of trees, some of which may be used by the species, this level of loss is not likely to result in the decline of the species at a national scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
There are a moderate number of feral animals and plants that are known or likely to be well established in the subject land. Some of these have potential to negatively impact Grey-headed Flying-fox including foxes and dogs. However, it is unlikely that the project would result in the establishment of new species. The proposed action is unlikely to exacerbate the current level of invasive species threat operating within the project area.
Introduce disease that may cause the species to decline.
The project is unlikely to result in the introduction of a disease that could reduce the reproductive output of Grey-headed Flying-foxes in or near the project area.
Interfere substantially with the recovery of the species.

SIC assessment for vulnerable species

Actions considered likely to substantially interfere with the recovery of the Grey-headed Flying-fox as determined by key threats to the species (DEW 2021) are as follows:

- Habitat loss and fragmentation including important foraging species such as Forest Red Gum.
- Winter Foraging resources are limited to a narrow coastal strip in QLD and northern NSW.
- Spring foraging resources are considered critical to the survival of the species.
- Exploitation – shooting of Grey-Headed Flying-foxes to protect fruit crops involves death of the individual and indirect death as a result of shooting of pregnant and lactating females.
- Competition and hybridisation – indirect competition by Black Flying-fox which has had a range expansion in the past.
- Pollutants, electrocution and pathogens. A disproportionately higher number of lactating females are killed by electrocution on power lines.

The project will not fragment habitat for the Grey-headed Flying-fox and will not significantly contribute to the loss of habitat as it will result in the removal of up to 97 ha of low quality habitat that occurs in smaller isolated patches already, or on the fringes of larger patches. The proposed development is not likely to increase incidence of competition or hybridisation. The project is therefore unlikely to substantially interfere with the recovery of the Grey-headed Flying-fox.

Conclusion.

Based on the assessment above, it is concluded that the species is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project:

- Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population.
- Will not disrupt the breeding cycle of a population, or species as a whole.
- Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread.
- Will not interfere will the recovery of the species.

Appendix 6.12 Corben's Long-eared Bat *Nyctophilus corbeni*

Species background

Corben's Long-eared Bat is listed as vulnerable species under the EPBC Act. The species is widespread, but patchily distributed in the woodlands of southern central Queensland central western NSW, north-west Victoria and south-east South Australia. The species is found in a number of National Parks and Reserves around Brigalow Belt South bioregions in NSW and Queensland. The species is more abundant in larger remnants of native vegetation (principally box/ironbark/cypress-pine and mallee) with a distinct tree canopy and dense cluttered understorey. This species is noted as rare and occurs patchily across areas of suitable habitat. Maternity sites occur within trunk or spout hollows, non-maternity roosts are often under bark or less commonly in fissures and hollows. Roosting in NSW has been identified in *Eucalyptus* sp. and *Callitris* sp. This species is associated with large, forested areas, although it is known to forage short distances in surrounding cleared land. They are mostly found in abundant vegetation with a distinct canopy and a dense cluttered understory layer (Churchill 2024).

The main threat to this species is habitat loss and fragmentation, inappropriate fire regimes, timber extraction, causing loss of hollow availability for roosting and increased competition, grazing regimes, mining

and a possible threat is the predation by feral animals such as foxes or cats.

Corben's Long-eared Bat within the subject land

The species was potentially recorded within the subject land as part of a Nyctophilus call complex during surveys. The subject land is within the current known range of this species under the Australian Bat Society's BatMap viewer (AusBats 2024).The species inhabitant a variety of vegetation types, including mallee, bulloke and box eucalypt dominated communities. Suitable foraging, roosting and breeding habitat is represented within the subject land by PCTs 81, 201, 440,468 and 599.

SIC assessment for Corben's Long-eared Bat

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
The species is known to occupy a range of PCTs throughout its range., The species was potentially recorded within the subject land as part of a Nyctophilus call complex during surveys The species has a scattered distribution mostly within the Murray-Darling Basin, but with some records outside of this area. It is more common in box, ironbark and cypress pine woodland on the western slopes and plains, with a stronghold for the species (hosting 9% of the current known population) in the Pilliga Scrub (Cth DCCEEW 2025a). The main threat causing decline of the species are habitat loss and fragmentation as well as the loss of suitable hollows for roosting. The species is more abundant in extensive stands of vegetation compared to smaller woodland patches (Threatened Species Scientific Committee 2015) indicating a preference for large remnant patches of vegetation. Hollow preference for the species has been shown the hollows utilized by the species mainly occur in dead trees or dead sprouts in live trees. The species is an insectivorous bat that feeds within patches of trees in the landscape where the species will take insects from the ground or in flight (Threatened Species Scientific Committee 2015). Non-maternity roosts are often under bark or less commonly in fissures and hollows, the habitat within the subject land contains several rough barked species including Mugga Ironbark, White Cypress and Black Cypress Pine. The subject land contains habitat suitable for the species with numerous hollow-bearing trees present, however, majority of hollows recorded occurred within living trees. The project will impact 54 ha of low-quality potential habitat for the species which occurs as smaller isolated patches or fringes of large patches. The project will retain 278 ha of larger patches of woodland which is considered more preferential for the species. The impacts within the development footprint make up around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the species within 10km of the subject land. Within the development footprint 30 hollow-bearing trees will be removed by the project which could be utilized for the species to roost in. However, 55% of hollows within the subject land will be retained and the hollows that are being removed occur in areas of small isolated patches or in scattered trees not likely to be utilized by the species. Therefore, it is unlikely that the project will result in the long-term decrease in the size of an important population.
Reduce the area of occupancy of an important population.
The species area of occupancy has not been defined but occurs mostly within the Murray Darling Basin, with some records outside of this area. The species prefers areas of extensive stands of vegetation with a preference for hollows in dead trees. The stronghold for the species occurs within the Pilliga Scrub which starts roughly 110km to the north and stretches another 75 km further north. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for this subspecies, were avoided as much as possible. The project will impact 54 ha of potential habitat for the species, however, the habitat to be impacted would not be preferred habitat within the landscape as it occurs predominately as smaller isolated patches or scattered trees. Within the subject land 278 ha of higher quality preferential habitat would be retained by the project. This is more likely to be utilized by the species as it occurs in larger remnant patches. The impacts within the development footprint make up

SIC assessment for vulnerable species
around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the species within 10km of the subject land. Including a large tract of forest and woodland directly east of the subject land, connected further south to areas of conserved woodland and forest including Tuckland State Forest. Of the 30 hollow-bearing trees to be impacted by the project only five of them are dead trees. Furthermore 55% of hollow-bearing trees both dead and alive will be retained by the project. Due to this it is unlikely that the project will reduce the area of occupancy on an important population.
Fragment an existing important population into two or more populations.
The species is highly mobile species with most roost sites used just for the day while travelling large distances at night. The species prefers habitat that consists of large remnant patches of vegetation where it feeds within patches of trees in the landscape. These habitats within the subject land have largely been avoided with 54 ha of low-quality potential habitat to be impacted that occurs as smaller isolated patches or scattered trees within the subject land. The project will retain 278 ha if higher quality, large remnant patches of vegetation that is more likely to be utilized by the species. The impacts within the development footprint make up around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the species within 10km of the subject land. The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land. Therefore, it is unlikely that the project will result in the fragmentation of an existing important population into two or more populations.
Adversely affect habitat critical to the survival of a species.
Critical habitat for the species has not been described but would include areas that are used for breeding and foraging for the species. Key areas for the species include the stronghold in Pilliga Scrub as well as any area the species currently resides. The species prefers habitat which occur in extensive stands of vegetation compared to smaller patches and prefers hollows in dead trees for roosting as opposed to hollows in living trees. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for this subspecies, were avoided as much as possible. 54 ha of low quality potential habitat will be impacted by the project, this occurs as mostly smaller isolated patches, scattered trees or fringes of larger patches. It is unlikely the species utilizes this habitat given the larger higher quality patches of remnant vegetation within the locality. Within the subject land 278 ha of more preferential habitat will be retained. The impacts within the development footprint make up around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the species within 10km of the subject land. Therefore, it is unlikely that the project will adversely affect habitat critical to the survival of a species.
Disrupt the breeding cycle of an important population.
There are no known listed important populations for the species so all populations should be considered important populations. Breeding is likely seasonal with pregnant and lactating females being captured in November across the species range (Threatened Species Scientific Committee 2015). A limiting factor for breeding for the species is the availability of hollows within the landscape for females to use. The project will impact 54 ha of low-quality potential habitat which occurs as smaller isolated patches, scattered trees and fringes of larger patches as well as 30 hollow-bearing trees. Of the hollow-bearings trees only five were dead trees which is the preference for the species. The project will retain 278 ha of higher quality preferential habitat within the subject land the occurs as larger remnant patches more likely to be utilized by the species. The impacts within the development footprint make up around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the

SIC assessment for vulnerable species
species within 10km of the subject land. It is unlikely the species will utilize the habitat to be impacted given the access to higher quality preferential habitat within the subject land and locality. Therefore, it is unlikely that the project will disrupt the breeding cycle of an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species prefers habitat which occur in extensive stands of vegetation compared to smaller patches and prefers hollows in dead trees for roosting as opposed to hollows in living trees. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, including intact woodland areas that are the most likely habitat for this subspecies, were avoided as much as possible. 54 ha of low quality potential habitat will be impacted by the project, this occurs as mostly smaller isolated patches, scattered trees or fringes of larger patches. It is unlikely the species utilizes this habitat given the larger higher quality patches of remnant vegetation within the locality. Within the subject land 278 ha of more preferential habitat will be retained. The impacts within the development footprint make up around 0.53% ha of 10,078 ha of potential habitat within constitutes high quality, large remnant woodland patches more likely to be utilized by the species within 10km of the subject land Therefore, it is unlikely that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project does not include any known mechanism that would result in the establishment of invasive species harmful to Southern Bell Frog that are not already present in the area. The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
The main threat causing decline in the species is habitat loss and fragmentation as well as a reduction in the amount of available hollows. The project would be removing habitat that is unlikely to be utilized by the species and retaining habitat that is preferential to the species. Therefore, the project would not interfere substantially with the recovery of the species.
Conclusion.
Based on the assessment above, it is concluded that the species is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project: • Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population. • Will not disrupt the breeding cycle of a population, or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.13 Large-eared Pied Bat *Chalinolobus dwyeri*

Species background

The Large-eared Pied Bat is a medium-sized insectivorous bat measuring a total length of approximately 100 millimetres and weighing 7–12 grams (Hoye and Dwyer 1995). The species is listed as Endangered under the BC Act and the EPBC Act. The species' current distribution is poorly known. Records exist from Shoalwater Bay, north of Rockhampton, Queensland, through to the vicinity of Ulladulla, NSW in the south (Hoye 2005). Despite the large range, it has been suggested that the species is far more restricted within the species' range than previously thought (DAWE 2021b)Much of the known distribution is within NSW. Available records suggest that the largest concentrations of populations appear to be in the sandstone escarpments of the Sydney basin and the north-west slopes (Coolah Tops, Mt Kaputar, Warrumbungle National Park and Pilliga Nature Reserve. Although the species is widely distributed, it is uncommon and patchy within this area (DERM 2011).

The species requires a combination of sandstone cliff/escarpment to provide roosting habitat that is adjacent to higher fertility sites, particularly box gum woodlands or river/rainforest corridors which are used for foraging (TSSC 2012). Almost all records have been found within several kilometres of cliff lines or rocky terrain (Hoye 2005). Roosting occurs in disused mine shafts, caves, overhangs and disused Fairy Martin Hirundo ariel nests (Hoye and Dwyer 1995)

Only four maternity roosts have been discovered in NSW, with two of these since abandoned due to flood and disturbance by macropods (Pennay 2008). The structure of maternity roosts appears to be very specific (arch caves with dome roofs). Caves need to be high and deep enough to allow juvenile bats to learn to fly safely inside and have indentations in the roof. Roosting bats cluster in these indentations, presumably to allow the capture of heat. These physical characteristics are very uncommon in the landscape and their scarcity presumably poses an important limiting factor in the distribution of the Large-eared pied bat (Pennay 2008)

Large Eared Pied Bat within the subject land

The species was/ recorded during surveys on the subject land. It inhabitants low to mid elevation dry open forest and woodland close to roosting sites. It is associated with and may forage within PCTs 201, 281, 440, 468 and 599 within the subject land. No breeding and roosting habitat is present within the subject land.

SIC assessment for critically endangered or endangered species
Lead to a long-term decrease in the size of a population.
Information about the size, distribution and interactions of Large-eared Pied Bat populations is largely unknown. No populations have been defined as 'important populations' for the species. The largest concentration of records for this species appears to be in the sandstone escarpments of the Sydney basin, and northwest slopes of NSW. Important populations are not likely to occur at the edge of the species range, for example in the sandstone escarpments of the Morton National Park at the southern end of its range, and in Shoalwater Bay, QLD where only one individual has been recorded. The species is most frequently found in low to mid elevation dry open forest and woodland close to roosting sites which comprise of caves, cliff crevices and old mine sites (NSW DCCEEW 2025b). The project will remove 75 ha of foraging habitat that is associated with the species under the BAM in the form of PCT 201, 281, 440, 468 and 599. These areas occur as smaller isolated patches and scattered trees or on the fringes of larger areas. The species relies on habitat close to roosting site which occurring in caves, crevices in cliffs and old mine sites in

SIC assessment for critically endangered or endangered species
well-timbered areas containing gullies. These features do not occur on the subject land so it is unlikely that the species would be utilizing the subject land for roosting or breeding. The project will retain 279 ha of habitat associated with the species which constitutes of large well-timbered foraging areas within the subject land. Therefore, it is unlikely that the population would constitute an 'important population', or that the species would utilize the habitat to be impacted and as such the project is unlikely to lead to a long term decrease in the size of an important population of this species.
Reduce the area of occupancy of the species.
The species does not have a defined area of occupancy however, it can be found from Rockhampton QLD in the north to Bungonia in NSW Southern Highlands. The species is reliant on habitat that is within close proximity to roosting sites located within caves, cliff crevices and old mine sites. The project will remove 75 ha of habitat that is associated with foraging by this species under the BAM in the form of PCT 201, 281, 440, 468 and 599. These areas occur as smaller isolated patches and scattered trees or on the fringes of larger areas. The species relies on habitat close to roosting site which occurring in caves, crevices in cliffs and old mine sites in well-timbered areas containing gullies. Furthermore, the project will retain 279 ha of habitat associated with the species which constitutes of large well-timbered foraging areas within the subject land. Therefore, it is unlikely that the project would reduce the area of occupancy of the species.
Fragment an existing population into two or more populations.
The species is a highly mobile species which is known to move between maternity roosts and wintering roosts. The species relies on specific habitat requirements with suitable vegetation being within close proximity to roosting sites in cave, cliff crevices and old mine sites. The subject land does not contain any of the required roosting sites. As such the species would only be likely to use the subject land as it travels through the landscape. The project would impact 75 ha of associated habitat for the species which occurs in smaller isolated patches, scattered trees and fringes or large areas. The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land. Due to this project is unlikely to fragment an existing population into two or more populations.
Adversely affect habitat critical to the survival of a species.
Habitat critical to the survival of the species is defined as (DERM 2011): • Maternity roosts. • Sandstone cliffs and fertile wooded valley habitat within close proximity of each other. The subject land does not support maternity roosts for this species. Maternity roost sites require highly specific conditions, and only four sites have ever been recorded in NSW. The subject land does supports wooded habitat within close proximity to the cliff lines. As the proposal does not contain suitable breeding habitat. Sandstone cliffs may occur in the large tract of forest east of the subject land, however, no sandstone cliffs were present within the subject land. It is unlikely that the project will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population.
Breeding habitat for the species has very specific requirements in that they roost in caves, cliff crevices or old mine sites. None of these requirements are present within the subject land. The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land. Therefore, it is unlikely that the project will disrupt the breeding cycle of a population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

SIC assessment for critically endangered or endangered species

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted as no breeding habitat occurs within the subject land. Therefore, the magnitude of the impact is small in the context of other causes of habitat loss operating across the species' range. The habitat to be impacted is low-quality and may only be used on occasion for foraging by this species. Therefore, it is unlikely that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.

The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control.
It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.

Introduce disease that may cause the species to decline.

The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.

Interfere with the recovery of the species.

The following recovery objectives have been specified within the National recovery plan for the Large-eared Pied Bat:

- Identify priority roost and maternity sites for protection.
- Implement conservation and management strategies for priority sites.
- Educate the community and industry to understand and participate in the conservation of the Large-eared Pied Bat.
- Research the large-eared pied bat to augment biological and ecological data to enable conservation management.
- Determine the meta-population dynamics throughout the distribution of the Large-eared Pied Bat.

One of the recovery actions stated under these objectives is the protection of known roosts and associated foraging habitats and management of threats. The construction and operation of the solar farm is not expected to reduce the potential for this species to forage within or move through the subject land.

The project is unlikely to interfere with the recovery of the species.

Conclusion.

Based on the assessment above, it is concluded that Large-eared Pied Bat is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project:

- Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population.
- Will not disrupt the breeding cycle of a population, or species as a whole.
- Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread.
- Will not interfere will the recovery of the species.

Appendix 6.14 Brown Treecreeper *Climacteris picumnus victoriae*

Species background

The Brown Treecreeper is listed as vulnerable under the BC Act and EPBC Act. In NSW it ranges in the eastern part of the state from Victoria right through to Queensland. The western boundary for the species runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell where this subspecies intergrades with the arid zone subspecies of Brown Treecreeper. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (Eucalyptus camaldulensis) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains (NSW DCCEEW 2025c). The subspecies diet is comprised of insects, nectar from select eucalypts and paperbarks as well as lizards and food scraps. The species is reliant on hollows in standing trees, living or dead as well as tree stumps.

The subspecies is considered to exist as 100 subpopulations and not one contiguous population (Cth DCCEEW 2023a). The subspecies has undergone a significant reduction in size (30-50%) in the last three generations with an estimated 68,000 mature individuals left in the wild. Major threats to the subspecies are habitat loss and fragmentation, habitat degradation and territorial competition with Noisy Miners.

Brown Treecreeper within the subject land

The Brown Treecreeper was recorded directly adjacent to the subject land during surveys for the project. It is associated with PCTs 81, 201, 281, 440, 468 and 599 within the subject land.

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Brown Treecreeper. Important populations for the Brown Treecreeper have not been identified with 100 subpopulations being estimated as existing as the subspecies is considered sedentary with some individuals dispersing locally after breeding (NSW DCCEEW 2025c). The population estimates for the subspecies are 68,000 mature individuals left in the wild. The major threats to the subspecies are habitat loss and fragmentation, habitat degradation and territorial competition with Noisy Miners. The Brown Treecreeper is reliant on hollows in standing trees and tree stumps for nesting. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. Within the subject land, 503 ha of which represents potential habitat would be retained. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land. Direct impacts to 162 ha of potential habitat for the Brown Treecreeper would occur due to the project. Although these areas represent potential habitat for Brown Treecreeper, they occur as mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat, and are heavily degraded and as such are of lesser quality for Brown Treecreeper. The Brown Treecreeper is noted that it is absent from heavily degraded woodland (Cth DCCEEW 2023a). Due to these factors it is unlikely that the project will result in the decrease in the size of an

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important population.

Reduce the area of occupancy of an important population.

The extent of occurrence for the subspecies is estimated to be 1,100,000 km2, however the area of occupancy is contracting and is estimated at 30,000 km2 for the subspecies (Cth DCCEEW 2023a).
The project would result in direct impacts to 162 ha of potential habitat for the Brown Treecreeper. However, the areas being removed are mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat and are heavily degraded which is a known restriction for the Brown Treecreeper.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land, 503 ha of suitable vegetation would be retained. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land.
Based on the size and low-moderate quality of the areas proposed for removal, and their context in the broader landscape and areas to be retained, the project would result in a negligible reduction to the area of occupancy for the species.

Fragment an existing important population into two or more populations.

Brown Treecreeper is thought to be mostly sedentary, though some individuals may undergo local movements after breeding. It is unlikely that the project would result in fragmentation for the species. Areas of suitable habitat being removed include smaller isolated patches of woodland vegetation and the fringes of larger patches, and is heavily degraded. These impacts are unlikely to result in any barriers to movement for the subspecies and are unlikely to be utilized due to the degradation. The subspecies is able to move through open areas as well as lightly timbered woodlands, and it is unlikely that the project would result in a barrier to movement for the species.

Adversely affect habitat critical to the survival of a species.

Habitat critical to the survival of the brown treecreeper (south-eastern) includes areas that have:

- Relatively undisturbed grassy woodland with native understorey.
  - Habitat structure should be quite open at ground level so that birds are able to feed on or near the ground and maintain vigilance against predators.
  - The required degree of openness is mostly likely to be created by moderate levels of disturbance by fire and/or grazing.
  - Large living and dead trees which are essential for roosting and nesting sites and for foraging.
- Fallen timber which provides essential foraging habitat and;
- Hollows in standing dead or live trees and tree stumps are also essential for nesting.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. These areas are likely to represent the most suitable patches of habitat for Brown Treecreeper including 503 ha of suitable vegetation retained within the subject land. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land.
Trees with hollows are important resources for the Brown Treecreeper. The project may result in the removal of 30 hollow-bearing trees. Overall, however, the majority (55%) of hollow-bearing trees have been avoided and would be retained, in addition to intact woodland areas that would contain suitable resources for the Brown Treecreeper. These trees are unlikely to be critical to the species' survival in the broader landscape context where large areas of suitable habitat will be retained. Due to the high levels of disturbance in areas to be impacted it is unlikely that the Brown

SIC assessment for vulnerable species
Treecreeper utilizes these areas. Due to these factors above it is unlikely that the project will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population.
There is a low likelihood that the project would result in any disruption to the breeding cycle. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants, representing the most suitable breeding habitat for Brown Treecreeper . Direct impacts to 162 ha of habitat associated with the Brown Treecreeper would occur, although these areas are heavily degraded and not likely to be utilized. No known breeding habitat would be removed however, the project may include removal of 30 hollow-bearing trees that represents a potential breeding resource for the species. The majority of hollow-bearing trees within the subject land, however, have been avoided and would be retained. Within the subject land, 503 ha of suitable habitat would be retained. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land. It is considered unlikely that the areas subject to removal would result in disruption of the breeding cycle to the Brown Treecreeper.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible The project includes the removal of up to 162 ha of associated habitat for this species, however, it is heavily degraded and unlikely to be utilized, as well as 30 hollow-bearing trees. Impacts as a result of the project are considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Within the subject land, 154 ha of suitable habitat would be retained. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land. In addition, mitigation methods implemented as part of a Biodiversity Management Plan for the project will ensure that indirect impacts including weed establishment are minimised for the duration of the works.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
There is currently no National Recovery Plan for the Brown Treecreeper, however conservation and management priorities within the approved conservation advice for the species primarily relate to reducing clearing of critical habitat (particularly for agriculture), revegetation to expand and connect areas of existing habitat and minimising habitat degradation and fragmentation.

SIC assessment for vulnerable species
The project would result in direct impacts to 162 ha of associated habitat, which is heavily degraded and unlikely to be utilized and the removal of 30 hollow-bearing trees. The project would include the retention of 503 ha of woodland vegetation within the subject land. The direct impacts within the development footprint make up around 1.35% of the 11,997 ha of potential habitat within 10 km of the subject land. The project is not likely to interfere substantially with the recovery of the species.
Conclusion.
Based on the assessment above, it is concluded that Brown treecreeper (eastern subspecies) is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project: • Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population. • Will not disrupt the breeding cycle of a population, or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.15 South-eastern Hooded Robin *Melanodryas cucullata cucullata*

Species background

South-Eastern Hooded Robin is listed as Endangered un the BC Act and EPBC Act. The South-eastern Hooded Robing has a distribution range that covers the majority of NSW and extends in Queensland in the North, Victoria in the South and South Australia to the west. It prefers lightly wooded country, usually open eucalypt woodland, acacia scrub often in or near clearings or open areas (NSW DCCEEW 2025d). It requires structurally diverse habitat featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.

The species has undergone a dramatic decrease in the last 10 years with a decline of over 50%. There is an estimated 68,000 mature individuals left in the wild with a trend in the area of occupancy and extent of occurrence both undergoing a contracting trend (Cth DCCEEW 2025b). Major threats for the South-eastern Hooded Robin include habitat loss, degradation and fragmentation.

South-eastern Hooded Robin within the subject land

The South-eastern Hooded Robin was not recorded during surveys but records from 2011 occur directly adjacent to the subject land. The South-eastern Hooded Robin is associated with PCTs 81, 201, 281 and 599.

SIC assessment for South-eastern Hooded Robin

SIC assessment for critically endangered or endangered species
Lead to a long-term decrease in the size of a population.
There is a low likelihood that the project will lead to a long term decrease of an important population of the South-eastern Hooded Robin. Important populations for the South-eastern Hooded Robin have not been identified with 100 subpopulations being estimated as existing and the subspecies is considered sedentary with home ranges varying from 10 ha to 30 ha in non-breeding season (NSW DCCEEW 2025d). The population estimates for the subspecies are 68,000 mature individuals left in

SIC assessment for critically endangered or endangered species

the wild. The major threats to the subspecies are habitat loss and fragmentation, habitat degradation. The South-eastern Hooded Robin requires structurally diverse habitat featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. Within the subject land, 327 ha of which represents potential habitat would be retained. The impacts to 92 ha of potential habitat within the development footprint make up around 2.89% of the 3,173 ha of potential habitat within 10 km of the subject land.

Direct impacts to 92 ha of habitat associated with the South-eastern Hooded Robin would occur due to the project. Although these areas represent potential habitat for subspecies, they occur as mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat, and lack the required habitat features of mature trees, saplings, small shrubs and moderately tall native grasses and as such are of limited quality for the South-eastern Hooded Robin. Due to these factors it is unlikely that the project will result in the decrease in the size of an important population.

Reduce the area of occupancy of the species.

The extent of occurrence for the subspecies is estimated to be 1,200,000 km2, however the area of occupancy is contracting and is estimated at 30,000 km2 for the subspecies (Cth DCCEEW 2025b) .

The project would result in direct impacts to 92 ha of habitat associated with the South-eastern Hooded Robin. However, the areas being removed are mostly smaller isolated patches which are considered less suitable, or the fringing areas of larger patches of habitat and lack the complexity needed for the subspecies which is a known restriction for the South-eastern Robin.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land, 327 ha of suitable vegetation would be retained, and an additional 3,173 ha within 10 km of the subject land will also be retained. Based on the size and quality of the areas proposed for removal, and their context in the broader landscape and areas to be retained, the project would result in a negligible reduction to the area of occupancy for the species.

Fragment an existing population into two or more populations.

South-eastern Hooded Robin is thought to be mostly sedentary, with home ranged varying from 10 ha to 30 ha depending on the season, though it is a highly mobile species. It is unlikely that the project would result in fragmentation for the species as areas to be impacted are smaller isolated patches that lack the complexity needed for the species and therefore are unlikely to be utilized.

The impacts are unlikely to result in the any barriers to movement for the subspecies and are not likely to be utilized by the South-eastern Hooded Robin. The subspecies will be able to move through open areas as well as lightly timbered woodlands, still and it is unlikely that the project would result in a barrier to movement for the species.

Adversely affect habitat critical to the survival of a species.

Habitat critical to the survival of the hooded robin (south-eastern) include areas of:

- Dry eucalypt and acacia woodlands and shrublands remnants with an open understorey, some grassy areas and a complex ground layer, often in or near clearings or open areas.
- Structurally diverse habitats featuring: mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.
- Standing dead or live trees and tree stumps are also essential for nesting, roosting and foraging;.
- Moderately deep to deep soils, rocks and fallen timber which provides essential foraging habitat.

Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. These areas are likely to

SIC assessment for critically endangered or endangered species
represent the most suitable patches of habitat for South-eastern Hooded Robin including 327 ha of suitable vegetation retained within the subject land. The impacts to 92 ha of potential habitat within the development footprint make up around 2.89% of the 3,173 ha of potential habitat within 10 km of the subject land. While trees will be removed by the project which are critical for the South-eastern Hooded Robin, the trees to be impacted are trees in areas that lack the complexity needed by the subspecies and therefore are unlikely to be utilized. The project will retain the vast majority of trees within the subject land which are located in areas with higher quality habitat. The impacted trees are unlikely to be critical to the species' survival in the broader landscape context where large areas of suitable habitat will be retained. Due to the lack of complexity required by the species in areas to be impacted it is unlikely the South-eastern Hooded Robin utilizes the habitat. Due to these factors above it is unlikely that the project will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population.
There is a low likelihood that the project would result in any disruption to the breeding cycle. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants, representing the most suitable breeding habitat for South-eastern Hooded Robin. Direct impacts to 92 ha of habitat associated with the South-eastern Hooded Robin would occur, although these areas lack the complexity needed by the species and are not likely to be utilized. No known breeding habitat would be removed. Within the subject land, 327 ha of suitable habitat would be retained. The impacts to 92 ha of potential habitat within the development footprint make up around 2.89% of the 3,173 ha of potential habitat within 10 km of the subject land. It is considered unlikely that the areas subject to removal would result in disruption of the breeding cycle to the South-eastern Hooded Robin.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible The project includes the removal of up to 92 ha of associated habitat for this species, however, it lacks the complexity required by the South-eastern Hooded Robin and is unlikely to be utilized. Impacts as a result of the project are considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Within the subject land, 327 ha of suitable habitat would be retained. The impacts to 92 ha of potential habitat within the development footprint make up around 2.89% of the 3,173 ha of potential habitat within 10 km of the subject land. In addition, mitigation methods implemented as part of a Biodiversity Management Plan for the project will ensure that indirect impacts including weed establishment are minimised for the duration of the works.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction

SIC assessment for critically endangered or endangered species
of pathogens as a result of the construction and operation of the project.
Interfere with the recovery of the species.
There is currently no National Recovery Plan for the South-eastern Hooded Robin, however conservation and management priorities within the approved conservation advice for the species primarily relate to reducing clearing of critical habitat and minimising habitat degradation and fragmentation. The project would result in direct impacts to 92 ha of associated habitat, which lacks complexity required and unlikely to be utilized. The project would include the retention of 327 ha of woodland vegetation within the subject land, and an additional 3173 ha within 10 km of the subject land that would also be retained. The project is not likely to interfere substantially with the recovery of the species.
Conclusion.
Based on the assessment above, it is concluded that South-eastern Hooded Robin is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project: • Will not lead to the long-term decrease of a population, reduce the areas of occupancy or fragment an existing population. • Will not disrupt the breeding cycle of a population, or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.16 White-throated Needletail *Hirundapus caudacutus*

Species background

White-throated Needletail is listed as vulnerable under the BC Act and EPBC Act. The species is migratory and is seen in Australia usually between October to April (Cth DCCEEW 2025c). It breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan in June through August.

In Australia the species is almost exclusively aerial, from heights of 1 m up to 100, above the ground (Cth DCCEEW 2025c). Because of this conventional habitat descriptions are inapplicable; however, they are most often recorded above wooded areas, and recorded less frequently in areas that are treeless such as grassland. When flying above farmland they are most often recorded above only partly cleared pasture, remnant vegetation or on the edge of paddocks (Cth DCCEEW 2025c).

The species feeds almost exclusively aerially which they catch insects, most often on the edge of low pressure systems which both lift their food sources and assist with flight (Cth DCCEEW 2025c).

White-throated Needletail with the subject land

The species was not recorded during surveys within the subject land but they are wide spread throughout east and south-eastern Australia occurring from the Torres Strait to Tasmania. The species has no definitive habitat and as such all habitat is potential habitat.

SIC assessment for White-throated Needletail

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
White-throated Needletails are a migratory species that breeds in the northern hemisphere and migrate4s to Australia arriving from September and departing from March into April. No important population has been identified for the species within Australia. There is currently no known estimation of the population of the species and it is described as 'abundant' in some regions of Australia (Cth DCCEEW 2025c). There is no specified threats to the species within Australia however, it is noted that collision with infrastructure does impact few individuals, although it is not a threat to the species overall. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. This includes larger patches of native woodland vegetation. Majority of the areas to be impacted are areas of open grasses which while may be utilized are not favoured by the species as much as wooded areas, or the areas of higher elevation and dense forest east of the subject land. The species is almost exclusively aerial with limited records of roosting occurring within Australia. As such the project will have a minimal impact on the species not limiting the ability to fly through the landscape. Due to these factors it is unlikely that the project will result in the decrease in the size of an important population.
Reduce the area of occupancy of an important population.
The area of occupancy for the species is estimated at 126,000 km2 within Australia (Cth DCCEEW 2025c). The species is not reliant on specific habitat requirements but has been recorded at higher instances over wooded vegetation. The project will retain the majority of wooded vegetation within the subject land. The project will impact 194 ha of native vegetation within the subject land. Retaining 547 ha within the subject land. The impacts within the development footprint amount to around 0.85% of the potential habitat for this species within 10km of the subject land. . The species is almost exclusively aerial as well therefore does not rely heavily on the vegetation to be impacted with the species being found on the edges of low pressure systems frequently which lift food sources and assist with their flight (Cth DCCEEW 2025c). This indicates that the species relies on weather more so than any specific habitat. Therefore, the project is unlikely to reduce the area of occupancy of an important population.
Fragment an existing important population into two or more populations.
The species is a highly mobile migratory species, travelling from the northern hemisphere to Australia and back every year. It is an aerial species not reliant on specific habitat requirements and is recorded frequently on the edges of low pressure systems. This indicates that the species relies on weather more so than specific habitat. This species is almost exclusively aerial and can fly at very high elevations. Therefore, the project is unlikely to fragment an existing important population into two or more populations.
Adversely affect habitat critical to the survival of a species.
There is no listed habitat critical to the survival of the species. Within Australia the species is known to occur over a wide range of habitats, as the species is almost exclusively aerial and is recorded frequently on the edge of low pressure systems utilizing them to assist with flying and lifting food sources. This species shows a preference for migrating and foraging along higher areas of elevation along eastern Australia, where the species often forages at very high elevations on rising air, such as ridgelines and cliffs. The species generally roosts in tree hollows in tall trees on ridge-tops, on bark or on rock faces. The habitat adjacent to and east of the subject land is higher in elevation and may be used as a part of a greater flyway and foraging area, where large areas of forest may be a key habitat requirement for this species (DoE 2015b). Due to this it is unlikely that the project will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population.

SIC assessment for vulnerable species
The species breeds in the northern hemisphere in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan. No breeding occurs within Australia and as such it is unlikely that the project will disrupt the breeding cycle of an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species is almost exclusively aerial with minimal records of roosting occurring within Australia. The species has been recorded across a vast amount of habitat types and is frequently recorded on the edge of low pressure systems utilizing them to assist with flying and lifting food sources. Considering the aerial nature of the species, the use of weather systems assist with flying and catching insects and being found over a wide range of vegetation it is unlikely that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
There is currently no National Recovery Plan for the species and no listed threats that contribute to the decline of the species. The species is almost exclusively aerial with limited records of roosting occurring within Australia. As such the project will have a minimal impact on the species not limiting the ability to fly through the landscape. Within Australia the species is known to occur over a wide range of habitats, as the species is almost exclusively aerial and is recorded frequently on the edge of low pressure systems utilizing them to assist with flying and lifting food sources. Due to these factors it is unlikely that the project will result in the decrease in the size of an important population.
Conclusion.
Based on the assessment above, it is concluded that White-throated Needletail is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the project: • Will not lead to the long term decrease of a population, reduce the areas of occupancy or fragment an existing population. • Will not disrupt the breeding cycle of a population, or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.17 Pink-tailed Legless Lizard *Aprasia parapulchella*

Species background

The Pink-tailed Worm-lizard *Aprasia parapulchella*, a threatened species, is a small fossorial, legless lizard found along the western slopes of the Great Dividing Range in south-eastern Australia. This species lives underground, growing to about 25 cm in length. The pink-tailed worm-lizard occurs in New South Wales (NSW), Victoria and the Australian Capital Territory (ACT) where it is widely but patchily distributed along the foothills of the western slopes of the Great Dividing Range between Bendigo in Victoria and Gunnedah in NSW (Wong et al. 2011). The species' distribution is highly fragmented across this range, due to habitat constraints and historical disturbance. In NSW the species is only known from the Central and Southern Tablelands and the South Western Slopes, where sites are widespread, but highly isolated from each other (Wong et al. 2011). The pink-tailed worm-lizard's habitat includes primary and secondary grassland, grassy woodland and woodland communities, and the species usually inhabits sloping sites that contain rocky outcrops or scattered, partially buried rocks (Wong et al. 2011). These rocky habitats tend to be well-drained mid-slope or ridge-top sites with loosely embedded rocks on soil substrate with ant galleries present. Individuals are most commonly found sheltering under these rocks and spend considerable time in ant burrows below these rocks, which are considered important foraging and shelter sites (TSSC 2015). Microhabitat attributes, especially the presence of small ants, of which the species forages on alongside rockiness and the presence of ground-layer species, especially native grasses, are the principal determinants of occurrence.

Pink-tailed Legless Lizard in the subject land

Habitat assessment and rock turning was completed in accordance with the NSW *Threatened reptiles BAM survey guide* released the same week targeted surveys were commenced. Pink-tailed Legless Lizard is conspicuous, however rock turning was completed in accordance with the guidelines. The species was not identified within the subject land. Suitable habitat for this species was identified within the subject land in the form of rocky habitat, partially buried rocks and grassy hillslopes. This species under the TBDC is associated with PCT 281, 440, 468 and 599. Suitable habitat may also be present in PCT 467. The nearest records of this species under the NSW BioNet Atlas are over 45 km south-west and south-east of the subject land.

SIC assessment for Pink-tailed Legless Lizard

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys were completed for this species within the subject land, and the species was not identified. Although suitable habitat was identified, it is unlikely a population of this species is present. This species primarily occurs from the Central and Southern Tablelands and the South Western Slopes. With isolated records north of this area primarily in areas along the Great Dividing Range. The subject land is on the edge of where this species distribution is 'known to occur' with some maps, and existing/historic records suggesting it is outside the species distribution. In the absence of defined important populations, any population of this fragmented species is likely to be considered important due to the necessity of maintaining populations for genetic viability. A population of this species is not considered to occur within the subject land. Additional tot his, the respective management statements and plan for the Goodiman State Conservation Area, Yarrobil National Park and Goonoo State Conservation Area have not identified this species as present. These areas are the key rocky and grassy sloped vegetation associated with and connected to the subject land.

SIC assessment for vulnerable species

Reduce the area of occupancy of an important population.

As noted above, this species is not expected to occur, and has not been identified to occur within the subject land. Despite this, detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Around 295 ha of potentially suitable habitat for this species has been retained within the subject land. This impact equates to around 1.35% of the potential habitat for this species within 10 km of the subject land.
The project is not expected to reduce the area of occupancy of this species.

Fragment an existing important population into two or more populations.

As noted above, this species is not expected to occur, and has not been identified to occur within the subject land. Despite this, detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this subspecies, were avoided as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. Around 295 ha of potentially suitable habitat for this species has been retained within the subject land. This impact equates to around 1.35% of the potential habitat for this species within 10 km of the subject land. Connectivity of habitat within the subject land to areas of habitat within the landscape is high, with direct connectivity of rocky, grassy, sloped habitat to the east and into the broader landscape. This connectivity will be retained. The subject land will not incur any fragmentation to any exiting or known populations within the landscape, with the nearest identified population around 45 km south-west.

Adversely affect habitat critical to the survival of a species.

In the absence of defined critical habitat for this species, any habitat where this species is known to occur, or have a high chance of occurring should be considered critical. As noted above, targeted surveys were completed for this species within the subject land, and the species was not identified. Although suitable habitat was identified, it is unlikely a population of this species is present. This species primarily occurs from the Central and Southern Tablelands and the South Western Slopes. With isolated records north of this area primarily in areas along the Great Dividing Range. The subject land is on the edge of where this species distribution is 'known to occur' with some maps, and existing/historic records suggesting it is outside the species distribution. In the absence of defined important populations, any population of this fragmented species is likely to be considered important due to the necessity of maintaining populations for genetic viability.

A population of this species is not considered to occur within the subject land. Additional tot his, the respective management statements and plan for the Goodiman State Conservation Area, Yarrobil National Park and Goonoo State Conservation Area have not identified this species as present. These areas are the key rocky and grassy sloped vegetation associated with and connected to the subject land.

The project is not expected to impact critical habitat for this species.

Disrupt the breeding cycle of an important population.

As noted above, This species is not expected to occur, and was not identified t occur within the subject land., As such, the proposed works would not impact any breeding of this species. This species is not mobile and would not be impacted directly or indirectly by the construction or operation of the proposed solar farm.

SIC assessment for vulnerable species
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
As noted above, this species is not expected to occur, and was not identified t occur within the subject land. The project would not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Around 295 ha of potentially suitable habitat for this species has been retained within the subject land. This impact equates to around 1.35% of the potential habitat for this species within 10 km of the subject land.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, or within the local landscape, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
A recovery plan has not been drafted for this species. The current approved conservation advice for this species focusses on protection of identified population sites through management and reduction of disturbance, invasive species control within identified sites, reduction and removal of grazing within identified sites, control of fire regimes to maintain grassland habitat and stakeholder engagement. The approved conservation advice for this species has been updated and is in review by the Threatened Species Scientific Committee, however it has not been published or made public. The population analysis identified that this species is unlikely to occur within the subject land, with the nearest identified population occurring around 45 km south-west of the subject land. This species is not expected to occur, and was not identified t occur within the subject land. This species is not mobile and would not be impacted by the development or operation of the proposed solar farm. As such, the project would not interfere with the recovery of this species.
Conclusion.
Based on the assessment above, it is concluded that Pink-tailed Legless Lizard is unlikely to be significantly impacted by the project. This conclusion was made on the basis that the proposed works: • The species was not recorded during surveys, and based on the desktop population assessment of the closest identified populations and management plans from national parks and state conservation areas between the nearest population and the subject land, this species is not expected to occur. • The project will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population or species as a whole.

SIC assessment for vulnerable species

- The project will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread.
- The project will not interfere with the recovery of the species.

Appendix 6.18 Swift Parrot Lathamus discolor

Species background

The Swift Parrot breeds in Tasmania during summer and migrates north to mainland Australia for winter. It occupies a variety of habitats, mostly outside formal conservation reserves. In Tasmania, the species primarily breeds along the east and south-east coasts, with a range limited to the north-west between Launceston and Smithton. Breeding habitat in this region is fragmented and scarce. On the mainland, Swift Parrots forage widely, especially in Victoria and New South Wales, where they favour dry forests and woodlands for foraging. Superb parrots breed in Tasmania and migrate to mainland Australia in autumn for the non-breeding season. The majority of the population spends the winter in Victoria and New South Wales, returning to Tasmania in spring.

Swift parrots face several significant threats, primarily due to habitat loss and degradation. The clearing of native forests for agriculture, urban development, and logging has drastically reduced the availability of critical breeding and foraging habitats. In Tasmania, the destruction of grassy Blue Gum forests and other vital foraging areas has contributed to the decline of the species. On the mainland, the loss of box-ironbark and other key woodlands, combined with the impact of drought, further exacerbates habitat scarcity. Additionally, the species is vulnerable to predation by introduced species such as sugar gliders and feral cats, which target their nests and young. Climate change also poses a threat by altering the timing of food availability and intensifying drought conditions, leading to the concentration of parrots in increasingly limited habitats. These combined pressures have led to a significant decline in Swift Parrot populations, making them highly vulnerable to further decline.

Occurrence in subject land

Swift parrot was not recorded within the subject land during field surveys. Suitable habitat for this species is present within native woodland vegetation within PCTs 81, 201, 281, 440, 467, 468, 478, and 599 which provide foraging, shelter, movement and breeding resources. There was no evidence of breeding observed within the subject land.

SIC assessment for vulnerable species

Lead to the long-term decrease in the size of an important population of a species.

There is a low likelihood that the project would lead to a long-term decrease in the size of an important population of the Swift Parrot. There are no recognised subpopulations for the Swift Parrot and the species is considered to comprise a single population. Recent estimates suggest the population consists of approximately 750 mature individuals and is considered to be in decline. Individuals occurring within the subject land would therefore be considered to be part of an 'important population' for the purpose of this SIC assessment.

The main cause of population decline for Swift Parrot is habitat loss, particularly breeding habitat and nest sites in large hollow bearing trees.

The subject land contains suitable foraging habitat for the Swift Parrot in the form of woodlands and grasslands where seed, nectar and fruits are available for foraging. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided

SIC assessment for vulnerable species

as much as possible. This includes larger patches of native woodland vegetation, and higher quality, intact remnants. The project will result in the removal of 194 ha of habitat. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the l 22,710 ha of potential habitat for this species within 10 km of the subject land.

Swift parrot is a hollow nesting species, and the project would result in impacts to 30 hollow-bearing trees. However, these are considered unlikely breeding habitat for the Swift Parrot as they are not known to breed on the mainland. No evidence of breeding was recorded during surveys for Swift Parrot, though other common species were observed occupying hollows. Hollow bearing trees subject to removal are considered less suitable for Swift Parrot as they are not associated with riparian vegetation. No records occur within the subject site of breeding by this species.

As there are no impacts to breeding habitat, and only minor impacts to areas of foraging habitat in the context of the broader landscape, there is a low likelihood that the project would lead to the long-term decrease in the size of the population of Swift Parrot.

Reduce the area of occupancy of an important population.

The Swift Parrot is highly mobile, and its exact movements remain largely unknown. A documented decline in the species has been observed across its range, with further contraction and shifts anticipated due to climate change. While the species' area of occupancy has not been precisely defined, actions that remove critical habitat are likely to reduce it. Critical habitat primarily includes breeding areas and suitable foraging habitats located near breeding sites.

The project would not include the removal of areas of critical habitat for the Swift Parrot. Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Within the subject land, 353 ha of suitable vegetation would be retained. The impacts within the development footprint make up around 0.85% of the l 22,710 ha of potential habitat for this species within 10 km of the subject land. The project would result in direct impact to 194 ha of habitat within the development footprint. Given the vast areas of similar or better-quality habitat in the surrounding landscape, and no habitat considered critical habitat present, there is a low likelihood that the project would reduce the area of occupancy of an important population of Swift parrot.

Fragment an existing important population into two or more populations.

The Swift Parrot is a mobile species, capable of undertaking large movements as it migrates seasonally between breeding and non-breeding areas. Individuals can also move through the landscape matrix to exploit favourable habitat patches and seasonal resources. Higher quality feeding habitats in the form of woodland areas with nectar, fruit and seed resources and adjacent grassland areas have largely been avoided and buffered during the design process. There would be direct impacts to 194 ha of habitat, but it is unlikely that these impacts would result in any barriers to movement for the species such that it would fragment the population. The areas being removed are smaller isolated patches or the fringing areas of larger patches, and as such would not impact on the connectivity of habitat within the broader landscape for this mobile species.

Adversely affect habitat critical to the survival of a species.

Key Biodiversity Areas (KBAs) defined in the National Recovery Plan are considered critical for supporting the long-term

SIC assessment for vulnerable species
persistence of the species. Other critical habitat is associated with areas containing riparian woodlands, with suitable large, hollow-bearing trees for nesting and breeding. The project is not within a KBA and does not involve the removal of riparian woodlands that could be considered breeding habitat critical to the survival of the species. 194 ha that could be considered potential habitat for Swift Parrot is to be removed. This habitat occurs as smaller isolated patches on the edges of larger patches, and is likely of lesser quality than larger, intact remnants and is therefore not consistent with habitat critical to the survival of the species. 30 hollow bearing trees are anticipated to require removal as part of the project. No breeding has been recorded in these hollows either historically or during the current survey. There is a low likelihood that these trees represent critical habitat to the species' survival as Swift Parrot is not known to breed on the mainland. Within the subject land, 353 hectares of high quality foraging vegetation would be retained The impacts within the development footprint make up around 0.85% of the l 22,710 ha of potential habitat for this species within 10 km of the subject land. These larger, intact patches are likely to be more critical to the survival of the species than those being removed. As described in the National Recovery Plan, where habitat cannot be avoided it should be offset. Under the BAM, foraging habitat for Swift Parrot impacted by the project would generate ecosystem credits that would be retired prior to construction.
Disrupt the breeding cycle of an important population.
No known breeding habitat will be impacted by the project. 30 hollow-bearing trees are being removed however; this is considered unlikely to be utilised by Swift Parrot as they are not known to breed on the mainland. Given the large amount of suitable habitat being retained, it is considered unlikely that the project would result in any disruption to the breeding cycle of the population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Detailed constraints assessment and modelling of biodiversity values was undertaken to ensure areas of high biodiversity value, and therefore most likely habitat for this species, were avoided as much as possible. Additionally, no known breeding site will be impacted. The project would result in the removal of 194 hectares of habitat within the development footprint, however this is substantially mitigated. Approximately 353 hectares of native vegetation, which does represent potential foraging habitat for the Swift Parrot will be retained within the subject land. The impacts within the development footprint make up around 0.85% of the l 22,710 ha of potential habitat for this species within 10 km of the subject land. The operational phase of the project is considered compatible with the foraging activity of Swift Parrots, which would still be able to exploit seasonal resources following construction of the project, most likely within retained patches of vegetation, between panel alignments and along on fringing areas of the solar array and APZs. As large areas of similar habitat exist in the landscape, it is unlikely that the foraging habitat within the subject land is critical to the species' survival. Impacts to this habitat would be offset in accordance with the BAM. There is a low likelihood that the project would decrease the availability of habitat to the extent that the species is likely to decline.

SIC assessment for vulnerable species
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction and operation of the project and details regarding feral animal control. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations utilising the area, such as cats and foxes.
Introduce disease that may cause the species to decline.
The project is unlikely to introduce a disease that may cause the species to decline. The project would be subject to a Biodiversity Management Plan that would include measures for biosecurity and hygiene control to limit the introduction of pathogens as a result of the construction and operation of the project.
Interfere substantially with the recovery of the species.
Habitat loss is a key threat to the Swift Parrot, particularly the removal of critical habitat associated with feed trees. The project would result in direct impacts to 194 hectares of potential foraging habitat and the removal of 30 hollow bearing trees, however none of this vegetation is considered suitable breeding habitat for Swift Parrot. The project would include the retention of 353 hectares of woodland vegetation within the subject land. The impacts within the development footprint make up around 0.85% of the l 22,710 ha of potential habitat for this species within 10 km of the subject land. As there is no impact to breeding habitat, foraging habitat would be retained, and modification to remaining areas of potential habitat is not considered likely to result in exclusion of the species, the project is unlikely to interfere with the recovery of the Swift parrot.
Conclusion.
Based on the assessment above, it is concluded that Swift parrot is unlikely to be significantly impacted by the proposed works. This conclusion was made on the basis that the proposed works: • Will not lead to the long term decrease of an important population, reduce the areas of occupancy or fragment an existing important population. • Will not disrupt the breeding cycle of an important population, the local population or species as a whole. • Will not adversely modify the species habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not interfere will the recovery of the species.

Appendix 6.19 Box-Gum Woodland

Community background

The Box Gum Woodlands is listed as a CEEC under EPBC Act. The ecological community is broadly distributed in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW and ACT, to Victoria. It may have also formerly occurred in South Australia. The ecological

community is known to occur on hilly to undulating landscapes in areas with soils of moderate fertility derived from a range of lithologies, including alkaline and acid volcanics, granites, sediments, serpentinites and metamorphics. The structure of the ecological community varies with location and site conditions but typically it was formerly (prior to European settlement) an open grassy woodland with medium height trees. Modification of most areas of the ecological community since European settlement has increased the range of structural forms now present, with tree cover and stem density now varying substantially (Threatened Species Scientific Committee 2006).

Box-Gum Woodland in the subject land

PCT 281 and PCT 599 within the subject land has the potential to form part of the EPBC Act listed TEC. Both of these PCTs contain characteristic species of box-gum woodland within the subject land. An assessment against the listing criteria and EPBC Act policy statement flow charts was completed for all zones/ condition states. This assessment of plot data and rapid field observations determined only moderate and high condition states are likely to meet the condition thresholds for listing under the EPBC Act. The assessment is summarised within Table 15 of this BDAR.

SIC assessment for Box-Gum Woodland

SIC assessment for critically endangered communities
Reduce the extent of an ecological community
The CEEC originally occurred extensively in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria (Beadle 1981). However, there are significant gaps in the knowledge about both the historic and current extent of its geographic distribution. Box Gum Woodlands has been extensively cleared for across its range for agriculture. The Committee judge that less than 5 % of the original extent of the ecological remains of sufficient condition and size to being included in the listed CEEC, having undergone a decline of 95 % or more. According to existing vegetation mapping by DPIE (DPIE 2016) and the listing advice for Box Gum Woodlands (Threatened Species Scientific Committee 2006), the current extent of the CEEC is approximately 416,325 ha. The original extent of the CEEC is uncertain but is estimated to have been approximately 5,011,655 ha pre-European settlement. This is a total reduction of approximately 92 %, however this number is considered an under-estimate of the decline of the CEEC. Impacts to EPBC Act Box Gum Woodlands under the current proposal include 9.25 ha of the CEEC in moderate conditions outlined below: • PCT 281: – Moderate: 9.25 ha No areas of High or moderate condition PCT 599 would be impacted. PCT 599 DNG does not meet the MNES listing criteria nor does PCT 281 Low. The area of Box-Gum Woodland proposed for removal amounts to around 0.31% of the potential 2973.71 ha of mapped vegetation associated with Box-Gum Woodland within 10km of the subject land. Therefore, the project will incur a reduction, of this the extent of this TEC. Within NSW there is around 58,864 ha of PCT 281 and PCT 599, the impacts within the development footprint equate to around 0.015% of this area.

SIC assessment for critically endangered communities

Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

Removal of this TEC within the development footprint currently occurs on the fringing edges of larger patches to be retained, an alongside a few isolated patches. Key areas of connectivity and moderate/high condition zones will be retained. The proposed works is not expected to impact the overall long-term viability of this TEC within the subject land or broader assessment area. Minor increases to fragmentation and edge effect within the subject land will occur through the reduction of patch size, and the removal of isolated and fragmented low condition patches. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development.

Adversely affect habitat critical to the survival of an ecological community

The National recovery Plan (DECCW 2010) for this TEC states 'At the time of preparation of this plan, the knowledge and understanding of why particular assemblages of plant and animal species occur on any given site is extremely limited. By its nature, the occurrence and long-term viability of an ecological community is the result of a multitude of environmental factors and a complex array of species' interactions. It is questionable whether it would ever be possible to define and locate habitat that is critical for a widespread ecological community that is considered critically endangered, precisely because it has been cleared, fragmented and degraded to the point where its medium- and long-term survival is threatened. However, in very broad terms, habitat critical to the survival of Box-Gum Grassy Woodland is on the moderate to highly fertile soils of the western slopes of NSW and Queensland, the northern slopes of Victoria, and the tablelands of the Great Dividing Range from southern Queensland through NSW and the ACT. Given the currently highly fragmented and degraded state of this ecological community, all areas of Box-Gum Grassy Woodland ...should be considered critical to the survival of this ecological community. In addition, degraded woodland areas not considered part of the listed ecological community may also be essential to the long-term conservation of Box-Gum Grassy Woodland, by virtue of their landscape setting (e.g. providing connectivity) or remaining flora/fauna habitat features (e.g. occurrence of rare or threatened species, tree hollows), and should also be considered as potential habitat critical to the survival of this ecological community. The importance of degraded areas to the survival of the listed ecological community should therefore be assessed on a site-by site basis.' As such all areas of BC Act and EPBC Act listed Box-Gum Woodland within the subject land are therefore, considered critical.

The project proposed to remove 108.44 of BC Act Box Gum Woodland and 9.25 ha of EPBC Act Box Gum Woodland that would be considered critical to this TEC.
Measures undertaken by the Applicant to avoid and minimize impact to the CEEC are provided in the BDAR within section 5. Specifically, the final footprint has been selected, in part, to avoid and minimise impacts to the native vegetation and flora and fauna habitats present within the subject land as much as constructability constraints would allow.
The final footprint has been sited to avoid complete removal of the community within the subject land, with retention of 58.3% of this TEC within the subject land, amounting to around 151.55 ha. The majority of the impact to this CEEC occurs across low and DNG zones, with high condition zones avoided and over 80% of moderate condition zones avoided, outlined below.

Table A.6 BC Act Box Gum Woodland % of zones retained

PCT	Zone	SL (ha)	DF (ha)	% Retained
281	Low	87.88	42.30	51.86
281	Moderate	46.80	9.25	80.23

SIC assessment for critically endangered communities

599	DNG	90.12	56.88	36.99
599	High	4.97	0.00	100.00
599	Moderate	30.21	0.00	99.67

The removal of this habitat however would not lead to a long-term decline of this TEC and is not considered an adverse impact, where, as demonstrated above, strong avoid and minimise steps have been undertaken for both EPBC Act listed (moderate and high condition zones) and BC Act listed (all condition zones) areas of Box-Gum Woodland.

Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns

Construction is likely to result in short term temporary disturbance to soil and topography. Land could be rehabilitated to allow ground layer recovery through stockpiling and reinstatement of top soil. However, any potential sediment or erosion impacts will be managed appropriately through a CEMP and BMP. Overall, the operational and construction impacts of the proposed solar farm are not expected to modify or destroy abiotic factors necessary for this TECs survival. This TEC is expected to persist within the subject land, including in a partially modified grassland state under solar panels.

Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

Impacts will occur to more smaller already fragmented patches, as well as to fringing areas of larger more viable patches only, meaning persistence of large high quality areas of grassland will be retained locally. The project is considered unlikely to cause substantial change to species composition of an occurrence of this TEC, particularly in retained areas and areas located more broadly, or outside of the subject land. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development.

Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
– assisting invasive species, that are harmful to the listed ecological community, to become established, or
– causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological
- community which kill or inhibit the growth of species in the ecological community

Most locations where this community occurs are subject to existing weed invasion, pest animals, erosion and chemical inputs as a result of surrounding agricultural land use. Construction activities can be managed through standard practices to avoid further sedimentation and pollution. The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations within the area.

Interfere with the recovery of an ecological community

The overall objective of the recovery plan is to promote the recovery and prevent the extinction of the critically endangered ecological community, known as Box-Gum Grassy Woodland. The object is aimed to be achieved through:

SIC assessment for critically endangered communities

- achieving no net loss in extent and condition of the ecological community throughout its geographic distribution;
- increasing protection of sites with high recovery potential;
- increasing landscape functionality of the ecological community through management and restoration of degraded sites;
- increasing transitional areas around remnants and linkages between remnants;
- and bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Grassy Woodland.

The project would add to a cumulative impact on this TEC through adding to a net loss of this TEC, however this loss is small within the local landscape, and within NSW, with avoid and minimis steps undertaken to ensure the long-term viability of this TEC within the subject land. Overall, the project is not expected to interfere with the recovery of this TEC.

Conclusion.

Based on the assessment above, it is concluded that Box-Gum Grassy Woodland is unlikely to be significantly impacted by the project. This conclusion was made on the basis that the project:

- Will not lead to the long term significant decrease of extent.
- Will not substantially increase fragmentation of this community.
- Will not adversely modify the habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread.
- Will not significantly interfere will the recovery of the species.

Appendix 6.20 Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia (endangered)

Community background

Grey Box Grassy Woodlands is listed as an endangered ecological community under the EPBC Act. This community may occur on a range of substrates but typically occurs in landscapes of low relief on productive soils derived from alluvial or colluvial materials. It also occurs where the original tree canopy has been cleared but the native ground layer is intact resulting in a derived native grassland condition state. It is found along the transitional landscape zone between the temperate woodlands and forests of the lower slopes and tablelands and the semi-arid communities further inland. The community is generally dominated by Grey Box *Eucalyptus microcarpa* with a sparse shrub layer and a species rich ground layer of grasses and herbs.

The community provides valuable habitat for fauna including resident and transient visitors, particularly birds. The main ongoing threats to this community are incremental clearing for a variety of purposes (cropping, infrastructure and maintenance), inappropriate grazing regimes, fragmentation into small remnants, loss or decline of mature trees, lack of natural regeneration, invasive exotic species, salinity, misuse of herbicides, firewood collection and addition of fertilisers to develop pastures (TSSC 2010). There is no adopted or made Recovery Plan for this ecological community.

Occurrence in the subject land

PCT 81within the subject land has the potential to form part of the EPBC Act listed TEC. PCT 81 occurs as fringing woodland areas on the lowland alluvial plains at the edge of foot slopes within the subject land. The moderate condition zone only met the criteria for listing of this TEC under the EPBC Act. An assessment

against the listing criteria and EPBC Act policy statement flow charts was completed for both low and moderate condition states. This assessment of plot data and rapid field observations determined both the low and moderate condition states are likely to meet the condition thresholds for listing under the EPBC Act. The assessment is summarised within Table 14 of this BDAR.

Significant impact assessment

Grey Box Woodlands

SIC assessment for critically endangered communities
Reduce the extent of an ecological community
Grey Box woodlands are widespread across inland Victoria and NSW from just north of Melbourne to Narrabri and west to Cobar. The occurrences to be impacted are in the central to northern part of the community's natural distribution and it is estimated that 300,000 to 330,000 ha of the community remains in NSW (Benson et al. 2006). Impacts to EPBC Act Grey Box Woodlands under the current proposal include 6.60 ha of the EEC in moderate condition PCT 81 only. The area of Grey Box Woodland proposed for removal amounts to around 0.27% of the potential 2373.79 ha of mapped vegetation associated with Box-Gum Woodland within 10km of the subject land. Therefore, the project will incur a minor reduction, of this the extent of this TEC. Within NSW there is around 300,000 to 330,000 ha of this TEC remaining, the impacts within the development footprint equate to around 0.001 - 0.002% of this area.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines
Removal of this TEC within the development footprint currently occurs on the fringing edges of larger patches to be retained, an alongside a few isolated patches. Key areas of connectivity and moderate/high condition zones will be retained. The proposed works is not expected to impact the overall long-term viability of this TEC within the subject land or broader assessment area. Minor increases to fragmentation and edge effect within the subject land will occur through the reduction of patch size, and the removal of isolated and fragmented low condition patches. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development.
Adversely affect habitat critical to the survival of an ecological community
There is no adopted or made Recovery Plan for this ecological community and no critical habitats have been formerly identified by the Australian Government. Therefore, all aspects of this TEC are considered critical as part of this assessment. Measures undertaken by the Applicant to avoid and minimize impact to the EEC are provided in the BDAR within section 5. Specifically, the final footprint has been selected, in part, to avoid and minimise impacts to the native vegetation and flora and fauna habitats present within the subject land as much as constructability constraints would allow. The final footprint has been sited to avoid complete removal of the community within the subject land, with retention of 58.3% of this TEC within the subject land, amounting to around 151.55 ha. The majority of the impact to this CEEC occurs across low and DNG zones, with high condition zones avoided and over 80% of moderate condition zones avoided,

SIC assessment for critically endangered communities

outlined below.

Table A.7 Grey Box Woodland % of zones retained

PCT	Zone	SL (ha)	DF (ha)	% Retained
81	Low (BC Act only)	42.72	24.90	41.76
81	Moderate	50.78	6.60	87.10

The removal of 6.60 ha of this TEC within the subject land, and within the broader landscape, however, would not lead to a long-term decline of this TEC and is not considered an adverse impact, where, as demonstrated above, strong avoid and minimise steps have been undertaken.

Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns

Construction is likely to result in short term temporary disturbance to soil and topography. Land could be rehabilitated to allow ground layer recovery through stockpiling and reinstatement of top soil. However, any potential sediment or erosion impacts will be managed appropriately through a CEMP and BMP. Overall, the operational and construction impacts of the proposed solar farm are not expected to modify or destroy abiotic factors necessary for this TECs survival. This TEC is expected to persist within the subject land, including in a partially modified grassland state under solar panels.

Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

Impacts will occur to more smaller already fragmented patches, as well as to fringing areas of larger more viable patches only, meaning persistence of large high quality areas of grassland will be retained locally. The project is considered unlikely to cause substantial change to species composition of an occurrence of this TEC, particularly in retained areas and areas located more broadly, or outside of the subject land. Native flora species with wind-borne genetic material, pollinated by larger flying insects and those species dispersed via bird dropping are expected to remain connected, commensurate to the current level of connectivity, after the proposed development. Species with less mobile reproductive strategies are not considered likely to become fragmented between patches on either side of the development.

Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
– assisting invasive species, that are harmful to the listed ecological community, to become established, or
– causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological
- community which kill or inhibit the growth of species in the ecological community

Most locations where this community occurs are subject to existing weed invasion, pest animals, erosion and chemical inputs as a result of surrounding agricultural land use. Construction activities can be managed through standard practices to avoid further sedimentation and pollution. The project would be subject to a Biodiversity Management Plan that would include biosecurity measures to limit the likelihood of introducing invasive species during construction. It is unlikely that the project would result in the establishment of new invasive species. The proposal is unlikely to exacerbate the current level of invasive species populations within the area.

SIC assessment for critically endangered communities
Interfere with the recovery of an ecological community
There is no adopted or made Recovery Plan for this ecological community and therefore recovery priorities (actions and locations) have not been formerly articulated by the Australian Government. The action is considered unlikely to interfere with recovery actions. The project would add to a cumulative impact on this TEC through adding to a net loss of this TEC, however this loss is small within the local landscape, and within NSW, with avoid and minimis steps undertaken to ensure the long-term viability of this TEC within the subject land. Overall, the project is not expected to interfere with the recovery of this TEC.
Conclusion.
Based on the assessment above, it is concluded that Grey Box Woodland is unlikely to be significantly impacted by the project. This conclusion was made on the basis that the project: • Will not lead to the long term significant decrease of extent. • Will not substantially increase fragmentation of this community. • Will not adversely modify the habitat or introduce invasive species/diseases – project mitigation measures are to be implemented to mitigate any potential weed incursion/disease spread. • Will not significantly interfere will the recovery of the species.

Appendix 6.21 Androcalva procumbens

SIC assessment for Androcalva procumbens

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys for *Androcalva procumbens* were conducted across the development footprint in February and November 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81, PCT 440, PCT 467, PCT 468 and PCT 478. *Androcalva procumbens* has been detected once within 7.5 kilometres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population.
Reduce the area of occupancy of an important population.
Suitable habitat for *Androcalva procumbens* is widely available within woodland and grassland areas of the study region, including PCT 81, PCT 440, PCT 467, PCT 468 and PCT 478. This species primarily occurs in the Dubbo, Mendooran, and Gilgandra regions, with additional populations in the Pilliga and Mount Kaputar National Park. Targeted surveys for *Androcalva procumbens* were conducted across the development footprint in February and November 2023, but the species was not detected. A reduction in occupancy is not considered significant for this species.
Fragment an existing important population into two or more populations.
Surveys for *Androcalva procumbens* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Adversely affect habitat critical to the survival of a species.

SIC assessment for vulnerable species
Critical habitat has not been declared for *Androcalva procumbens.* Therefore, as part of this assessment any occurrence of this species would be considered important. This species was not detected within the subject land and therefore, critical habitat is not considered to occur.
Disrupt the breeding cycle of an important population.
Surveys for *Androcalva procumbens* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species was not recorded on the subject land. This local-scale loss of habitat is unlikely to cause a decline in *Androcalva procumbens*, given the presence of higher-quality habitat patches in the region and the species' wide-ranging nature, with more optimal habitats available outside the subject land.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Proactive and adaptive mitigation measures will be applied during both construction and operation. The habitat for this species within the subject land is highly dynamic, with moderate grazing pressures and the presence of weed patches, including Lolium, Hordeum, and other environmental weeds. It is considered unlikely that the project will significantly reduce the quality or integrity of the community's occurrence or substantially increase the spread of invasive species, either locally or more broadly.
Introduce disease that may cause the species to decline.
The project will not result in the introduction of a disease that is harmful to *Androcalva procumbens*.
Interfere substantially with the recovery of the species.
There is currently no recovery plan in place for *Androcalva procumbens*. It is unlikely that the project will exacerbate existing threats or significantly impact the recovery of the species. Potential impacts will be addressed through mitigation measures outlined in the BDAR, including but not limited to detailed BMPs, pre-clearance surveys, adaptive management, and procedures for handling unexpected finds.
Conclusion.
Based on the assessment above, it is concluded that *Androcalva procumbens* is unlikely to be significantly impacted by the project. This conclusion is based on the following factors: • The species was not recorded during surveys. • The project will not lead to a long-term decrease in an important population, reduce areas of occupancy, or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population, or the species as a whole. • The project will not adversely modify the species' habitat or introduce invasive species or diseases, as mitigation measures will be implemented to prevent weed incursion and disease spread. • The project will not substantially interfere with the species' recovery.

Appendix 6.22 Dichanthium setosum

SIC assessment for Dichanthium setosum

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys for *Dichanthium setosum* were conducted across the development footprint in February and November 2022/2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81, PCT 201, PCT 281, and PCT 599. *Dichanthium setosum* has been detected once within 2.5 kilometres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population.
Reduce the area of occupancy of an important population.
Suitable habitat for *Dichanthium setosum* is widely available in woodland and grassland areas across the study region, including PCT 81, PCT 201, PCT 281, and PCT 599. This species is commonly found in moderately disturbed areas, such as cleared woodlands, grassy roadside remnants, and highly disturbed pastures. *Dichanthium setosum* is primarily found on the New England Tablelands, North West Slopes and Plains, and the Central Western Slopes of NSW, extending into northern Queensland. It is widespread on private property, including in areas such as Inverell, Guyra, Armidale, and Glen Innes. Targeted surveys for *Dichanthium setosum* were conducted across the development footprint in February and November 2022/2023, but the species was not detected. A reduction in occupancy is not considered significant for this species.
Fragment an existing important population into two or more populations.
Surveys for *Dichanthium setosum* were conducted across the development footprint in February and November 2022/2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Adversely affect habitat critical to the survival of a species.
Critical habitat has not been declared for *Dichanthium setosum.* Therefore, as part of this assessment any occurrence of this species would be considered important. This species was not detected within the subject land and therefore, critical habitat is not considered to occur.
Disrupt the breeding cycle of an important population.
Surveys for *Dichanthium setosum* were conducted across the development footprint in February and November 2022/2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species was not recorded on the subject land. This local-scale loss of habitat is unlikely to cause a decline in *Dichanthium setosum*, given the presence of higher-quality habitat patches in the region and the species' wide-ranging nature, with more optimal habitats available outside the subject land.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Proactive and adaptive mitigation measures will be applied during both construction and operation. The habitat for this species within the subject land is highly dynamic, with moderate grazing pressures and the presence of weed patches,

SIC assessment for vulnerable species
including Lolium, Hordeum, and other environmental weeds. It is considered unlikely that the project will significantly reduce the quality or integrity of the community's occurrence or substantially increase the spread of invasive species, either locally or more broadly.
Introduce disease that may cause the species to decline.
The project will not result in the introduction of a disease that is harmful to *Dichanthium setosum.*
Interfere substantially with the recovery of the species.
There is currently no recovery plan in place for *Dichanthium setosum*. It is unlikely that the project will exacerbate existing threats or significantly impact the recovery of the species. Potential impacts will be addressed through mitigation measures outlined in the BDAR, including but not limited to detailed BMPs, pre-clearance surveys, adaptive management, and procedures for handling unexpected finds.
Conclusion.
Based on the assessment above, it is concluded that *Dichanthium setosum* is unlikely to be significantly impacted by the project. This conclusion is based on the following factors: • The species was not recorded during surveys. • The project will not lead to a long-term decrease in an important population, reduce areas of occupancy, or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population, or the species as a whole. • The project will not adversely modify the species' habitat or introduce invasive species or diseases, as mitigation measures will be implemented to prevent weed incursion and disease spread. • The project will not substantially interfere with the species' recovery.

Appendix 6.23 Homoranthus darwinioides

SIC assessment for Homoranthus darwinioides

SIC assessment for vulnerable species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys for *Homoranthus darwinioides* were conducted across the development footprint in February and November 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81, PCT 440 and PCT 468. *Homoranthus darwinioides* has been detected once within 4.3 kilometres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population.
Reduce the area of occupancy of an important population.
Suitable habitat for *Homoranthus darwinioides* is widely available within woodland and grassland areas of the study region, including PCT 81, PCT 440 and PCT 468. This species primarily occurs within the Putty to Dubbo districts. It is typically found west of Muswellbrook between Merriwa and Bylong, and north of Muswellbrook to Goonoo. Targeted

SIC assessment for vulnerable species
surveys for *Homoranthus darwinioides* were conducted across the development footprint in February and November 2023, but the species was not detected. A reduction in occupancy is not considered significant for this species.
Fragment an existing important population into two or more populations.
Surveys for *Homoranthus darwinioides* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species
Adversely affect habitat critical to the survival of a species.
. Critical habitat has not been declared for *Homoranthus darwinioides.* Therefore, as part of this assessment any occurrence of this species would be considered important. This species was not detected within the subject land and therefore, critical habitat is not considered to occur.
Disrupt the breeding cycle of an important population.
Surveys for *Homoranthus darwinioides* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species was not recorded on the subject land. This local-scale loss of habitat is unlikely to cause a decline in *Homoranthus darwinioides*, given the presence of higher-quality habitat patches in the region and the species' wide-ranging nature, with more optimal habitats available outside the subject land.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Proactive and adaptive mitigation measures will be applied during both construction and operation. The habitat for this species within the subject land is highly dynamic, with moderate grazing pressures and the presence of weed patches, including Lolium, Hordeum, and other environmental weeds. It is considered unlikely that the project will significantly reduce the quality or integrity of the community's occurrence or substantially increase the spread of invasive species, either locally or more broadly.
Introduce disease that may cause the species to decline.
The project will not result in the introduction of a disease that is harmful to *Homoranthus darwinioides*.
Interfere substantially with the recovery of the species.
There is currently no recovery plan in place for *Homoranthus darwinioides*. It is unlikely that the project will exacerbate existing threats or significantly impact the recovery of the species. Potential impacts will be addressed through mitigation measures outlined in the BDAR, including but not limited to detailed BMPs, pre-clearance surveys, adaptive management, and procedures for handling unexpected finds.
Conclusion.
Based on the assessment above, it is concluded that *Homoranthus darwinioides* is unlikely to be significantly impacted by the project. This conclusion is based on the following factors:

SIC assessment for vulnerable species
• The species was not recorded during surveys. • The project will not lead to a long-term decrease in an important population, reduce areas of occupancy, or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population, or the species as a whole. • The project will not adversely modify the species' habitat or introduce invasive species or diseases, as mitigation measures will be implemented to prevent weed incursion and disease spread. • The project will not substantially interfere with the species' recovery.

Appendix 6.24 Indigofera efoliata

SIC assessment for Indigofera efoliata

SIC assessment for critically endangered or endangered species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys for *Indigofera efoliata* were conducted across the development footprint in October 2023, however the species was not recorded. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as much as possible. This includes potential habitat areas within PCT 81 and PCT 468. *Indigofera efoliata* has not been recorded within 10 kilometres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population.
Reduce the area of occupancy of an important population.
Suitable habitat for *Indigofera efoliata* is widely available within woodland and grassland areas of the study region, including PCT 81 and PCT 468. This species is rare and was presumed extinct with the last known collection made in 1955. However, the species was rediscovered in 2021 near Geurie. Targeted surveys for *Indigofera efoliata* were conducted across the development footprint in October 2023, but the species was not detected. A reduction in occupancy is not considered significant for this species.
Fragment an existing important population into two or more populations.
Surveys for *Indigofera efoliata* were conducted across the development footprint in October 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species
Adversely affect habitat critical to the survival of a species.
. Critical habitat has not been declared for *Indigofera efoliata.* Therefore, as part of this assessment any occurrence of this species would be considered important. This species was not detected within the subject land and therefore, critical habitat is not considered to occur.
Disrupt the breeding cycle of an important population.
Surveys for *Indigofera efoliata* were conducted across the development footprint in October 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.

SIC assessment for critically endangered or endangered species
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
The species was not recorded on the subject land. This local-scale loss of habitat is unlikely to cause a decline in *Indigofera efoliata*, given the presence of higher-quality habitat patches in the region, with more optimal habitats available outside the subject land.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Proactive and adaptive mitigation measures will be applied during both construction and operation. The habitat for this species within the subject land is highly dynamic, with moderate grazing pressures and the presence of weed patches, including Lolium, Hordeum, and other environmental weeds. It is considered unlikely that the project will significantly reduce the quality or integrity of the community's occurrence or substantially increase the spread of invasive species, either locally or more broadly.
Introduce disease that may cause the species to decline.
The project will not result in the introduction of a disease that is harmful to *Indigofera efoliata*.
Interfere substantially with the recovery of the species.
There is currently a recovery plan in place for *Indigofera efoliata* in NSW. However, it is unlikely that the project will exacerbate existing threats or significantly impact the recovery of the species. Potential impacts will be addressed through mitigation measures outlined in the BDAR, including but not limited to detailed BMPs, pre-clearance surveys, adaptive management, and procedures for handling unexpected finds.
Conclusion.
Based on the assessment above, it is concluded that *Indigofera efoliata* is unlikely to be significantly impacted by the project. This conclusion is based on the following factors: • The species was not recorded during surveys. • The project will not lead to a long-term decrease in an important population, reduce areas of occupancy, or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population, or the species as a whole. • The project will not adversely modify the species' habitat or introduce invasive species or diseases, as mitigation measures will be implemented to prevent weed incursion and disease spread. • The project will not substantially interfere with the species' recovery.

Appendix 6.25 Zieria ingramii

SIC assessment for Zieria ingramii

SIC assessment for critically endangered or endangered species
Lead to the long-term decrease in the size of an important population of a species.
Targeted surveys for *Zieria ingramii* were conducted across the development footprint in February and November 2023. The species was detected within the broader landscape of the subject land, however the was not recorded within the development footprint. A thorough constraints assessment and biodiversity value modelling were completed to ensure that areas with high biodiversity value that were deemed likely to be suitable habitats for the species were avoided as

SIC assessment for critically endangered or endangered species
much as possible. This includes potential habitat areas within PCT 440, PCT 467 and PCT 468. *Zieria ingramii* has been recorded 57 times within 350 metres of the subject land. Based on these findings, it is considered unlikely that the project will result in a long-term reduction in the size of any important population.
Reduce the area of occupancy of an important population.
Suitable habitat for *Zieria ingramii* is widely available within woodland and grassland areas of the study region, including PCT 440, PCT 467 and PCT 468. This species primarily occurs from Goonoo and Cobbora, approximately 40 kilometres north-east of Dubbo. *Zieria ingramii* is also known to occur west of Tuckland State Forest. Targeted surveys for *Zieria ingramii* were conducted across the development footprint in February and November 2023, but the species was not detected. A reduction in occupancy is not considered significant for this species.
Fragment an existing important population into two or more populations.
Surveys for *Zieria ingramii* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Adversely affect habitat critical to the survival of a species.
Critical habitat has not been declared for *Zieria ingramii.* As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species
Disrupt the breeding cycle of an important population.
Surveys for *Zieria ingramii* were conducted across the development footprint in February and November 2023, but the species was not recorded. As a result, it is unlikely that local or regional genetic diversity and dispersal will be affected. Overall, the project is not expected to significantly impact the breeding cycle of this species.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
While the species was recorded within the subject land, the local-scale loss of habitat is unlikely to cause a decline in *Zieria ingramii*, as impacts do not occur outside of the development footprint. In addition to this, the presence of higher-quality habitat patches in the region and more optimal habitats available outside the subject land significantly decrease the likelihood of species decline for *Zieria ingramii.*
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Proactive and adaptive mitigation measures will be applied during both construction and operation. The habitat for this species within the subject land is highly dynamic, with moderate grazing pressures and the presence of weed patches, including Lolium, Hordeum, and other environmental weeds. It is considered unlikely that the project will significantly reduce the quality or integrity of the community's occurrence or substantially increase the spread of invasive species, either locally or more broadly.
Introduce disease that may cause the species to decline.
The project will not result in the introduction of a disease that is harmful to *Zieria ingramii*.
Interfere substantially with the recovery of the species.

SIC assessment for critically endangered or endangered species
There is currently a recovery plan in place for *Zieria ingramii* in NSW. However, it is unlikely that the project will exacerbate existing threats or significantly impact the recovery of the species. Potential impacts will be addressed through mitigation measures outlined in the BDAR, including but not limited to detailed BMPs, pre-clearance surveys, adaptive management, and procedures for handling unexpected finds.
Conclusion.
Based on the assessment above, it is concluded that *Zieria ingramii* is unlikely to be significantly impacted by the project. This conclusion is based on the following factors: • The species was not recorded during surveys within the development footprint. • The project will not lead to a long-term decrease in an important population, reduce areas of occupancy, or fragment an existing important population. • The project will not disrupt the breeding cycle of an important population, the local population, or the species as a whole. • The project will not adversely modify the species' habitat or introduce invasive species or diseases, as mitigation measures will be implemented to prevent weed incursion and disease spread. • The project will not substantially interfere with the species' recovery.