Biodiversity Development Assessment Report

Proposed subdivision

Lots 4 and 5, DP 758803
Oxley Street, Nyngan

January 2024
Draft

Prepared For
Bogan Shire Council

Project: 23078

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EXECUTIVE SUMMARY

Accuplan was engaged on behalf of Bogan Shire Council to prepare this BDAR for a proposed residential subdivision over land described as Lots 4 and 5, DP 758803 Oxley Street, Nyngan, and to address the key biodiversity issues associated with the proposal. Specifically, this report has addressed:

- Stage 1 (Biodiversity Assessment) and Stage 2 (Impact Assessment) of the BAM 2020 (BC Act); and
- Matters of National Environmental Significance (EPBC Act).

Native Vegetation Assessment

The vegetation occurring within the proposal area is most consistent with *PCT 37 Black Box Woodland on NSW central and northern floodplains*. Three vegetation zones were recorded within the site:

- **Zone 1: PCT 37 (Moderate) –** This zone comprises the small remnant patches of Black Box woodland present within the site. The limits of this zone were determined by the canopy extent of remnant trees. Whilst the understorey is similarly affected by grazing and/or regular maintenance as the surrounding grassland, a higher number of native species persists within the understorey relative to the surrounding pasture (Zone 2).
- **Zone 2: PCT 37 (Low Condition) –** This zone covers the predominantly cleared areas comprised of grazed or regularly managed groundcovers. Trees and tree regeneration is generally absent, although some isolated shrubs occur throughout this zone. This vegetation zone is low condition as the overall VIS is below 15.

Threatened Ecological Communities

PCT 37 is associated with the EEC Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions listed under the BC Act. The patches of remnant woodland (Vegetation Zone 1) within the site are consistent with the EEC listing and whilst the remaining areas are highly modified and lack a native tree or shrub component, these areas (Vegetation Zone 2) may be representative of a highly disturbed example of this EEC as listed under the BC Act.

Avoid and Minimise Impacts

There is a limited supply of residential zoned land available within the Nyngan township and the proposal area is one of the last available pockets of undeveloped residential zoned land within Nyngan. The entire proposal area has been substantially modified by its current and past land uses, which has primarily been for grazing. Native vegetation within the site is highly modified, with woody vegetation limited to small clumps or scattered trees isolated by low condition grassland with a high proportion of exotics.

The scope of the proposed subdivision offers limited opportunities further avoid and minimise impacts to biodiversity within the site, and it is assumed that all vegetation would be removed as a result of the proposal.

Mitigation measures to minimise impacts to biodiversity are provided in Section 6.

Residual Impacts

The proposal would impact a total of approximately 4.61 hectares of vegetation including:

- 0.33 hectares of *PCT 37 Black Box Woodland on NSW central and northern floodplains* in moderate to good condition (Vegetation Zone 1).
- 4.28 hectares of low condition grassland (Vegetation Zone 2).

The proposed subdivision would also impact the following fauna habitat:

- Seasonal foraging resources associated with the trees and shrubs to be impacted.
- Shelter associated with hollow-bearing trees identified for removal. The proposal would remove up to 4 hollow-bearing trees. Each of these trees is largely isolated by previous clearing and are surrounded by managed grassland. The removal of such habitat has the potential to directly impact hollow-dependent fauna that may inhabit the hollows and reduce this habitat resource in the local area.

Offsetting under the BC Act

This BDAR identified the following offsetting requirements to address residual impacts of the proposal:

- 10 ecosystem credits to address the impacts to 0.33 hectares of PCT 37 (in moderate to good condition).

This credit requirements will be satisfied through retiring of credits under the Biodiversity Offset Scheme, based on like-for-like rules wherever possible. Payments into the Biodiversity Conservation Fund may be made where suitable credits are not currently available.

Assessment of Serious and Irreversible Impacts (SAII)

The proposal is unlikely to impact any threatened ecological community or species at risk of SAII.

Matters of National Environmental Significance (EPBC Act)

The MNES assessment concluded that the proposed impacts to vegetation and habitat is unlikely to have a significant impact on any TEC or threatened species listed under the EPBC Act. As such, it is considered that a referral under the EPBC Act is not warranted.

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Document Details
File Name: 23078_Hoskins Street, Nyngan_ BDAR_RevA.docx
Project No: 23078
Date: January 2024
Revision: Draft
Prepared for: Bogan Shire Council

Report History

Date	Revision	Comment
19 January 2024	Rev A	Draft for review

Table of Contents

Schedule of Figures

Schedule of Tables

Schedule of Appendices

Definitions	
Accredited person or assessor	Means as person accredited under section 6.10 (of the BC Act) to prepare reports in accordance with the BAM.
Biodiversity Assessment Method	The Biodiversity Assessment Method is established under section 6.7 of the BC Act. The BAM is established for the purpose of assessing certain impacts on threatened species and threatened ecological communities (TECs), and their habitats, and the impact on biodiversity values.
Biodiversity offsets	The gain in biodiversity values achieved from the implementation of management actions on areas of land, to compensate for losses to biodiversity values from the impacts of development (DPIE 2020a).
Biodiversity Assessment Method Calculator	Biodiversity Assessment Method Calculator (BAM-C) – the online computer program that provides decision support to assessors and proponents by applying the BAM and referred to as the BAM-C. The BAM-C contains biodiversity data from the BioNet Vegetation Classification and the Threatened Biodiversity Data Collection that the assessor is required to use in a BAM assessment. The BAM-C applies the equations used in the BAM, including those to determine the number and class of biodiversity credits required to offset the impacts of a development, or created at a biodiversity stewardship site. It is published by the Department (DPIE 2020a).
Biodiversity credit report	The report produced by the BAM-C that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site (DPIE 2020a).
Biodiversity Offsets and Agreement Management System	The online system used to administer the Biodiversity Offsets Scheme. The BOAMS is used by accredited assessors (to carry out specific BAM-related tasks involving access to the BAM-C to perform assessments, submit data, generate credits and calculate a credit price), by landholders (to apply for a Biodiversity Stewardship Agreement and manage ongoing reporting obligations for their agreement) and by proponents of developments (to view their credit obligation or the payment required to the Biodiversity Conservation Fund).
Biodiversity Stewardship site	Refers to land which is the subject to a Biodiversity Stewardship Agreement under the BC Act.
BioNet Atlas	The DPIE database of flora and fauna records (formerly known as the NSW Wildlife Atlas). The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails listed under the BC Act) and some fish (DPIE 2020a).
BioNet Vegetation classification	Refers to the vegetation community-level classification for use in vegetation mapping programs and regulatory biodiversity impact assessment frameworks in NSW. The BioNet Vegetation Classification is published by the Department and available at www.environment.nsw.gov.au/research/Visclassification.htm (DPIE 2020a).
Construction footprint	The area to be directly impacted by the proposal during construction activities. See also definition for subject land.
Cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Refer to Clause 228(2) of the EP&A Regulation 2000 for cumulative impact assessment requirements.
Direct impact	Direct impacts on biodiversity values include those related to clearing native vegetation and

Definitions	
	threatened species habitat, and impacts on biodiversity values prescribed by the Biodiversity Conservation Regulation 2017 (the BC Regulation) (DPIE 2020a).
Ecosystem credit species	Threatened species or components of species habitat that are identified in the Threatened Species Data Collection as requiring assessment for ecosystem credits. This is analogous with the definition of 'predicted species'.
Ecosystem credits	A measurement of the value of threatened ecological communities, threatened species habitat for species that can be reliably predicted to occur with a PCT, and PCTs generally. Ecosystem credits measure the loss in biodiversity values at a development, activity, clearing or biodiversity certification site and the gain in biodiversity values at a biodiversity stewardship site (DPIE 2020a).
Habitat	An area or areas occupied, or periodically or occasionally occupied, by a species, population or ecological community, including any biotic or abiotic component (DPIE 2020a).
Indirect impact	Impacts that occur when the proposal affects native vegetation and threatened species habitat beyond the development footprint or within retained areas (e.g. transporting weeds or pathogens, dumping rubbish). This includes impacts from activities related to the construction or operational phase of the proposal and prescribed impacts (DPIE 2020a).
Local population	The population that occurs in the study area. The assessment of the local population may be extended to include individuals beyond the study area if it can be clearly demonstrated that contiguous or interconnecting parts of the population continue beyond the study area, according to the following definitions: • The local population of a threatened plant species comprises those individuals occurring in the study area or the cluster of individuals that extend into habitat adjoining and contiguous with the study area that could reasonably be expected to be cross-pollinating with those in the study area. • The local population of resident fauna species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area. • The local population of migratory or nomadic fauna species comprises those individuals that are likely to occur in the study area from time to time or return year to year (OEH 2018).
Matter of national environmental significance	A matter of national environmental significance (MNES) is any of the nine defined components protected by a provision of Part 3 of the EPBC Act (Commonwealth).
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000 (DPIE 2020a).
Mitigation	Action to reduce the severity of an impact.
Native vegetation	Has the same meaning as in section 1.6 of the BC Act and section 60B of the LLS Act. In summary, (a) trees (including any sapling or shrub or any scrub), (b) understorey plants, (c) groundcover (being any type of herbaceous vegetation), (d) plants occurring in a wetland. A plant is native to New South Wales if it was established in New South Wales before European settlement (BC Act). Native vegetation does not extend to marine vegetation (being

Definitions	
	mangroves, seagrasses or any other species of plant that at any time in its life cycle must inhabit water other than fresh water). Marine vegetation is covered by the provisions of the FM Act.
Patch size	An area of native vegetation that: • occurs on the development site or biodiversity stewardship site • includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or ≤30 m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or biodiversity stewardship site (DPIE 2020a).
PlantNET	An online database of the flora of New South Wales which contains currently accepted taxonomy for plants found in the State, both native and exotic.
Population	A group of organisms, all of the same species, occupying a particular area (DPIE 2020a).
Spatial datasets	Spatial databases required to prepare a BDAR: • BioNet NSW (Mitchell) Landscapes – Version 3.1 • NSW Interim Biogeographic Regions of Australia (IBRA region and sub-regions) – Version 7 • NSW soil profiles • hydrogeological landscapes • acid sulfate soils risk • digital cadastral database • Vegetation Information Systems maps • Geological sites of NSW.
Species credit species	Threatened species or components of species habitat that are identified in the Threatened Species Data Collection as requiring assessment for species credits (DPIE 2020a). This is analogous with the definition of 'candidate species'.
Species credits	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection (DPIE 2020a).
Species polygon	An area of land identified in Chapter 5 (of the BAM) that contains habitat or is occupied by a threatened species (DPIE 2020a).
Subject land	Land subject to a development, activity, clearing, biodiversity certification or a biodiversity stewardship proposal. It excludes the landscape assessment area which surrounds the subject land (ie the area of land in the 1500 m buffer zone around the subject land or 500m buffer zone for linear proposals). In the case of a biodiversity certification proposal, subject land includes the biodiversity certification assessment area (DPIE 2020a). See also definition for construction footprint.
Study area	The area directly affected by the proposal (subject land or construction footprint) and any additional areas likely to be affected by the proposal, either directly or indirectly.
Threatened Biodiversity Data Collection	A publicly assessable online database (registration required) which contains information for listed threatened species, populations and ecological communities (DPIE 2020a). Part of the BioNet database, accessible from the BioNet website at www.bionet.nsw.gov.au.
Vegetation integrity (score)	The condition of native vegetation assessed for each vegetation zone against the benchmark for the PCT. The vegetation integrity score is the quantitative measure of vegetation condition calculated by the BAM-C (DPIE 2020a).

Definitions	
Vegetation zone	A relatively homogeneous area of native vegetation on a development site, clearing site, land to be biodiversity certified or biodiversity stewardship site that is the same PCT and has the same broad condition state (DPIE 2020a).

Abbreviations	
AHD	Australian Height Datum
AOBV	Area of Outstanding Biodiversity Value
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Credit Calculator
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BC Regulation	*Biodiversity Conservation Regulation 2017* (NSW)
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offsets Scheme
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Federal)
DPE	Department of Planning and Environment (NSW – Current)
DPIE	Department of Planning, Industry and Environment (NSW – Former)
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EOO	Extent of occupancy
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Federal).
FM Act	*Fisheries Management Act 1994* (NSW)
GDE	Groundwater dependent ecosystems
IBRA	Interim Biogeographically Regionalisation of Australia
MNES	Matters of National Environmental Significance
OEH	Office of Environment and Heritage
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
TECs	Threatened Ecological Communities
TSPD	Threatened Species Profile Database
VEC	Vulnerable Ecological Community
VIS	Vegetation Integrity Score

Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016* (BC Act).

Signature: Date: TBC

Luke Pickett

Bachelor of Environmental Science
Master of Wildlife (Habitat) Management
Accredited Biodiversity Assessor (BAAS17100)

ii. Conflict of Interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest. This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature: Date: TBC

Luke Pickett

Bachelor of Environmental Science
Master of Wildlife (Habitat) Management
Accredited Biodiversity Assessor (BAAS17100)

1. INTRODUCTION

Accuplan has been been commissioned by Bogan Shire Council to prepare a Biodiversity Development Assessment Report (BDAR) in relation to a proposed residential subdivision on land described as Lots 4 and 5, DP 758803, Oxley Street, Nyngan. This BDAR has been completed in accordance with the Biodiversity Assessment Methodology (BAM) and has been prepared to accompany a development application to Bogan Shire Council.

The proposed development is local development and consent is sought under Part 4 of the Environmental Planning & Assessment Act 1979 (EP&A Act).

This assessment has been prepared to consider the biodiversity impacts of the proposal including statutory considerations under the *Biodiversity Conservation Act 2016* (BC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.1 Site and Proposal Description

The subject site is comprised of two adjoining allotments, Lots 4 and 5, DP 758803, which are located to the south of Oxley Street in Nyngan. In total, the proposal area has an area of approximately 4.6 hectares, which includes Lots 4 and 5 (approx. 3.6 hectares) and parts of the adjoining road reserves as these areas would be used to provide access and services (approx. 1 hectare). A site locality map is provided at **Figure 1.1.**

Land within the site is predominantly used for grazing and is largely comprised of grassland. Woody vegetation is limited to small, isolated patches of woodland and some isolated trees and shrubs. The topography of the site is flat with the elevation across site measuring approximately 172m AHD.

The proposed development involves the creation of thirty-two (32) residential lots. The proposal also includes a drainage reserve, new public roads, driveway access to lots and associated services. An extract of the proposed site plan is provided at **Figure 1.2.**

Figure 1.1: Site locality map

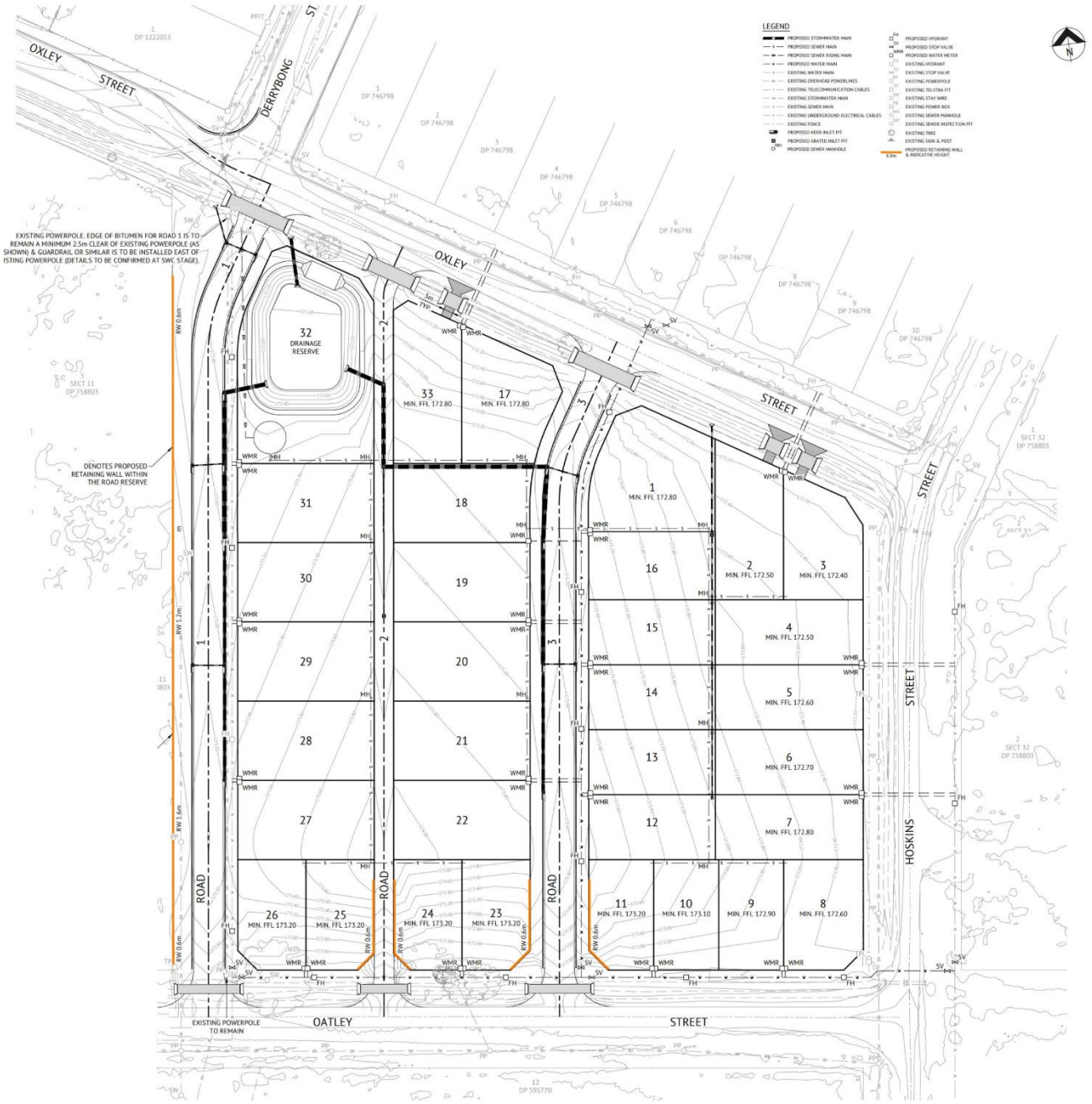

Figure 1.2: Concept plan extract showing proposed lot boundaries and access roads (Premise, 2023)

1.2 Study Aims

This study aims to assess the potential impacts of the proposed development on the biodiversity values of the local area in accordance with the Biodiversity Assessment Method (DPIE, 2020a). The assessment includes the following:

- **Stage 1: Biodiversity Assessment** – identifies the biodiversity values on the land subject to the proposed development. In general, Stage 1 focuses on the assessment of the landscape context, the condition of native vegetation present, and habitat suitability for threatened species.
- **Stage 2: Impact Assessment** (biodiversity values and prescribed impacts) - applies the 'avoid, minimise and offset' hierarchy and assesses direct, indirect and prescribed impacts associated with the development proposal. Stage 2 of the BAM determines the offset requirements for all residual impacts on biodiversity values at a proposed site. In general, these are measured as ecosystem credits and species credits. Stage 2 determines the number, class and offset trading group of biodiversity credits.

Additionally, this report aims to assess the proposal's impacts to 'Matters of National Environmental Significance' (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.3 Legislative Context

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

The EP&A Act provides the framework for environmental planning and assessment, including approvals and environmental impact assessment requirements for proposed development.

The proposed development is "integrated development" requiring approval from other approval bodies under Section 4.46 of the EP&A Act. This BDAR is a supporting document that accompanies a development application to Bogan Shire Council and has been prepared to address the key issues relating to biodiversity.

1.3.2 Biodiversity Conservation Act 2016 (BC Act)

The BC Act, together with the *Biodiversity Conservation Regulation 2017*, outlines the framework for addressing impacts on biodiversity from development and clearing. It establishes a framework to avoid, minimise and offset impacts on biodiversity from development through the Biodiversity Offsets Scheme (BOS). Thresholds for entry into the scheme are:

1. whether the impacts occur on an area mapped on the Biodiversity Values map published by the Minister for the Environment; or
2. whether the amount of native vegetation being cleared exceeds a threshold area; or
3. whether the proposal would have a significant impact on threatened communities or species – determined by the "5-part test".

Review of the Biodiversity Values map indicates that the subject site is not impacted by mapped biodiversity values, with the nearest values occurring approximately 1600 metres to the west of the site, identified as *'biodiverse riparian land'*.

The minimum lot size for land zoned *R1 – General Residential* is 450m^2 and the associated threshold for entry into the BOS is 0.25 hectares. The proposal exceeds this threshold, and subsequently biodiversity impacts related to the proposal are to be assessed in accordance with the Biodiversity Assessment Method (BAM) (OEH, 2021) and documented in a Biodiversity Development Assessment Report (BDAR). This BDAR has been prepared by an accredited assessor (BC Act, S.6.10) and includes information in the form detailed in the BC Act (S.6.12), BC Regulation (S.6.8) and the BAM 2020.

1.3.3 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on Matters of National Environmental Significance. This includes impacts to threatened species, communities and migratory species listed under the EPBC Act. These are considered in Section 5.7.2.

The assessment of the proposal's impact found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land. Accordingly, the proposal has not been referred to the Australian Government Department of the Environment under the EPBC Act.

1.4 Personnel

This BDAR was prepared by accredited assessor, Luke Pickett (BAAS17100), with assistance from Nathan Hokin and Matt Clancy. All content and fieldwork has been conducted in accordance with the Biodiversity Assessment Method 2020 (BAM). The roles and qualifications of staff are provided in **Table 1.1**

Table 1.1: Staff qualification and roles

Name	Position / Role	Qualifications	Experience
Luke Pickett	Senior Ecologist Field surveys, BAM calculations, GIS mapping, BDAR reporting, BDAR Certification	Bachelor of Environmental Science Master of Wildlife Habitat Management BAM Accredited Assessor (17100)	18 years
Nathan Hokin	Ecological Consultant Field surveys, GIS mapping	Bachelor of Environmental Science	1 year
Matt Clancy	Senior Environmental Planner / Scientist Document review	Registered Planner Bachelor of Environmental Science (Honours) Graduate Certificate in Environmental Management	18 years

1.5 Information Sources

The following information sources were used for this assessment:

- Department of Planning and Environment (DPE) BioNet Atlas of NSW Wildlife database (licensed) for records of threatened species and endangered ecological communities which have been recorded within a 50 km radius (locality) of the subject site (last accessed 27 September 2023)
- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool for Matters of National Environmental Significance (MNES) listed under the EPBC Act within a 50 km radius from the site (last accessed 27 September 2023)
- NSW Biodiversity Values Map (last accessed 7 November 2023)
- NSW Vegetation Information System (VIS) classification database (DPE, 2023)
- Central West - Lachlan Regional Native Vegetation PCT Map Version 1.0 (OEH, 2015)

2. LANDSCAPE ASSESSMENT

A landscape assessment in accordance with Section 3 of the BAM (DPIE, 2020) was undertaken for input into the BAM Calculator. The site context was assessed using a 1500-metre buffered assessment area which applies to non-linear projects. The landscape value considers several factors including:

- IBRA bioregions and subregions
- Rivers, streams and estuaries
- Native vegetation cover and patch size
- Wetlands
- Habitat connectivity
- Areas of geological significance and soil hazard features
- Areas of outstanding biodiversity value

A summary of the local landscape context is provided in **Table 2.1.**

Table 2.1: Local landscape context summary

Attribute	Description
LGA	Bogan Shire Council
Zoning	R1 General Residential (see Figure 2.1**)**
Catchment	Macquarie - Bogan
IBRA Bioregion	Darling Riverine Plains
IBRA Subregion	Bogan - Macquarie
Landscape	A single landscape type is mapped within the proposal area (see **Figure 2.2**) as described below: **Boggy Cowal Alluvial Plains (Bcp)** Description: Pleistocene fluvial sediments of backplain facies of the Carrabear Formation associated with the Boggy Cowal distributary stream system. Medium to heavy grey cracking clays with extensive gilgai. Carbonate nodules common in the subsoil and worked to gilgai crests, local relief to 2m. Associated vegetation includes extensive grasslands with scattered stands of myall (*Acacia pendula*), Bimble Box (*Eucalyptus populnea*), Black Box (*E. largiflorens*) and Belah (*Casuarina cristata*) (DECC, 2008).
Native Vegetation Cover	A 1500 metre buffer was applied to the proposal area resulting in an overall buffer area of 827 ha. The extent of native vegetation was estimated based on observations from site visits and aerial photo interpretation. Native vegetation occupies 125 ha of the buffer area. Native vegetation covers approximately 15% of the buffer area. This falls into the >10-30% category within the BAM calculator. The extent of native vegetation cover is shown in Figure 2.3.
Patch Size	A patch is defined in Section 4.3.2 of the BAM as an area of native vegetation that occurs on the subject land and includes native vegetation that has a gap of less than 100 metres from the next area of native vegetation (or ≤ 30 metres for non-woody ecosystems). The patch may extend onto adjoining land. The proposal area is >100 metres from native vegetation occurring to the north-west and south of the site. These areas are small; therefore, the woody vegetation is allocated to the <5 hectares patch size class.
Connectivity Features	Sparse remaining trees within the subject site provides no connectivity to intact vegetation to the surrounding vegetation. No mapped local or regional wildlife corridors occur within the proposal area.
Rivers, Streams, and	There is no level of watercourse present within the subject site. There are two first order streams located within a 1500m buffer of the subject area

Attribute	Description
Estuaries	both of which flow towards the west into the bogan river (see **Figure 2.4**).
Wetlands	No wetlands occur within the subject site.
Areas of Geological Significance and Soil Hazard Features	There are no areas of geological significance (karst, caves, crevices, cliffs, or other features) within the subject site. There are no acid sulphate soils mapped in the Bogan Shire Council. The subject site is mapped within the Mullengudgery hydrogeological landscape classification. This landscape identified the land to have a 'High' land salinity impact, 'Low' salt load impact, 'Low' impact on water quality and an overall salinity hazard classification of 'Moderate" (Wooldridge et al., 2012) (**Figure 2.5)**.
Areas of Outstanding Biodiversity Value	No areas of outstanding biodiversity value occur within the vicinity of the proposal site.
Mapped Biodiversity Values	There are no mapped biodiversity values which occur within 1500 metres of the site (see Figure 2.3 below).
Important Habitat Mapping	No important habitat mapping occurs within 1500 metres of the site.

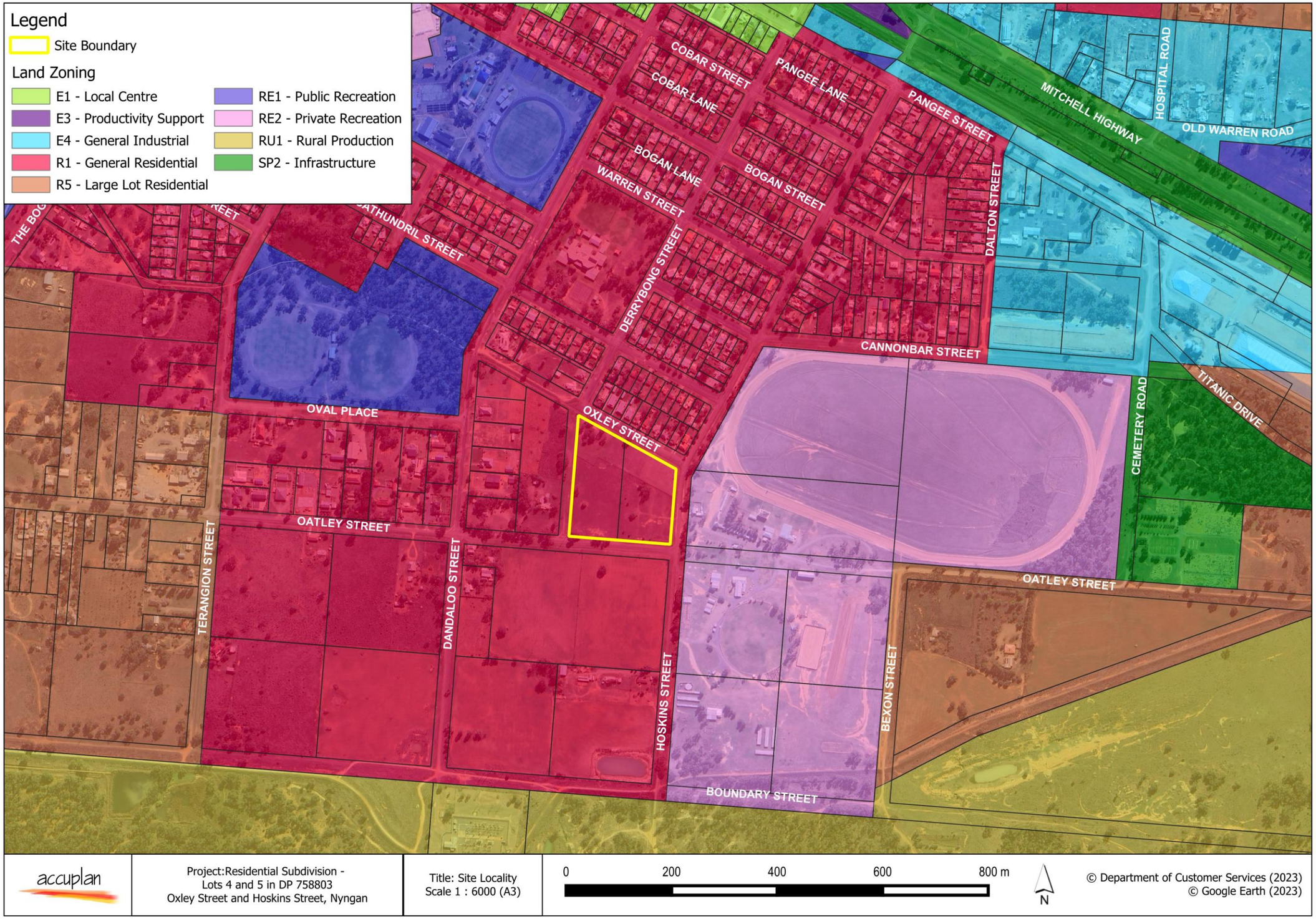

Figure 2.1: Land Zoning – Bogan Local Environmental Plan 2011

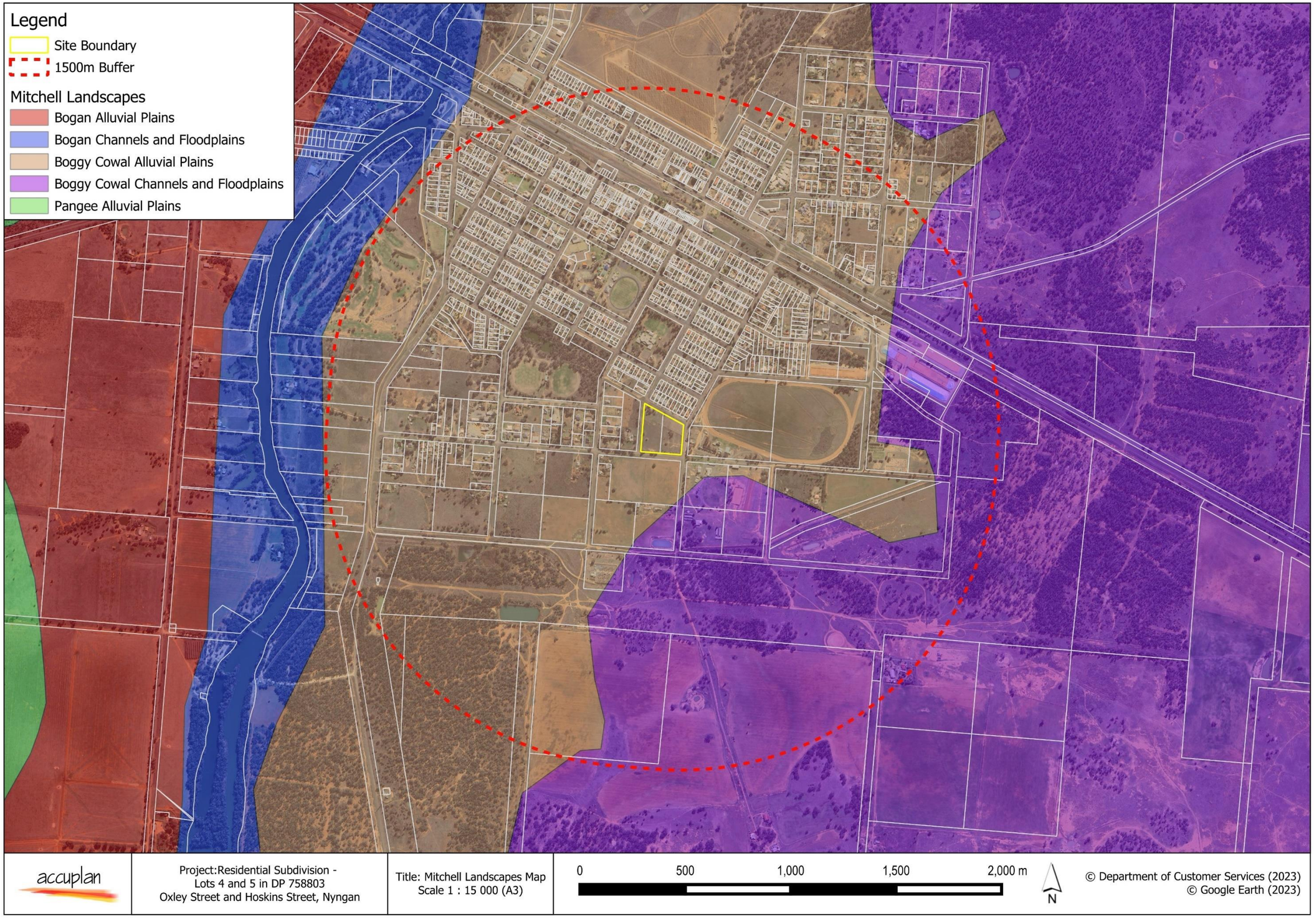

Figure 2.2: NSW (Mitchell) Landscapes (Version 3.1) occurring over the study area.

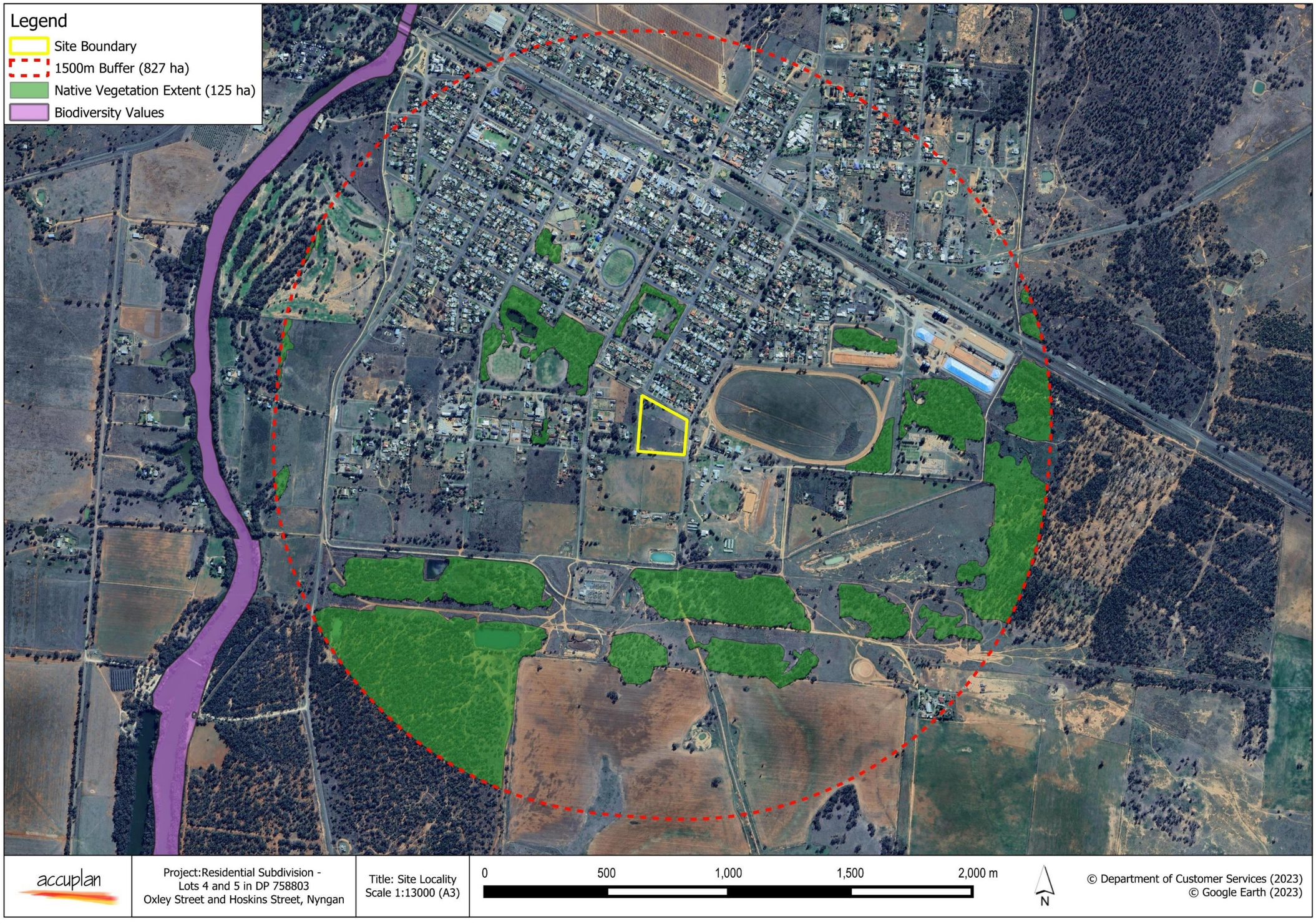

Figure 2.3: Native vegetation extent and mapped biodiversity values

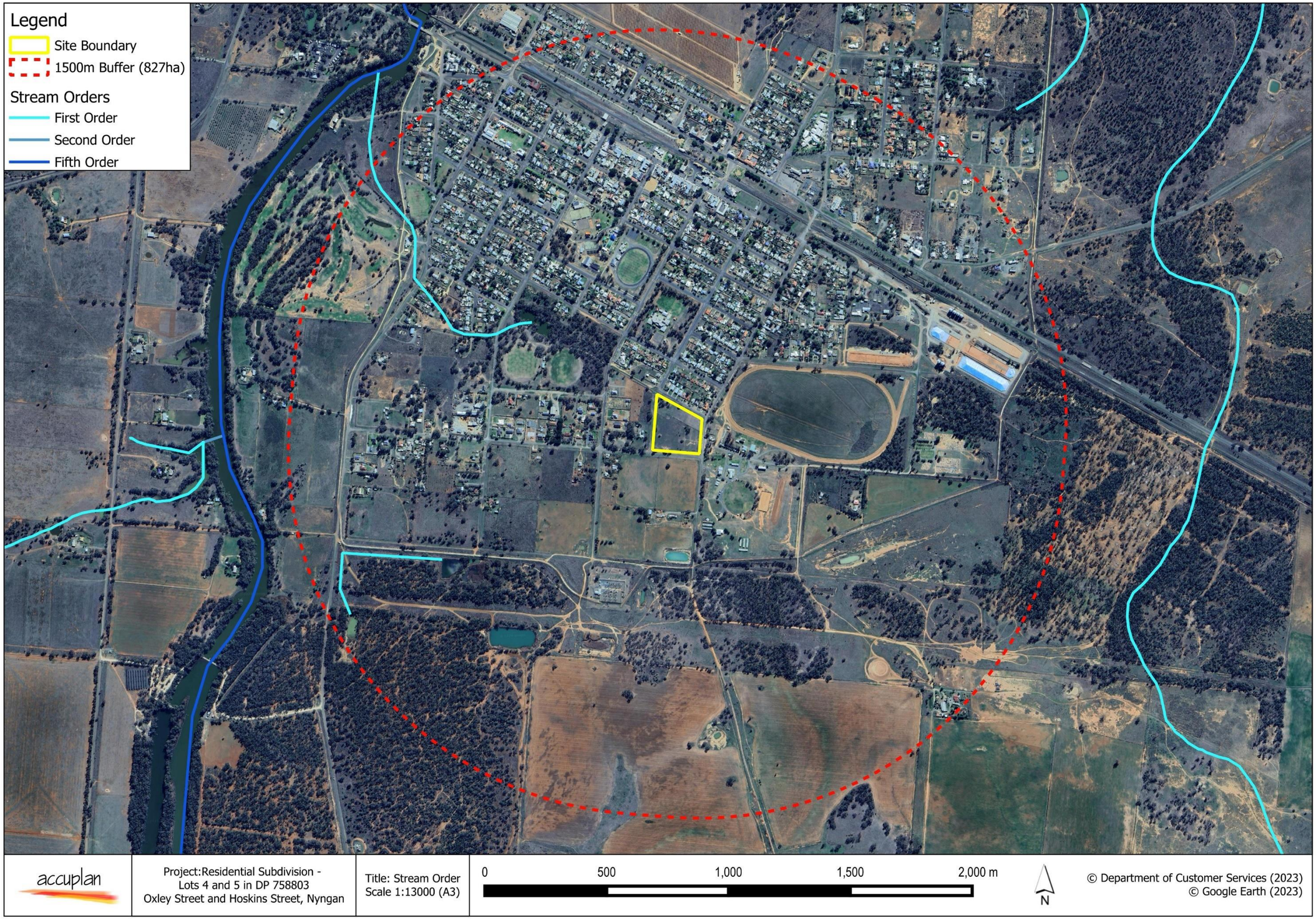

Figure 2.4: Rivers, streams and estuaries

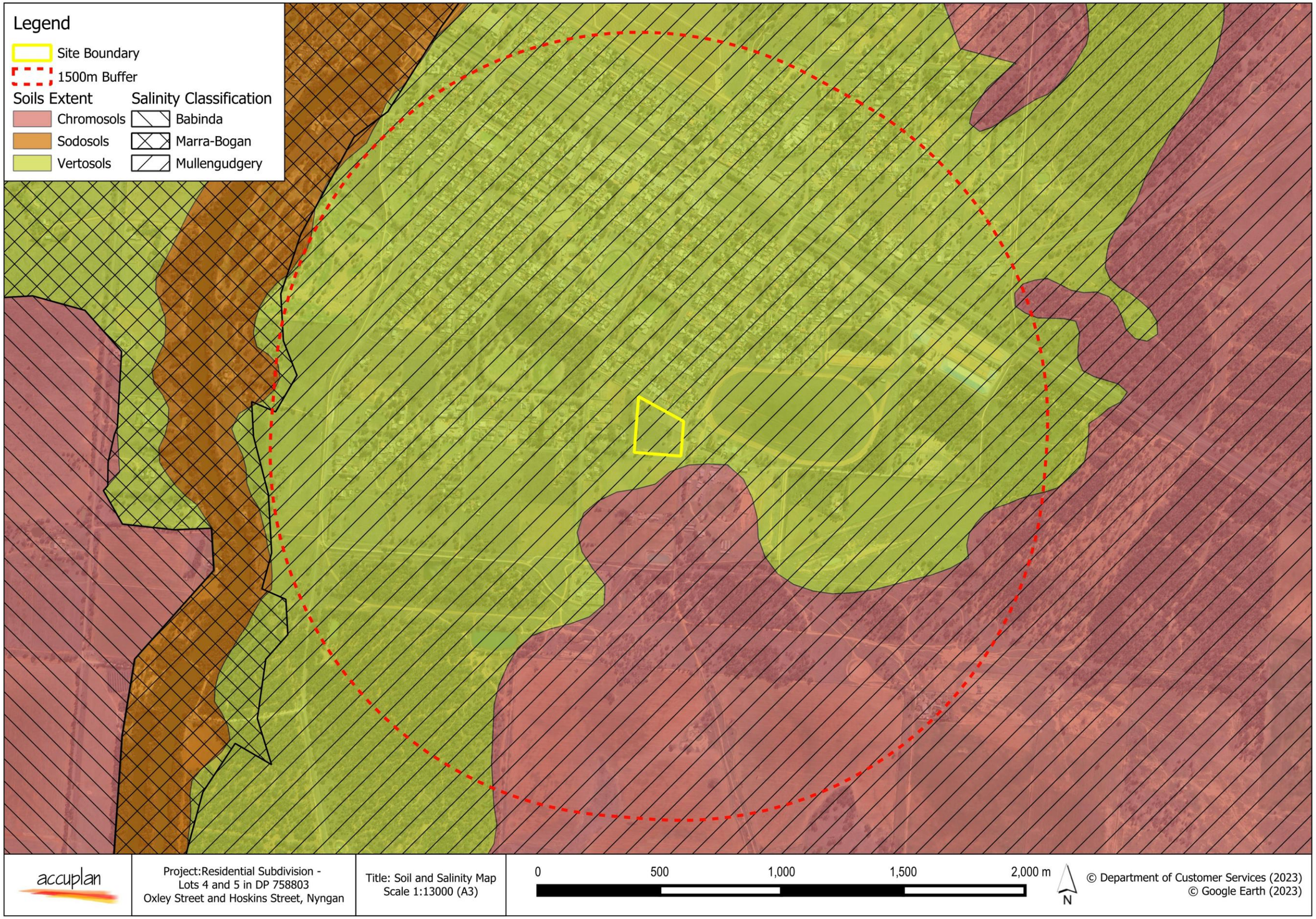

Figure 2.5: Mapped soil and soil hazard extent

3. NATIVE VEGETATION AND HABITAT

3.1 Native Vegetation Extent

Native vegetation within the subject site is largely comprised of modified grazing land and small discontinuous patches of remnant woodland. The extent of native vegetation in the study area was mapped in accordance with the BAM (**Section 4.1**).

3.2 Methods to Assess Plant Community Types (PCTs)

3.2.1 Review of existing information

A review of existing information was undertaken for the site. This included review of the following databases and literature relevant to the site and local area:

- NSW Vegetation Information System (VIS) classification database (DPE, 2023)
- Central West - Lachlan Regional Native Vegetation PCT Map Version 1.0 (OEH, 2015)

Local vegetation mapping identifies the proposal area is entirely covered by non-native vegetation.

3.2.2 Floristic survey

Floristic surveys were undertaken by Luke Pickett (Accredited Assessor No: BAAS17100).

The site was scoped using the 'Random Meander Technique' described by Cropper (1993). This involved walking in a random meander throughout the proposal site, visiting the full range of habitats and recording every plant species observed.

Vegetation plots are established in accordance with the BAM as detailed in **Section 3.2.2.1**. The bearing of each plot was dependent on the size and topography of the vegetation zone but was typically selected to best represent the vegetation zone and avoid zone edges and ecotones wherever possible. The location of vegetation plots and targeted survey tracks are shown in **Appendix V**.

Plant community types (PCTs) were determined by comparing the floristic structure and composition of the vegetation on site with vegetation profiles described within the VIS database (OEH, 2020) and community descriptions of endangered ecological communities known to occur in the local area.

A list of all plant species recorded during fieldwork is listed in **Appendix I**.

3.2.2.1 Vegetation Plots

Three vegetation plots were completed to assess the vegetation integrity of native vegetation within the proposal area. Vegetation plots are typically based on a 20m × 20m plot (400m^2) to assess composition and structure components and a 50m × 20m plot (1000m^2) to assess ecological function. Data collected within the plot/transect includes:

- Flora diversity and composition;
- Groundcover composition and abundance;
- Vegetation structure (including canopy, sub-canopy, shrub and groundcovers);
- Fauna habitats (including hollow trees, fallen timber);
- Regeneration of canopy species;
- Landscape features (including slope, gully and aspect);
- Soil features (including soil type, rocks, organic matter); and
- Geographical coordinates and a photographic record.

A summary of the plots undertaken is provided in Table 3.1.

Table 3.1: BAM Vegetation Plot Summary

PCT/ Zone	Patch size class (ha)	Area of impact (ha)	Minimum plots required	Quadrats completed
Zone 1: PCT 37 – Moderate Condition	<5	0.33	1	1
Zone 2: - PCT 37 - Low Condition	<5	4.28	2	2
TOTAL		**4.61**	**3**	**3**

3.3 Plant Community Types (PCTs)

The vegetation within the proposal area is largely comprised of modified grazing land and small discontinuous patches of remnant vegetation. The canopy of the remnant vegetation within the site is almost entirely comprised of *Eucalyptus largiflorens* (Black Box), apart from a single *Eucalyptus coolabah* (Coolibah) tree recorded in the north of the site and a single *E. populnea* (Bimbil Box) tree located on the adjoining property near the western boundary. Shrubs are generally restricted to the base of remnant trees; however, some larger isolated specimens occur throughout the site.

The vegetation within the site is most consistent with *PCT 37 Black Box Woodland on NSW central and northern floodplains*. A description and justification for selection of this PCT is provided in **Table 3.2**. A full list of species recorded during the field survey is provided in **Appendix I**.

Table 3.2: Description of PCT 37

PCT ID	PCT 37 – Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Estimate of % cleared	61% (VIS Database, 2023)
BC Act Status	EEC - Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions (see **Section 3.5**)
EPBC Act Status	Associated with Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions; however, does not meet the required condition thresholds to form part of the TEC (see **Section 3.5**)
Vegetation Formation	Semi-arid Woodlands (Grassy sub-formation)
Vegetation Class	North-west Floodplain Woodlands
PCT Description	Open forest to open woodland dominated by Black Box (*Eucalyptus largiflorens*) often with Poplar Box (*Eucalyptus populnea*), Coolibah (*Eucalyptus coolabah*) or Belah (*Casuarina cristata*). The shrub layer may be sparse or dense depending on grazing regimes or other disturbance events. It may include River Cooba (*Acacia stenophylla*), Lignum (*Muehlenbeckia florulenta*), Old Man Saltbush (*Atriplex nummularia*), Thorny Saltbush (*Rhagodia spinescens*), Cooba (*Acacia salicina*), Wilga (*Geijera parviflora*), Budda (*Eremophila mitchellii*), Wild Orange (*Capparis mitchellii*), Spotted Fuchsia (*Eremophila maculata*) and Eurah (*Eremophila bignoniiflora*). The ground cover is usually sparse but may be dense after flooding or rain and includes low shrubs such as Black Roly Poly (*Sclerolaena muricata*), Cotton Bush (*Maireana aphylla*) and saltbushes such as *Atriplex spinibractea* and *Atriplex semibaccata*. Grass species include *Enteropogon acicularis*, *Austrodanthonia setacea*, *Walwhalleya subxerophilum*, *Paspalidium jubiflorum*, *Lachnagrostis filiformis*, *Panicum decompositum* and *Leptochloa digitata*. Forbs include *Solanum esuriale*, *Oxalis chnoodes*, *Sida corruga*, *Goodenia fascicularis*, *Calotis scabiosifolia* and *Einadia nutans* subsp. *nutans*. Nardoo (*Marsilea drummondii*) is common after flooding and sedges such as *Eleocharis pallens* and *Cyperus concinnus* grow in depressions. Occurs on grey and brown alluvial clays and red and brown loams on floodplains near watercourses, ox-bow lakes, and drainage depressions. Distributed across the north-western plains of NSW, mainly in the Darling Riverine Plain Bioregion. Abundant along the Darling, Barwon, Macquarie and Bogan Rivers. In northern occurrences, this community grades into Coolabah Box woodland on slightly higher ground. A threatened community because it has mostly been cleared and heavily grazed.
Occurrence within Proposal Area	Occurs throughout the proposal area, albeit in a highly modified state with low native diversity and minimal tree or shrub coverage.
PCT Justification	PCT 37 was selected as the best fit option given: a) Remnant trees within the proposal area are primarily comprised of *Eucalyptus largiflorens* (Black Box) with *Eucalyptus populnea ssp. bimbil* (Bimbil Box) and *Eucalyptus coolabah* (Coolibah) also present. The dominance of Black Box and presence of Coolibah and Bimbil Box is most consistent with PCT 37. b) Most native shrubs and groundcovers recorded on site are consistent with species associated with PCT 37. c) The community typically occurs on grey and brown alluvial clays and red and brown loams on floodplains which occur across the site.

Trees	*Eucalyptus largiflorens*, *Eucalyptus coolabah, Eucalyptus populnea* subsp. *bimbil*
Shrubs	*Geijera parviflora, Capparis mitchellii, Myoporum montanum, Eremophila maculata, Senna artemisioides, Sclerolaena muricata, Salsola australis, Rhagodia spinescens, Enchylaena tomentosa, Atriplex semibaccata*
Native Groundcover	*Enteropogon acicularis, Verbena gaudichaudii*, *Wahlenbergia communis*, *Erodium crinitum, Einadia nutans, Marsilea drummondii, Solanum esuriale, Sida corrugata, Fimbristylis dichotoma, Calotis lappulacea, Chrysocephalum apiculatum, Goodenia fascicularis, Bulbine alata, Juncus subsecundus, Centipeda thespidioides*
Exotics	*Hordeum leporinum* (Barley Grass)*, Lolium perenne* (Perennial Ryegrass), *Lepidium africanum, Echium plantagineum, Malva parviflora* (Small-flowered Mallow), *Plantago lanceolata* (Lamb's Tongues), *Verbena bonariensis* (Purpletop), *Avena barbata* (Bearded Oats), *Bromus catharticus* (Prairie Grass), *Medicago polymorpha, Sisymbrium irio*
Condition	Two vegetation zones were identified within the proposal area: • **Zone 1: PCT 37 (Moderate) (Plot 2)** – This zone comprises the small remnant patches of Black Box woodland present within the site. The limits of this zone were determined by the canopy extent of remnant trees. Whilst the understorey is similarly affected by grazing and/or regular maintenance as the surrounding grassland, a higher number of native species persists within the understorey relative to the surrounding pasture (Zone 2). • **Zone 2**: **PCT 37 (Low Condition) (Plots 1 and 3)** – This zone covers the predominantly cleared areas comprised of grazed or regularly managed groundcovers. Trees and tree regeneration is generally absent, although some isolated shrubs occur throughout this zone. This vegetation zone is low condition as the overall VIS is below 15.

Figure 3.1: Plant Community Types map showing vegetation zones and hollow-bearing trees occurring within the subject site

Photo 3.1: Plot 2 looking ESE – example of remnant woodland (PCT 37 – Moderate) present in the north western corner of the proposal area.

Photo 3.2: Plot 1 looking ESE – example of remnant woodland present in the north western corner of the proposal area.

Photo 3.3: Remnant woodland (PCT 37 – Moderate) occurring within Oatley Street reserve along the southern boundary.

Photo 3.4: Taken from north-eastern corner of site looking west showing low condition grassland.

3.4 Vegetation Integrity Assessment

3.4.1 Vegetation integrity scores

The vegetation integrity scores for each identified vegetation zone are provided in **Table 3.3** below.

Table 3.3: Summary of Vegetation Integrity Scores

BAM-C Zone ID	PCT / Zone	Composition Score	Structure Score	Function Score	Vegetation Integrity Score (VIS)
1	PCT 37 – VZ1 (Moderate)	59.1	100	41.5	62.6
2	PCT 37 – VZ2 (Low Condition)	81.5	37.2	0.1	6.8

3.5 Threatened Ecological Communities

PCT 37 is associated with the EEC Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions listed under the BC Act. The EEC listing includes various condition states which can include the following conditions:

- Trees present as a canopy with a non-native ground-layer;
- Characteristic tree species absent as a result of past clearing or thinning and only other tree species and ground-layer present; and
- Overstorey absent as a result of past clearing or thinning and only a ground-layer present.

Consequently, the patches of remnant woodland (Vegetation Zone 1) within the site are consistent with the EEC listing and whilst the remaining areas are highly modified and lack a native tree or shrub component, these areas (Vegetation Zone 2) may be representative of a highly disturbed example of this EEC as listed under the BC Act.

PCT 37 is also associated with the EEC Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions listed under the EPBC Act. When assessed against the key diagnostic and condition threshold criteria outlined in the Conservation Advice (Threatened Species Scientific Committee (TSSC), 2011), the vegetation within the site does not meet the minimum thresholds to be protected under the EPBC Act. The following key diagnostic and condition thresholds apply or are absent:

- *Eucalyptus coolabah* subsp. *coolabah* (Coolibah) must be present in the tree canopy and is typically dominant. This species is mostly absent apart from a single tree recorded near the northern boundary.
- The minimum patch size is 5 hectares. The remnant patches comprised of trees within the site are small, and less than 0.5 hectares in size.
- The crown cover of trees in the patch must be ≥ 8%. Only small patches or clumps of trees recorded within the site exceed 8% crown cover.

- In the ground layer, the percentage cover of non-native perennial plant species does not exceed the percentage cover of native plant species (annual or perennial). Generally, exotic species cover exceeds native species throughout the low condition vegetation identified within the site.

3.6 Weeds

A total of 21 exotic species was recorded within the proposal area, including five (5) BAM-listed high threat weeds. Weeds were common throughout the proposal area, particularly exotic grasses and herbaceous plants which form a large proportion of the groundcover throughout the proposal area.

Weeds recorded on site are listed in **Appendix I**.

4. THREATENED SPECIES

4.1 Habitat Features

Habitat condition within the proposal area has been influenced by previous clearing of vegetation and regular slashing and grazing of the understorey. The site is surrounded by rural and residential development with limited connectivity to intact habitats. The remnant trees throughout the site also provide some connectivity, mostly for highly mobile species.

Key habitat features recorded within the proposal area include:

- Hollow-bearing trees – these occur sporadically throughout the site and may provide roosting and/or foraging and/or breeding habitat for a range of birds, mammals, reptiles and frogs. Details of habitat trees are provided in **Section 4.1.1**.
- Mature trees and shrubs - may provide seasonal roosting and/or nesting, and/or foraging and/or breeding habitat for a range of birds, mammals, reptiles and frogs.
- Ground cover including large cracks and leaf litter may provide habitat and cover for a range of small terrestrial species. This habitat resource is limited due to regular slashing.
- Cleared grassland areas – may provide foraging resources for a range of ground foraging birds and terrestrial mammals.

4.1.1 Habitat Trees

Four (4) habitat trees were recorded within the site. All identified habitat trees would be removed as part of the proposal. Details of the habitat trees are provided in **Table 4.1** and the locations are shown in **Figure 3.1.**

Table 4.1: Results of habitat tree survey

Tree No	Species	Habitat Notes[1]
H1	*Eucalyptus largiflorens* Black Box	Dead branches with possible Class 2 and Class 3 hollows. Suitable for small to medium sized parrots and microchiropteran bats. No signs of occupation.
H2	*Eucalyptus largiflorens* Black Box	Possible upwards-facing spout (Entrance not visible). Possible Class 2 and Class 3 hollows in dead branches. No signs of occupation.
H3	*Eucalyptus largiflorens* Black Box	Several Class 2 and Class 3 sized hollows. Suitable for small to medium sized parrots and microchiropteran bats. No signs of occupation.
H4	*Eucalyptus largiflorens* Black Box	2 x Class 2. Galahs recorded inspecting hollow.

Note 1: The habitat classification system involved three classes:

Class 1 – large sized hollow openings (i.e., >15cm) suitable for species such as Owls and Cockatoos

Class 2 – medium sized hollow-openings (i.e., 5-15cm) suitable for species such as Gliders and Possums

Class 3 – small sized hollow openings (i.e., <5cm) suitable for species such as microchiropteran bats

4.2 Threatened Species Assessment

A list of threatened species with potential to occur at the site was generated following input of the landscape analysis and plot data into the BAM Calculator (BAM-C). This identified 18 candidate species (species credit species) and 31 predicted species (ecosystem credit species) requiring consideration for assessment.

Database searches (Licenced Bionet and EPBC protected matters databases) were also undertaken to identify any additional potential candidate species (other than those generated by BAM-C) that are known or predicted to occur in the locality. A habitat assessment determining the likelihood of these species to be impacted by the proposed works is provided in **Appendix III.** Species rated as having a moderate or higher chance of occurring on site, additional to those generated by the BAM-C list, were included for assessment whether they be ecosystem or candidate species.

4.2.1 Ecosystem credit species

The following ecosystem credit species were returned by the BAM-C, all associated with PCT 37 (**Table 4.2**). Targeted surveys are not required for ecosystem credit species and all species were assumed to have habitat available within the proposal area and contribute towards ecosystem credit calculations.

Table 4.2: Ecosystem credit species subject to assessment

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Dual Credit Species – Foraging Only	Sensitivity to gain class
Anseranas semipalmata	Magpie Goose	V	-	-	Moderate
Antechinomys laniger	Kultarr	E	-	-	High
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	-	Moderate
Aspidites ramsayi	Woma	V	-	-	High
Botaurus poiciloptilus	Australasian Bittern	E	E	-	Moderate
Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo	V	-	✓	High
Certhionyx variegatus	Pied Honeyeater	V	-	-	Moderate
Chalinolobus picatus	Little Pied Bat	V	-	-	High
Circus assimilis	Spotted Harrier	V		✓	Moderate
Daphoenositta chrysoptera	Varied Sittella	V	-	-	Moderate
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	-	Moderate
Falco hypoleucos	Grey Falcon	V	V	-	Moderate
Falco subniger	Black Falcon	V		-	Moderate
Grantiella picta	Painted Honeyeater	V	V	-	Moderate
Grus rubicunda	Brolga	V		-	Moderate
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	V	✓	High
Hamirostra melanosternon	Black-breasted Buzzard	V		✓	Moderate
Hieraaetus morphnoides	Little Eagle	V	-	✓	Moderate
Hirundapus caudacutus	White-throated Needletail	P	V	-	High
Limosa limosa	Black-tailed Godwit	V	-	✓	High

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Dual Credit Species – Foraging Only	Sensitivity to gain class
Lophochroa leadbeateri	Pink Cockatoo	V	E	✓	Moderate
Lophoictinia isura	Square-tailed Kite	V		✓	Moderate
Melanodryas cucullata cucullata	Hooded Robin	V	E	-	Moderate
Ninox connivens	Barking Owl	V		✓	High
Polytelis swainsonii	Superb Parrot	V	V	✓	Moderate
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	-	Moderate
Rostratula australis	Australian Painted Snipe	E	E	-	Moderate
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	-	High
Sminthopsis macroura	Stripe-faced Dunnart	V		-	High
Stagonopleura guttata	Diamond Firetail	V	V	-	Moderate
Tyto novaehollandiae	Masked Owl	V		-	High

4.2.2 Species Credit Species

4.2.2.1 Candidate species to be assessed

Threatened species classified as species credit species and identified by the BAM as potentially occurring in the subject land are considered in **Table 4.3**.

Candidate species can be excluded from further consideration if:

a) Required habitat/geographical constraints are absent (as identified in the BioNet database); or
b) The field assessment determines that microhabitats required by a species are absent or are degraded to the point that the species is unlikely to use the subject land or specific vegetation zone (see BAM Section 5.2.3); or
c) An expert report states that the species is unlikely to be present on the subject land or specific vegetation zones.

Candidate species identified for further assessment requiring confirmation of presence or absence within the site are considered in **Table 4.4**.

Table 4.3: Candiate species requiring consideration

Scientific name	Common name	BC Act	EPBC Act	Dual credit species	Sources	Habitat Constraints / Geographic Limitations	Species retained for further assessment?	Reason for exclusion from further assessment
Fauna								
Ardeotis australis	Australian Bustard	E		No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	N/A	Yes	N/A
Burhinus grallarius	Bush-Stone-curlew	E		No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Fallen/standing dead timber including logs	No	Habitat constraints The disturbed understorey throughout the proposal area lacks fallen and standing dead timber including logs required by this species.
Calyptorhynchus banksia samueli	Red-tailed Black-Cockatoo (Breeding)	V	V	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	North of Nyngan Hollow bearing trees Living or dead tree with hollows greater than 15cm diameter and greater than 5m above ground	No	Habitat constraints No trees with large hollows suitable for breeding. Retained as an ecosystem credit species given the presence of marginal foraging habitat.
Haliaeetus leucogaster	White-bellied Sea-Eagle (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Living or dead mature trees within suitable vegetation within 1km of rivers, lakes, large dams or creeks, wetlands and coastlines	No	Habitat constraints No large waterbodies suitable for foraging occur within the vicinity of the site. Bogan River is the nearest suitable foraging habitat which is located approx. 1.6 km to the west of the site.
Hamirostra melanosternon	Black-breasted Buzzard (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Waterbodies Land within 40 m of riparian woodland on inland watercourses/ waterholes containing dead or dying eucalypts	No	Habitat constraints No waterbodies or watercourses occur within the vicinity of the site.

Scientific name	Common name	BC Act	EPBC Act	Dual credit species	Sources	Habitat Constraints / Geographic Limitations	Species retained for further assessment?	Reason for exclusion from further assessment
Hieraaetus morphnoides	Little Eagle (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Nest trees - live (occasionally dead) large old trees within vegetation)	Partial (when a species is retained within one vegetation zone but not another)	Habitat constraints Potential breeding habitat is limited to vegetation zones with living or dead mature trees (VZ1 only).
Hoplocephalus bitorquatus	Pale-headed Snake	V		No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Within 500 m of moderate to good vegetation	No	Habitat degraded The disturbed understorey throughout the proposal and adjoining areas lacks sufficient cover to support this species.
Limosa limosa	Black-tailed Godwit (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Important habitat map	No	Habitat constraints The proposal area is not located within an area mapped as important habitat for this species. Species has been retained as an ecosystem credit species as seasonal marginal foraging habitat is available within the site.
Lophochroa leadbeateri	Pink Cockatoo (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Hollow bearing trees Living or dead tree with hollows greater than 10cm diameter	Yes	N/A
Lophoictinia isura	Square-tailed Kite (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Nest trees	Partial (when a species is retained within one vegetation zone but not another)	Habitat constraints Potential breeding habitat is limited to vegetation zones with living or dead mature trees (VZ1 only).
Ninox connivens	Barking Owl (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Hollow bearing trees Living or dead trees with hollows greater than 20 cm diameter and greater than 4m above the ground	No	Habitat constraints No trees with large hollows suitable for breeding. Retained as an ecosystem credit species given the presence of marginal foraging habitat.
Phascolarctos cinereus	Koala	E	E	No	☒ BAM-C	Presence of koala use trees	Yes	N/A

Scientific name	Common name	BC Act	EPBC Act	Dual credit species	Sources	Habitat Constraints / Geographic Limitations	Species retained for further assessment?	Reason for exclusion from further assessment
					☐ TBDC ☐ Previous survey ☐ Current survey			
Polytelis swainsonii	Superb Parrot (Breeding)	V	V	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Hollow bearing trees Living or dead *E. blakelyi, E. melliodora, E. albens, E. camaldulensis, E. microcarpa, E. polyanthemos, E. mannifera, E. intertexta* with hollows greater than 5cm diameter Greater than 4m above ground or trees with a DBH of greater than 30cm	Yes	N/A
Turnix maculosus	Red-backed Button-quail	V		No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	In NSW, said to occur in grasslands, heath and crops. Said to prefer sites close to water, especially when breeding. The species has been observed associated with the following grasses (in various vegetation formations): Speargrass (*Heteropogon*), Blady Grass (*Imperata cylindrica*), *Triodia*, *Sorghum*, and Buffel Grass (*Cenchrus ciliaris*)	No	Habitat degraded The disturbed understorey throughout the proposal and adjoining areas lacks sufficient cover to support this species.
Tyto novaehollandiae	Masked Owl (Breeding)	V		Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Hollow bearing trees Living or dead trees with hollows greater than 20 cm diameter	No	Habitat constraints No trees with large hollows suitable for breeding. Retained as an ecosystem credit species given the presence of marginal foraging habitat.

Scientific name	Common name	BC Act	EPBC Act	Dual credit species	Sources	Habitat Constraints / Geographic Limitations	Species retained for further assessment?	Reason for exclusion from further assessment
Flora								
Atriplex infrequens	A saltbush	V	V	N/A	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	N/A	Yes	N/A
Lepidium monoplocoides	Winged Peppercress	E	E	N/A	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	N/A	Yes	N/A
Swainsona murrayana	Slender Darling Pea	V	V	N/A	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	N/A	Yes	N/A

Table 4.4: Consideration of candidate species requiring confirmation of presence or absence

Species	Habitat notes and survey requirements (DPE TBDC)	Recommended Survey Period	Surveyed	Species Present?	Comments
Fauna					
Ardeotis australis Australian Bustard	Mainly inhabits tussock and hummock grasslands, though prefers tussock grasses to hummock grasses; also occurs in low shrublands and low open grassy woodlands; occasionally seen in pastoral and cropping country, golf courses and near dams. Breeds on bare ground on low sandy ridges or stony rises in ecotones between grassland and protective shrubland cover; roosts on ground among shrubs and long grasses or under trees	All Year	Yes (September and December)	No (Surveyed)	No offsets required. Not recorded during site surveys. Foraging habitat is marginal given the disturbed nature of the site and preferred nesting habitat is absent.
Hieraaetus morphnoides Little Eagle (Breeding)	Breeding habitat is live (occasionally dead) large old trees within suitable vegetation AND the presence of a male and female; or any adult with nesting material; or an individual on a large stick nest in the top half of the tree canopy; or pairs displaying (soaring, diving, engaging in chases, or a male observed calling in flight with a female begging from tree).	Aug-Oct	Yes (September)	No (Surveyed)	No offsets required. Not recorded during site surveys and large stick-nests, indicative of historical breeding, were not recorded within the proposal area. Retained as an ecosystem credit species given the presence of suitable hunting habitat.
Lophoictinia isura Square-tailed Kite (Breeding)	Breeding habitat is live large old trees within suitable vegetation AND the presence of a male and female; or female with nesting material; or an individual on a large stick-nest in the top half of the tree canopy.	Sep-Jan	Yes (September and December)	No (Surveyed)	No offsets required. Not recorded during site surveys and large stick-nests, indicative of historical breeding, were not recorded within the proposal area. Retained as an ecosystem credit species given the presence of suitable hunting habitat.

Species	Habitat notes and survey requirements (DPE TBDC)	Recommended Survey Period	Surveyed	Species Present?	Comments
Lophochroa leadbeateri Pink Cockatoo (Breeding)	Paddock trees with hollows greater than 10 cm diameter. Assessors should look for signs of breeding on site as follows; (a) begging birds of any age or sex; or (b) lone individuals of the species identified during the breeding season (August to November); or (c) an occupied nest. Where signs of breeding on site are present, potential nest trees should be identified and surveyed to confirm actual nest trees.	Sep-Dec	Yes (September and December)	No (Surveyed)	No offsets required. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. This species was not recorded during targeted surveys. The only species observed using hollows within the site were a pair of Galahs that appeared to be investigating potential nest sites.
Phascolarctos cinereus Koala	Important habitat is defined by the density of koalas and quality of habitat determined by on-site survey.	All Year	Yes (Tree survey, diurnal searches)	No (Surveyed)	No offsets required. No signs of Koala, including scats or scratches on tree trunks, were recorded during targeted surveys. The remnant trees on site include Black Box and Bimble Box which are both listed as secondary food tree species in western NSW; however, connectivity is very limited and the site is unlikely to support core breeding habitat or provide a regular foraging resource.
Polytelis swainsonii Superb Parrot	Breeding habitat can be identified by the presence of habitat features and observed nest OR two or more birds seen on site.	Sep-Nov	Yes September (Habitat tree survey, diurnal bird survey)	No (Surveyed)	No offsets required. Nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. This species was not recorded during targeted surveys. The only species observed using hollows within the site were a pair of Galahs that appeared to be investigating potential nest sites.

Species	Habitat notes and survey requirements (DPE TBDC)	Recommended Survey Period	Surveyed	Species Present?	Comments
Flora					
Atriplex infrequens A saltbush	Associated with broad drainage tracts, clay flats and possibly occasionally inundated habitats. Use fruiting bodies to accurately identify. Fruit available between Nov - Feb, 4 to 6 weeks after above average rainfall. Suitable months presumed based on recorded emergence of seedlings in Dec.	Nov-Feb	Yes December	No (Surveyed)	No offsets required. No specimens recorded during targeted survey.
Lepidium monoplocoides Winged Peppercress	Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500mm. Predominant vegetation is usually an open woodland dominated by *Allocasuarina luehmannii* (Bulloak) and/ or eucalypts, particularly *E. largiflorens* (Black Box) or *E. populnea* (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses Use seed-heads to identify. Survey about 1-2 months after significant rain. Plants emerge about 1 month after rain and only persist for a few months. Ephemeral nature of plant may mean that it may not be visible or identifiable during dry periods, even during the approved months of survey.	Sep-Nov	Yes Sep & Dec	No (Surveyed)	No offsets required. No specimens recorded during targeted survey.
Swainsona murrayana Slender Darling Pea	Grows in a variety of vegetation types including bladder saltbush, black box and grassland communities on level plains, floodplains and depressions and is often found with *Maireana* species. Plants have been found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated.	September	Yes September	No (Surveyed)	No offsets required. No specimens recorded during targeted survey.

4.2.3 Targeted Surveys

Where a potential candidate species is considered to have potential to occur, and it is not assumed to occur for the purposes of the BAM-C, a targeted survey is required to verify its presence or absence. The field surveys and methods used to target threatened flora and fauna are detailed in **Table 4.5**. The methods, times and weather conditions of the targeted surveys are detailed in **Table 4.6**. Where assessment was not sufficient to confirm the absence of species, the species was assumed to be present.

4.2.3.1 Field Surveys

The methodology for the targeted surveys undertaken is summarised in **Table 4.5**. A full list of species recorded during field surveys is provided in **Appendix II**.

Table 4.5: Targeted Flora and Fauna surveys conducted on site

Group	Surveys	Methods and Survey Effort	Candidate Species Targeted
Diurnal Birds	Area search	Area searches were undertaken to identify any birds present. These surveys were undertaken for 20-minute periods and recorded birds occurring within the vicinity. Birds were identified from observations or call identification. A search for nests was also undertaken throughout the proposal area during targeted flora surveys.	Threatened Birds *Ardeotis australis* *Hieraaetus morphnoides* *Lophochroa leadbeateri* *Polytelis swainsonii*
Herpetofauna	Habitat search	Opportunistic active searches for frogs and reptiles were undertaken during the survey within suitable habitat (i.e., leaf litter, under rocks and long grass).	
Mammals	Search for scats and signs	A search for scats and other signs of animal use (e.g., scratches on trees, echidna diggings) was undertaken during the site survey.	Koala
	Koala SPOT search	A Koala SPOT search was conducted on site and involved inspecting preferred Koala feed trees for scratches and Koala scats.	Koala
Flora	Targeted surveys	Targeted surveys for threatened flora were undertaken in September and December. This involved inspecting the areas beneath the canopy of each tree within the site and traversing suitable habitat in 5-20m wide parallel transects, depending on visibility.	*Atriplex infrequens* *Lepidium monoplocoides* *Swainsona murrayana*
Hollow dependent species	Habitat tree survey	A habitat tree survey was undertaken throughout the proposal area. This involved traversing the entire site and recording each habitat tree. Details including the species of tree, tree characteristics and GPS location were recorded, as well as specific habitat attributes including the presence of hollows, nests or indications of fauna. A habitat tree schedule is provided in **Section 4.1.1**.	*Lophochroa leadbeateri* *Polytelis swainsonii*
All	Opportunistic sightings	Any opportunistic sightings of fauna on site were recorded.	

4.2.3.2 Survey Timing

A summary of the field surveys undertaken for this report and the prevailing weather conditions at the time is provided below in **Table 4.6.** A map showing survey effort items (as completed by Accuplan), including targeted flora searches, plots and habitat trees, is provided at **Figure 4.1.**

Table 4.6: Survey Dates, Times, Activities and Weather Conditions

Date	Time	Activity	Weather[1]
Monday 25/09/2023	1300 – 1730	Site walkover Vegetation Plot (VZ2) Targeted flora survey Bird and nest searches Habitat tree survey	Clear Wind – N Temp – 25-28°C
Tuesday 26/09/2023	0700 – 1000	Vegetation Plot (VZ1) Targeted flora survey Bird area search	4-6/8 Cloud cover Wind – N Temp – 19-25°C
Monday 18/12/2023	0730 – 1230 1330 - 1500	Vegetation Plot (VZ2) Targeted flora survey Bird and nest searches Habitat tree survey	1-3/8 Cloud cover Wind – NE Temp – 20-36°C

Note 1: On-site observation and / or Trangie Research Station AWS (Station ID 051049) weather data

4.2.4 Field Survey Results

4.2.4.1 Flora Survey Results

A total of 71 flora species were identified during field surveys, of which 21 were exotic species including 5 high threat weeds. No threatened flora species were recorded within the proposal area.

A list of the flora species identified within the proposal area is provided in **Appendix I**.

4.2.4.2 Fauna Survey Results

A total of 15 species (13 native, 2 exotic) of fauna were detected within the proposal area during field surveys. This includes 14 bird and one (1) mammal species.

A single threatened species, *Pomatostomus temporalis temporalis* (Grey-crowned Babbler), was recorded within the proposal area. A family group of at least five (5) birds was observed foraging at the base of trees and shrubs near the western boundary. No nests indicative of breeding were recorded within the site and none were observed within the adjoining land. Whilst nesting habitat appears to be absent, the site provides some foraging habitat for resident Grey-crowned Babblers which typically have home ranges varying from 2 to 53 hectares (Blakers *et al.,* 1984). This species is listed as vulnerable under the BC Act and is an ecosystem credit species for the purposes of applying the BAM.

A list of the fauna species identified within the proposal area is provided in **Appendix II**.

Photo 4.1: Grey-crowned Babbler recorded near the western boundary of the site.

Figure 4.1: Survey Effort Map showing threatened species observations within the site

5. IMPACT ASSESSMENT

5.1 Avoid and Minimise Potential Impacts

There is a limited supply of residential zoned land available within the Nyngan township and the proposal area is one of the last available pockets of undeveloped residential zoned land within Nyngan. The proposal area has been substantially modified by its current and past land uses, which has primarily been for grazing. Native vegetation within the site is highly modified, with woody vegetation limited to small clumps or scattered trees isolated by low condition grassland with a high proportion of exotics.

The scope of the proposed subdivision offers limited opportunities to avoid and minimise impacts to biodiversity within the site, and it is assumed that all vegetation would be removed as a result of the proposal. Mitigation measures to minimise impacts to biodiversity are provided in Section 6. These would be embedded in the project consent (if approved) and implemented through a Construction Environmental Management Plan (CEMP) to be developed for the works.

5.2 Residual Impacts

5.2.1 Loss of Native Vegetation

Residual impacts of the proposed subdivision would involve the direct removal of native vegetation, as summarised in **Table 5.1.** **Table 5.2** summarises the impact of the proposal to the vegetation integrity score of each vegetation zone identified on site.

Table 5.1: Summary of proposal impacts to vegetation

Plant community type (PCT)	Status		Proposal Impact (ha)
	BC Act	EPBC Act	
PCT 37 Black Box Woodland on NSW central and northern floodplains (VZ1 - Moderate Condition)	EEC	Does not meet the required condition thresholds to form part of the TEC	0.33
PCT 37 Black Box Woodland on NSW central and northern floodplains (VZ2 - Low Condition)	EEC	Does not meet the required condition thresholds to form part of the TEC	4.28

Table 5.2: Summary of impact to the vegetation integrity

PCT	Condition Class	Area Impacted (ha)	Current VI score	Future VI score	Change in VI Score	BRW[1]
37	VZ1 (Moderate)	0.33	62.6	0	-74.6	2
37	VZ2 (Low Condition)	4.28	6.5	0	-6.5	2

1 Biodiversity Risk Weighing (for ecosystem credits). For explanation, see Appendix 7 of the BAM (2020).

5.2.2 Loss of Fauna Habitat

The proposed subdivision would impact the following fauna habitat:

- Seasonal foraging resources associated with the trees and shrubs to be impacted.
- Shelter associated with hollow-bearing trees identified for removal. The proposal would remove up to 4 hollow-bearing trees. Each of these trees is largely isolated by previous clearing and are surrounded by managed grassland. The removal of such habitat has the potential to directly impact hollow-dependent fauna that may inhabit the hollows and reduce this habitat resource in the local area.

5.3 Indirect Impacts

Indirect impacts occur when the proposal or activities relating to the construction or operation of the proposal affect native vegetation, threatened ecological communities and threatened species habitat beyond the subject land. Impacts may also result from changes to land-use patterns, such as an increase in vehicular access and human activity on native vegetation, threatened ecological communities and threatened species habitat. **Table 5.3** describes and assesses the impacts of the proposal on native vegetation and habitat beyond the proposal area as detailed in Section 8.2 of the BAM (2020).

Table 5.3: Assessment of indirect impacts on adjacent habitat

Indirect Impact	Extent and Duration	Threatened species, TECs and their habitats likely to be affected	Consequences of the impacts for the bioregional persistence of the threatened species, TECs and their habitats
(a) inadvertent impacts on adjacent habitat or vegetation	The vegetation on adjoining properties is already subject to significant disturbance and ongoing maintenance of the understorey. Additional or intensification of impacts on adjoining habitat are unlikely given the existing land use and condition.	N/A	N/A
(b) reduced viability of adjacent habitat due to edge effects	As above.	N/A	N/A
(c) reduced viability of adjacent habitat due to noise, dust or light spill	As above.	N/A	N/A
(d) transport of weeds and pathogens from the site to adjacent vegetation	The proposed civil construction works have the potential to introduce or increase weeds occurrence without appropriate management.	Species associated with PCT 37.	Mitigation measures regarding weed and pathogen control have been recommended to minimise these impacts. Impacts would be minor given the current condition of the site.
(e) increased risk of starvation, exposure and loss of shade or shelter	The proposal is unlikely to increase the risk of these impacts in adjacent habitat areas.	N/A	N/A
(f) loss of breeding habitats	Up to 4 hollow-bearing trees will be removed as a result of the proposal.	Hollow-dependent species	Loss of hollow-dependent fauna shelter and breeding habitat.

Indirect Impact	Extent and Duration	Threatened species, TECs and their habitats likely to be affected	Consequences of the impacts for the bioregional persistence of the threatened species, TECs and their habitats
	Removal of hollow-bearing trees is permanent and mitigation measures including supervised removal and installation of nest boxes is recommended.		Impact would be minimised by implementing clearing protocols and mitigation measures identified within Section 6.
(g) trampling of threatened flora species	The proposed works would be restricted to the identified proposal area and is unlikely to impact any threatened plants (if present) on adjoining lands.	N/A	N/A
(h) inhibition of nitrogen fixation and increased soil salinity	It is unlikely the proposal would further exacerbate these issues.	N/A	N/A
(i) fertiliser drift	It is unlikely the proposal would further exacerbate these issues.	N/A	N/A
(j) rubbish dumping	It is unlikely the proposal would further exacerbate these issues.	N/A	N/A
(k) wood collection	This issue is not likely to affect the subject land.	N/A	N/A
(l) bush rock removal and disturbance	This issue is not likely to affect the subject land as bush rock is largely absent from the proposal area and adjacent habitats.	N/A	N/A
(m) increase in predatory species populations	It is unlikely that the proposal works will influence or alter predatory populations.	N/A	N/A
(n) increase in pest animal populations	It is unlikely that the proposal will influence or alter pest species populations. Pest animals are likely present within the subject land and adjacent habitats.	N/A	N/A
(o) increased risk of fire	The proposal is unlikely to increase the risk of fire in the local area.	N/A	N/A
(p) disturbance to specialist breeding and foraging habitat, e.g., beach nesting for shorebirds.	No specialist breeding or foraging habitat is present in or adjacent to the proposal area.	N/A	N/A

5.4 Assessment of Serious and Irreversible Impacts

The proposal is unlikely to impact any threatened ecological community or species at risk of SAII.

5.5 Prescribed Biodiversity Impacts

An assessment of prescribed impacts listed under Section 8.3 of the BAM is provided in **Table 5.4**.

Table 5.4: Assessment of prescribed impacts

Prescribed Impact / Feature	Applicable to Proposal	Description	Proposal Impact / Consequence(s)	Threatened species, TECs and their habitats likely to be affected
Impacts to karst, caves, crevices, cliffs, and other features of geological significance	No	No karst, caves, crevices, cliffs or other geologically significant features are present.	N/A	N/A
Rocks	No	No rocky habitat occurs in the proposal site.	N/A	N/A
Impacts to human-made structures	No	No human-made structures occur within the proposal area.	N/A	N/A
Impacts to non-native vegetation	Yes	The site is largely comprised of managed grassland with a high proportion of non-native species.	Minor loss of marginal habitat.	Habitat not considered important for any local threatened fauna.
Habitat connectivity and movement patterns	Yes	The site is largely cleared and provides limited connectivity through the proposal area, particularly for less mobile species.	Connectivity and movement patterns for highly mobile species (i.e., birds, microbats) are unlikely to be substantially affected by the proposed clearing and habitat for less mobile species is already limited by existing clearing and surrounding land uses.	Species associated with PCT 37
Water quality, water bodies and hydrological processes	Yes	Potential for increased sedimentation of downstream environments during construction activities.	Minor impact which can be adequately managed by implementing mitigation measures identified in Section 6.	Seasonal floodplain and riparian environments
Wind turbine strikes	N/A	N/A	N/A	N/A
Vehicle strikes	Yes	Internal roads are proposed. Speed limits appropriate for local residential traffic would apply to the proposal.	Impacts to local fauna from vehicle strikes are likely to be avoided through application of appropriate speed limits (40-60 km/h) and responsible driver behaviour.	N/A

5.6 Impacts that do Not Require Offsetting

Low condition vegetation (as defined in Section 9.2.1 of the BAM) and exotic vegetation does not require offsetting. The following vegetation zones listed in Table 5.6 are below the low condition threshold and impacts to these zones are not subject to ecosystem credits.

Table 5.5: Low condition vegetation zones not subject to offsetting

PCT	Condition Class	BAM-C Vegetation Zone	Area Impacted (ha)	Current VI score	Low Condition VI Threshold
37	VZ2 Low Condition	1	4.28	6.8	15

5.7 Other Relevant Legislation or Planning Policies Requiring Address

5.7.1 SEPP (Biodiversity and Conservation) 2021 - Koala habitat protection 2021

Chapter 4 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021,* Koala habitat protection 2021 (referred to hereafter as the Koala SEPP 2021) seeks to address the declining status of Koalas in NSW through better conservation and management of Koala habitat as part of the planning and assessment process. The control provisions apply to proposals affecting core Koala habitat in applicable LGAs that have an area of more than 1 hectare under the same ownership. The Koala SEPP only applies to LGAs listed in Schedule 2 of the SEPP, in which Bogan Shire LGA is not a listed entity. Consequently, no provisions of this policy apply to the site.

5.7.2 Matters of National Environmental Significance

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires approval of the Commonwealth Minister representing the Department of Agriculture, Water and the Environment (DAWE), for actions that may have a significant impact on Matters of National Environmental Significance (MNES).

MNES protected under the EPBC Act include:

- World Heritage properties;
- National Heritage places;
- RAMSAR wetlands of international importance;
- Threatened species or ecological communities listed in the EPBC Act;
- Migratory species listed in the EPBC Act;
- The Great Barrier Reef Marine Park;
- Commonwealth marine environment; and
- Nuclear actions.

Regarding biodiversity, the only MNES relevant to the study area are nationally listed threatened species, and ecological communities and migratory species. An assessment of potential impacts relating to MNES is provided in **Appendix V**. The proposal was considered unlikely to have a significant impact on any MNES and a Commonwealth referral under the provisions of the EPBC Act is not warranted.

6. MITIGATION MEASURES

The following mitigation measures are recommended to minimise the ecological impact of the proposal. These should be embedded in the project consent (if approved) and implemented through a Construction Environmental Management Plan (CEMP) to be developed for the construction phase of the project.

Table 6.1: Environmental safeguards

Item	Environmental safeguards	Risk of Failure[1]	Timing	Responsibility
General	The Construction Environmental Management Plan (CEMP) to be prepared for the works shall include, but not be limited to: • Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected trees and habitat features, and weed management areas. • Pre-clearing requirements including pre-clearing surveys, ecologist supervision, and compensatory nest box installation. • Procedures to safely fell habitat trees to avoid and minimise impacts to any resident fauna. • Procedures for unexpected threatened species finds and fauna handling. • Protocols to manage weeds and pathogens. • Sediment and erosion control measures. • Monitoring and reporting requirements. This may include monitoring and reporting of pre-clearance fauna surveys, tree clearance supervision, nest box installation and relocation of suitable habitat trees/ hollows.	Low Council to approve CEMP and supervision reports.	Pre-construction	Proponent/ Contractor
Fauna and Habitat	The following fauna and habitat protection measures would apply to the works: • Suitable fauna protection protocols are to be utilised for any clearing works. This	Low	Pre-construction/ construction	Proponent/ Contractor

Item	Environmental safeguards	Risk of Failure[1]	Timing	Responsibility
Protection	includes requirements for ecologist supervision, the undertaking of pre-clearance/demolition surveys, provision of compensatory nest boxes, procedures to safely fell habitat trees and release areas for any rescued fauna.			
Weed and Pathogen Management	The following weed and pathogen management measures would apply to the works: • Weed debris and topsoil containing weed plant material should be stored to best prevent the spread of propagules and disposed of at a registered refuse facility. • Weeds should be separated from native vegetation where native vegetation is to be used for mulch. Weeds are not to be used for mulch. • Check the Department of Primary Industries (DPI) website (www.industry.nsw.gov.au) for the most up-to-date hygiene protocols for each pathogen and for the most recent locations of contamination.	Proponent/ Low	Pre-construction/ construction	Proponent/ Contractor
Water Quality	Appropriate sedimentation and erosion controls must be installed prior to and maintained during vegetation clearing and construction operations.	Low	Pre-construction/ construction	Proponent/ Contractor

[1] Risk of failure includes constraints to implementation such as financial, biophysical and resource availability

7. BIODIVERSITY OFFSET CREDIT REQUIREMENTS

This chapter summarises the impact to PCTs and the number and type of credits required to offset the proposal. The BAM-C reports are provided in **Appendix IV**.

7.1 Ecosystem Credits

The ecosystem credits required to offset the proposal are provided in **Table 7.1.**

Table 7.1: Ecosystem credits summary showing matching credit profile

PCT ID	BAM-C Zone ID #	Vegetation Class	Vegetation Formation	Associated TEC	Offset trading group (BAM Section 10.2, Tables 4 & 5)	Hollow-bearing trees present?	IBRA subregion	Ecosystem Credits
PCT 37	Moderate	North-west Floodplain Woodlands	Semi-arid Woodlands (Grassy sub-formation)	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	Yes	Bogan-Macquarie	10
							Total	10

The following like-for-like offset rules apply for PCT 1550:

1. Any PCT associated with TEC Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions. This includes PCTs 37, 39, 40 and 55.
2. Like-for-like options must include hollow-bearing trees.
3. In the IBRA subregions: Bogan-Macquarie, Boorindal Plains, Canbelego Downs, Castlereagh-Barwon, Inland Slopes, Lower Slopes, Nymagee, and Pilliga; or,
4. Any IBRA subregion that is within 100 kms of the outer edge of the proposal area.

7.2 Offset obligation options

There are a number of options available to fulfill the required offset obligation, including:

- Retiring like-for-like credits from an established stewardship site. Like-for-like credits can be sourced by purchasing available credits on the market or by establishing a stewardship site that can generate matching credits.
- If like-for-like credits are not available, credits can be sourced in accordance with the 'variation report' generated by the BAM calculator (**Appendix IV**).
- Monetary payment to the Biodiversity Conservation Trust.
- Funding an approved biodiversity action. This is generally as a last resort, subject to consultation with approval authorities, if all other options are determined to be unsuitable.

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APPENDIX I Flora Species List and Plot Data Summary

Flora Species List

The following is a list of all flora species previously recorded within the site. It should be noted that such a list cannot be considered comprehensive, but rather indicative of the flora. A period of some years is often required to identify all species present in an area, particularly for cryptic or seasonally detectable species (such as orchids, some grasses and grass-like herbs).

Family	*Scientific Name*	Primary Growth Form	Comon Name	Plot 1		Plot 2		Plot 3	
				Cover	Abundance	Cover	Abundance	Cover	Abundance
Aizoaceae	*Tetragonia tetragonioides*	Forb	Native Spinach						
Amaranthaceae	Alternanthera denticulata	Forb	Lesser Joyweed					0.1	10
Asphodelaceae	Bulbine alata	Forb	Bulbine Lily	0.1	20				
Asteraceae	Asteraceae sp. (Almost dead), Unidentified	Forb	-			0.1	10		
Asteraceae	Centipeda thespidioides	Forb	Desert Sneezeweed	0.1	2				
Asteraceae	Conyza sp.	Exotic	-			0.1	10		
Asteraceae	Lactuca serriola	Exotic	Prickly Lettuce	0.1	1			0.5	50
Asteraceae	Sonchus oleraceus	Exotic	Common Sowthistle	0.1	40	0.1	10		
Asteraceae	Vittadinia sp.	Forb	-	0.1	2				
Asteraceae	Xanthium spinosum	High Threat Exotic	Bathurst Burr						
Asteraceae	Xerochrysum bracteatum	Forb	Golden Everlasting						
Asteraceae	Xerochrysum bracteatum	Forb	Golden Everlasting						
Boraginaceae	Echium plantagineum	Exotic	Paterson's Curse	0.1	20	5	100	0.2	20
Brassicaceae	Lepidium africanum	Exotic	-	0.1	20	0.1	3	0.5	100
Brassicaceae	*Sisymbrium irio*	Exotic	London Rocket	0.1	20			0.2	50
Campanulaceae	*Wahlenbergia communis*	Forb	Tufted Bluebell					0.1	20
Capparaceae	*Apophyllum anomalum*	Shrub	Warrior Bush						
Capparaceae	*Capparis mitchellii*	Shrub	Wild Orange	2	1				
Caryophyllaceae	*Spergularia rubra*	Exotic	Sandspurry	0.5	100			0.1	50
Chenopodiaceae	*Atriplex semibaccata*	Shrub	Creeping Saltbush			0.2	20		
Chenopodiaceae	*Einadia nutans*	Forb	Climbing Saltbush	0.5	10	5	50		

Family	*Scientific Name*	Primary Growth Form	Comon Name	Plot 1		Plot 2		Plot 3	
				Cover	Abundance	Cover	Abundance	Cover	Abundance
Chenopodiaceae	*Enchylaena tomentosa*	Shrub	Ruby Saltbush	0.2	30	2	30	2	17
Chenopodiaceae	*Rhagodia spinescens*	Shrub	Spiny Saltbush	0.1	1	3	20		
Chenopodiaceae	*Salsola australis*	Shrub	Buckbush			0.2	20	0.2	10
Chenopodiaceae	*Sclerolaena muricata*	Shrub	Black Rolypoly	0.5	5	10	300	0.5	10
Convolvulaceae	*Convolvulus graminetinus*	Other	-					0.1	20
Convolvulaceae	*Dichondra repens*	Forb	Kidney Weed					2	500
Convolvulaceae	*Dichondra repens*	Forb	Kidney Weed					2	500
Cyperaceae	*Carex inversa*	Grasses	-	0.1	2	0.1	10		
Cyperaceae	*Cyperus bifax*	Grasses	Downs Nutgrass					0.1	1
Cyperaceae	*Cyperus eragrostis*	High Threat Exotic	Umbrella Sedge						
Cyperaceae	*Fimbristylis dichotoma*	Grasses	Common Fringe-sedge						
Fabaceae	*Medicago polymorpha*	Exotic	Burr Medic	25	100				
Fabaceae (Caesalpinioideae)	*Senna artemisioides <--> zygophylla*	Shrub	Silver Cassia						
Goodeniaceae	*Goodenia fascicularis*	Forb	-	0.1	1				
Juncaceae	*Juncus aridicola*	Grasses	-						
Juncaceae	*Juncus subsecundus*	Grasses	-	0.1	10	0.1	20	0.1	1
Lamiaceae	*Stachys arvensis*	Exotic	Stagger Weed					0.1	10
Loranthaceae	*Lysiana subfalcata*	Other	-	0.1	1				
Malvaceae	*Brachychiton populneus subsp. trilobus*	Tree	Kurrajong						
Malvaceae	*Malva parviflora*	Exotic	Small-flowered Mallow	0.2	10			0.2	10
Malvaceae	*Sida corrugata*	Forb	Variable Sida						
Marsileaceae	*Marsilea drummondii*	Fern	Common Nardoo			0.2	100	0.1	50
Myoporaceae	*Eremophila maculata*	Shrub	Spotted Fuchsia-bush	0.1	1	0.1	3		
Myoporaceae	*Myoporum montanum*	Shrub	Western Boobialla	1	3	1	30		
Myrtaceae	*Eucalyptus coolabah*	Tree	Coolibah						
Myrtaceae	*Eucalyptus largiflorens*	Tree	Black Box			40	5		
Nyctaginaceae	*Boerhavia dominii*	Forb	Tarvine					1	100

Family	*Scientific Name*	Primary Growth Form	Comon Name	Plot 1		Plot 2		Plot 3	
				Cover	Abundance	Cover	Abundance	Cover	Abundance
Oleaceae	*Jasminum lineare*	Other	Desert Jasmine			0.1	10		
Onagraceae	*Ludwigia peploides subsp. montevidensis*	Forb	Water Primrose					0.1	1
Plantaginaceae	*Plantago lanceolata*	Exotic	Lamb's Tongues			0.1	5		
Poaceae	*Chloris virgata*	Exotic	Feathertop Rhodes Grass						
Poaceae	*Cynodon dactylon*	Grasses	Couch			0.5	-	30	500
Poaceae	*Dactyloctenium radulans*	Grasses	Button Grass					5	100
Poaceae	*Enteropogon acicularis*	Grasses	-	20	300	25	500	30	200
Poaceae	*Eragrostis curvula*	High Threat Exotic	African Lovegrass					0.2	10
Poaceae	*Eriochloa procera*	Grasses	Spring Grass					0.1	5
Poaceae	*Hordeum leporinum*	Exotic	Barley Grass	2	50	0.5	50		
Poaceae	*Lolium sp.*	Exotic	Ryegrass	2	100	5	100		
Poaceae	*Paspalidium jubiflorum*	Grasses	Warrego Grass						
Poaceae	*Paspalum dilatatum*	High Threat Exotic	Paspalum						
Poaceae	*Sporobolus caroli*	Grasses	Fairy Grass			0.5	20	0.1	10
Poaceae	*Tragus australianus*	Grasses	Small Burrgrass						
Poaceae	*Urochloa panicoides*	Exotic	Liverseed Grass					0.1	10
Polygonaceae	*Rumex tenax*	Forb	Shiny Dock					0.1	1
Portulacaceae	*Portulaca oleracea*	Forb	Pigweed					0.5	
Rutaceae	*Geijera parviflora*	Shrub	Wilga			4	3		
Solanaceae	*Lycium ferocissimum*	High Threat Exotic	African Boxthorn			0.1	1		
Solanaceae	*Solanum esuriale*	Forb	Quena					0.5	50
Verbenaceae	*Verbena gaudichaudii*	Forb	-						
Zygophyllaceae	*Tribulus terrestris*	Exotic	Caltrop					20	200

Plot Data Summary

Plot	PCT	Condition class	Zone	Easting	Northing	Bearing	Composition						Structure						Function										
							Tree	Shrub	Grass	Forbs	Ferns	Other	Tree	Shrub	Grass	Forbs	Ferns	Other	Large Trees	Hollow trees	Litter Cover	Fallen Logs	Trees (cm)						HTE
																							5-9	10-19	20-29	30-49	50-79	Regen	
1	37	Low	55	518547	6506920	103	0	6	3	5	0	1	0	3.9	20.2	0.9	0	0.1	0	0	0	0	0	0	1	0	0	1	30.2
2	37	Moderate	55	518509	6507032	293	1	8	5	2	1	1	40	20.5	26.2	5.1	0.2	0.1	1	0	30	0	0	1	1	1	0	0	11
3	37	Low	55	518470	6506976	100	0	3	7	9	1	0	0	2.7	65.4	6.4	0.1	0	0	0	1.8	0	0	0	0	0	0	0	0.2

APPENDIX II Fauna Species List

Fauna Species List

The following is a list of all fauna species recorded within the site during the survey period.

Observation Type:

O – Observed	**B** - Burnt	**F** - Tracks/scratchings
T - Trapped or netted	**H** - Hair, feathers, or skin	**Y** - Bone or teeth
R - Road kill	**P** - Scat	**D** - Dog kill
W - Heard call	**C** - Cat kill	**Z** - In raptor/owl pellet
V - Fox kill	**E** - Nest/roost	**K** - Dead
M - Miscellaneous	**X** - In scat	**U** – Bat Recording
WC – Wildlife Cam		

Notes

Threatened species appear in **bold** font.

? – Indicates a species identified without certainty or to a Genus level only.

^^ - Indicates a species observed flying over the site or nearby in adjacent habitats.

* – Indicates an introduced species.

Family	*Scientific Name*	Common Name	Observation Type
Birds			
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	O
Apodidae	*Apus pacificus*	Fork-tailed Swift	O
Artamdiae	*Gymnorhina tibicen*	Australian Magpie	O
Cacatuidae	*Eolophus roseicapilla*	Galah	O
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	O
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	O
Cororacidae	*Struthidea cinerea*	Apostlebird	O
Maluridae	*Malurus cyaneus*	Superb Fairywren	O
Maluridae	*Malurus lamberti*	Variegated Fairywren	O
Meliphagidae	*Plectorhyncha lanceolata*	Striped Honeyeater	O
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	O
Pomatostomidae	***Pomatostomus temporalis temporalis***	**Grey-crowned Babbler**	**O**
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	O
Rhipiduridae	*Rhipidura leucophrys*	Willy Wagtail	O
Sturnidae	*Sturnus vulgaris*	Starling	O
Mammals			
Leporidae	**Lepus europaeus*	European Hare	O

APPENDIX III Threatened Species Habitat Assessment Table

Likelihood of occurrence criteria

Likelihood	Criteria
Known	The species was observed in the study area during the current survey or has been recorded within the past five years (known from a reputable source).
High	A species is considered highly likely to occur in the study area if: • There are previous credible records on BioNet within the study area from the last 10 years and suitable habitat is present. OR • The species is highly mobile, dependent on identified suitable habitat within the study area (i.e., for breeding or important life cycle periods such as winter flowering resources) and has been recorded recently (within five years) on BioNet in the locality. This also includes species known or likely to visit the study area during regular seasonal movements or migration.
Moderate	A species is considered moderately likely to occur in the study area if: • Any suitable habitat (e.g., foraging) is present in the study area, the species is highly mobile and has been recorded in the locality in the last 10 years on BioNet. The species may be unlikely to maintain sedentary populations; however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area. OR • The species is not highly-mobile, dependent on identified suitable habitat features (e.g., hollows, rocky outcrops) within the study area and has been recorded in the locality in the last 10 years on BioNet. OR • For flora species identified by the BAM-C or recorded in the locality in the last 10 years on BioNet – the associated PCT/habitat present in the study area is not degraded and the species was not targeted by surveys in accordance with the BAM and relevant survey guidelines. In addition, for flora species known to occur in disturbed areas (e.g., orchids), records from any time within the locality may warrant inclusion in this category.
Low	A species is considered to have a low likelihood of occurring in the study area if: • For highly mobile species, the species may be an occasional visitor, but habitat similar to the study area is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the study area and the species has not been recorded in the locality in the last 10 years on BioNet. OR • The species is not highly-mobile, dependent on identified suitable habitat features (e.g., hollows, rocky outcrops) within the study area and has not been recorded in the locality in the last 10 years on BioNet. OR • For flora species identified by the BAM-C, suitable associated habitat (see the TBDC) is present in the study area and the species was not identified following targeted surveys in accordance with the BAM and relevant survey guidelines. For flora species not identified by the BAM-C, though have been recorded in the locality on BioNet at any time, the associated suitable habitat (see the TBDC) is not present in the study area though similar habitats of the same vegetation formation is present in the study area.
Unlikely	Suitable habitat for the species is absent from the study area.

Threatened species habitat assessment table.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Plants											
Lepidium monoplocoides	Winged Pepper-cress	E	E	Widespread in the semi-arid western plain's regions of NSW. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by *Allocasuarina luehmannii* (Bulloak) and/or eucalypts, particularly *Eucalyptus largiflorens* (Black Box) or *Eucalyptus populnea* (Poplar Box).	0	Habitat likely to occur within area	Yes	Species	No	Low	The Black Box woodland within the proposal area may provide potential habitat for this species although this is marginalised by the disturbed nature of the site and surrounds. This species was not recorded during targeted surveys which were completed during the preferred survey period (September to November). This species has also not been recorded in the search area (50 km radius).
Maireana cheelii	Chariot Wheels	V	V	Restricted to the southern Riverina region of NSW, mainly in the area between Deniliquin and Hay. Usually found on heavier, grey clay soils with *Atriplex vesicaria* (Bladder Saltbush).	0	Habitat known to occur within area	No	Species	No	Unlikely	This species is unlikely to occur given the site's proximity to known populations. This species was not recorded during targeted surveys which were completed during the preferred survey period (September to December). This species has also not been recorded in the search area (50 km radius).
Swainsona murrayana	Slender Darling-pea	V	V	Found throughout NSW, it has been recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. Grows in a variety of vegetation types including bladder saltbush, black box and grassland communities on level plains, floodplains and depressions and is often found with *Maireana* species. Plants have been found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated.	0	Habitat may occur within area	Yes	Species	No	Low	The Black Box woodland within the proposal area may provide potential habitat for this species although this is marginalised by the disturbed nature of the site and surrounds. This species was not recorded during targeted surveys which were completed during the preferred survey period (September). This species has also not been recorded in the search area (50 km radius).
Swainsona plagiotropis	Red Darling-pea	V	V	Most NSW records are from the Jerilderie area, with possible collections from the Louth-Bourke area. Grows on flat grassland and in heavy red soil, often on roadsides and especially in table drains. The species is absent from black low-lying soils. Associated species include *Austrostipa aristiglumis, A. nodosa, A. setacea, Homopholis proluta, Chloris truncata, Austrodanthonia caespitosa, A. duttoniana, Enteropogon acicularis, Hordeum* spp., *Lolium rigidum, Rhodanthe corymbiflora, Calotis scabiosifolia, Microseris lanceolata* and *Chrysocephalum apiculatum*. The species appears to be an indicator species of *Enteropogon* and *Austrostipa* grasslands, communities which are poorly known and almost extinct.	4	N/A	No	Species	No	Unlikely	This species is unlikely to occur given the site's proximity to known populations and lack of associated soil and vegetation types.
Swainsona recta	Small Purple-pea	E	E	Small Purple-pea was recorded historically from places such as Carcoar, Culcairn and Wagga Wagga where it is probably now extinct. Populations still exist in the Queanbeyan and Wellington-Mudgee areas. Before European settlement, Small Purple-pea occurred in the grassy understorey of woodlands and open-forests dominated by Blakely's Red Gum (*Eucalyptus blakelyi*), Yellow Box (*E.*	0	Habitat may occur within area	No	Species	No	Unlikely	This species is unlikely to occur given the site's proximity to known populations and lack of associated soil and vegetation types.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				melliodora), Candlebark Gum (*E. rubida*) and Long-leaf Box (*E. goniocalyx*) Grows in association with understorey dominants that include Kangaroo Grass (*Themeda australis*), poa tussocks (*Poa* spp.) and spear-grasses (*Austrostipa* spp.).							
Diuris tricolor	Pine Donkey Orchid	V	-	Sporadically distributed on the western slopes of NSW, extending from south of Narrandera all the way to the north of NSW. The Pine Donkey Orchid grows in sclerophyll forest among grass, often with native Cypress Pine (Callitris spp.). It is found in sandy soils, either on flats or small rises. Also recorded from a red earth soil in a Bimble Box community in western NSW.	34	N/A	No	Species	No	Unlikely	This species is unlikely to occur given the lack of associated soil and vegetation types.
Pterostylis cobarensis	Greenhood Orchid	V	-	Recorded from Bourke, Nyngan, Cobar, Nymagee, Warren, Gilgandra, Narrabri, Coonabarabran districts. Habitats are eucalypt woodlands, open mallee or Callitris shrublands on low stony ridges and slopes in skeletal sandy-loam soils.	6	N/A	No	Species	No	Unlikely	This species is unlikely to occur given the lack of associated soil and vegetation types.
Cheilanthes sieberi subsp. pseudovellea		E	-	This fern grows in soil pockets in rocky areas of arid mountain ranges. Specific habitats include shaded rock crevices, under rock ledges and between boulders in damp, shallow soils.	22	N/A	No	Species	Yes	Unlikely	This species is unlikely to occur given the sites' proximity to known populations and lack of associated soil and vegetation types.
Frogs											
Crinia sloanei	Sloane's Froglet	E	E	Sloane's Froglet has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW Southwestern Slopes and Riverina bioregions in New South Wales. The species has not been subsequently detected during more recent frog surveys (e.g., Holbrook, Nyngan, Wagga Wagga and Tocumwal). It is typically associated with periodically inundated areas in grassland, woodland, and disturbed habitats. Breeding habitat consists of still or very slow sections of permanent and temporary streams as well as pools (e.g., farm dams) with vegetation located on the subject land. Non-breeding habitat includes waterbodies and areas of native and non-native vegetation (including areas of cleared rural grazing land).	1	Habitat may occur within area	No	Species	No	Unlikely	Preferred habitat is absent.
Reptiles											
Hemiaspis damelii	Grey Snake	-	E	Predominantly associated with the lower reaches of major westerly flowing rivers, including the Gwydir, Namoi, Castlereagh, Macquarie, Lachlan, and Murrumbidgee River systems. Habitat includes the margins of ephemeral wetlands within River Red Gum (*Eucalyptus camaldulensis*) and Black Box (*E. largiflorens*) vegetation communities and Tangled Lignum (*Duma florulenta*) swamps	1	Habitat likely to occur within area	No	-	No	Unlikely	Preferred habitat is absent.
Antaresia stimsoni	Stimson's Python	V	-	Occurs in north-west NSW, from Bourke and Gundabooka National Park in the east to Broken Hill and Wilcannia in the south. The species occupies a broad spectrum of habitats includes woodlands, shrublands (including Acacia and chenopods) and hummock grasslands, where rocky outcrops provide caves and deep crevices and where tree-lined watercourses provide numerous low hollows and fallen trees.	1	N/A		Species	No	Unlikely	Preferred habitat is absent. given the disturbed nature of the understorey which is regularly managed and lacks suitable surface cover.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Anomalopus mackayi	Five-clawed Worm-skink	E	V	Patchy distribution on the North West Slopes and Plains of north-east NSW and south-east Queensland, from the Ashford area west to Mungindi and Walgett in NSW and north to Dalby in Queensland. Close to or on the lower slopes of slight rises in grassy White Box woodland on moist black soils, and River Red Gum-Coolibah-Bimble Box woodland on deep cracking loose clay soils. May also occur in grassland areas and open paddocks with scattered trees.	0	Habitat may occur within area	No	Ecosystem	No	Unlikely	The site is located outside the known and predicted distribution of this species. This species is unlikely to occur given the site's proximity to known populations and lack of associated soil and vegetation types.
Birds											
Circus assimilis	Spotted Harrier	V	-	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely occurs in Tasmania. The species typically occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. Most commonly found in native grassland but may also occur in agricultural land.	19	N/A	Yes	Ecosystem	No	Moderate	The species was not observed during targeted surveys. Ecosystem credit species associated with PCT 37. May rarely hunt or rest within the subject site. No raptor nests were observed within the site.
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	-	Distributed around the Australian coastline. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	11	N/A	Yes	Dual Credit Species	No	Low	The species was not observed during targeted surveys. May rarely rest within the subject site although preferred hunting habitat is absent. The nearest preferred hunting habitat (Bogan River) is located approx. 1.6km to the west of the proposal area. No raptor nests were observed within the site.
Hieraaetus morphnoides	Little Eagle	V	-	Occupies open eucalypt forest, woodland, or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	9	N/A	Yes	Dual Credit Species	No	Moderate	Large stick nests, indicative of historical breeding, were not recorded within the proposal area. Retained as an ecosystem credit species given the presence of suitable hunting habitat.
Lophoictinia isura	Square-tailed Kite	V	-	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses.	2	N/A	Yes	Ecosystem	No	Moderate	Large stick nests, indicative of historical breeding, were not recorded within the proposal area. Retained as an ecosystem credit species given the presence of suitable hunting habitat.
Oxyura australis	Blue-billed Duck	V	-	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	2	N/A	No	Ecosystem	No	Unlikely	Suitable habitat is absent.
Stictonetta naevosa	Freckled Duck	V	-	Found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree.	1	N/A	No	Ecosystem	No	Unlikely	Suitable habitat is absent.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Anseranas semipalmata	Magpie Goose	V	-	Since the 1980s there has been an increasing number of records in central and northern NSW. Vagrants can follow food sources to south-eastern NSW. Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges.	7	N/A	Yes	Ecosystem	No	Unlikely	Suitable habitat is absent.
Hirundapus caudacutus	White-throated Needletail	P	V	The White-throated Needletail is distributed throughout all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Dividing Range and occasionally onto the adjacent inland plains. The species is almost exclusively aerial, from heights of less than 1m up to more than 1000m above the ground. Although they are recorded to occur in a broad range of habitat, the species is most often recorded above open forest, rainforest and heathland and may also fly between trees or in clearings but are less commonly recorded above woodland and treeless areas. In coastal areas they have been recorded above sandy beaches, mudflats and around coastal cliffs, ridges, and sand-dunes. Breeding habitat consists of wooded lowlands and sparsely vegetated hills, as well as mountains covered with coniferous forests.	2	Habitat may occur within area	Yes	Ecosystem	No	Moderate	Associated with PCT 37. Aerial species that may forage within the airspace above the proposal area. No breeding habitat is likely to occur within the proposal area.
Botaurus poiciloptilus	Australasian Bittern	E	E	Lives alone or in loose groups and favours permanent fresh waters dominated by sedges, rushes, reeds or cutting grasses (e.g., *Phragmites*, *Scirpus*, *Eleocharis*, *Juncus*, *Typha*, *Baumea* and *Gahnia* sp.).	0	Habitat likely to occur within area	Yes	Ecosystem	No	Unlikely	Suitable habitat is absent.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	In New South Wales, this species is widespread from coast to inland, including the western slopes of the Great Dividing Range and farther west. It is sparsely scattered in, or largely absent from, much of the Upper Western region. Inhabits woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests, very occasionally in moist forests or rainforests. Generally, the understorey is open with sparse eucalypt saplings, acacias and other shrubs, including heath.	6	N/A	Yes	Ecosystem	No	Low	Associated with PCT 37. Marginal habitat is available within the remnant vegetation on site.
Burhinus grallarius	Bush Stone-curlew	E	-	Found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Still common in northern Australia. Rare or extinct throughout its former range in the south-east. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber.	1	N/A	Yes	Species	No	Unlikely	Habitat available within the site is marginal given the general lack of cover and disturbed nature of the understorey.
Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	V	-	The Red-tailed Black-Cockatoo (inland subspecies) is known to occur around watercourses and overflows of the Darling, Paroo, Bogan, Macquarie and Barwon Rivers extending in an arc along the Darling River from Wentworth (though rare south of Menindee) in the south to Bourke and thence through to Brewarrina in the north. Prefers eucalypt forest and woodlands, particularly river red gum and Coolabah-lined watercourses. In the arid zone usually occur mainly near eucalypts along larger watercourses and associated Acacia and Casuarina woodlands nearby. Also utilise grasslands, scrublands, wetlands and vegetation on floodplains.	2	N/A	Yes	Dual Credit Species	No	Low	Associated with PCT 37. No trees with hollows suitable for breeding occur within the site. Remnant trees may provide some marginal / non-preferred foraging habitat. Retained as an ecosystem credit species given the presence of marginal foraging habitat.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000m in which stands of She-oak species, particularly Black She-oak (*Allocasuarina littoralis*), Forest She-oak (*A. torulosa*) or Drooping She-oak (*A. verticillata*) occur.	4	Habitat known to occur within area	No	Dual Credit Species	No	Unlikely	Preferred foraging habitat and trees with hollows suitable for breeding are absent.
Lophochroa leadbeateri	Pink Cockatoo	V	E	Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water.	48	Habitat known to occur within area	Yes	Dual Credit Species	No	Moderate	Associated with PCT 37. This species was not recorded during targeted surveys. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. The only species observed using hollows within the site were a pair of Galahs that appeared to be investigating potential nest sites. Remnant trees may provide some marginal / non-preferred foraging habitat. Retained as an ecosystem credit species given the presence of marginal foraging habitat.
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW (although vagrants may occur further south or inland, well away from breeding areas). In NSW, the species becomes increasingly uncommon south of the Clarence Valley, and rarely occurs south of Sydney. Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries.	1	N/A	Yes	Ecosystem	No	Low	Associated with PCT 37. May seasonally forage within the site during periods of flood. Suitable habitat is absent during dry periods.
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	-	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. 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*).	87	N/A	No	Ecosystem	No	Low	Marginal foraging habitat is available within the remnant vegetation on site. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site.
Stagonopleura guttata	Diamond Firetail	V	V	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities.	12	Habitat known to occur within area	Yes	Ecosystem	No	Low	Associated with PCT 37. Habitat available within the site is marginal given the general lack of cover and disturbed nature of the understorey.
Falco hypoleucos	Grey Falcon	V	V	The Grey Falcon is a rarely sighted species with a broad distribution, spanning much of Australia. Although occasionally found in open woodlands near the coast, the species predominantly inhabits shrubland, grassland and wooded watercourses of arid and semi-arid regions.	2	Habitat likely to occur within area	Yes	Ecosystem	No	Low	The species was not observed during targeted surveys. Ecosystem credit species associated with PCT 37. May rarely hunt or rest within the subject site. No raptor nests were observed within the site.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Falco subniger	Black Falcon	V	-	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions.	11	N/A	Yes	Ecosystem	No	Low	The species was not observed during targeted surveys. Ecosystem credit species associated with PCT 37. May rarely hunt or rest within the subject site. No raptor nests were observed within the site.
Grus rubicunda	Brolga	V	-	Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. It is still abundant in the northern tropics, but very sparse across the southern part of its range.	13	N/A	Yes	Ecosystem	No	Low	Associated with PCT 37. May seasonally forage within the site during periods of flood. Suitable habitat is absent during dry periods.
Amytornis striatus striatus	Striated Grasswren (sandplain)	CE	CE	This species is widely distributed through the arid and semi-arid regions of mainland Australia. In central NSW, populations remain extant in Yathong Nature Reserve and surrounding areas of leasehold land. A second population occurs in south-western NSW in the Scotia Mallee west of the Darling River, including Tarawi NR, Scotia Sanctuary and adjoining properties. Confined to areas with well-developed Porcupine Grass (*Triodia irritans*), usually in association with mallee eucalypts and sandy soils. Is known to re-occupy burnt vegetation 6 to 8 years following fire and prefers areas with large hummocks of spinifex which is greatest 25 to 40 years post-fire	0	Habitat may occur within area	No	Species	Yes	Unlikely	Preferred habitat is absent.
Leipoa ocellata	Malleefowl	E	V	Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species.	1	Habitat likely to occur within area	No	Ecosystem	No	Unlikely	Preferred habitat is absent.
Certhionyx variegatus	Pied Honeyeater	V	-	Widespread throughout acacia, mallee and spinifex scrubs of arid and semi-arid Australia. Inhabits wattle shrub, primarily Mulga (*Acacia aneura*), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering; feeds on nectar, predominantly from various species of emu-bushes (*Eremophila* spp.); also from mistletoes and various other shrubs (e.g., Grevillea spp.); also eats saltbush fruit, berries, seed, flowers and insects.	3	N/A	Yes	Ecosystem	No	Low	Associated with PCT 37. Habitat available within the site is marginal given the general lack of cover and disturbed nature of the understorey.
Epthianura albifrons	White-fronted Chat	V	-	In NSW, this species occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. Gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground.	9	N/A	No	Ecosystem	No	Unlikely	Preferred habitat is absent.
Grantiella picta	Painted Honeyeater	V	V	The Painted Honeyeater is a nomadic species but occurs mostly on the inland slopes of the Great Dividing Range in NSW,	3	Habitat known to occur within area	Yes	Ecosystem	No	Low	Associated with PCT 37. Habitat available within the site is marginal

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				Victoria, and southern Queensland. The species habitat includes Boree/Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*), Box-Gum Woodlands and Box-Ironbark Forests. The species preferentially feeds on *Amyema* genus mistletoes and insects.							given the general lack of cover, disturbed nature of the understorey and relatively low abundance of mistletoe.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	Extends south from central Queensland, through NSW, Victoria into south eastern South Australia. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river Sheoak (nesting habitat) and tea-trees.	3	N/A	No	Ecosystem	No	Low	Habitat available within the site is marginal given the general lack of cover, disturbed nature of the understorey and relatively low abundance of mistletoe.
Daphoenositta chrysoptera	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee, and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees, and from small branches and twigs in the tree canopy.	6	N/A	Yes	Ecosystem	No	Low	Associated with PCT 37. Habitat is considered marginal given the disturbed nature of the site.
Ardeotis australis	Australian Bustard	E	-	In NSW, they are mainly found in the north-west corner and less often recorded in the lower western and central western plains regions. Mainly inhabits tussock and hummock grasslands, also occurs in low shrublands and low open grassy woodlands; occasionally seen in pastoral and cropping country, golf courses and near dams.	2	N/A	Yes	Species	No	Unlikely	The species was not observed during targeted surveys. Habitat is considered marginal given the disturbed nature of the site. May rarely forage within the subject site.
Pachycephala inornata	Gilbert's Whistler	V	-	The Gilbert's Whistler is sparsely distributed over much of the arid and semi-arid zones of inland southern Australia, from the western slopes of NSW to the Western Australian wheatbelt. The Gilbert's Whistler occurs in a range of habitats within NSW, though the shared feature appears to be a dense shrub layer. It is widely recorded in mallee shrublands, but also occurs in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests, though at this stage it is only known to use this habitat along the Murray, Edwards and Wakool Rivers.	8	N/A	No	Ecosystem	No	Low	Associated with PCT 37. Habitat is considered marginal given the disturbed nature of the site.
Aphelocephala leucopsis	Southern Whiteface	V	V	The Southern Whiteface prefers the drier habitats of southern Australia. In NSW they are dispersed east to about Tenterfield and south-west to the shale areas in the Sydney region. They occupy dry open forests, woodlands, and inland scrubs of mallee, mulga and saltbush, especially areas with fallen timber or dead trees and stumps (Birdlife Australia, 2023).	20	Habitat known to occur within area	No	Ecosystem	No	Low	Habitat available within the site is marginal given the general lack of cover and disturbed nature of the understorey.
Pedionomus torquatus	Plains-wanderer	-	CE	Occurs in semi-arid, lowland native grasslands that typically occur on hard red-brown soils. Habitat structure appears to play a more important role than plant species composition. Preferred habitat of the Plains-wanderer typically comprises 50% bare ground, 10%	0	Habitat may occur within area	No	Dual Credit Species	Yes	Unlikely	Preferred habitat is absent.

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				fallen litter, and 40% herbs, forbs and grasses. This species has declined greatly since European settlement to the point where it is effectively extinct across its former range (eastern NSW, south-western Victoria, and south-eastern South Australia).							
Melanodryas cucullata cucullata	South-eastern Hooded Robin	V	E	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas.	8	Habitat known to occur within area	Yes	Ecosystem	No	Low	Associated with PCT 37. Habitat is considered marginal given the disturbed nature of the site.
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	Occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Also woodlands on fertile soils in coastal regions.	205	N/A	Yes	Ecosystem	No	**Recorded**	A family group of at least five (5) birds was observed foraging at the base of trees and shrubs near the western boundary. No nests indicative of breeding were recorded within the site and none were observed within the adjoining land.
Lathamus discolor	Swift Parrot	E	CE	Migrates to the Australian south-east mainland between March and October. Generally, occur in areas where eucalypts are flowering profusely or where there are abundant lerp infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany, Spotted Gum, Red Bloodwood, Mugga Ironbark and White Box.	0	Habitat known to occur within area		Dual Credit Species	Yes	Low	The proposal area is not located within an area mapped as important habitat for this species. Preferred foraging habitat is absent. Remnant trees within the site may provide some marginal foraging habitat.
Neophema chrysostoma	Blue-winged Parrot	-	V	The main populations of Blue-winged Parrots are in Tasmania and Victoria, particularly in southern Victoria and the midlands and eastern areas of Tasmania. Sparser populations are found in western New South Wales and eastern South Australia, extending to south-west Queensland and occasionally into the Northern Territory. The Blue-winged Parrot inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range they favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones. Blue-winged Parrots can also be seen in altered environments such as airfields, golf-courses and paddocks.	1	Habitat likely to occur within area		TBC	TBC	Low	Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. The grassland areas may provide some marginal foraging habitat.
Neophema pulchella	Turquoise Parrot	V	-	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges, and creeks in farmland.	1	N/A		Ecosystem	No	Low	No trees with hollows suitable for breeding are located within the site. The grassland areas may provide some marginal foraging habitat.
Polytelis swainsonii	Superb Parrot	V	V	The Superb Parrot is found throughout eastern inland NSW. On the South-western slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest.	84	Habitat known to occur within area		Dual Credit Species	No		This species was not recorded during targeted surveys. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. The only species observed using hollows within the site were a pair of Galahs that

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
											appeared to be investigating potential nest sites.
Rostratula australis	Australian Painted Snipe	E	E	Most records are from the south-east, particularly the Murray Darling Basin, but also wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams, and nearby marshy areas where there is a cover of grasses, lignum, low scrub, or open timber.	0	Habitat likely to occur within area	Yes	Ecosystem	No	Unlikely	Preferred habitat is absent.
Calidris ferruginea	Curlew Sandpiper	E	CE	The migratory species occurs in Australia between August and mid-April, occupying littoral and estuarine habitats within intertidal mudflats of sheltered coasts. The species also occasionally occurs in non-tidal swamps, lakes and lagoons on the coast, and sometimes inland.	0	Habitat may occur within area	No	Dual Credit Species	Yes	Unlikely	Preferred habitat is absent.
Ninox connivens	Barking Owl	V	-	The Barking Owl is found throughout continental Australia, except for the central arid regions. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. The species is flexible in its habitat use and may breed along timbered watercourses in heavily cleared habitats. Roosts in shaded portions of tree canopies, including tall mid-storey trees with dense foliage such as Acacia and Casuarina species. Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums.	16	N/A	Yes	Dual Credit Species	No	Low	No trees with large hollows suitable for breeding occurs within the site. The species may occasionally hunt within the site as part of a much larger home range. Retained as an ecosystem credit species.
Tyto novaehollandiae	Masked Owl	V	-	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides.	1	N/A	Yes	Dual Credit Species	No	Low	No trees with large hollows suitable for breeding occurs within the site. The species may occasionally hunt within the site as part of a much larger home range. Retained as an ecosystem credit species.
Mammals											
Antechinomys laniger	Kultarr	E	-	Widespread across arid and semi-arid NSW but present in very low numbers. A terrestrial insectivore that inhabits open country, especially claypans among Acacia woodlands. Nocturnal, sheltering by day in hollow logs or tree-stumps, beneath saltbush and spinifex tussocks, in deep cracks in the soil and in the burrows of other animals.	6	N/A	No	Ecosystem	No	Unlikely	The disturbed understorey throughout the proposal and adjoining areas lacks sufficient cover to support this species.
Sminthopsis macroura	Stripe-faced Dunnart	V	-	Distributed throughout much of inland central and northern Australia, extending into central and northern NSW, western Queensland, Northern Territory, South Australia, and Western Australia. Native dry grasslands and low dry shrublands, often along drainage lines where food and shelter resources tend to be better.	1	N/A	No	Ecosystem	No	Unlikely	The disturbed understorey throughout the proposal and adjoining areas lacks sufficient cover to support this species.
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.	9	N/A	Yes	Ecosystem	No	Unlikely	Hollow-bearing trees recorded within the site may provide some potential roosting habitat. The species may forage within the site as part of a large home range.
Conilurus albipes	White-footed Tree-rat	CE	X	This species was known to inhabit open forest woodlands and grassy ecosystems in Victoria. Habitat information is not known for other states in which the species occurred. The species was	2	N/A	No	N/A	N/A	Unlikely	Presumed extinct. The disturbed understorey throughout the proposal and adjoining areas

Scientific Name	Common Name	BC ACT	EPBC ACT	Habitat Description and Locally Known Populations	Records	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				nocturnal and had been observed sleeping in the hollow limbs of prostrate trees, or in hollow branches of large Eucalypts near the ground.							lacks sufficient cover to support this species.
Phascolarctos cinereus	Koala	E	E	Inhabits eucalypt woodland and forest containing suitable food trees. Key food trees in the local area include *Eucalyptus camaldulensis* (River Red Gum), *Eucalyptus coolabah* (Coolibah), *Eucalyptus largiflorens* (Black Box) and *Eucalyptus populnea* (Bimble Box).	0	Habitat likely to occur within area	Yes	Species	No	Low	No signs of this species were recorded within the site. The remnant trees including Black Box and Coolibah may provide some potential foraging habitat; however no records for this species occur within the search area (50km radius).
Chalinolobus picatus	Little Pied Bat	V	-	The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria. Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and mallee and Bimbil box woodlands.	12	N/A	Yes	Ecosystem	No	Moderate	Hollow-bearing trees recorded within the site may provide some potential roosting habitat. The species may forage within the site as part of a large home range.
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	The south-eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, bulloke Allocasuarina leuhmanni and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland.	1	Habitat likely to occur within area	Yes	Ecosystem	No	Moderate	Hollow-bearing trees recorded within the site may provide some potential roosting habitat. The species may forage within the site as part of a large home range.

[1] Number of OEH wildlife atlas records in selected area [North: -31.05 West: 146.68 East: 147.70 South: -32.07] – Database searched (27/09/2023 3:27 PM).

[2] EPBC Act Protected Matters Report identifying matters of national environmental significance occurring or predicted to occur within 10kms of the proposal area.

[3] Potential candidate species filtered into BAM-C.

APPENDIX IV BAM - Calculator Outputs

BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00043512/BAAS17100/23/00043513	Lots 4 and 5 DP 758803 Hoskins Street Nyngan	22/06/2023
Assessor Name	Report Created	BAM Data version *
Luke Pickett	19/01/2024	61
Assessor Number	Assessment Type	BAM Case Status
BAAS17100	Part 4 Developments (General)	Open
Assessment Revision	Date Finalised	BOS entry trigger
0	To be finalised	BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	37_LowCondition	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.	LowCondition	4.28	2	Direct (4.28 ha)
2	37_Moderate	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.	Moderate	0.33	1	Direct (0.33 ha)

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00043512/BAAS17100/23/00043513	Lots 4 and 5 DP 758803 Hoskins Street Nyngan	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Luke Pickett	19/01/2024	61
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17100	Part 4 Developments (General)	Open
Assessment Revision	**BOS entry trigger**	**Date Finalised**
0	BOS Threshold: Area clearing threshold	To be finalised

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Australasian Bittern	Botaurus poiciloptilus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Australian Painted Snipe	Rostratula australis	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Barking Owl	Ninox connivens	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Black Falcon	Falco subniger	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Black-breasted Buzzard	Hamirostra melanosternon	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Black-necked Stork	Ephippiorhynchus asiaticus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.

Black-tailed Godwit	Limosa limosa	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Brolga	Grus rubicunda	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Diamond Firetail	Stagonopleura guttata	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Dusky Woodswallow	Artamus cyanopterus cyanopterus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Grey Falcon	Falco hypoleucos	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Kultarr	Antechinomys laniger	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Little Eagle	Hieraaetus morphnoides	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Little Pied Bat	Chalinolobus picatus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Magpie Goose	Anseranas semipalmata	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Major Mitchell's Cockatoo	Lophochroa leadbeateri	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Masked Owl	Tyto novaehollandiae	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.

Painted Honeyeater	Grantiella picta	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Pied Honeyeater	Certhionyx variegatus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Red-tailed Black-Cockatoo (inland subspecies)	Calyptorhynchus banksii samueli	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Spotted Harrier	Circus assimilis	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Square-tailed Kite	Lophoictinia isura	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Stripe-faced Dunnart	Sminthopsis macroura	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Superb Parrot	Polytelis swainsonii	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Varied Sittella	Daphoenositta chrysoptera	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
White-bellied Sea-Eagle	Haliaeetus leucogaster	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
White-throated Needletail	Hirundapus caudacutus	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Woma	Aspidites ramsayi	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.

Threatened species Manually Added

None added

BAM Predicted Species Report

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Candidate Species Report

Proposal Details

Assessment Id 00043512/BAAS17100/23/00043513	Proposal Name Lots 4 and 5 DP 758803 Hoskins Street Nyngan	BAM data last updated * 22/06/2023
Assessor Name Luke Pickett	Report Created 19/01/2024	BAM Data version * 61
Assessor Number BAAS17100	Assessment Type Part 4 Developments (General)	BAM Case Status Open
Assessment Revision 0	Date Finalised To be finalised	BOS entry trigger BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Ardeotis australis Australian Bustard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Atriplex infrequens A saltbush	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Calyptorhynchus banksii samueli Red-tailed Black-Cockatoo (inland subspecies)	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Haliaeetus leucogaster White-bellied Sea-Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Hamirostra melanosternon Black-breasted Buzzard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hieraaetus morphnoides Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Lepidium monoplocoides Winged Peppercress	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Lophochroa leadbeateri Major Mitchell's Cockatoo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?

Lophoictinia isura Square-tailed Kite	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona murrayana Slender Darling Pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Turnix maculosus Red-backed Button-quail	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

BAM Candidate Species Report

Common name	Scientific name	Justification in the BAM-C
Barking Owl	Ninox connivens	Habitat constraints
Black-tailed Godwit	Limosa limosa	Habitat constraints
Masked Owl	Tyto novaehollandiae	Habitat constraints
Pale-headed Snake	Hoplocephalus bitorquatus	Habitat degraded

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00043512/BAAS17100/23/00043513	Lots 4 and 5 DP 758803 Hoskins Street Nyngan	22/06/2023
Assessor Name	Report Created	BAM Data version *
Luke Pickett	19/01/2024	61
Assessor Number	BAM Case Status	Date Finalised
BAAS17100	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Part 4 Developments (General)	BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.												
1	37_LowCondition	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	6.8	6.8	4.3	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		0
2	37_Moderate	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	62.6	62.6	0.33	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		10
											Subtotal	**10**
											Total	**10**

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

BAM Credit Summary Report

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00043512/BAAS17100/23/00043513

Proposal Name
Lots 4 and 5 DP 758803 Hoskins Street Nyngan

BAM data last updated *
22/06/2023

Assessor Name
Luke Pickett

Assessor Number
BAAS17100

BAM Data version *
61

Proponent Names

Report Created
19/01/2024

BAM Case Status
Open

Assessment Revision
0

Assessment Type
Part 4 Developments (General)

Date Finalised
To be finalised

BOS entry trigger
BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		

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

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
37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	4.6	10	0	10

BAM Biodiversity Credit Report (Like for like)

37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions This includes PCT's: 37, 39, 40, 55	-	37_LowCondition	No	0	Bogan-Macquarie, Boorindal Plains, Canbelego Downs, Castlereagh-Barwon, Inland Slopes, Lower Slopes, Nymagee and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions This includes PCT's: 37, 39, 40, 55	-	37_Moderate	Yes	10	Bogan-Macquarie, Boorindal Plains, Canbelego Downs, Castlereagh-Barwon, Inland Slopes, Lower Slopes, Nymagee and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

BAM Biodiversity Credit Report (Like for like)

Credit Retirement Options

Like-for-like credit retirement options

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00043512/BAAS17100/23/00043513

Proposal Name
Lots 4 and 5 DP 758803 Hoskins Street Nyngan

BAM data last updated *
22/06/2023

Assessor Name
Luke Pickett

Assessor Number
BAAS17100

BAM Data version *
61

Proponent Name(s)

Report Created
19/01/2024

BAM Case Status
Open

Assessment Revision
0

Assessment Type
Part 4 Developments (General)

Date Finalised
To be finalised

BOS entry trigger
BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

BAM Biodiversity Credit Report (Variations)

PCT
No Changes

Predicted Threatened Species Not On Site

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
37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	4.6	10	0	10.00

37-Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions This includes PCT's: 37, 39, 40, 55	-	37_LowCondition	No	0	Bogan-Macquarie,Boorindal Plains, Canbelego Downs, Castlereagh-Barwon, Inland Slopes, Lower Slopes, Nymagee and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions This includes PCT's: 37, 39, 40, 55	-	37_Moderate	Yes	10	Bogan-Macquarie,Boorindal Plains, Canbelego Downs, Castlereagh-Barwon, Inland Slopes, Lower Slopes, Nymagee and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Semi-arid Woodlands (Grassy sub-formation)	Tier 3 or higher threat status	37_LowCondition	No	0	IBRA Region: Darling Riverine Plains, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Semi-arid Woodlands (Grassy sub-formation)	Tier 3 or higher threat status	37_Moderate	Yes (including artificial)	10	IBRA Region: Darling Riverine Plains, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like options

APPENDIX V EPBC Protected Matters Assessment

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires approval of the Commonwealth Minister representing the Department of Climate Change Energy, the Environment and Water (DCCEEW), for actions that may have a significant impact on Matters of National Environmental Significance (MNES). The EPBC Act also requires Commonwealth approval for certain actions on Commonwealth land.

MNES protected under the EPBC Act include:

- World Heritage properties;
- National Heritage places;
- RAMSAR wetlands of international importance;
- Threatened species or ecological communities listed in the EPBC Act;
- Migratory species listed in the EPBC Act;
- The Great Barrier Reef Marine Park;
- Commonwealth marine environment; and
- Nuclear actions.

With regard to flora and fauna, the only MNES relevant to the study area are nationally listed threatened ecological communities, threatened species and migratory species. The DCCEEW protected matters search for the site is provided in **Appendix VI**.

Thirty-one (31) nationally threatened species and five (5) endangered ecological communities were returned by the MNES search and may have potential habitat available within 50km of the site as listed below.

No nationally threatened entities were recorded within the proposal area and none are considered likely to be significantly impacted given the existing condition of the site and the limited habitat available. Consequently, it is considered that a referral under the EPBC Act is not warranted.

The remnant vegetation within the site (PCT 37) is associated with the EEC Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions listed under the EPBC Act. When assessed against the key diagnostic and condition threshold criteria outlined in the Conservation Advice (Threatened Species Scientific Committee (TSSC), 2011), the vegetation within the site does not meet the minimum thresholds to be protected under the EPBC Act. The following key diagnostic and condition thresholds apply or are absent:

- *Eucalyptus coolabah* subsp. *coolabah* (Coolibah) must be present in the tree canopy and is typically dominant. This species is mostly absent apart from a single tree recorded near the northern boundary.
- The minimum patch size is 5 hectares. The remnant patches comprised of trees within the site are small, and less than 0.5 hectares in size.
- The crown cover of trees in the patch must be ≥ 8%. Only small patches or clumps of trees recorded within the site exceed 8% crown cover.
- In the ground layer, the percentage cover of non-native perennial plant species does not exceed the percentage cover of native plant species (annual or perennial). Generally, exotic species cover exceeds native species throughout the low condition vegetation identified within the site.

Nationally listed threatened species and TECs with the potential to occur in the local area

MNES Search - Threatened Species		Status
Amytornis striatus striatus	Striated Grasswren	Critically Endangered
Pedionomus torquatus	Plains-wanderer	Critically Endangered
Calidris ferruginea	Curlew Sandpiper	Critically Endangered
Bidyanus bidyanus	Silver Perch	Critically Endangered
Phascolarctos cinereus	Koala	Endangered
Botaurus poiciloptilus	Australasian Bittern	Endangered
Rostratula australis	Australian Painted Snipe	Endangered
Swainsona recta	Small Purple-pea	Endangered
Melanodryas cucullata cucullata	Hooded Robin	Endangered
Macquaria australasica	Macquarie Perch	Endangered
Hemiaspis damelii	Grey Snake	Endangered
Crinia sloanei	Sloane's Froglet	Endangered
Maccullochella macquariensis	Trout Cod	Endangered
Lepidium monoplocoides	Winged Pepper-cress	Endangered
Lophochroa leadbeateri leadbeateri	Major Mitchell's Cockatoo	Endangered
Anomalopus mackayi	Five-clawed Worm-skink	Vulnerable
Falco hypoleucos	Grey Falcon	Vulnerable
Hirundapus caudacutus	White-throated Needletail	Vulnerable
Stagonopleura guttata	Diamond Firetail	Vulnerable
Maireana cheelii	Chariot Wheels	Vulnerable
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	Vulnerable
Nyctophilus corbeni	Corben's Long-eared Bat	Vulnerable
Swainsona plagiotropis	Red Darling-pea	Vulnerable
Grantiella picta	Painted Honeyeater	Vulnerable
Neophema chrysostoma	Blue-winged Parrot	Vulnerable
Maccullochella peelii	Murray Cod	Vulnerable
Swainsona murrayana	Slender Darling-pea	Vulnerable
Aphelocephala leucopsis	Southern Whiteface	Vulnerable
Leipoa ocellata	Malleefowl	Vulnerable

MNES Search - Threatened Species	Status
Polytelis swainsonii Superb Parrot	Vulnerable
Threatened Ecological Communities	
Weeping Myall Woodlands (EEC)	Endangered
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (EEC)	Endangered
Poplar Box Grassy Woodland on Alluvial Plains (EEC)	Endangered
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (EEC)	Endangered
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (CEEC)	Critically Endangered

MIGRATORY SPECIES PROTECTED UNDER INTERNATIONAL AGREEMENTS

Eight (8) migratory species were listed on the EPBC protected matters search as having the potential to occur in the local area. Migratory species with potential to use habitats available within the proposal area are listed below.

Migratory species with the potential habitat available within the proposal area

Scientific Name	Common Name
Motacilla flava	Yellow Wagtail
Calidris acuminata	Sharp-tailed Sandpiper
Hirundapus caudacutus	White-throated Needletail
Gallinago hardwickii	Latham's Snipe
Actitis hypoleucos	Common Sandpiper
Calidris ferruginea	Curlew Sandpiper
Calidris melanotos	Pectoral Sandpiper
Apus pacificus	Fork-tailed Swift

The proposed subdivision is considered to have negligible impact on these species, on the basis that all species are highly mobile, and the proposal impacts are minor given the existing condition of the site and surrounding habitat. The proposed works are unlikely to impact on any area considered to be 'important habitat' for the above migratory species, nor is it likely to impact a significant proportion of a migratory population.

APPENDIX VI EPBC Protected Matters Search

EPBC Act Protected Matters Report

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

Report created: 27-Sep-2023

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	31
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	13
Commonwealth Heritage Places:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

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

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	600 - 700km upstream from Ramsar site	In feature area
Riverland	500 - 600km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	700 - 800km upstream from Ramsar site	In feature area
The macquarie marshes	40 - 50km upstream from Ramsar site	In buffer area only

Listed Threatened Ecological Communities			[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In buffer area only

Listed Threatened Species	[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis striatus striatus Mukarrthippi Grasswren, Striated Grasswren (sandplain) [26001]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo [82926]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In buffer area only
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nyctophilus corbeni			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to occur within area	In feature area
Maireana cheelii			
Chariot Wheels [8008]	Vulnerable	Species or species habitat known to occur within area	In feature area
Swainsona murrayana			
Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona plagiotropis			
Red Darling-pea, Red Swainson-pea [10804]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Swainsona recta			
Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In buffer area only
REPTILE			
Anomalopus mackayi			
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [14655]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14081]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14084]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [14082]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14083]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14079]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [14080]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [14086]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [14085]	NSW	In feature area
Commonwealth Land - Australian Telecommunications Corporation [14656]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14652]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14654]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14094]	NSW	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Quanda	Nature Reserve	NSW	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Macquarie Marshes	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Western Slopes Pipeline	2017/7894		Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Nyngan Solar Plant, NSW	2013/6742	Not Controlled Action	Completed	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Central West	Northern Inland Catchments	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact us page.

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