Biodiversity Development Assessment Report

Proposed Manufactured Home Estate

Lot 39 DP 22919 & Lot 350 DP 753848, 383 Browns Lane & 778 Manilla Road, Oxley Vale

November 2024

Final

Prepared For
Land Dynamics

Project: 24183

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EXECUTIVE SUMMARY

This Biodiversity Development Assessment Report (BDAR) has been prepared by Accuplan to identify the potential impacts on biodiversity values from a proposed manufactured home estate at 383 Browns Lane & 778 Manilla Road, Oxley Vale (Lot 39 DP 22919 & Lot 350 DP 753848). The site has an area of approximately 13.7 hectares and the proposed development would potentially modify or remove vegetation present within the development footprint.

The proposal has been assessed in accordance with the Biodiversity Assessment Method (BAM) 'streamlined assessment module' for small area development.

Native Vegetation Assessment

The vegetation occurring within the proposal area is most consistent with *PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy*. The following vegetation zones were recorded within the site:

- **Zone 1 - PCT 589 (Woodland):** This zone comprises 0.32 ha of remnant woodland vegetation with an open grassy understorey. A higher number of native species persist within the understorey relative to the surrounding pasture despite regular grazing and maintenance.
- **Zone 2 - PCT 589 (Modified Understorey):** This zone comprises small patches of remnant and / or regrowth trees present within the site. The understorey is similarly affected by grazing and/or regular maintenance as the surrounding low condition grassland (Zones 4 and 5) and native composition and cover is relatively low.
- **Zone 3 - PCT 589 (Woodland with White Cypress regrowth):** This zone comprises woodland vegetation with an often-dense sub-canopy of White Cypress regrowth. The understorey appears to be less affected by grazing and is not subject to regular maintenance.
- **Zone 4 - Low Condition Grassland (Residential Land):** Predominantly exotic grassland areas occurring on the residential zoned land in the eastern part of the site. Trees and tree regeneration are generally absent throughout this area although some planted trees do occur within this zone.
- **Zone 5 - Low Condition Grassland (Rural - Category 1-exempt land):** The Draft Native Vegetation Regulatory Map under the LLS Act identifies the cleared and regularly managed areas on rural zoned land in the western part of the site as "Category 1-exempt land". This area is similar to Zone 4 consisting of predominantly exotic grassland with some planted trees and shrubs.

Threatened Ecological Communities

PCT 589 is associated with the CEEC White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. The occurrence of TECs occurring within the subject site are summarised below.

TECs occurring within the subject site

TEC name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated PCTs / vegetation zones	Total Area (ha)
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	10837	Critically Endangered	N/A	PCT 589 (VZ 1, 2 and 3)	2.06
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	20392	N/A	Critically Endangered	PCT 589 (VZ 1 and 3 only)	1.64

Avoid and Minimise Impacts

The design of the proposal has implemented the following measures to avoid and minimise impacts to biodiversity:

- The proposed development footprint is largely sited within existing low condition grassland areas with limited habitat value.
- The proposal layout has aimed to avoid and minimise impacts to higher quality woodland vegetation occurring within the central part of the site. This was largely achieved by buffering the minimum required APZs from existing woodland areas with a dense sub canopy White Cypress Pine (PCT 589 - Zone 3) as any APZ in this area may require significant amounts of clearing to achieve APZ requirements.
- The existing woodland structure of Zones 1 and 2 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing.
- The retained areas of vegetation, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management. Measures to be detailed within the VMP may include but not be limited to APZ

management requirements, revegetation works, weed management procedures and monitoring and reporting requirements.

- 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) and VMP to be developed for the construction works and the ongoing operation of the site.

Residual Impacts

Following measures to avoid and minimise impacts, the proposal would impact up to 0.67 hectares of PCT 589 which includes the removal of 0.25 ha to accommodate the proposal footprint and the modification of 0.42 hectares to provide the associated APZs. Direct impacts include the removal of three (3) scattered trees which were assessed using the BAM scattered tree assessment module.

Offsetting under the BC Act

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

- Seventeen ecosystem credits for PCT 589

These credit requirements would 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 determination of a SAII on biodiversity values is to be made by the decision-maker in accordance with the four principles set out under clause 6.7(2) of the *Biodiversity Conservation Regulation*. The TEC White Box -Yellow Box - Blakely's Red Gum Woodland (White Box Woodland TEC) occurring within the site is listed as a TEC considered at risk of SAIIs. As such, the additional SAII assessment provisions for this TEC have been considered in accordance with Section 9.1.2 of the BAM (2020) and is provided in **Appendix VIII**. Not other threatened entities considered at risk of SAIIs were recorded within the site.

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 likely to be required for the project.

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Licences and Accreditations
Accredited Biodiversity Assessor (BAAS17100)
NSW Scientific Licence (SL102133)
Animal Research Authority (ARA) from the Secretaries Animal Ethics Committee
DPI Certificate of Accreditation as an Animal Research Establishment

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Report History

Date	Revision	Comment
15 November 2024	Rev A	Draft for review

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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.

Definitions	
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.
Direct impact	Direct impacts on biodiversity values include those related to clearing native vegetation and 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).

Definitions	
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 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.
Operational footprint	The area that will be subject to ongoing operational impacts from the proposal. This includes the road, surrounding safety verges and infrastructure, fauna connectivity structures and maintenance access tracks and compounds.
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).
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

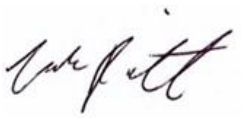
Definitions	
	certification proposal, subject land includes the biodiversity certification assessment area (DPIE 2020a). See also definition for construction footprint.
Study area	The area directly affected by the proposal (subject land or construction footprint) and any additional areas likely to be 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, published by EESG and 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).
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	
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)
BOS	Biodiversity Offsets Scheme
BDAR	Biodiversity Development Assessment Report
BOAMS	Biodiversity Offsets and Agreement Management System
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPE	NSW Department of Planning and Environment
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
PCT	Plant Community Type
PMST	Protected Matters Search Tool
SAII	Serious and Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
TECs	Threatened Ecological Communities
TBDC	Threatened Biodiversity Data Collection
VEC	Vulnerable Ecological Community
VIS	Vegetation Information System

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: 22 November 2024

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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 and the client.

Signature:  Date: 22 November 2024

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1. INTRODUCTION

This Biodiversity Development Assessment Report (BDAR) has been prepared in relation to the proposed manufacture home estate at 383 Browns Lane & 778 Manilla Road, Oxley Vale.

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 Subject Site and Proposal Description

The subject site is located at Lot 39 DP 22919 & Lot 350 DP 753848, 383 Browns Lane & 778 Manilla Road, Oxley Vale, approximately 6.5km north from Tamworth CBD. The subject site has a total area of approximately 13.7 hectares and is comprised of land zoned R1 (General Residential), RU4 (Primary Production Small Lots), and C3 (Environmental Management).

The site surrounds are largely rural in nature with small lot rural land to located to the west and south of the site and a combination of developed and undeveloped residential zoned land occurring to the north and east. Woodland vegetation largely occurring within the conservation zoned land also extends to the south of the site.

Much of the site and surrounding area has been extensively cleared for agriculture and residential purposes and is primarily comprised of modified grasslands. A relatively large patch of woodland vegetation occurs to the south east of the site which extends northwards along a ridgeline into the site. The canopy of this remnant vegetation is largely dominated by *Eucalyptus albens* (White Box) and *Callitris glaucophylla* (White Cypress Pine).

A site locality map is provided at **Figure 1.1**.

The proposed development involves construction of a manufactured home development providing 223 long-term sites and associated internal road network. The proposal also includes construction of community buildings, including:

- Clubhouse building with administration wing and entry foyer
- Pool and Gym building
- Men's shed and maintenance building
- Community recreation areas containing bowling green, tennis court and pickleball courts.

The proposal layout has aimed to avoid and minimise impacts to higher quality woodland vegetation occurring within the central part of the site with the proposal footprint largely located within existing cleared areas.

An extract of the proposed site plan is provided at **Figure 1.2**.

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 vegetation integrity (VI) of native vegetation present, and habitat suitability for threatened species.
- **Stage 2: Impact Assessment (biodiversity values and prescribed impacts)** - considers 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 also considers the proposal's impacts to 'Matters of National Environmental Significance' (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Koala habitat protected by SEPP (Biodiversity and Conservation) 2021 – (*Koala Habitat Protection) 2021.*

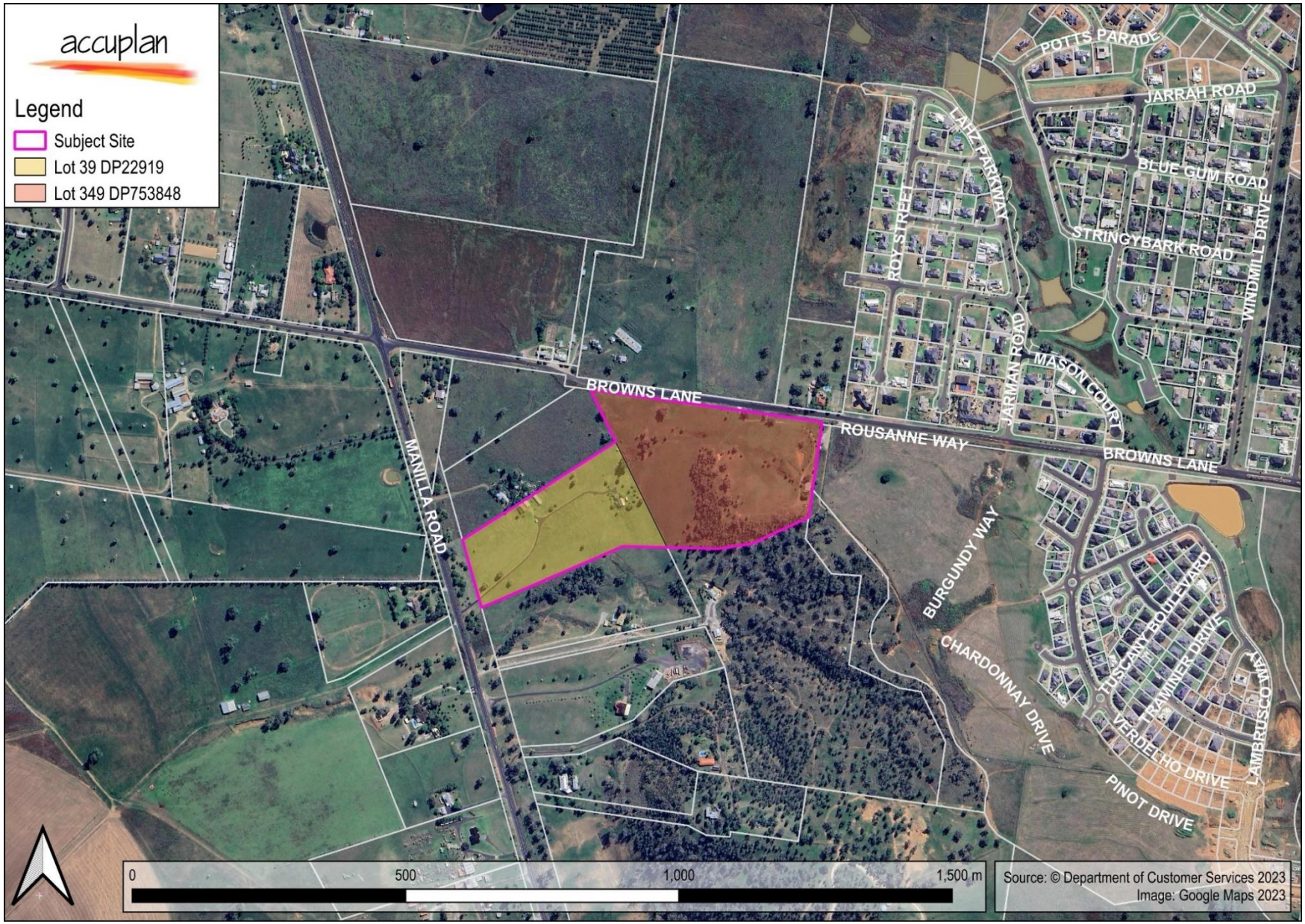

Figure 1.1: Location of Subject Site

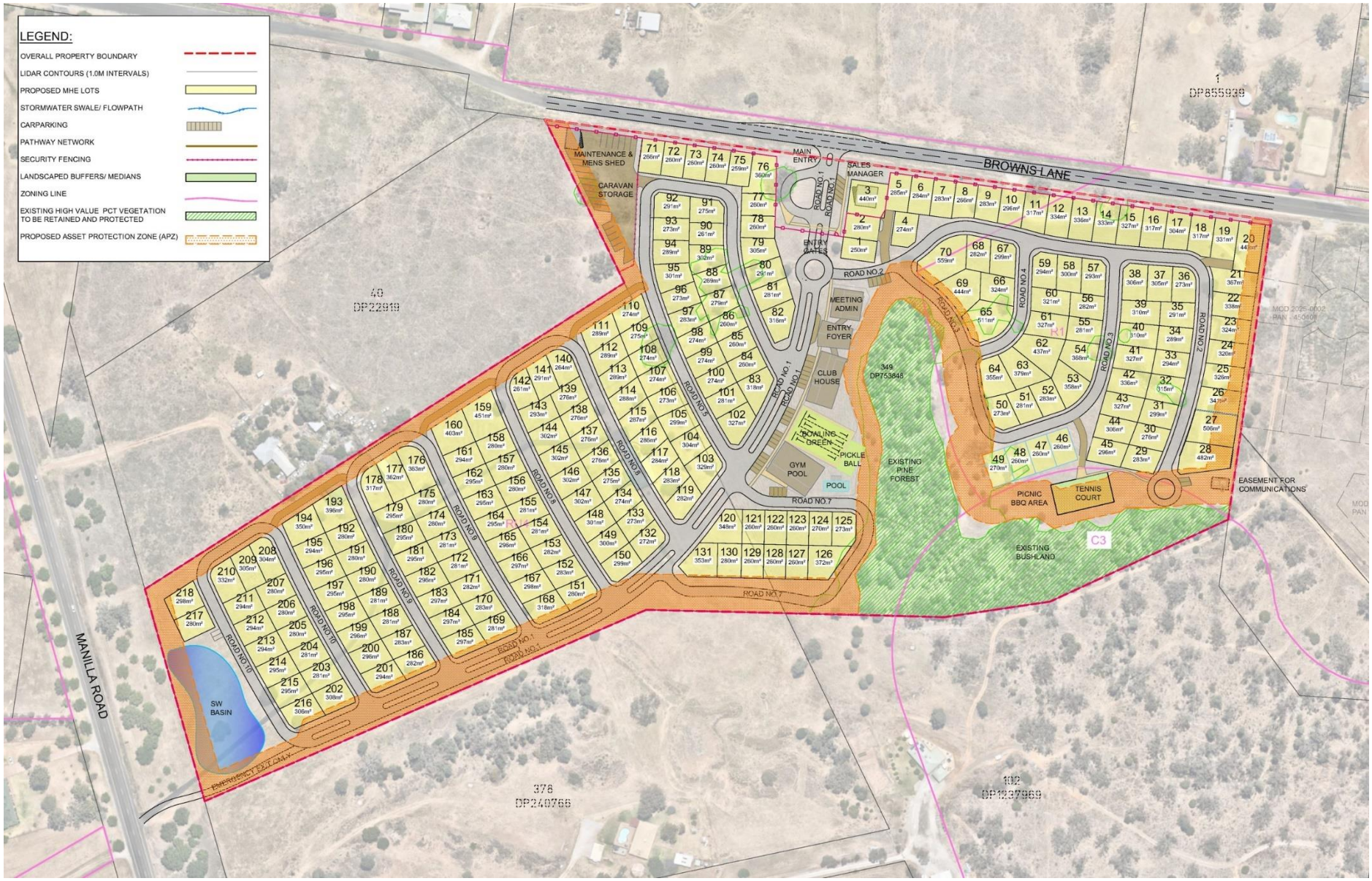

Figure 1.2: Extract of Proposed Manufactured Home Estate Plan (Land Dynamics Australia, 2024)

1.3 Biodiversity Assessment Requirements

1.3.1 Application of the BAM

The *Biodiversity Conservation Act 2016* (BC Act), together with the *Biodiversity Conservation Regulation 2017* (BC Regulation), 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 (see below); 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 site was not mapped at the time of preparing this report. The BOS would not be triggered in relation to point (1) above.

The smallest applicable minimum lot size for the land is 600m^2 and the associated threshold for entry into the BOS is 0.25 hectares. The area clearing threshold only applies to native vegetation. The Department of Planning and Environment (DPE) has released guidance advice (DPE, 2023) on the calculation of native vegetation extent in partially exotic ground cover vegetation that is part of a heavily degraded, derived plant community. Once the proportion of exotic to native vegetation in the ground cover has been calculated, the following ruleset is applied:

- where there is greater than 75% native vegetation in the ground cover, treat the vegetation as 100% native and assess the area to be cleared accordingly;
- where the proportion of exotic to native vegetation in the ground cover is between 15% and 75%, the calculation of native vegetation extent is adjusted by multiplying the proportion (%) of native cover by the total area to be cleared;
- where there is less than 15% native ground cover, all vegetation can be considered exotic and the area clearing threshold will not be exceeded.

A summary of native vegetation impact calculations is provided in **Table 1.1**.

Table 1.1: Summary of native vegetation impact area

PCT / Zone	Area of impact (ha)	Assessed native vegetation coverage	Native vegetation impact (ha)
PCT 589 - Zone 1 – Woodland	0.24	100%	0.24
PCT 589 - Zone 2 – Modified Understorey	0.33	100%	0.33
PCT 589 - Zone 3 – Woodland with White Cypress regrowth	0.01	100%	0.01
Low Condition Grassland (Residential Land) -	2.82	<10% (Based on quantitative plot data)	0
Scattered Trees	0.09	100%	0.09
Low Condition Grassland - Category 1 Exempt Vegetation	8.77	0%	0
TOTAL	**12.26**		**0.67**

The proposed impact to native vegetation (0.67 ha) exceeds the applicable clearing threshold and biodiversity impacts related to the proposal have therefore been assessed in accordance with the BAM (DPIE, 2020) and documented in this Biodiversity Development Assessment Report (BDAR).

1.3.2 Streamlined Assessment Modules

The proposal would clear less than 1 ha of native vegetation and is eligible to be assessed in accordance with the small area streamlined assessment module (see Appendix C of the BAM). The module uses a streamlined version of the BAM Calculator and has different survey and reporting requirements from a regular BDAR.

The Streamlined assessment module – Scattered trees assessment (Appendix B of the BAM) has also been used in this BDAR to address impacts to vegetation that meets the definition of scattered trees (see Section 3.4.3). This module may be used to assess parts of a development or clearing proposal impacting scattered trees, and the standard BAM is used to assess impacts on the remaining areas.

1.3.3 Commonwealth Legislation

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 **Appendix VI** of this report.

The assessment of the proposal's impact found that there is unlikely to be a significant impact on relevant matters of national environmental significance. Accordingly, the proposal has not been referred to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) 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 1.2.**

Table 1.2: 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)	19 years
Nathan Hokin	Ecological Consultant Field surveys, BDAR reporting, 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	19 years

1.5 Information Sources

The following information sources were used for this assessment:

- Department of Planning and Environment (DPE) licenced BioNet Atlas of NSW Wildlife database (local records within 10km of proposal area - accessed 15 July 2024)
- DCCEEW Protected Matters Search Tool (results within 10 km of proposal area - accessed 15 July 2024)
- Biodiversity Assessment Method calculator (BAM-C) - Version: 1.5.0.00
- NSW Biodiversity Values Map – last accessed 30 July 2024 https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap
- NSW Vegetation Information System (VIS) classification database (DPE, 2024)
- NSW State Vegetation Type Map (DPE, 2022).
- Border Rivers Gwydir / Namoi Regional Native Vegetation Mapping Version 1.5 (OEH, 2015)

2. LANDSCAPE ASSESSMENT

A landscape assessment in accordance with Section 3 of the BAM 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	Tamworth Regional Council
Zoning	Land use zones: R1 – General residential, RU4 – Primary Production Small Lots and C3 – Environmental Management are mapped over the proposal area with zones: R2 – Low Density Residential, R5 – Large Lot Residential, E1 – Local Centre, RE1 – Public Recreation and SP2 - Infrastructure being mapped within the 1500m buffer area surrounding the proposal area (*Tamworth Regional Local Environmental Plan 2010*) (see **Figure 2.1**).
Catchment	Namoi River Catchment
IBRA Bioregion	Nandewar - NAN
IBRA Subregion	Peel
Mitchell Landscape	Two NSW (Mitchell) Landscape are mapped within the assessment area: Tamworth – Keepit Slopes and Plains (Tmw) is mapped over the entirety of the proposal area. Peel Channels and Floodplain (Pef) occurs within the 1500m buffer to the southwest of the proposal area. NSW Landscapes are shown in **Figure 2.2.**
Native Vegetation Cover	A 1500 metre buffer was applied to the proposal area resulting in an overall buffer area of 977.4 ha. The vegetation extent of native vegetation was estimated based on observations from site visits and aerial photo interpretation. Native vegetation occupies 90.2 ha of the buffer area. Native vegetation covers approximately 9.2% of the buffer area. This falls into the 0-10% 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 woody vegetation in the proposal area is <100 metres from corridors adjoining extensive areas of forest to the south. These areas exceed 100 hectares and are allocated to the >100 hectares patch size class.
Connectivity Features	Vegetation extending northward from the south-eastern boundary has some limited connectivity to intact forest vegetation occurring on neighbouring land to the south of the site which is mapped as a potential subregional corridor (Scott, 2003) (see **Figure 2.4**). The remainder of the proposal site is largely isolated by rural and residential land.
Rivers, Streams, and Estuaries	No rivers or streams occur within the proposal site. A series of first, second and third order streams occur on land to the south (see **Figure 2.5**). The associated riparian buffer for the third order stream is 30m which extends into the proposal area over the southern boundary.
Wetlands	No wetlands occur within the vicinity of the proposal area.
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. Two (2) soil landscapes have been mapped within the proposal area (**Figure 2.6**) (OEH, 2018b). The soil landscapes and associated hazards are described below. **Fullwoods Hill – (9035fh)** **Landscape** — Rocky crests and steeper sideslopes of hills and low hills on Carboniferous and Devonian sedimentary rocks in the Tamworth Fold Belt. Local relief <70m, slopes 5 – 20%, but generally 10%, rock outcrop <20%, elevation 400 – 500m Woodland 85% cleared for grazing and some cultivation. **Qualities and limitations** — Complex soils, localised engineering hazard, inherent erosion risk, localised poor moisture availability, localised known recharge area, localised rock outcrop, shallow soils, sheet erosion risk. **The Forest – (9035fo)** **Landscape** — very gently to gently inclined footslopes and broad drainage plains on alluvium derived from Devonian argillite and greywacke hills and mountains in the steep north eastern Duri Hills. Local relief <120m, slopes <8%, elevation 360 – 520m. Woodland, mostly cleared for cultivation and grazing. **Qualities and limitations** — Engineering hazard, gully erosion risk, inherent erosion risk, potential recharge area, high run-on, sheet erosion risk.
Areas of Outstanding Biodiversity Value	No areas of outstanding biodiversity value occur within the vicinity of the proposal site.
Mapped Biodiversity Values	No biodiversity values are mapped within the site. The nearest mapped biodiversity values are located about 980 metres to the southwest of the site and are associated with biodiverse riparian land extending along the Peel River (see **Figure 2.5**). The only other mapped biodiversity values occurring within the assessment area are areas of biodiverse riparian land mapped approximately 1300m southeast of the site along a second order creek line named "*Dry Gully*".

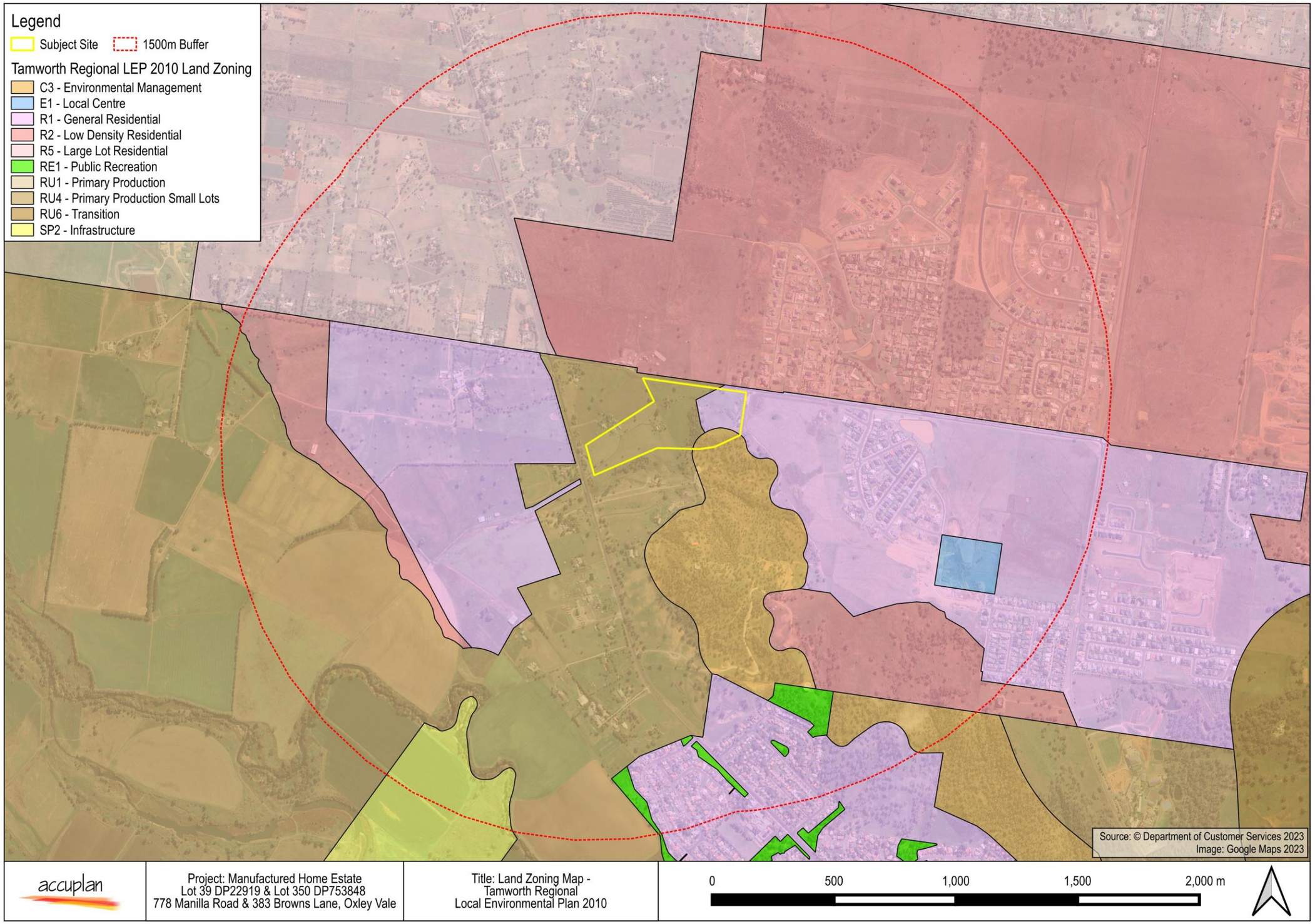

Figure 2.1: Land Zoning –Tamworth Regional Local Environmental Plan 2010

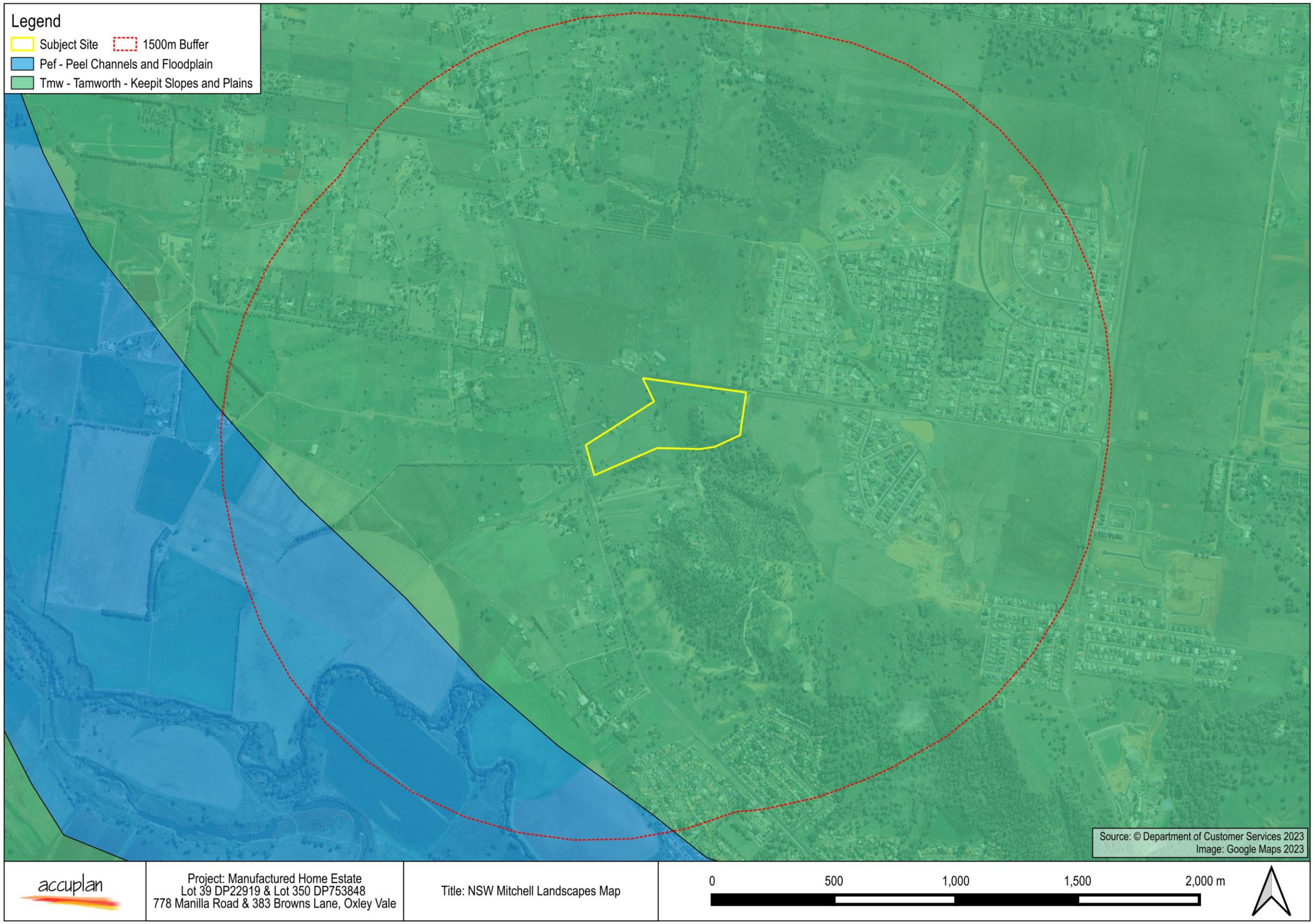

Figure 2.2: NSW (Mitchell) Landscapes (Version 3.1)

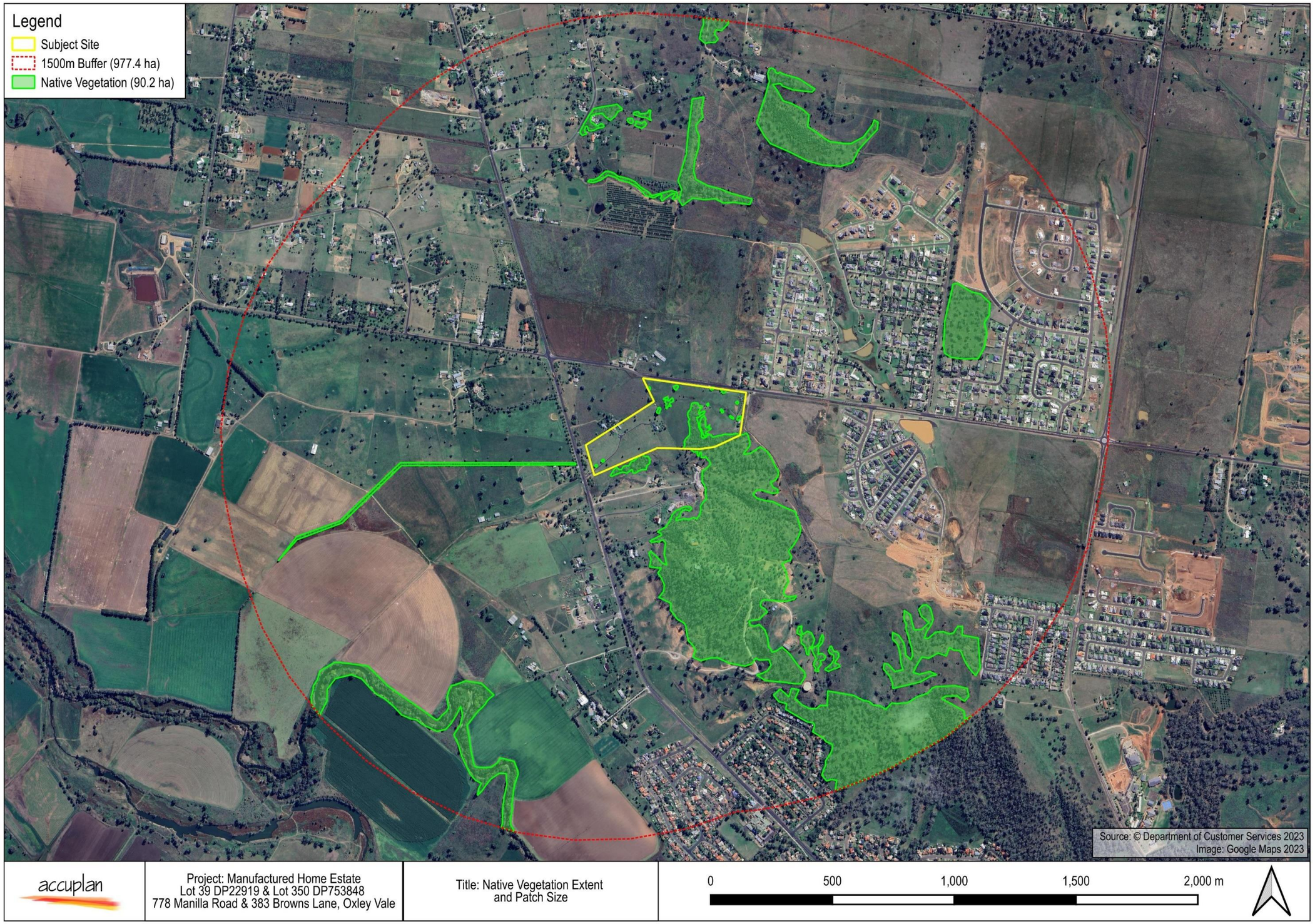

Figure 2.3: Native vegetation extent

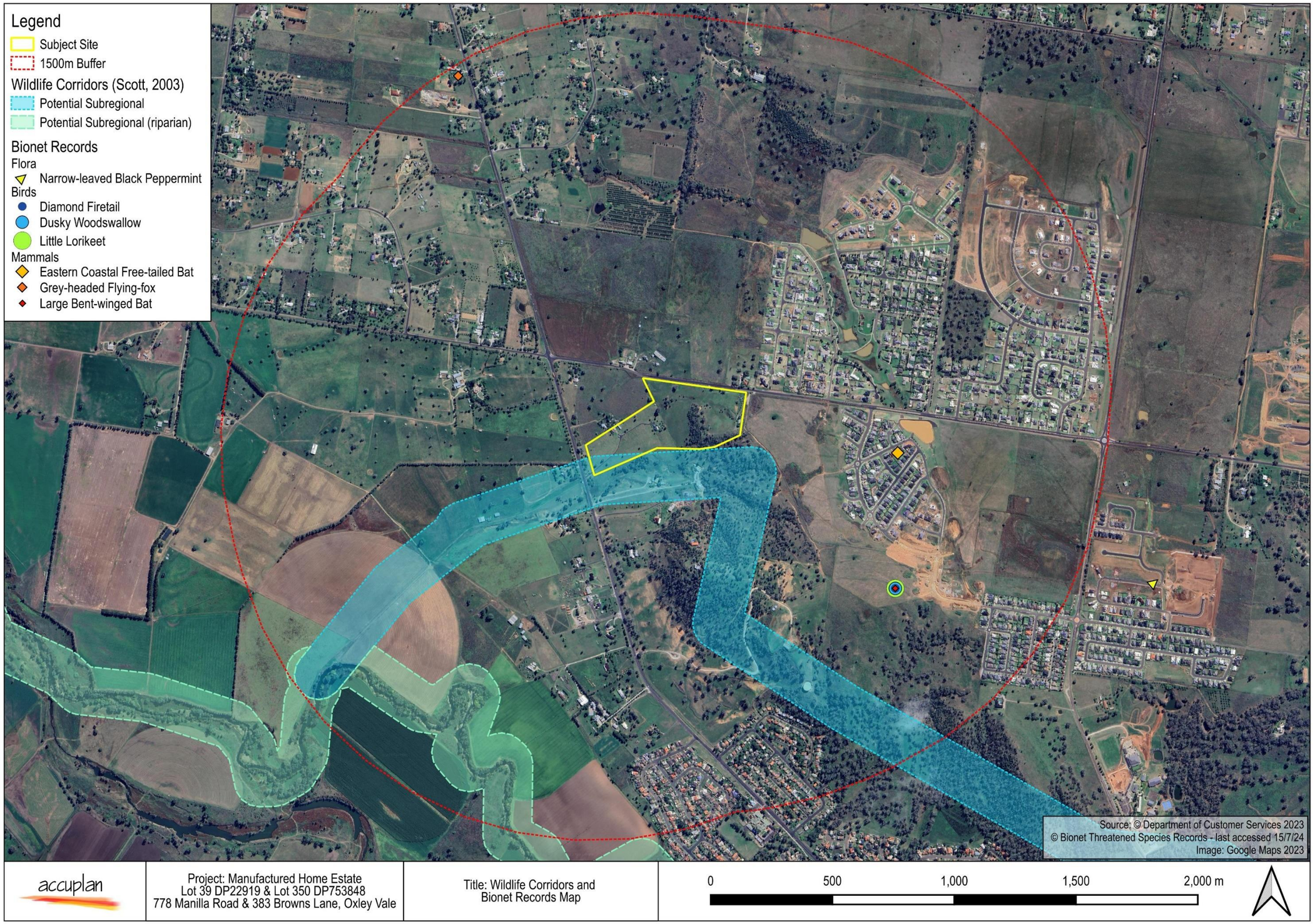

Figure 2.4: Mapped wildlife corridors and BioNet records

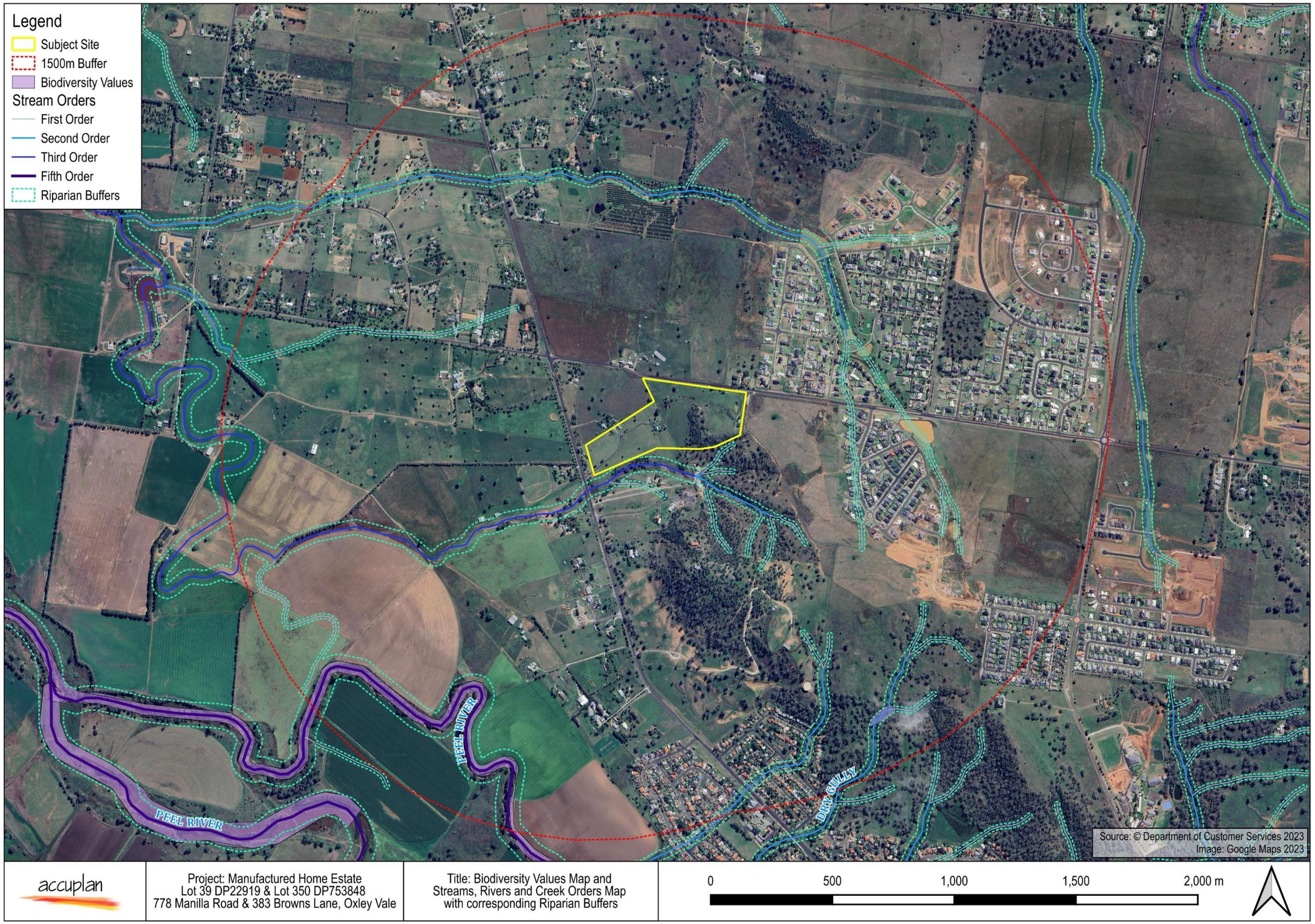

Figure 2.5: Rivers, streams and estuaries as well as biodiversity value areas

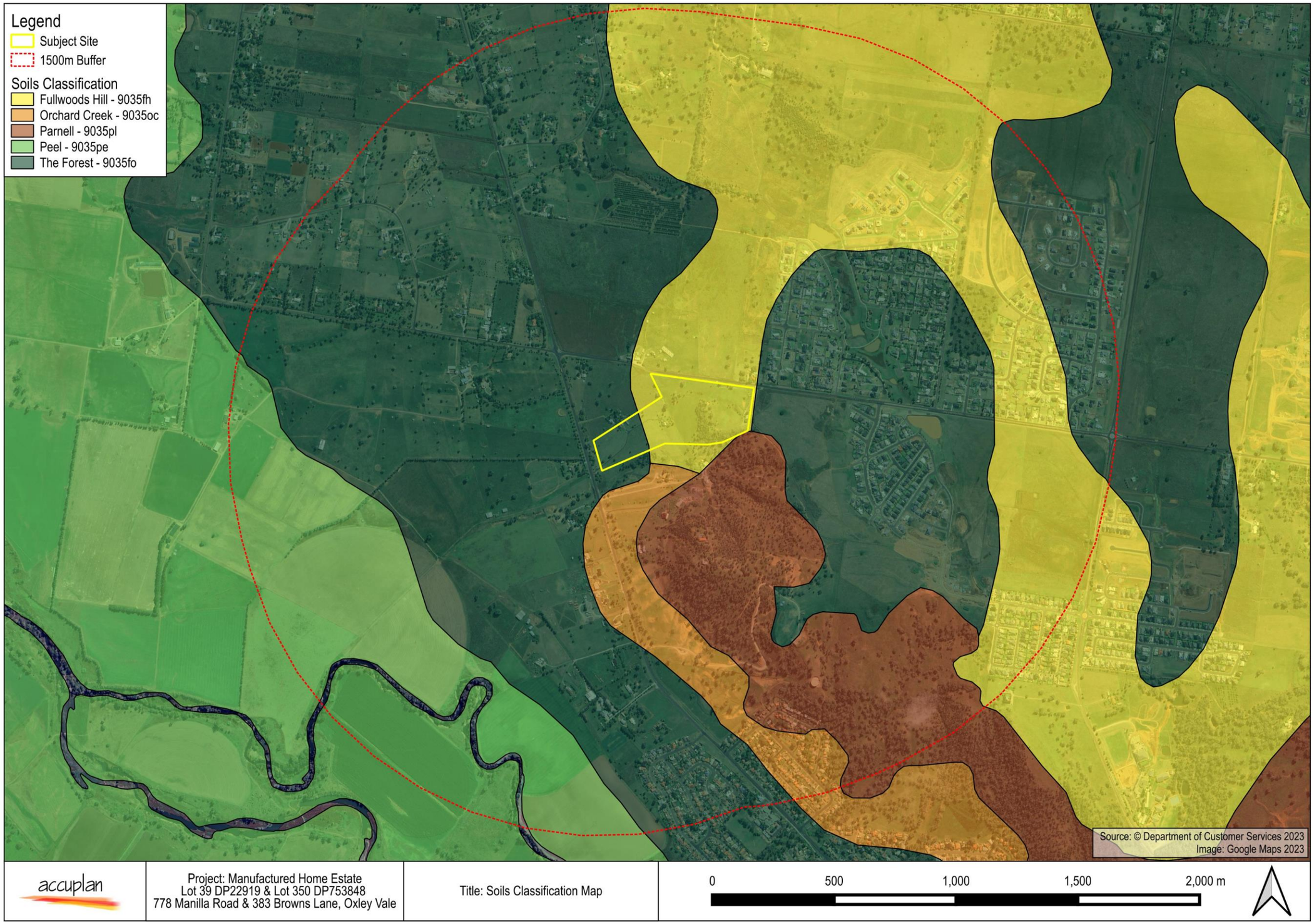

Figure 2.6: Mapped soil landscapes

3. NATIVE VEGETATION AND HABITAT

3.1 Native Vegetation Extent

The extent of native vegetation on the subject land was mapped in accordance with the BAM (**Section 4.1**). The mapping of native vegetation was aided by aerial imagery captured by drone at the time of the site survey and historical high-resolution imagery available for the study area.

3.2 Methods to assess 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, 2022).
- NSW State Vegetation Type Map (DPE, 2022).
- Border Rivers Gwydir / Namoi Regional Native Vegetation Mapping Version 1.5 (OEH, 2015)

Existing vegetation mapping for the site is shown in **Figure 3.1**. The existing vegetation mapping identifies most of the proposal area as cleared land or non-native vegetation with the remnant native vegetation identified as a single vegetation community, PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion.

3.2.2 Floristic survey

A site assessment was undertaken on 18 – 19th July 2024 by Luke Pickett (Accredited Assessor No: BAAS17100) with assistance from Nathan Hokin.

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 3.2.3**. 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 **Figure 4.1.**

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 (DPE, 2022) 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.**

3.2.3 Vegetation Plots

Seven vegetation plots were undertaken to assess the vegetation integrity of native vegetation within the proposal area. 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.

Vegetation plots are typically based on a 20m x 20m plot (400m^2) to assess composition and structure components and a 50m x 20m plot (1000m^2) to assess function.

3.3 Plant community types (PCTs)

Much of the site and surrounding area has been extensively cleared for agriculture and residential purposes and is primarily comprised of modified grasslands. A relatively large patch of native vegetation occurs to the south east of the site which extends northwards along a ridgeline into the site. The canopy of this remnant vegetation is largely dominated by *Eucalyptus albens* (White Box) and *Callitris glaucophylla* (White Cypress Pine).

Shrubs and predominantly native groundcover are generally restricted to the intact remnant vegetation in the site. Areas of cleared grassland have a relatively high cover of exotic species and native cover tends to be dominated by a relatively small number of species particularly *Geranium solanderi* (Native Geranium) and *Dichanthium sericeum* (Queensland Bluegrass).

The vegetation recorded within the site is largely consistent with the existing vegetation mapping and PCT 589 has been selected as the 'best fit' option. A description and justification for selection of this PCT is provided in **Table 3.1**. The distribution of vegetation occurring in the study area is shown in **Figure 3.2.**

A full list of species recorded during the field survey is provided in **Appendix I**.

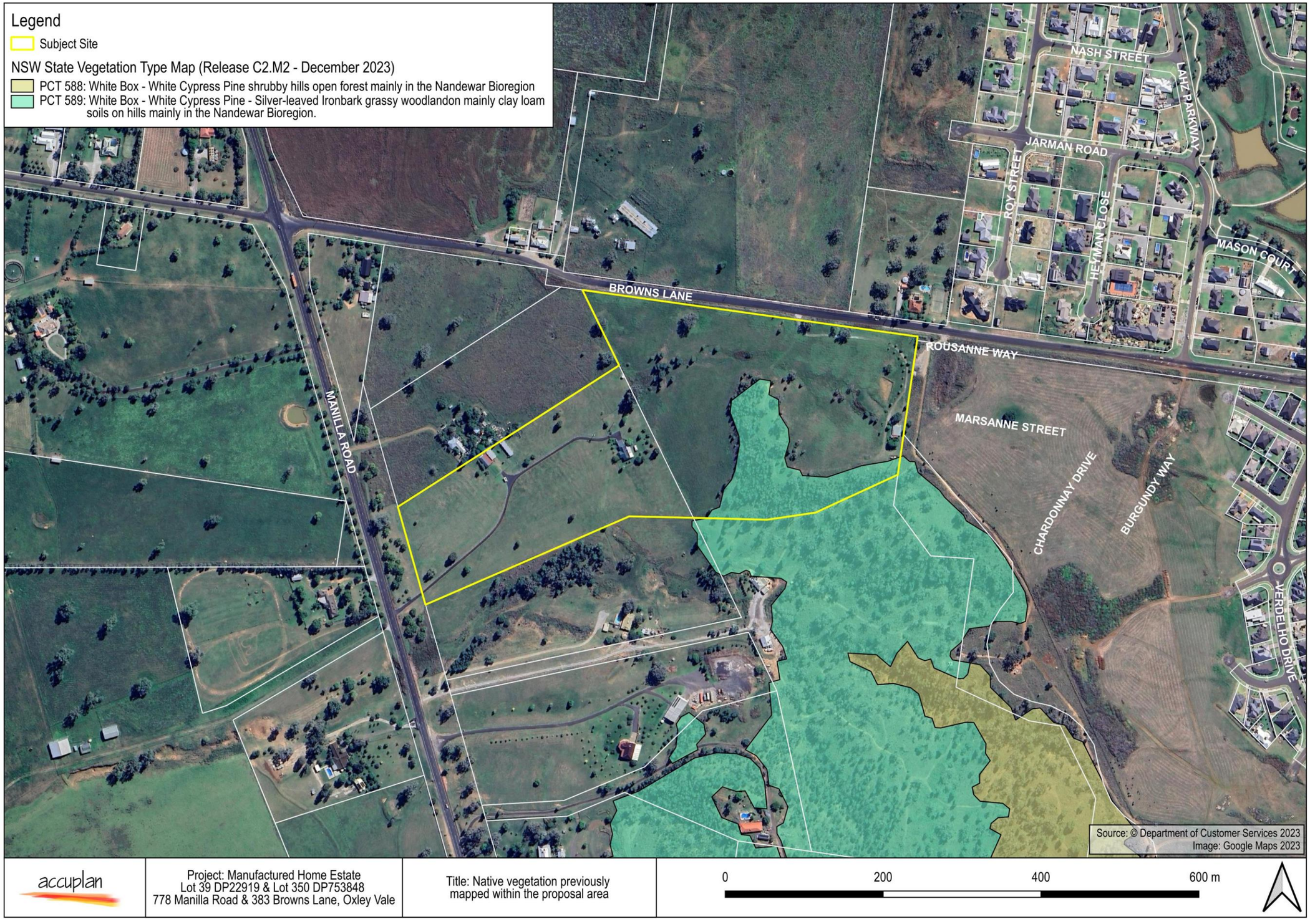

Figure 3.1: Existing vegetation mapping

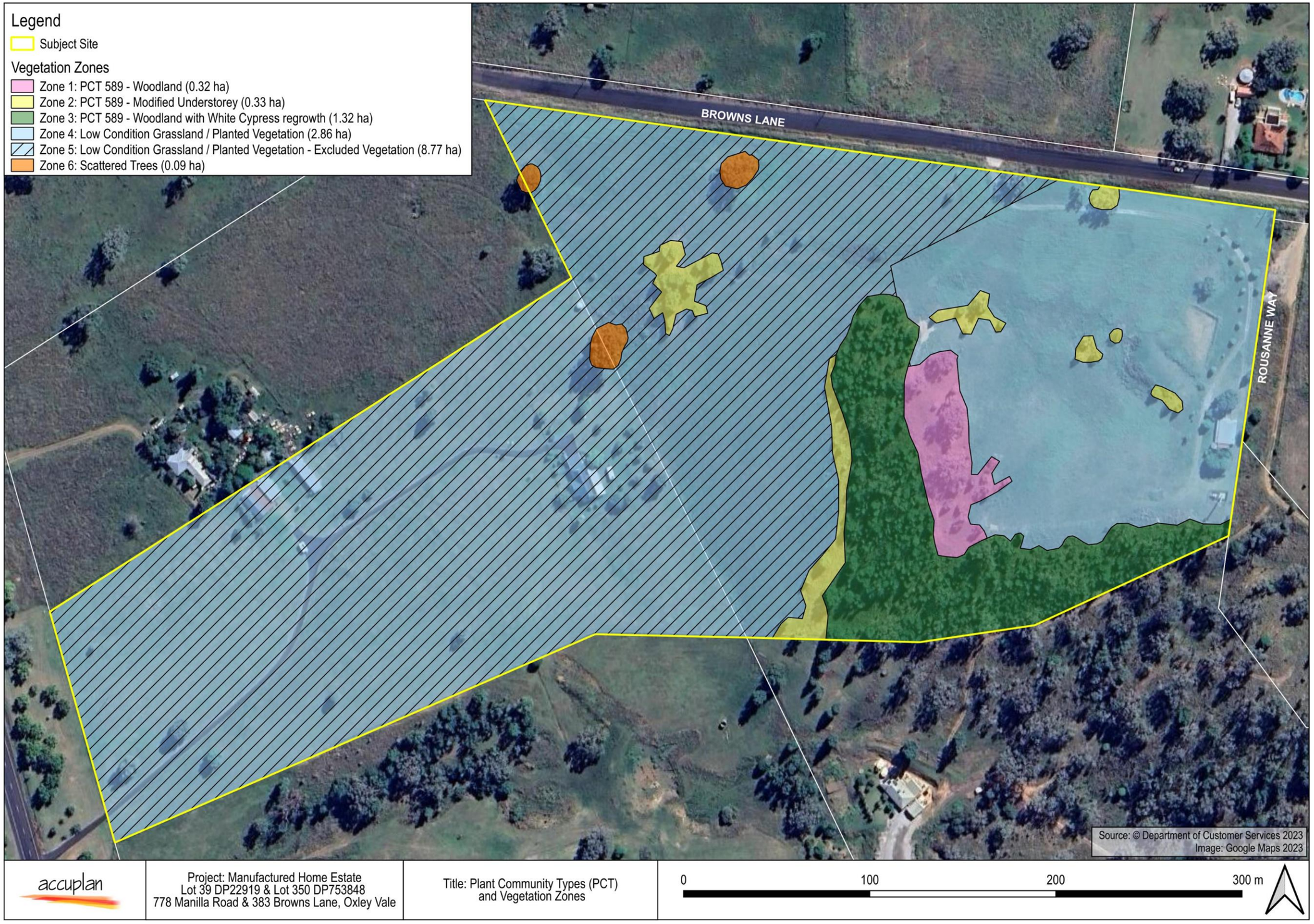

Figure 3.2: Plant Community Types map showing vegetation zones occurring within the subject site

Table 3.1: Description of PCT 589

PCT ID	PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Estimate of % cleared	83% (DPE, 2022)
BC Act Status	Associated with White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions - CEEC
EPBC Act Status	Associated with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland - CEEC
Vegetation Formation	Grassy Woodlands
Vegetation Class	Western Slopes Grassy Woodlands
PCT Description	Tall woodland to open forest (with *Callitris* regrowth) dominated by White Box (*Eucalyptus albens*) and White Cypress Pine (*Callitris glaucophylla*) and sometimes with Silver-leaved Ironbark (*E. melanophloia*) or Yellow Box (*E. melliodora*). The shrub layer is sparse and includes *Geijera parviflora*, *Cassinia laevis*, *Notelaea microcarpa var. microcarpa*, *Dodonaea viscosa subsp. angustifolia*, *Beyeria viscosa*, *Senna form taxon coriacea*, *Cassinia quinquefaria* and *Bursaria spinosa*. The ground layer is dense to mid-dense with a well developed mix of grasses and forbs. Grass species include *Austrostipa scabra*, *Cymbopogon refractus*, *Dichanthium sericeum*, *Themeda australis*, *Aristida personata*, *Austrostipa aristiglumis*, *Austrodanthonia bipartita*, *Eragrostis leptostachya* and *Aristida leptopoda*. Forb species include *Dichondra species A*, *Asperula conferta*, *Brunoniella australis*, *Calotis lappacea*, *Cullen tenax*, *Mentha satureioides* along with the sedge *Cyperus gracilis* and the climber *Glycine tabacina*. The invasive weed Coolatai grass (*Hyparrhenia hirta*) is a serious threat to this community and is the dominant groundcover in some areas. Occurs on brown to red sand loam to clay soils derived from fine-grained sedimentary or volcanic substrates on upper hillslopes and hillcrests throughout the Nandewar and north-eastern Briglalow Belt South Bioregions. Mostly cleared.
Occurrence within Proposal Area	This PCT largely occurs along the southeastern boundary of the site and extends northwards along the ridgeline and associated slopes. The canopy of this remnant vegetation is largely dominated by *Eucalyptus albens* (White Box) and *Callitris glaucophylla* (White Cypress Pine). The proposal area site is largely cleared with isolated occurrences of White Box and small patches of White Cypress Pine occurring sporadically.
PCT Justification	PCT 589 was selected as the best fit option given: a) The vegetation structure is consistent with woodland and / or open forest albeit with some areas having a dense sub-canopy of White Cypress regrowth. b) The dominance of diagnostic canopy species *Eucalyptus albens* and *Callitris glaucophylla* which were the most common species within the site. Diagnostic species, *Geranium solanderi* and *Dichanthium sericeum*, were also very common and are not listed diagnostic species for the other potential PCTs described below. c) The composition of shrubs and ground cover species are largely consistent with the PCT description. Recorded shrub cover was <30% which is consistent with the associated White Box Woodland TEC description; and d) The landscape position is largely consistent with the PCT description occurring on brown to red sand loam to clay soils derived from fine-grained sedimentary or volcanic substrates on upper hillslopes and hillcrests. Local vegetation mapping identified two other PCTs (PCT 588 and 435) that occur in the surrounding area which are also characterised by a canopy primarily comprised of *Eucalyptus albens* and *Callitris glaucophylla*. The descriptions and mapping indicate that these PCTs can occur in similar landscape positions and are floristically similar with considerable overlap of diagnostic species. It is noted that differentiation between these PCTs can be difficult due to disturbance history and the similarity of the described PCTs.

Canopy (Dominants in bold)	***Eucalyptus albens* (White Box)**, ***Callitris glaucophylla* (White Cypress Pine)**, *Brachychiton populneus subsp. populneus* (Kurrajong), *Angophora floribunda* (Rough-barked Apple)
Mid Stratum (Dominants in bold)	***Notelaea microcarpa var. microcarpa* (Native Olive)**, ***Dodonaea viscosa subsp. angustifolia* (Sticky Hop-bush)**, *Geijera parviflora* (Wilga), *Bursaria spinosa subsp. spinosa* (Blackthorn), *Cassinia quinquefaria*, *Myoporum montanum* (Western Boobialla), *Maireana microphylla* (Small-leaf Bluebush), *Acacia decora* (Western Silver Wattle), *Acacia leiocalyx subsp. leiocalyx* (Curracabah),
Groundcover (Dominants in bold)	***Geranium solanderi var. solanderi* (Native Geranium)**, ***Dichondra spp.* (Kidney Weed)**, ***Dichanthium sericeum subsp. sericeum* (Queensland Bluegrass)**, **Austrostipa verticillata (Slender Bamboo Grass)**, ***Calotis lappulacea* (Yellow Burr-daisy)**, ***Glycine tabacina***, *Cymbonotus lawsonianus* (Bears Ear), *Austrostipa scabra subsp. scabra*, *Cyperus gracilis* (Slender FlatsSedge), *Brunoniella australis*, *Cymbopogon refractus* (Barbed Wire Grass), *Aristida ramosa / personata* (Purple Wiregrass), *Desmodium brachypodum* (Large Tick-trefoil), *Cheilanthes sieberi subsp. sieberi* (Mulga Fern), *Poa spp*. (Tussock Grass), *Sida corrugata* (Corrugated Sida), *Solanum cinereum* (Narrawa Burr) Eremophila debilis (Winter Apple), *Microlaena stipoides var. stipoides* (Weeping Meadow Grass), *Asperula conferta* (Common Woodruff), *Mentha satureioides* (Creeping Mint), Bulbine sp., *Eragrostis leptostachya* (Paddock Lovegrass)
Exotics (High Threat Exotics in bold)	*Lysimachia arvensis* (Scarlet Pimpernel), ***Hyparrhenia hirta*** (Coolatai Grass), **Cestrum parqui** (Green Cestrum), ***Opuntia aurantiaca*** (Tiger Pear), ***Opuntia stricta var. stricta*** (Common Prickly Pear), ***Olea europaea subsp. cuspidata*** (African Olive), ***Andropogon virginicus*** (Whisky Grass), ***Solanum seaforthianum*** (Climbing Nightshade), *Medicago minima* (Woolly Burr Medic), *Marrubium vulgare* (White Horehound), *Stachys arvensis* (Stagger Weed), *Sida rhombifolia* (Paddy's Lucerene), *Fumaria* spp. (Fumitory), *Galium aparine* (Goosegrass), *Verbena bonariensis* (Purpletop).
Condition	The following vegetation zones and condition classes were identified in the project area: • **Zone 1 – Woodland (589_Woodland) (Plot 1):** This zone comprises remnant woodland vegetation with an open grassy understorey. A higher number of native species persist within the understorey relative to the surrounding pasture despite regular grazing and maintenance Examples of this zone are shown in **Photo 3.1** and **Photo 3.2**. • **Zone 2 – Modified Understorey (589_ModifiedUn):** This zone comprises small patches of remnant and / or regrowth trees present within the site. The limits of this zone were determined by the canopy extent of remnant trees. The understorey is similarly affected by grazing and/or regular maintenance as the surrounding low condition grassland (Zone 4) and native composition and cover is relatively low (**Plot 2**). • **Zone 3 – Woodland with White Cypress regrowth (589_Woodland_Cypress):** This zone comprises woodland vegetation with an often-dense sub-canopy of White Cypress regrowth. The understorey appears to be less affected by grazing and is not subject to regular maintenance (**Plots 3 & 4**).

Photo 3.1: PCT 589 Zone 1 - Woodland (Plot 1)

Photo 3.2: Looking northwest showing PCT 589 Zone 1 - Woodland

Photo 3.3: PCT 589 Zone 2 – Modified Understorey (Plot 2)

Photo 3.4: PCT 589 Zone 3 – Woodland with White Cypress regrowth (Plot 3)

Photo 3.5: PCT 589 Zone 3 – Woodland with White Cypress regrowth (Plot 4)

3.3.1 Non-native and Category 1 Exempt Vegetation

The Draft Native Vegetation Regulatory Map under the LLS Act identifies the cleared and regularly managed areas on rural zoned land in the western part of the site as "Category 1-exempt land". These areas are highly modified with minimal native cover and are consistent with the LLS criteria for Category 1–exempt land and low conservation grasslands. Vegetation occurring within the mapped Category 1-exempt land is limited to a small number of mostly non-local planted trees and predominantly exotic grassland. The BAM does not assess biodiversity values for native vegetation and loss of habitat on category 1-exempt land, other than prescribed impacts, which are considered in Section 5.5.

The grassland areas occurring on the residential zoned land in the eastern part of the site appear to have a similar disturbance history to the Category 1-exempt land and are also comprised of predominantly exotic grassland. The BAM plots (Plots 5 and 6) conducted over the grassland areas identified that native cover was generally <10% and has been assessed as non-native vegetation. Trees and tree regeneration is generally absent throughout this area, although some isolated shrubs and planted trees may occur (see Section 3.3.2). Remnant trees and isolated patches have been assigned to a PCT and vegetation zone and were subject to assessment under the BAM.

The areas of Category 1-exempt vegetation and non-native vegetation occurring within the proposal area is shown in **Figure 3.2** and examples of this vegetation are shown in **Photo 3.6** and **Photo 3.7**.

Photo 3.6: Predominantly exotic grassland (Category 1-exempt land) occurring within rural zoned land in the western part of the proposal area.

Photo 3.7: Predominantly exotic grassland occurring within residential zoned land in the eastern part of the proposal area (Plot 5)

3.3.2 Planted Native Vegetation

In accordance with Appendix D of the BAM 2020, any native vegetation that was planted and cannot be reasonably assigned to a PCT can be assessed as planted native vegetation. Several planted trees which are native to NSW occur within the low condition grassland areas throughout the proposal area. These trees have been considered in accordance with the Planted Native Vegetation Streamlined Assessment Module of the BAM (Appendix D). The trees are eligible to be considered as planted native vegetation as:

a) the planted trees do not occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal. The trees are isolated by low condition grassland and / or Category 1 – exempt vegetation and most are not characteristic of any PCTs occurring in the local area.
b) the planted trees were not planted for the purposes of environmental rehabilitation or restoration under an existing conservation obligation.
c) The planted trees were not planted for the purposes of providing threatened species habitat under any of the following:
    i. a species recovery project;
    ii. Saving our Species project;
    iii. other types of government funded restoration project;
    iv. condition of consent for a development approval;
    v. legal obligation as part of a condition or ruling of court;
    vi. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan; or
    vii. approved vegetation management plan.

The trees appear to have been planted largely for aesthetic purposes forming part of landscaped gardens or isolated paddock tree plantings to provide shade. As such, Section D.2 of Planted Native Vegetation Planted Native Vegetation Streamlined Assessment Module applies and the planted native vegetation is not required to be assessed under the standard BAM. The suitability of the planted native vegetation for use by threatened species (both ecosystem and species-credit species) has been assessed which involved inspecting each tree for any habitat attributes that may provide threatened species (e.g., hollows, feeding resources).

All of the planted trees were relatively young and no hollows or other significant habitat features were recorded. The trees may provide some seasonal foraging resources during flowering although this habitat

is isolated and would only provide some supplementary habitat for highly mobile species (woodland birds, Grey-headed Flying-Fox).

One threatened species, a single planted *Eucalyptus boliviana* (Bolivia Stringybark), was recorded adjacent to existing farm buildings in the western part of the site. This tree formed part of a row planting with the other trees comprised of *Callistemon viminalis* (Weeping Bottlebrush), a widely cultivated native plant species. Bolivia Stringybark is listed as critically endangered under the BC Act and is endemic to the Bolivia Hill Range south of Tenterfield in northern NSW, where it is restricted to a small section of the Bolivia Hill Range around granite outcrops and slabs above 900 m elevation (DPE, 2024b). Whilst the species is not widely cultivated, cultivation of this species is becoming more common with the Armidale Tree Group nursery reportedly having some success cultivating the species in the local area (Sheather, 2017). As this species has been planted for aesthetic purposes only, species credits are not required to offset the proposed impact.

To support the information above, **Photo 3.8** and **Photo 3.9** below show representative examples of the planted vegetation recorded within the proposal area. The locations of the planted trees are shown in Figure 3.2.

Photo 3.8: Planted row of Weeping Bottlebrush and a single Bolivia Stringybark (right side of photo) located near an existing outbuilding in the western part of the site.

Photo 3.9: Plantings around existing dwelling comprised of exotic and native trees.

3.4 Vegetation Integrity Assessment

3.4.1 Vegetation zones and survey effort

The vegetation types identified inside the proposal footprint were stratified into various condition states to differentiate structural and floristic variations in the proposal area. A summary of the plots undertaken in accordance with BAM requirements is provided in **Table 3.2.**

Table 3.2: BAM Vegetation Plot Summary

PCT / Zone	Patch size (ha)	Area of impact (ha)	Minimum plots required	Plots completed
PCT 589 - Zone 1 – Woodland (589_Woodland)	>100	0.24	1	1 (Plot 1)
PCT 589 - Zone 2 – Modified Understorey (589_ModifiedUn)	>100	0.33	1	1 (Plot 2)
PCT 589 - Zone 3 – Woodland with White Cypress regrowth (589_Woodland_Cypress)	>100	0.01	1	2 (Plots 3 & 4)
Zone 4 - Low Condition Grassland (Residential Land)	N/A	2.82	2	2 (Plots 5 & 6)
Zone 5 - Low Condition Grassland (Rural - Category 1-exempt land)	N/A	8.77	N/A	N/A
TOTAL		**12.06**	**5**	**6**

3.4.2 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 (VIS)

BAM-C Zone ID	PCT / Zone	Composition Score	Structure Score	Function Score	Overall VIS
1	PCT 589 - Zone 1 – Woodland (589_Woodland)	89.1	81.6	49.2	71
2	PCT 589 - Zone 2 – Modified Understorey (589_ModifiedUn)	53.5	56.9	70.7	59.6
3	PCT 589 - Zone 3 – Woodland with White Cypress regrowth (589_Woodland_Cypress)	95.4	70.1	100	87.5
4	Non-native Grassland (Residential Land)	22.2	0.5	0	0.3

Note 1: Non-native grassland is not consistent with any described PCT. Condition was assessed against benchmark values for PCT 589.

3.4.3 Scattered Trees

Scattered trees were assessed in accordance with Appendix B (Streamlined assessment module – Scattered trees assessment) of the BAM (2020). An assessment of the impact of clearing scattered trees can be made using this module where:

a) the impacts of clearing or development proposals are for vegetation that meets the definition of scattered trees, and

b) the scattered tree is not a threatened species itself nor does it have any record of candidate species credit species (flora or fauna) incidentally using it, and

c) the impact is unlikely to be serious or irreversible.

Three isolated trees occurring on rural zoned land within the site meet the definition scattered trees in that the trees "*have a percent foliage cover that is less than 25% of the benchmark for tree cover for the most likely plant community type and are on category 2-regulated land and surrounded by category 1-exempt land on the Native Vegetation Regulatory Map under the LLS Act*". An extract of the draft native vegetation regulatory map showing the location of scattered trees is provided in Figure 3.3.

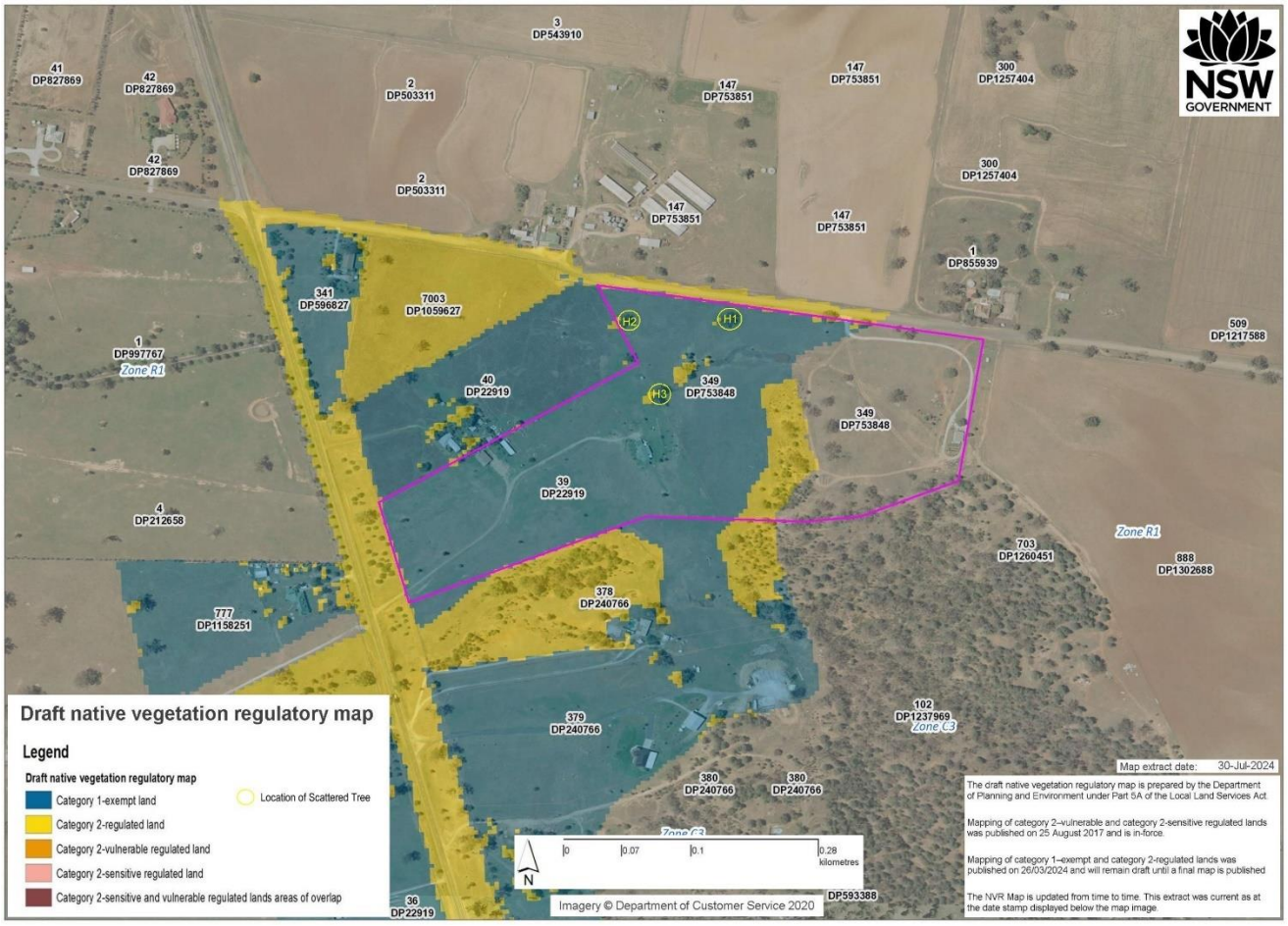

Figure 3.3: Draft Native Vegetation Regulatory Map (DPE 2024) and location of scattered trees

All three (3) of the scattered trees identified within the proposal area are *Eucalyptus albens* (White Box). This species is a dominant component of the areas of PCT 589 recorded within the site and the scattered trees were assigned to this PCT. A summary of the scattered trees recorded on site is provided in **Table 3.4**.

Table 3.4: Scattered tree summary

Tree ID	Species	DBH (cm)	Scattered Tree Class	Contains Hollows?	Habitat Notes
H1	*Eucalyptus albens*	120	3 (DBH >=50cm)	Yes	2x Class 2 hollows; Multiple Class 3 hollows suitable for microbats.
H2	*Eucalyptus albens*	120	3 (DBH >=50cm)	Yes	1 x Class 1; 3 x Class 2; Multiple Class 3 hollows suitable for microbats.
H3	*Eucalyptus albens*	150	3 (DBH >=50cm)	Yes	3 x Class 1; at least 5 x Class 2 possibly more not visible; Multiple Class 3 hollows suitable for microbats.

Note 1: Class 2 = Trees with DBH >=20cm and <50cm
Class 3 = Trees with DBH >=50cm

3.4.4 Management Zones and Future Vegetation Integrity Scores

Separate management zones have been applied to each applicable vegetation zone where proposal impacts result in partial clearing of a vegetation zone, such as the asset protection zones (APZs). The management zones applicable to each vegetation zone are described in **Table 3.5**. The future vegetation integrity scores for each management zone are described in **Table 3.6** and provided in **Appendix II**. The location of the management zones is shown in the proposal impact map provided at **Figure 5.1**.

Table 3.5: Description of Management Zones

Vegetation Zone	Applicable Management Zone
Zone 1: PCT 589 (Woodland)	**VZ1 MZ1 – APZ:** This zone covers parts of Zone 1 to be managed as an APZ. The existing woodland structure of Zone 1 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing. **VZ1 MZ2 – Development area (Direct)** - This zone covers areas directly impacted by the proposal footprint. It is assumed that all vegetation is removed and the future VIS is reduced to zero.
Zone 2: PCT 589 (Modified Understorey)	**VZ2 MZ1 - APZ:** This zone covers areas of Zone 2 to be managed as an APZ. This would result in groundcover being managed to the standard of an IPA, however given the existing poor condition of groundcovers within this zone any changes would be negligible. No additional tree removal would occur as the scattered nature of trees throughout the zone already meet the requirements of an APZ. **VZ2 MZ2 – Development area (Direct)** - This zone covers areas directly impacted by the proposal footprint. It is assumed that all vegetation is removed and the future VIS is reduced to zero.
Zone 3: PCT 589 (Woodland with White Cypress regrowth)	**VZ3 MZ1 - APZ:** This zone is limited to the northern limit of Zone 3 where a narrow band (≤ 6m wide) of White Cypress regrowth extends into the proposed APZ. Vegetation within this area would be managed in accordance with APZ specifications which may require some limited tree removal of White Cypress and groundcover being managed to the standard of an IPA.

Table 3.6: Summary of management zones and changes to vegetation attributes

Vegetation Zone	Management Zone	Description and justification of future VIS
Zone 1: PCT 589 (Woodland)	**MZ1 – APZ**	The existing woodland structure of Zone 1 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. Future management scores to account for likely management of shrubs and groundcovers. It is assumed the understorey would be managed to the standard of an IPA. • No change to tree cover, composition or number of stem size classes as all trees to be retained. • Shrub cover reduced to zero as not likely to be retained within APZ. • Groundcover to be maintained to a height no greater than 100mm in height. Future composition and coverage scores for the understorey component were determined by using the VIS scores for Vegetation Zone 2 which has a highly modified understorey. • No tree regeneration, leaf litter or fallen logs due to regular management. • High threat weed score unchanged although weeds would be regularly managed.
	MZ2 – Direct	It is assumed that all vegetation is removed and the future VIS is reduced to zero.
Zone 2: PCT 589 (Modified Understorey)	**MZ1 – APZ**	The existing structure and composition of vegetation within this zone is generally consistent with APZ specification. The composition and cover of the groundcover within this zone is not likely to be significantly affected by the future management as an APZ as the zone is already highly modified and regularly subject to slashing and grazing. • No change to tree cover, composition or number of stem size classes as trees to be retained. • Shrub cover remains at zero. • Groundcover to be maintained to a height no greater than 100mm in height. Future composition and coverage scores for the understorey component are unchanged. • No tree regeneration, leaf litter or fallen logs due to regular management. • High threat weed score unchanged although weeds would be regularly managed.
	MZ2 – Direct	It is assumed that all vegetation is removed and the future VIS is reduced to zero.
Zone 3: PCT 589 (Woodland with White Cypress regrowth)	**MZ1 – APZ**	This zone is limited to the northern limit of Zone 3 where a narrow band (≤ 6m wide) of White Cypress regrowth extends into the proposed APZ. Vegetation within this area would be managed in accordance with APZ specifications which may require some limited tree removal of White Cypress and groundcover being managed to the standard of an IPA. • Only White Cypress Pine is present in this management zone so tree composition has been reduced to 1 and cover is reduced to 15% in accordance with APZ specifications. Stem sizes reduced to 2 to account for tree removal. • Shrub cover reduced to zero as not likely to be retained within APZ. • Future composition and coverage scores for the understorey component were determined by using the VIS scores for Vegetation Zone 2 which has a highly modified understorey. • No tree regeneration, leaf litter or fallen logs due to regular management. • High threat weed score unchanged although weeds would be regularly managed.

3.5 Threatened Ecological Communities (TECs)

PCT 589 is associated with the CEEC White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed under the BC Act. The native vegetation occurring on site was compared to the scientific determination criteria of White Box Yellow Box Blakely's Red Gum Woodland to determine whether it meets the BC Act status (NSW Scientific Committee 2020). An overview of this comparison is outlined in **Table 3.7**.

Table 3.7: Comparison of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland final determination criteria against PCT 589 occurring within the proposal area.

Attribute	White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland final determination criteria	Does the vegetation occurring on site meet the TEC listing criteria?
Geographical	The community occurs within NSW in the Brigalow Belt South, Nandewar, New England Tableland, Sydney Basin, NSW North Coast, South Eastern Highlands, South East Corner, NSW South Western Slopes and Riverina Bioregions	Yes The proposal area occurs in the Nandewar Bioregion
Vegetation structure	Characterised by widely spaced trees with canopies not touching and projected foliage cover generally less than 30%. Tree height ranges from approximately 15 – 30 m and declines with increasing aridity from east to west. Canopy cover may be higher in remnants exhibiting regrowth following fire, logging, clearing, dieback or tree death due to natural causes. In such cases, canopy cover may exceed 30% and may be continuous, while tree heights may tend toward the lower end of the range. Conversely, the canopy may be completely absent in areas of derived native grassland where tree removal has occurred, and in such areas higher abundance of groundcover species may be present. Understorey shrubs are typically sparse or absent. The groundcover is dominated by perennial tussock grasses interspersed with a diverse range of forb species.	Yes The areas of PCT 589 recorded within the proposal area are generally consistent having a woodland structure with a predominantly grassy understorey.
Floristic – Canopy	Characteristically dominated by one or more of the species *Eucalyptus albens* (White Box), *E. melliodora* (Yellow Box) and *E. blakelyi* (Blakely's Red Gum). *Eucalyptus moluccana* may be co-dominant in the Nandewar Bioregion (TSSC 2006).	Yes The canopy throughout the site is almost entirely comprised of White Box.
Floristic composition	A total of 115 characteristic species are listed under the final determination.	Yes The composition of PCT 589 recorded within the proposal area is largely consistent with the TEC listing.
Disturbance	The condition of remnants ranges from relatively good to highly degraded, such as paddock remnants with weedy understories and only a few hardy natives left. Some remnants of the community may consist of only an intact overstorey or an intact understorey.	Yes All vegetation zones identified for PCT 589 are consistent with the TEC listing.

PCT 589 is also associated with the Commonwealth EPBC Act listing of *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* where it meets specific condition thresholds. Vegetation Zones 1 and 3 are consistent with Condition Class A and meet the minimum condition thresholds to be protected under the EPBC Act. Class A vegetation is described as having a good quality understorey and mature overstorey with the following features:

- The patch size is 0.1 ha (1,000 m^2) or larger; and
- The ground layer is predominantly native (at least 50% of the perennial vegetation cover in the ground layer is made up of native species); and
- The understorey contains at least 12 native, non-grass species (such as forbs, shrubs, ferns and sedges). Plot data shows Vegetation Zones 1 and 3 recorded between 15 and 16 native non-grass species; and
- At least one of the understorey species should be a species recognised as 'important' (e.g. grazing sensitive, regionally significant, listed threatened or uncommon species). Listed 'Important' species recorded within each of these zones include *Austrostipa verticillata* (Slender Bamboo Grass), *Cymbopogon refractus* (Barbed Wire Grass) and *Dichanthium sericeum* (Queensland Bluegrass); and
- The patch contains 10 or more mature trees per hectare consistent with the key diagnostics for the ecological community. Mature trees are those with a circumference of at least 125 cm measured at a height of 130 cm above the ground (equivalent to diameter of 40 cm). Plot data shows at least one mature tree per 1000m^2 occurs within these zones.

Vegetation Zone 2 does not meet the minimum condition thresholds to form part of the TEC as the ground layer is predominantly exotic.

The occurrence of TECs occurring within the subject site are summarised in **Table 3.8** and the extent is shown in **Figure 3.2**.

Table 3.8: TECs occurring within the subject site

TEC name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated PCTs / vegetation zones	Total Area (ha)
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	10837	Critically Endangered	N/A	PCT 589 (VZ 1, 2 and 3)	2.06

TEC name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated PCTs / vegetation zones	Total Area (ha)
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	20392	N/A	Critically Endangered	PCT 589 (VZ 1 and 3 only)	1.64

3.6 Weeds

A total of 61 exotic species were recorded within the proposal area, including 15 BAM-listed high threat weeds. Weeds were a common component of the groundcover throughout the proposal area and were particularly prevalent at the base of paddock trees. Weeds recorded on site are listed in **Appendix I**.

3.7 Habitat Suitability

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 connectivity to intact habitats limited to a relatively large patch of woodland that extends to the south of the site. 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 – the scattered trees recorded within the site (see Section 3.4.3) contain several hollows that may provide roosting and/or foraging and/or breeding habitat for a range of birds, microbats, reptiles and frogs. Trees with dead branches occurring within the proposed reserve area may also contain some small hollows and crevices.
- 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. The dense areas of White Cypress regrowth also provide cover for a range of birds and terrestrial mammals.
- 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 throughout most of the proposal area due to regular slashing and grazing.
- Cleared grassland areas – may provide foraging resources for a range of ground foraging birds and terrestrial mammals. Relatively large numbers of Eastern Grey Kangaroos (*Macropus giganteus*) were recorded grazing during field surveys.

4. THREATENED SPECIES

4.1 Threatened Species for 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) – Streamlined Assessment module. The BAM-C identified 6 candidate species (species credit species) and 17 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 IV.** No additional species were considered likely to be impacted by the proposal.

4.1.1 Ecosystem Credit Species

The following predicted ecosystem credit species were returned by the BAM-C, all associated with PCT 589 (**Table 4.1**). All predicted species were assumed to have habitat on site and contribute towards ecosystem credit calculations. No ecosystem credit species were excluded from the assessment.

Table 4.1: Predicted ecosystem credit species

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Dual Credit Species	Sensitivity to gain class
Anthochaera phrygia	Regent Honeyeater	CE	CE	✓	High
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V			Moderate
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	✓	High
Chthonicola sagittata	Speckled Warbler	V			High
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V		High
Dasyurus maculatus	Spotted-tailed Quoll	V	E		High
Falco subniger	Black Falcon	V			Moderate
Glossopsitta pusilla	Little Lorikeet	V			High
Haliaeetus leucogaster	White-bellied Sea-Eagle	V		✓	High
Hirundapus caudacutus	White-throated Needletail		V		High
Lathamus discolor	Swift Parrot	E	CE	✓	Moderate
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E	E		Moderate
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		✓	High

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Dual Credit Species	Sensitivity to gain class
Petroica boodang	Scarlet Robin	V			Moderate
Petroica phoenicea	Flame Robin	V			Moderate
Pteropus poliocephalus	Grey-headed Flying-fox	V	V		High
Stagonopleura guttata	Diamond Firetail	V	V	✓	Moderate

4.1.2 Species Credit Species

4.1.2.1 Candidate species to be assessed

Species credit species cannot be confidently predicted by vegetation surrogates and landscape features; however, can be reliably detected by survey (BAM, 2020). 'Candidate' species requiring consideration are those 'assumed to be present' or are 'present or likely to use suitable habitat' in the proposed impact area.

Potential candidate species are those that could occur in the proposed impact area based on the habitat resources observed during field surveys and are categorised as confirmed candidate threatened species. These candidate species are either assumed to be present or require targeted surveys in accordance with Section 5.3 of the BAM (DPE, 2020) to confirm or exclude presence.

For streamlined assessments, only candidate species credit species that are at risk of an SAII require further consideration. Candidate species credit species that are not at risk of an SAII and are not incidentally recorded on the subject land do not require further assessment.

Candidate species can be excluded from further consideration if:

- There are habitat/geographical constraints (as identified in the BioNet database); or
- 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
- An expert report states that the species is unlikely to be present on the subject land or specific vegetation zones.

The species credit species returned by the BAM-C (or added due to potential habitat or presence) are considered in **Table 4.2**.

Table 4.2: Consideration of predicted candidate species (Species credit species)

Scientific name	Common name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Applicable Vegetation Zones
		BC Act	EPBC Act					
FAUNA								
Anthochaera phrygia	Regent Honeyeater	CE	CE	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Habitat constraints The species is a dual credit species, with the species credit component mapped as an important area. 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 marginal foraging habitat is available within the site.	N/A
Adelotus brevis – endangered population	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2		No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Habitat degraded. No suitable breeding habitat including still or very slow-flowing sections of permanent streams or pools (e.g. farm dams) occurs within the site.	N/A
Lathamus discolor	Swift Parrot	E	CE	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Habitat constraints The species is a dual credit species, with the species credit component mapped as an important area. 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 marginal foraging habitat is available within the site.	N/A
Miniopterus orianae oceanensis	Eastern Bentwing-bat	V	-		☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Habitat constraints. No breeding habitat (i.e., cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding) was recorded within the proposal area. Retained as an ecosystem credit species given the presence of potential foraging habitat.	N/A

Scientific name	Common name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Applicable Vegetation Zones
		BC Act	EPBC Act					
FLORA								
Acacia atrox	Myall Creek Wattle	CE	Not listed	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	N/A	All zones
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Not Listed	CE	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	Non-SAII species (EPBC Act species only). BioNet notes that this species is listed under the Commonwealth EPBC Act only, not the NSW BC Act. While the TBDC and BAM-C indicate that this species requires SAII assessment, requirements relating to serious and irreversible impacts (clause 6.7 of the Biodiversity Conservation Regulation 2017 (BC Regulation)) do not apply to EPBC Act only listed entities. The potential for this species to be impacted by the proposal has been considered in the habitat assessment provided in Appendix III which concludes that this species is unlikely to occur on site the given the proximity to known populations which have a highly restricted area of occurrence. In NSW, the NSW Herbarium considers *Prasophyllum petilum* and *Prasophyllum* sp. Wybong (C. Phelps ORG5269) to be synonyms (i.e. the same species). This taxonomic recognition will be released in the next Orchidaceae taxonomic update via the Australian Plant Census, which provides a list of currently accepted names. As it stands, the two species are treated as one for NSW regulatory purposes, with the distinction maintained under Commonwealth legislation. *Prasophyllum petilum* is listed as Endangered under the BC Act and is not a species listed at risk of SAII.	N/A

4.1.3 Presence of candidate species subject to further assessment

Three predicted candidate species are subject to further assessment and the presence or absence of these species is considered in **Table 4.3**.

Table 4.3: Determining the presence of species credit species on the subject land

Scientific name	Common name	Listing status		Present?	Method used to determine presence	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
FLORA						
Acacia atrox	Myall Creek Wattle	CE	E	No	Targeted threatened species survey	No

4.1.4 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 4.4**. The methods, times and weather conditions of the targeted surveys are detailed in **Table 4.5**.

4.1.4.1 Field Surveys

The field survey and methods used to target threatened flora and fauna are detailed in **Table 4.4.**

Table 4.4: 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. This survey was undertaken for a 20-minute period and recorded birds occurring within the vicinity. Birds were identified from observations or call identification. A search for nests was also undertaken during tree surveys.	Threatened Raptors (Nests) Incidental observations
Flora	Targeted surveys	Targeted surveys for threatened flora were undertaken in July. This involved inspecting each tree and shrub within the proposal area.	Myall Creek Wattle
Hollow dependent species	Habitat Tree Survey	A habitat tree survey was undertaken in conjunction with the tree surveys. 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.	Hollow-dependent species
All	Opportunistic sightings	Any opportunistic sightings of fauna on site were recorded.	

4.1.4.2 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 4.5.**

Table 4.5: Survey Dates, Times, Activities and Weather Conditions

Date	Time	Activity	Weather[1]
Monday 18/07/2024	1030 – 1700	Site walkover Vegetation Plots 1-3 Targeted flora survey Bird and nest searches	Overcast 8/8 Cloud cover Wind – NW Temp – 12°C
Monday 19/07/2024	0700 - 1430	Vegetation Plots 4-7 Targeted flora survey Bird and nest searches	1/8 Cloud cover Wind – SW Temp – 13°C

Note 1: On-site observation and / or Tamworth Airport AWS (Station ID 055325) weather data

4.1.5 Survey Results

4.1.5.1 Flora

A total of 155 flora species were recorded in the study area, comprising 93 native species and 61 exotic species. Native species consist of eleven (11) trees, thirteen (13) shrubs, thirty-one (31) graminoids, twenty-nine (29) forbs, one (1) fern, seven (7) climbers and one (1) mistletoe.

No naturally occurring threatened flora species were recorded within the proposal area. A single planted *Eucalyptus boliviana* (Bolivia Hill Stringybark) was recorded within the proposal area. Impacts to this species have been considered in accordance with the BAM planted native vegetation streamlined assessment module (see **Section 3.3.2**).

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

4.1.5.2 Fauna

A total of 24 species were recorded within the development boundary of which two (2) species have been classified as exotic/pest species. Recorded species are represented by twenty-one (21) birds, two (2) mammals and two (2) reptiles. A list of all fauna species recorded during fieldwork is listed in **Appendix III**.

No threatened fauna species were recorded within the site during field investigations.

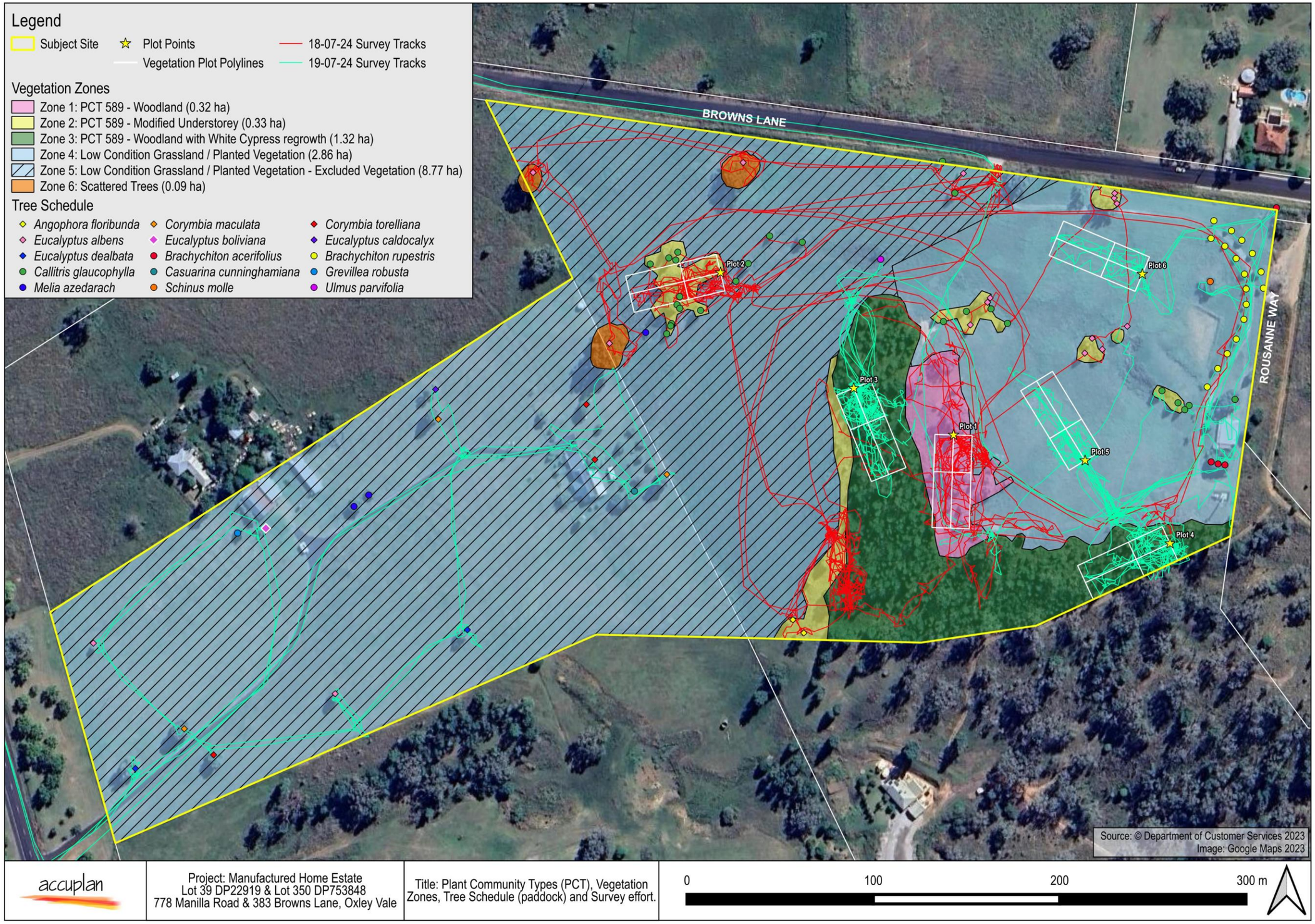

Figure 4.1: Survey Effort Map showing PCTs and Vegetation Zones within the site

5. IMPACT ASSESSMENT

5.1 Avoid and Minimise Potential Impacts

The design of the proposal has implemented the following measures to avoid and minimise impacts to biodiversity:

- The proposed development footprint is largely sited within existing low condition grassland areas with limited habitat value.
- The proposal layout has aimed to avoid and minimise impacts to higher quality woodland vegetation occurring within the central part of the site. This was largely achieved by buffering the minimum required APZs from woodland areas with a dense sub canopy White Cypress Pine (PCT 589 - Zone 3) as any APZ in this area may require significant amounts of clearing to achieve APZ requirements.
- The existing woodland structure of Zones 1 and 2 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing.
- The retained areas of vegetation, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management. Measures to be detailed within the VMP may include but not be limited to APZ management requirements, revegetation works, weed management procedures and monitoring and reporting requirements.
- 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) and VMP to be developed for the construction works and the ongoing operation of the site.

5.2 Residual Impacts

5.2.1 Loss of Native Vegetation

Residual impacts of the proposal would involve the direct removal of native vegetation, as summarised in **Table 5.1** and shown in **Figure 5.1**. **Table 5.2** summarises the impact of the proposal to the vegetation integrity score of each vegetation zone identified on site. The ecosystem credits required to offset the vegetation within the site are summarised in **Section 7.**

Table 5.1: Summary of proposal impacts to vegetation

Plant community type (PCT) / Vegetation Zone	Status		Proposal Impact
	BC Act	EPBC Act	
PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy: Vegetation Zone 1 – Woodland	CEEC	CEEC	Total Area = 0.24 ha 0.08 ha directly impacted by proposal footprint 0.16 ha partially affected to provide APZ
PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy: Vegetation Zone 2 – Modified Understorey	CEEC	Vegetation zone does not meet minimum condition threshold	Total Area = 0.33 ha 0.25 ha directly affected by proposal footprint 0.08 ha partially affected to provide APZ
PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy: Vegetation Zone 3 – Woodland with White Cypress regrowth	CEEC	CEEC	Total Area = 0.01 ha 0.01 partially affected to provide APZ
Low condition grassland (Zones 4 and 5)	Not listed	Not listed	Total Area = 11.59 ha 11.3 ha directly affected by proposal footprint 0.29 ha affected by APZ
Scattered Trees (PCT 589)	CEEC	Vegetation zone does not meet minimum condition threshold	3 trees isolated by Category 1-exempt land

Table 5.2: Summary of impact to the vegetation integrity

Vegetation Zone	Management Zone	Current VI score	Future VI score	Change in VI Score	Area Impacted (ha)	Total Change in VI Score	BRW[1]
Zone 1: PCT 589 (Woodland)	APZ	71	44.6	-26.4	0.16	-41.3	2.5
	Direct	71	0	71	0.08		
Zone 2: PCT 589 (Modified Understorey)	APZ	59.6	35.5	-24.1	0.25	-32.7	2.5
	Direct	59.6	0	-59.6	0.08		
Zone 3: PCT 589 (Woodland with White Cypress regrowth)	APZ	87.5	28.4	-59	0.01	-59	2.5
Low Condition Grassland – Residential Zoned Land[2]	Direct	2.8	0	-2.8	2.64	-2.8	2.5
Scattered Trees	Direct	N/A	N/A	N/A	3 trees	N/A	2.5

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

Note 2: Low condition grassland is not consistent with any described PCT. Condition was assessed against benchmark values for PCT 589.

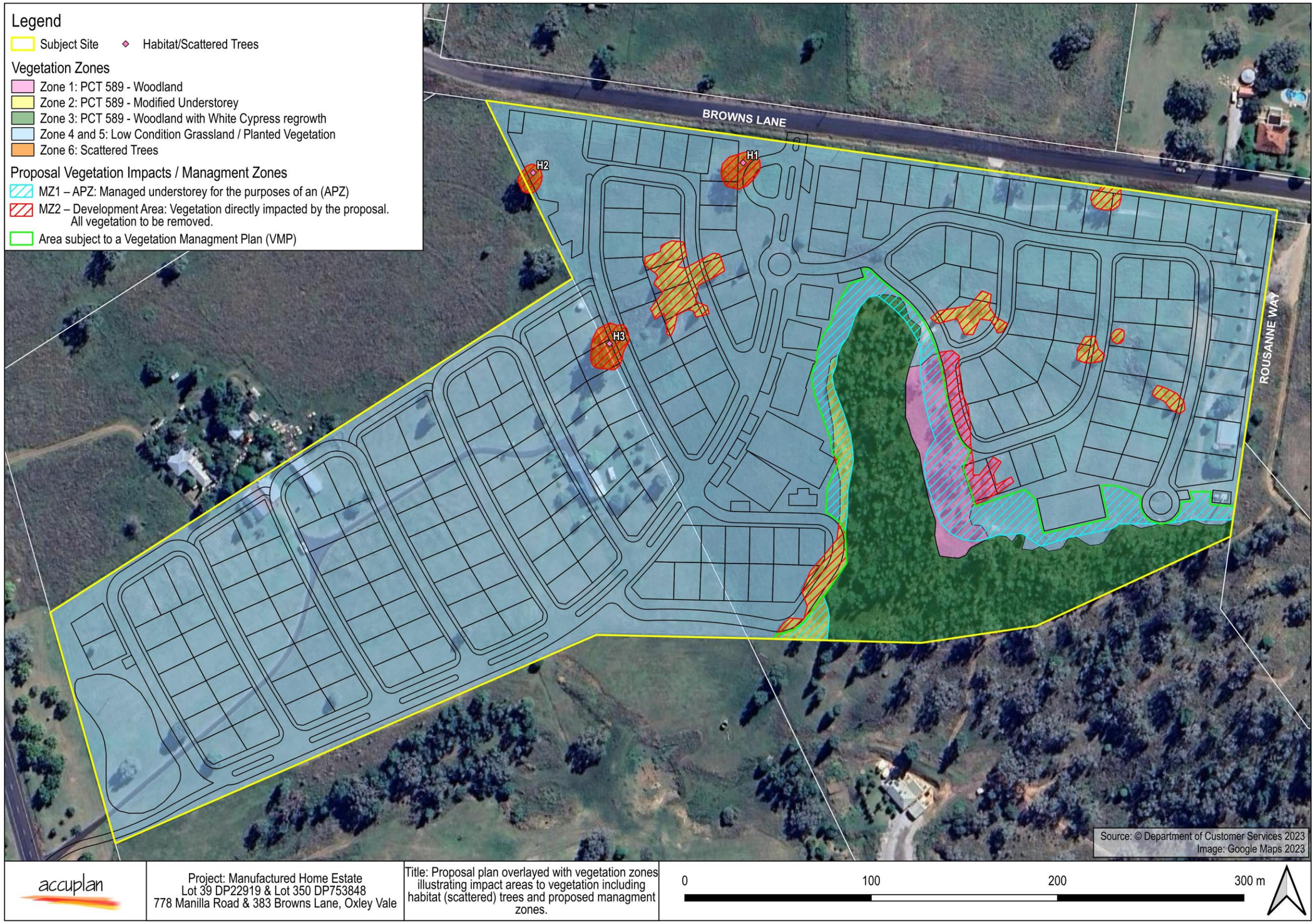

Figure 5.1: Final impacts likely to occur on the subject land

5.2.2 Loss of Fauna Habitat

The proposal would impact the following fauna habitat:

- Seasonal foraging resources associated with the trees and shrubs to be impacted.
- Shelter associated with habitat trees identified for removal. The removal of such habitat has the potential to directly impact fauna that may inhabit the trees 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.

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 proposed reserve areas within the site provides a vegetated buffer to areas of woodland vegetation occurring to the south of the site and is this vegetation is not likely to be affected by the proposal (construction and operation). Remnant vegetation to be retained within the site is already subject to edge effects relating to the existing rural land use which includes grazing and regular slashing. The proposal would not result in any new edges through intact vegetation and it is expected that any inadvertent impacts to adjacent habitat areas, during construction or operation, can be avoided and minimised by implementation of mitigation measures to be detailed within a site specific VMP.	White Box Woodland TEC	Inadvertent impacts to adjacent habitat are unlikely provided the measures proposed to avoid and minimise impacts are implemented.
(b) reduced viability of adjacent habitat due to edge effects	As above.	As above.	As above.
(c) reduced viability of adjacent habitat due to noise, dust or light spill	The proposal has the potential to temporarily increase noise and dust during construction. Construction works would be limited to daytime hours and subject to controls to minimise impacts to adjoining properties. Residential development has the potential to increase light spill from the proposal area.	As above (a)	Construction works would be limited to daytime hours and impacts associated with increased noise and dust would be short-lived and unlikely to significantly affect any resident fauna in adjacent habitats. Increased light spill from residential development would be similar to that occurring from the nearby residential areas along Browns Lane to the northwest of the proposal area. Increased light spill from residential type development would be relatively minor and unlikely to significantly affect local fauna which would be well adapted to such environments.
(d) transport of weeds and pathogens from the site to adjacent vegetation	The proposal is unlikely cause a substantial change in the species composition and /or to exacerbate edge effects given the existing disturbance associated with the current management of the site and safeguards to manage weeds and pathogens during construction and operation of the proposal.	As above (a)	The retained areas of TEC, including reserve and APZ areas, would be subject to a VMP to outline mitigation measures and guide on-going management. The implementation of a VMP would also address existing threatening processes occurring

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
			within the site including weeds and impacts associated with rural management (e.g., slashing, tracks, grazing). The proposal is not likely to exacerbate existing weed impacts or introduce weeds or pathogens to retained vegetation areas provided the measures proposed to avoid and minimise impacts are implemented.
(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	The proposal would remove three (3) trees with hollows. Removal of hollow-bearing trees is permanent and mitigation measures including installation of nest boxes and the salvage and relocation of hollows is recommended.	Hollow dependent species	Loss of hollow-dependent fauna shelter including future sources of hollows. 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 impact 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	It is unlikely the proposal would cause or exacerbate this issue. Wood collection would be prohibited throughout the proposed reserve areas.	N/A	N/A
(l) bush rock removal and disturbance	It is unlikely the proposal would cause or exacerbate this issue. Removal of bush rock would be prohibited throughout the proposed reserve areas.	N/A	N/A

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
(m) increase in predatory species populations	It is likely that predatory species including foxes, cats and dogs are present within the surrounding area. The potential of the proposal to influence or alter predatory populations is low and existing controls on domestic animals would apply to any development within the site.	N/A	N/A
(n) increase in pest animal populations	A number of pest animals and emerging pest animals have the potential to occur within the site. These include rabbits which were recorded on site during field investigations. Other pest animals expected to occur include deer, fox, hare, and pigs. Pest animals occurring within the site require appropriate controls in order to comply with the *Biosecurity Act 2015.* Appropriate monitoring and control measures are to be included in the VMP.	As above (a)	The proposal is not likely to increase pest animal species populations provided the measures proposed to avoid and minimise impacts are implemented.
(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 (SAII)

The determination of a SAII on biodiversity values is to be made by the decision-maker in accordance with the four principles set out under clause 6.7(2) of the *Biodiversity Conservation Regulation*. The TEC White Box -Yellow Box - Blakely's Red Gum Woodland (White Box Woodland TEC) occurring within the site is listed as a TEC considered at risk of SAIIs. As such, the additional SAII assessment provisions for this TEC have been considered in accordance with Section 9.1.2 of the BAM (2020) and is provided in **Appendix VIII**.

Not other threatened entities considered at risk of SAIIs were recorded within the site.

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	Some relatively small rocky outcrops are present within the proposed reserve area. No significant rocky habitat occurs in the proposal site.	No significant rocky habitat would be impacted by the proposal.	N/A
Impacts to human-made structures	Yes	Removal of existing dwelling and ancillary buildings.	Buildings may provide potential habitat for microbats. Habitat loss is considered minor, and impacts would be minimised by implementing clearing protocols and mitigation measures identified in Section 6.	Locally occurring microbat species.
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 proposal area is largely cleared and provides limited connectivity through the proposal area, particularly for less mobile species. Existing connectivity would largely be maintained by the proposed reserve areas.	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.	Ecosystem species associated with PCT 589
Water quality, water bodies and hydrological processes	Yes	Potential for increased sedimentation within onsite drainage during construction which could impact downstream environments if not adequately managed.	Minor impact which can be adequately managed by implementing sediment and erosion control measures during construction A stormwater strategy which includes rainwater tanks and bioretention basins also forms part of the proposal to maintain or improve the quality of stormwater leaving the site during operation.	Lower catchment 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 do not require offsetting. The following vegetation zones listed in **Table 5.6** are below the low condition threshold or are consistent with Category 1 – exempt land (within the meaning of Part 5A of the LLS Act) and impacts to these zones are not subject to offsetting.

Table 5.5: Low condition vegetation zones not subject to offsetting

Vegetation Zone	BAM-C Vegetation Zone	Area Impacted (ha)	Current VI score	Low Condition VI Threshold
Zone 4 - Low Condition Grassland (Residential Land)	4	2.82	2.8	15
Zone 5 - Category 1- exempt land (Rural Land)	N/A	8.77	N/A	N/A

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.

Within the Tamworth Regional Council LGA, the Koala SEPP 2021 applies to development applications on land (other than rural zoned land RU1, RU2 and RU3) that has an area of more than 1 hectare under the same ownership and has the potential to impact areas that meet the SEPP definition of 'core' Koala habitat. The applicability of the SEPP is outlined in **Table 5.6**.

Table 5.6: Applicability of Koala SEPP 2021

Triggers	Response
1) Is the site in a local government area with no approved Koala Plan of Management?	Yes. The site is located in the Tamworth Regional Council LGA and there is no approved Koala Plan of Management in place.
2) The size of the site has an area of at least 1 hectare (including adjoining land within the same ownership)?	Yes. The proposal site exceeds 1 hectare.
3) Does the site contain "core" Koala habitat? Core habitat is defined as: (a) an area of land which has been assessed by a suitably qualified and experienced person as being highly	No The habitat available within the site does not meet the definition of "core" Koala habitat considering the following:

suitable Koala habitat and where Koalas are recorded as being present at the time of assessment of the land as highly suitable Koala habitat; or (b) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable Koala habitat and where Koalas have been recorded as being present in the previous 18 years The definition of core Koala habitat under the Koala SEPP 2021 includes a reference to highly suitable habitat. Highly suitable habitat is where 15% or greater of the total number of trees within any Plant Community Type (PCT) are the regionally relevant species of those listed in Schedule 3 of the SEPP.	a) The site likely contains 'highly suitable habitat' as the major components of the canopy are listed Koala tree species, as per Schedule 3 of the SEPP, and exceed 15% of the total number of trees. These include the dominant species recorded within the site *Eucalyptus albens* and *Callitris glaucophylla.* b) No sign of Koala occupation was recorded during site investigations and no Koalas have been recorded within or in the vicinity of the site. The nearest Koala record occurs approximately 5.5km to the southeast of the site and no records occur within woodland with connectivity to the site. **Given the above, the site is not considered to constitute 'Core Koala Habitat' as defined under the SEPP and no further provisions of this policy apply to the proposal.**

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 Climate Change, Energy, the Environment and Water (DCCEEW), 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 on potential impacts relating to MNES is provided in **Appendix VI**. 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. The following measures are recommended for inclusion in the Construction Environmental Management Plan (CEMP) and / or Vegetation Management Plan to be developed for the construction and operation phases of the proposed works.

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 construction phase of the proposal shall include, but not be limited to: • Plans showing areas to be cleared and areas to be protected, including exclusion zones, APZs, 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, arborist inspections, installation of tree protection fencing, installation and monitoring effectiveness of sediment and erosion controls.	Low Council to approve CEMP and supervision reports.	Pre-construction	Proponent/ Contractor

Item	Environmental safeguards	Risk of Failure[1]	Timing	Responsibility
Reserve Management	A Vegetation Management Plan (VMP) shall be prepared by a suitably qualified ecologist to detail management of the retained areas of White Box Woodland TEC including APZs and reserve areas. The plan shall be written to the satisfaction of Tamworth Regional Council prior to the issue of any construction certificate. The VMP shall identify all ongoing management, revegetation and enhancement actions to be implemented within the retained woodland areas. It must include (at a minimum) details of weed control, revegetation, restoration, vegetation / habitat retention, habitat enhancement (nesting boxes, logs, etc.), signage and fencing, bushfire management, maintenance of drains and retention basins, and identify allowable and excluded activities within specific management zones.	Low Council to approve VMP.	Prior to issue of construction certificate	Proponent/ Contractor
Vegetation Clearing and Tree Protection	Native vegetation that has been identified for retention will be clearly marked and/or fenced to exclude access and protect the trees during construction. Methods should be detailed in the CEMP including: • Tree protection zones shown on a suitable plan. • Selection of a suitable exclusion fencing and / or tape used to identify protected trees. • Exclusion zone fencing to be placed outside tree protection zones wherever possible. • Communicate the importance of exclusion zones to all site staff and contractors (e.g., in toolbox talks and inductions).	Low	Pre-construction	Proponent/ Contractor
Fauna and Habitat Protection	Suitable fauna protection protocols are to be utilised for any clearing works. This includes requirements for ecologist supervision, the undertaking of pre-clearance surveys, provision of compensatory nest boxes, procedures to safely fell habitat trees and release areas for any rescued fauna.	Low	Pre-construction/ construction	Proponent/ Contractor

Item	Environmental safeguards	Risk of Failure[1]	Timing	Responsibility
	The existing dwelling and ancillary buildings are to be inspected for microbats and other fauna by a suitably experienced ecologist immediately prior to commencement of demolition. If resident fauna are present, the ecologist is to determine the most appropriate exclusion strategy (if needed) or safeguards to minimise direct impacts.	Low	Pre-construction/ construction	Proponent/ Contractor
Weed and Pathogen Management	Weed and pathogen control measures should be detailed in the CEMP including: • 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. • To prevent the introduction or spread of weeds and pathogens contractors should ensure that all machinery, materials, and personnel are clean and free of any weed propagules prior to entering or leaving the site.	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 V**.

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	Vegetation Zone Name	Vegetation Class	Vegetation Formation	TEC Status	Offset trading group (BAM Section 10.2, Tables 4 & 5)	Hollow-bearing trees present?	IBRA subregion	Ecosystem Credits
PCT 589	589_Woodland	Western Slopes Grassy Woodlands	Grassy Woodlands	CEEC	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland	No	Peel	6
	589_ModifiedUn							7
	589_Woodland_ Cypress							1
PCT 589	Scattered Trees	Western Slopes Grassy Woodlands	Grassy Woodlands	CEEC	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Yes	Peel	3
							Total	**17**

The following like-for-like offset rules apply for PCT 589:

1. Any PCT associated with TEC - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands. This includes PCTs 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150.
2. Like-for-like options for the scattered tree credits (3 ecosystem credits) must include hollow-bearing trees.
3. In the IBRA subregions: Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau; or
4. Any IBRA subregion that is within 100 kms of the outer edge of the proposal area.

7.2 Species Credits

No species credits apply to the proposal.

7.3 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. Like-for-like offsetting options are shown in the like-for-like biodiversity credit report generated by the BAM calculator (**Appendix V**).
- If like-for-like credits are not available, credits can be sourced in accordance with the 'variation report' generated by the BAM calculator (**Appendix V**).
- 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	Comon Name	Growth Form	Plot 1		Plot2		Plot 3		Plot 4		Plot 5		Plot 6	
				Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Anacardiaceae	*Schinus molle*	Pepper Tree	Exotic			0.2	2	0.2	2	0.1	2				
Apiaceae	*Cyclospermum leptophyllum*	Slender Celery	Exotic												
Apocynaceae	*Araujia sericifera*	Moth Vine	HTW							0.1	3				
Apocynaceae	*Parsonsia straminea*	Monkey Rope	Other												
Araliaceae	*Hydrocotyle sp.*	-	Forb												
Asparagaceae	*Lomandra filiformis subsp. coriacea*	-	Grasses	0.1	10	0.1	30	0.2	20			0.2	50	0.1	10
Asparagaceae	*Lomandra longifolia*	Spiny-headed mat-rush	Grasses												
Asparagaceae	*Lomandra multiflora subsp. multiflora*	Many-flowered Mat-rush	Grasses					0.2	10						
Asphodelaceae	*Bulbine spp.*		Forb	0.2	30										
Asteraceae	*Arctotheca calendula*	Capeweed	Exotic			0.5	20	0.1	1					0.1	2
Asteraceae	*Bidens pilosa*	Cobblers Pegs	HTW												
Asteraceae	*Bidens spp.*	-	Exotic			0.1	10								
Asteraceae	*Bidens subalternans*	Greater Beggar's Ticks	HTW	0.1	1			0.1	10						
Asteraceae	*Calotis lappulacea*	Yellow Burr-daisy	Forb	0.2	20	0.1	15	1	50	2	100	0.1	1		
Asteraceae	*Cassinia quinquefaria*	-	Shrub							0.1	1				
Asteraceae	*Centaurea melitensis*	Maltese Cockspur	Exotic			2	100							0.1	10
Asteraceae	*Chrysocephalum apiculatum*	Common Everlasting	Forb			0.1	5	0.2	20	0.1	10				
Asteraceae	*Cirsium vulgare*	Spear Thistle	Exotic												
Asteraceae	*Conyza bonariensis*	Flaxleaf Fleabane	Exotic												
Asteraceae	*Cymbonotus lawsonianus*	Bears Ear	Forb	0.1	5	0.5	20	0.1	1	0.2	10			0.1	2
Asteraceae	*Hypochaeris glabra*	Smooth Catsear	Exotic					0.1	1						
Asteraceae	*Hypochaeris radicata*	Catsear	Exotic									0.1	1	0.1	10
Asteraceae	*Hypochaeris spp.*	-	Exotic							2	100				
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	Forb	0.1	20									0.1	1
Asteraceae	*Senecio madagascariensis*	Fireweed	HTW												
Asteraceae	*Silybum marianum*	Variegated Thistle	Exotic			0.2	5								
Asteraceae	*Sonchus oleraceus*	Common Sowthistle	Exotic			0.1	1	0.5	30	0.5	50			0.1	5
Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	Exotic							0.1	1				
Bignoniaceae	*Pandorea pandorana*	Wonga Wonga Vine	Other							0.1	1				
Boraginaceae	*Buglossoides arvensis*	Sheepweed	Exotic	0.2	20	0.1	20	0.2	50	0.1	40				
Boraginaceae	*Echium plantagineum*	Paterson's Curse	Exotic	0.3	100	40	1000	10	100			5	50	2	30
Boraginaceae	*Heliotropium amplexicaule*	Blue Heliotrope	HTW												
Brassicaceae	*Capsella bursa-pastoris*	Shepherd's Purse	Exotic					0.1	1	0.1	10				
Cactaceae	*Opuntia aurantiaca*	Tiger Pear	HTW	0.1	4	0.1	1	0.1	5	0.1	5				
Cactaceae	*Opuntia stricta var. stricta*	Common Prickly Pear	HTW	0.1	2			0.1	2						
Campanulaceae	*Wahlenbergia communis*	Tufted Bluebell	Forb	0.1	1			0.1	5	0.1	5				
Campanulaceae	*Wahlenbergia spp.*	Australian Bluebell	Forb												
Caryophyllaceae	*Polycarpon tetraphyllum*	Four-leaved Allseed	Exotic					0.2	10						
Caryophyllaceae	*Stellaria media*	Chickweed	Exotic												
Casuarinaceae	*Casuarina cunninghamiana subsp. cunninghamiana*	River Oak	Tree												
Chenopodiaceae	*Einadia nutans*	Climbing Saltbush	Forb					0.1	1			0.1	1		

Chenopodiaceae	*Maireana microphylla*	Small-leaf Bluebush	Shrub	0.1	1										
Clusiaceae	*Hypericum gramineum*	Native Wort	Forb							0.1	1				
Convolvulaceae	*Dichondra repens*	Kidney Weed	Forb												
Convolvulaceae	*Dichondra spp.*	-	Forb	0.5	100			0.2	5	2	500				
Cupressaceae	*Callitris glaucophylla*	White Cypress Pine	Tree	1	1	15	8	40	45	40	40				
Cyperaceae	*Carex inversa*	-	Grasses			0.1	10								
Cyperaceae	*Carex sp.*	-	Grasses												
Cyperaceae	*Cyperus gracilis*	Slender FlatsSedge	Grasses	0.1	20	0.1	5			0.1	10				
Euphorbiaceae	*Euphorbia peplus*	Petty Spurge	Exotic	0.1	1										
Fabaceae (Faboideae)	*Desmodium brachypodum*	Large Tick-trefoil	Forb					0.1	10	0.5	20				
Fabaceae (Faboideae)	*Glycine clandestina*	Love Creeper	Other												
Fabaceae (Faboideae)	*Glycine tabacina*	-	Other	0.1	10	0.1	1	0.1	5	0.1	10			0.1	1
Fabaceae (Faboideae)	*Maekawaea rhytidophyllum*	-	Forb												
Fabaceae (Faboideae)	*Medicago minima*	Woolly Burr Medic	Exotic	0.2	50	0.1	20	0.1	1	0.1	30	0.2	20	1	50
Fabaceae (Faboideae)	*Trifolium repens*	White Clover	Exotic			0.1	1								
Fabaceae (Mimosoideae)	*Acacia decora*	Western Silver Wattle	Shrub												
Geraniaceae	*Erodium crinitum*	Blue Storksbill	Forb									0.1	3		
Geraniaceae	*Geranium solanderi*	Native Geranium	Forb	1	100	15	500	1	50	1	50	0.2	20	0.5	50
Juncaceae	*Juncus usitatus*	Common Rush	Grasses												
Lamiaceae	*Marrubium vulgare*	White Horehound	Exotic					0.2	20	0.2	2			0.1	
Lamiaceae	*Mentha satureioides*	Creeping Mint	Forb							0.1	20				
Lamiaceae	*Plectranthus sp.*	Cockspur Flower	Forb												
Lamiaceae	*Stachys arvensis*	Stagger Weed	Exotic	0.2	30	0.1	20								
Lamiaceae	*Teucrium betchei*		Forb	0.1	10			0.1	1			0.1	5		
Lomandraceae	*Lomandra filiformis subsp. filiformis*	Wattle Mat-rush	Grasses					0.1	10	0.1	20				
Loranthaceae	*Amyema spp.*	Mistletoe	Other												
Luzuriagaceae	*Eustrephus latifolius*	Wombat Berry	Other												
Luzuriagaceae	*Geitonoplesium cymosum*	Scrambling Lily	Other												
Malvaceae	*Abutilon spp.*	-	Shrub									0.1	10		
Malvaceae	*Brachychiton populneus*	Kurrajong	Tree					0.1	1						
Malvaceae	*Malva parviflora*	Small-flowered Mallow	Exotic												
Malvaceae	*Modiola caroliniana*	Red-flowered Mallow	Exotic												
Malvaceae	*Sida corrugata*	Corrugated Sida	Forb	0.2	50			0.1	2						
Malvaceae	*Sida rhombifolia*	Paddy's Lucerene	Exotic			0.1	5	0.1	5	0.1	40				
Malvaceae	*Sida spinosa*	-	Exotic									0.1	10	0.1	5
Meliaceae	*Melia azedarach*	White Cedar	Tree					0.5	5						
Myoporaceae	*Eremophila debilis*	Winter Apple	Shrub							0.1	2				
Myoporaceae	*Myoporum montanum*	Western Boobialla	Shrub	0.1	1			0.2	2	1	5				
Myrtaceae	*Angophora floribunda*	Rough-barked Apple	Tree					0.1	1						
Myrtaceae	*Corymbia maculata*	Spotted Gum	Tree												
Myrtaceae	*Corymbia torelliana*	Cadaghi Gum	Exotic												
Myrtaceae	*Eucalyptus albens*	White Box	Tree	10	1			10	2	20	2				

Myrtaceae	*Eucalyptus boliviana*	Bolivia Hill Stringybark	Tree												
Myrtaceae	*Eucalyptus caldocalyx*	Sugar Gum	Exotic												
Myrtaceae	*Eucalyptus dealbata*	Tumbledown Red Gum	Tree												
Oleaceae	*Notelaea microcarpa*	Native Olive	Tree	3	5			15	8	10	5				
Oleaceae	*Olea europaea subsp. cuspidata*	African Olive	HTW			0.1	1			0.1	1				
Papaveraceae	*Fumaria densiflora*	Dense-flowered Fumitory	Exotic	0.1	1			0.1	5	0.5	100			0.1	1
Papaveraceae	*Fumaria muralis*	Wall Fumitory	Exotic					5	100						
Papaveraceae	*Fumaria spp.*	-	Exotic			1	50								
Papaveraceae	*Papaver dubium*	Longhead Poppy	Exotic	0.1	10										
Phormiaceae	*Dianella caerulea*	Blue Flax-lily	Forb												
Phormiaceae	*Dianella longifolia var. longifolia*	-	Forb	0.1	1										
Phyllanthaceae	*Breynia oblongifolia*	Coffee Bush	Shrub												
Phyllanthaceae	*Poranthera microphylla*	-	Forb												
Pittosporaceae	*Billardiera scandens*	Hairy Apple Berry	Other							0.1	1				
Pittosporaceae	*Bursaria spinosa*	Blackthorn	Shrub					1	4						
Plantaginaceae	*Misopates orontium*	Lesser Snapdragon	Exotic					0.5	100						
Plantaginaceae	*Plantago debilis*	-	Forb							0.1	10				
Plantaginaceae	*Plantago lanceolata*	Lamb's Tongues	Exotic											0.1	1
Plantaginaceae	*Veronica plebeia*	Trailing Speedwell	Forb												
Poaceae	*Andropogon virginicus*	Whisky Grass	HTW												
Poaceae	*Aristida ramosa*	Purple Wiregrass	Grasses	10	200	5	100	5	100	6	100				
Poaceae	*Aristida vagans*	Threeawn Speargrass	Grasses												
Poaceae	*Austrostipa scabra*	Speargrass	Grasses	5	50	1	20	0.2	20	3	100				
Poaceae	*Austrostipa spp.*	-	Grasses											0.5	20
Poaceae	*Austrostipa verticillata*	Slender Bamboo Grass	Grasses			0.2	10	5	40	5	50	0.1	1		
Poaceae	*Bothriochloa macra*	Red-leg Grass	Grasses	0.5	30	0.1	20			6	200				
Poaceae	*Bothriochloa spp.*	-	Grasses					0.2	10						
Poaceae	*Chloris ventricosa*	Plump Windmill Grass	Grasses	5	100	0.1	5	10	100	5	50				
Poaceae	*Cymbopogon refractus*	Barbed Wire Grass	Grasses	0.5	20	0.1	1	0.2	10	0.1	5				
Poaceae	*Cynodon dactylon*	Couch	Grasses												
Poaceae	*Dichanthium sericeum*	Queensland Bluegrass	Grasses	6	100	0.2	10			0.2	10	0.2	10	5	50
Poaceae	*Digitaria divaricatissima*	Umbrella Grass	Grasses							0.1	1				
Poaceae	*Digitaria ramularis*	-	Grasses												
Poaceae	*Enneapogon gracilis*	Slender Bottle-washers	Grasses					0.5	50			0.2	30		
Poaceae	*Entolasia stricta*	Wiry Panic	Grasses												
Poaceae	*Eragrostis leptostachya*	Paddock Lovegrass	Grasses	0.1	1										
Poaceae	*Hordeum spp.*	Barley Grass	Exotic												
Poaceae	*Hyparrhenia hirta*	Coolatai Grass	HTW	2	20	20	300			5	40	70	1000	75	1000
Poaceae	*Microlaena stipoides*	Weeping Meadow Grass	Grasses												
Poaceae	*Panicum effusum*	Hairy Panic	Grasses	0.1	10			0.1	1						
Poaceae	*Paspalidium distans*	-	Grasses					0.1	20						
Poaceae	*Paspalum dilatatum*	Paspalum	HTW												
Poaceae	*Poa labillardierei var. labillardierei*	Tussock Grass	Grasses							0.5	10				
Poaceae	*Rytidosperma spp.*	Wallaby Grass	Grasses					0.1	1	0.1	5				
Poaceae	*Setaria pumila*	Pale Pigeon Grass	Exotic												
Poaceae	*Sorghum halepense*	Johnson Grass	HTW			0.2	5								
Poaceae	*Sporobolus africanus*	Parramatta Grass	Exotic												
Poaceae	*Sporobolus creber*	Western Rat-tail Grass	Grasses	10	200	15	200	5	100	3	50			0.5	20

Poaceae	*Sporobolus spp.*	-	Grasses									1	30		
Polygonaceae	*Rumex brownii*	Swamp Dock	Forb			0.1	1	0.1	1						
Polygonaceae	*Rumex crispus*	Curled Dock	Exotic							0.1	1				
Primulaceae	*Lysimachia arvensis*	Scarlet Pimpernel	Exotic	20	500	5	200	15	1000	8	1000	2	50	0.5	100
Proteaceae	*Grevillea robusta*	Silky Oak	Tree							0.1	1				
Pteridaceae	*Cheilanthes sieberi*	Mulga Fern	Fern	0.1	5	0.1	5	0.5	100			0.1	10		
Rosaceae	*Eriobotrya japonica*	Loquat	Exotic												
Rubiaceae	*Asperula conferta*	Common Woodruff	Forb												
Rubiaceae	*Galium aparine*	Goosegrass	Exotic	1	100	10	100	10	200	8	1000				
Rubiaceae	*Psydrax odorata*	Shiny-leaved Canthium	Shrub							0.1	1				
Rutaceae	*Geijera parviflora*	Wilga	Shrub							0.1	1				
Sapindaceae	*Dodonaea viscosa*	Sticky Hop-bush	Shrub	10	30			0.5	2	2	10				
Scrophulariaceae	*Verbascum virgatum*	Twiggy Mullein	Exotic					0.1	5			0.1	10		
Solanaceae	*Cestrum parqui*	Green Cestrum	HTW			0.2	2	0.1	3	0.5	10				
Solanaceae	*Solanum cinereum*	Narrawa Burr	Shrub	0.1	2										
Solanaceae	*Solanum nigrum*	Black-berry Nightshade	Exotic												
Solanaceae	*Solanum seaforthianum*	Climbing Nightshade	HTW							0.1	3				
Solanaceae	*Solanum stelligerum*	Devil's Needles	Shrub												
Stackhousiaceae	*Stackhousia viminea*	Slender Stackhousia	Forb					0.1	20						
Ulmaceae	*Ulmus parvifolia*	Chinese Elm	Exotic			0.1	1								
Urticaceae	*Urtica incisa*	Stinging Nettle	Forb			0.5	50								
Verbenaceae	*Lantana camara*	Lantana	HTW												
Verbenaceae	*Verbena bonariensis*	Purpletop	Exotic			0.1	1			0.1	1	0.1	5		

APPENDIX II Plot Data Summary and Management Zone Scores

Plot Data Summary

Plot	PCT	Condition class	Zone	Easting	Northing	Bearing	Composition - Tree	Composition - Shrub	Composition - Grass	Composition - Forbs	Composition - Ferns	Composition - Other	Structure - Tree	Structure - Shrub	Structure - Grass	Structure - Forbs	Structure - Ferns	Structure - Other	Function – Large Trees	Function – Hollow trees	Function – Litter Cover	Function – Fallen Logs	Function – Trees 5 - 9cm	Function – Trees 10 - 19cm	Function – Trees 20 - 29cm	Function – Trees 30 - 49cm	Function – Trees 50 – 79cm	Function – Tree Regen	Function – HTE
1	589	Woodland	56	298945	6563663	177	3	4	11	10	1	1	14	10.3	37.4	2.6	0.1	0.1	1	0	9	3.8	1	1	0	0	1	1	2.3
2	589	ModifiedUn	56	298819	6563751	250	1	0	11	6	1	1	15	0	22	16.3	0.1	0.1	1	0	1	21	1	1	1	1	0	1	20.6
3	589	Woodland_Cypress	56	298890	6563689	155	6	3	14	12	1	1	65.7	1.7	26.9	3.2	0.5	0.1	2	0	58	9	1	1	1	1	1	1	0.4
4	589	Woodland_Cypress	56	299061	6563604	240	4	6	13	10	0	3	70.1	3.4	29.2	6.2	0	0.3	3	0	38	31	1	1	1	1	1	1	5.9
5	589	Low	56	299014	6563650	319	0	1	5	5	1	0	0	0.1	1.7	0.6	0.1	0	0	0	0.4	0	0	0	0	0	0	0	70
6	589	Low	56	299045	6563750	275	0	0	4	3	0	1	0	0	6.1	0.7	0	0.1	0	0	0.6	0	0	0	0	0	0	0	75

Management Zones Scores

Future Composition Condition Scores

Vegetation Zone	Management Zone	Trees	Shrubs	Grasses & grass-like	Forbs	Ferns	Other	Composition Condition Score
PCT 589 (Woodland)	MZ1 - APZ	3	0	11	6	1	1	61.8
	MZ2 - Direct	0	0	0	0	0	0	0
PCT 589 (Modified Understorey)	MZ1 - APZ	1	0	11	6	1	1	53.5
	MZ2 - Direct	0	0	0	0	0	0	0
PCT 589 (Woodland with White Cypress regrowth)	MZ1 - APZ	1	0	11	6	0	0	48.5

Future Structure Condition Scores

Vegetation Zone	Management Zone	Trees	Shrubs	Grasses & grass-like	Forbs	Ferns	Other	Structure Condition Score
PCT 589 (Woodland)	MZ1 - APZ	14	0	22	2.6	0.1	0.1	48.5
	MZ2 - Direct	0	0	0	0	0	0	0
PCT 589 (Modified Understorey)	MZ1 - APZ	14	0	22	16.3	0.1	0.1	29.9
	MZ2 - Direct	0	0	0	0	0	0	0
PCT 589 (Woodland with White Cypress regrowth)	MZ1 - APZ	15	0	22	4.7	0	0	53.4

Future Function Condition and VIS Scores

Vegetation Zone	Management Zone	Regen stems	Stem Classes	No. of large trees	Litter Cover	Fallen Logs	HTW Cover	Function Condition Score	Future VIS	Total Change in VIS
PCT 589 (Woodland)	MZ1 - APZ	Absent	2	1	0	0	2.3	29.5	44.6	-26.4
	MZ2 - Direct	Absent	0	0	0	0		0	0	-71
PCT 589 (Modified Understorey)	MZ1 - APZ	Absent	4	0	0	0	20.6	15	35.5	-24.1
	MZ2 - Direct	Absent	0	0	0	0	0	0	0	-59.6
PCT 589 (Woodland with White Cypress regrowth)	MZ1 - APZ	Absent	2	0	0	0	3.2	8.9	28.4	-59

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

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.

Class	Family	*Scientific Name*	Common Name	Observation Type
Bird	Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra	O, W
Bird	Artamidae	*Cracticus nigrogularis*	Pied Butcher Bird	O, W
Bird	Artamidae	*Gymnorhina tibicen*	Australian Magpie	O, W
Bird	Artamidae	*Strepera graculina*	Pied Currawong	O, W
Bird	Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo	O, W
Bird	Cacatuidae	*Eolophus roseicapilla*	Galah	O, W
Bird	Charadriidae	*Vanellus miles*	Masked Lapwing	O, W
Bird	Columbidae	*Ocyphaps lophotes*	Crested Pigeon	O
Bird	Corcoracidae	*Struthidea cinerea*	Apostlebird	O
Bird	Corvidae	*Corvus coronoides*	Australian Raven	O, W
Bird	Falconidae	*Falco cenchroides*	Nankeen Kestrel	O
Bird	Meliphagidae	*Anthrochaera carunculata*	Red Wattlebird	O, W
Bird	Meliphagidae	*Manorina melanocephala*	Noisy Miner	O, W
Bird	Meliphagidae	*Philemon corniculatus*	Noisy Friarbird	O, W
Bird	Monarchidae	*Grallina cyanoleuca*	Magpie-lark	O, W
Bird	Pardalotidae	*Acanthiza nana*	Yellow Thornbill	O
Bird	Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote	W
Bird	Psittaculidae	*Platycercus elegans*	Crimson Rosella	O, W
Bird	Psittaculidae	*Platycercus eximius*	Eastern Rosella	O, W
Bird	Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	O, W
Bird	Sturnidae	**Sturnus vulgaris*	Common Starling	O

Class	Family	*Scientific Name*	Common Name	Observation Type
Mammal	Leporidae	* *Oryctolagus cuniculus*	European Rabbit	O, F, P
Mammal	Macropodidae	*Macropus giganteus*	Eastern Grey Kangaroo	O
Reptile	Scincidae	*Anomalopus leuckartii*	Two-clawed Worm-skink	O
Reptiles	Scincidae	*Ctenotus robustus*	Striped Skink	O

APPENDIX IV 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.

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Habitat Description and Locally Known Populations	BioNet Records[1]	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Flora											
Tylophora linearis	-	V	E	Occurs from southern Queensland into central NSW, as far south near Temora with the majority of records occurring in the central western region. Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of *Eucalyptus fibrosa*, *Eucalyptus sideroxylon*, *Eucalyptus albens*, *Callitris endlicheri*, *Callitris glaucophylla* and *Allocasuarina luehmannii*. Also grows in association with *Acacia hakeoides, Acacia lineata, Melaleuca uncinata, Myoporum* species and *Casuarina* species	0	Habitat may occur within area.	No	Species	No	Unlikely	The species is unlikely to occur given the proximity of the site to known populations and absence of preferred habitat. This species has not been recorded locally.
Lepidium aschersonii	Spiny Peppercress	V	V	Not widespread, occurring in the marginal central-western slopes and north-western plains regions of NSW (and potentially the south western plains). In the north of the State recent surveys have recorded a number of new sites including Brigalow Nature Reserve, Brigalow SCA, Leard SCA and Bobbiwaa SCA. Also known from the West Wyalong in the south of the State. Found on ridges of gilgai clays dominated by Brigalow (*Acacia harpophylla*), Belah (*Casuarina cristata*), Buloke (*Allocasuarina luehmanii*) and Grey Box (*Eucalyptus microcarpa*). In the south has been recorded growing in Bull Mallee (*Eucalyptus behriana*). Often the understorey is dominated by introduced plants.	0	Habitat may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.
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 may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.
Swainsona murrayana	Slender Darling-pea	V	V	Found throughout western 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. The species has been collected from clay-based soils, ranging from grey, red and brown cracking clays to red-brown earths and loams. 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	0	Habitat may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Habitat Description and Locally Known Populations	BioNet Records[1]	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated.							
Acacia pubifolia	Velvet Wattle	E	V	Occurs in NSW and Qld. In NSW it is known from three locations, Spring Hill, west of the Beardy River, the Gulf Road Torrington/ Torrington SCA and Warrabah National Park. Typically grows in dry shrubby woodland on acid volcanic, granite and metasediment soils	0	Habitat may occur within area.	No	Species	Yes	Unlikely	This species has not been recorded locally and preferred habitat is absent.
Callistemon pungens	-	-	V	Occurs in south-east Queensland and the northern tablelands of northeast NSW. In NSW, it occurs from near Inverell to the eastern escarpment in New England, along rocky watercourses usually with sandy granite (or occasionally basalt) creek beds, and generally among naturalised species.	0	Habitat likely to occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred riparian habitats are absent.
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V	This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Found largely on private property and roadsides, and occasionally in conservation reserves. Planted as urban trees, windbreaks and corridors. Typically grows in dry grassy woodland, on shallow soils of slopes and ridges. Found primarily on infertile soils derived from granite or metasedimentary rock.	1	Habitat known to occur within area.	No	Species	No	Unlikely	This species was not recorded during field investigations. This species is readily detectable and is unlikely to occur within the proposal area.
Homoranthus prolixus	Granite Homoranthus	V	V	Occurs in scattered locations between Inverell and Manilla. Flowers from October to November. Grows in heath patches, in skeletal soil among crevices of granite outcrops.	0	Habitat may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.
Syzygium paniculatum	Magenta Lilly Pilly	E	V	Found only in NSW, the Magenta Lilly Pilly occurs from Upper Lansdowne to Conjola State Forest. It occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	1	N/A	No	Species	No	Unlikely	This species was not recorded during field investigations. Preferred habitat is absent. This species is readily detectable and is unlikely to occur within the proposal area.
Prasophyllum sp. Wybong (C.Phelps ORG 5269)	A leek-orchid	-	CE	The NSW Herbarium considers *Prasophyllum* sp. Wybong and *Prasophyllum petilum* to be synonyms (i.e. the same species). This taxonomic recognition will be released in the next Orchidaceae taxonomic update via the Australian Plant Census, which provides a list of currently accepted names. As it stands, the two species are treated as one for NSW regulatory purposes, with the distinction maintained under Commonwealth legislation. The Commonwealth listing comprises several isolated populations in the Sydney Basin, New England Tablelands, Brigalow Belt South and NSW South Western Slopes IBRA Bioregions. It is known from near Ilford, Premer, Muswellbrook, Wybong,	0	Habitat may occur within area.	No	Species	Yes	Unlikely	Whilst the woodland habitat present within the site is broadly consistent with the known habitat of this species, this species is not likely to occur given the proximity of the site to known populations which have a highly restricted area of occurrence.

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Habitat Description and Locally Known Populations	BioNet Records[1]	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
				Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. It has a very restricted geographic distribution with an estimated area of occupancy of 1.5 km^2. The species is known to occur in open eucalypt woodland and grassland.							
Euphrasia arguta	-	CE	CE	Recently rediscovered near Nundle. Current known populations are located in the Nundle State Forest in eucalypt forest with a mixed grass and shrub understorey. Have been reported from eucalypt forest with a mixed grass and shrub understorey	0	Habitat likely to occur within area.	No	Species	Yes	Unlikely	This species has not been recorded locally and preferred habitat is absent.
Arthraxon hispidus	Hairy-joint Grass	V	V	Occurs over a wide area in south-east Queensland, and on the northern tablelands and north coast of NSW but is never common. Moisture and shade-loving, often found in or on the edges of rainforest and in wet eucalyptus forest, often near creeks or swamps.	0	Habitat may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.
Dichanthium setosum	Bluegrass	V	V	Occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale and Glen Innes areas. Associated with heavy basaltic black soils and red-brown loams with clay subsoil.	5	Habitat known to occur within area.	No	Species	No	Moderate	This species was not recorded during field investigations. Grassland habitat throughout the proposal area is marginalised by previous disturbance and the dominance of weeds. The woodland areas within the site may provide suitable habitat for this species.
Thesium australe	Austral Toadflax	V	V	Found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. A root parasite that takes water and some nutrients from other plants, especially Kangaroo Grass.	0	Habitat likely to occur within area.	No	Species	No	Low	Habitat is marginal given the disturbed nature of the understorey throughout most of the proposal area and the absence of records within the local area.
Cadellia pentastylis	Ooline	V	V	Forms a closed or open canopy mixing with eucalypt and cypress pine species. There appears to be a strong correlation between the presence of Ooline and low- to medium-nutrient soils of sandy clay or clayey consistencies, with a typical soil profile having a sandy loam surface layer, grading from a light clay to a medium clay with depth. Populations display a variety of age classes including large mature trees, suckering regrowth and seedlings. The total area occupied by Ooline is only about 1200 hectares, with remaining populations in NSW still threatened to various degrees by clearing for agriculture and grazing pressures	0	Habitat likely to occur within area.	No	Species	No	Unlikely	This tree species was not recorded during field investigations. Preferred habitat is absent.

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Amphibians											
Litoria booroolongensis	Booroolong Frog	E	E	Restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses.	0	Habitat likely to occur within area.	No	Species	No	Unlikely	This species is unlikely to occur given the lack of suitable waterbodies at the project site.
Reptiles											
Uvidicolus sphyrurus	Border Thick-tailed Gecko	V	V	Found only on the tablelands and slopes of northern NSW and southern Queensland, reaching south to Tamworth and west to Moree. Often occurs on steep rocky or scree slopes, especially granite. Favours forest and woodland areas with boulders, rock slabs, fallen timber and deep leaf litter. Occupied sites often have a dense tree canopy that helps create a sparse understorey.	6	Habitat known to occur within area.	No	Species	No	Unlikely	Suitable rocky habitat is largely absent throughout the proposal area and is limited to some sparse rock outcropping present on the steeper slopes. This habitat is largely isolated from potential source populations and is the unlikely to provide suitable habitat for this species.
Aprasia parapulchella	Pink-tailed Legless Lizard	V	V	The Pink-tailed Legless Lizard is primarily known from the Central and Southern Tablelands and the South Western Slopes. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (*Themeda australis*). Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks.	1	Habitat known to occur within area.	No	Species	No	Low	Suitable habitat is limited to woodland areas which have some limited rock outcropping present on the steeper slopes. Habitat is largely absent from the proposal area which is largely comprised of managed grassland with minimal cover.
Hemiaspis damelii	Grey Snake	E	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	0	Habitat may occur within area.	No	-	-	Unlikely	This species has not been recorded locally and preferred habitat is absent.
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 sites' proximity to known populations and lack of associated soil and vegetation types.
Myuchelys belli	Western Sawshelled Turtle	E	E	In NSW, currently found in four disjunct populations in the upper reaches of the Namoi, Gwydir and Border Rivers systems, on the escarpment of the	0	Habitat may occur within area.	No	Species	No	Unlikely	This species has not been recorded locally and preferred habitat is absent.

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				North West Slopes. Shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Occupied pools are most commonly less than 3 m deep with rocky or sandy bottoms and patches of vegetation.							
Birds											
Alectura lathami	Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	E2	-	Occurs in forested and wooded areas of tropical and warm-temperate districts, particularly above 300 m to at least 1200 m altitude. A population of the Australian Brush-turkey is known from the Nandewar and Brigalow Belt South Bioregions. Usually prefers dry rainforest that is found within the Semi-evergreen Vine Thicket. Birds build nesting mounds in areas of dense vegetation. This provides ample litter for the mound building and decomposition process, as well as shade to reduce moisture loss from the mound.	2	N/A	No	Species	No	Unlikely	Suitable habitat is absent.
Hirundapus caudacutus	White-throated Needletail	V	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.	1	Habitat known to occur with area.	Yes	Ecosystem	No	Moderate	Associated with PCT 589. Aerial species that may forage within the airspace above the proposal area. No breeding habitat is likely to occur within the proposal area.
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.	2	N/A	No	Ecosystem	No	Moderate	Low quality / common habitat present. May occasionally hunt or rest within proposal site but not considered important habitat for this species. 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.	28	N/A	No	Dual Credit Species	No	Moderate	Low quality / common habitat present. May occasionally hunt or rest within proposal site but not considered important habitat for this species. No raptor nests were observed within the site.

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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.	1	N/A	No	Dual Credit Species	No	Moderate	Low quality / common habitat present. May occasionally hunt or rest within proposal site but not considered important habitat for this species. No raptor nests were observed within the site.
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.	0	Habitat likely to occur within area.	No	Ecosystem	No	Low	Low quality / common habitat present. May rarely hunt or rest within proposal site but not considered important habitat for this species. This species has not been recorded in the search area.
Falco subniger	Black Falcon	V	-	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. The Black Falcon occurs as solitary individuals, in pairs, or in family groups of parents and offspring.	11	N/A	Yes	Ecosystem	No	Moderate	Associated with PCT 589. Low quality / common habitat present. May occasionally hunt or rest within proposal site but not considered important habitat for this species. No raptor nests were observed within the site.
Calyptorhynchus lathami lathami	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.	0	Habitat likely to occur within area.	Yes	Dual Credit Species	No	Low	Associated with PCT 589. Preferred foraging habitat is absent. This species has not been recorded in the search area.
Glossopsitta pusilla	Little Lorikeet	V	-	Forages primarily in the canopy of open Eucalypt Forest and woodland, yet also forages on Angophoras, Melaleucas and other tree species. Riparian habitats are often utilised. Isolated flowering trees in open country, e.g., paddocks, roadside remnants and urban trees, also help sustain viable populations of the species.	12	N/A	Yes	Ecosystem	No	Moderate	Associated with PCT 589. Low quality / common habitat present. The remnant vegetation on site may provide suitable nesting and foraging habitat.
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.	3	Habitat known to occur with area.	Yes	Dual Credit Species	Yes	Low	Associated with PCT 589. The proposal area is not located within an area mapped as important habitat for this species. The trees on site may provide some marginal seasonal foraging habitat.
Neophema chrysostoma	Blue-winged Parrot	V	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	0	Habitat may occur within area.	No	Ecosystem	No	Low	Low quality / common habitat present although this species has not been recorded locally. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. The woodland and grassland areas may provide some marginal foraging habitat.

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				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.							
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. Nests in tree hollows, logs or posts, from August to December.	20	N/A	No	Ecosystem	No	Moderate	Low quality / common habitat present. The remnant vegetation on site may provide suitable nesting and foraging habitat.
Polytelis swainsonii	Superb Parrot	V	V	The Superb Parrot is found throughout eastern inland NSW. Inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest. Superb Parrots nest in tree hollows with an entrance diameter of 6 cm or wider, and that are at least 3.5 m above the ground. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box.	0	Habitat may occur within area.	No	Dual Credit Species	No	Low	Low quality / common habitat present although this species has not been recorded locally. Potential nesting habitat was limited to a small number of hollow-bearing trees recorded within the site. The woodland and grassland areas may provide some marginal foraging habitat.
Ninox strenua	Powerful Owl	V	-	Inhabits a wide range of vegetation types from wet eucalypt forests with a rainforest understorey to dry open forests and woodlands. Requires large hollow-bearing trees for nesting and dense canopy vegetation for roosting.	1	N/A	No	Species	No	Low	Preferred habitat is largely absent. May occasionally hunt or rest within proposal site but not considered important habitat for this species as the density of hollows and preferred prey species is relatively low.
Calidris acuminata	Sharp-tailed Sandpiper	P	V	Migrant to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. They are widespread in most regions of New South Wales (NSW), especially in coastal areas, but they are sparse in the south-central Western Plain and east Lower Western Regions of NSW. prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland (DOE, 2024).	0	Habitat may occur within area.	No	Species	Yes	Unlikely	Preferred habitat is absent.
Calidris ferruginea	Curlew Sandpiper	CE	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	Suitable habitat is absent.

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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 may occur within area.	No	Ecosystem	No	Unlikely	Suitable habitat is absent.
Rostratula australis	Australian Painted Snipe	E	E	Most records are from the southeast, 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.	No	Ecosystem	No	Unlikely	Suitable habitat is absent.
Gallinago hardwickii	Latham's Snipe	V	V	Latham's Snipe is a non-breeding visitor to south-eastern Australia, and is a passage migrant through northern Australia. It mainly persists on coastal fringes in permanent and ephemeral wetlands up to 2000 m above sea-level. Most birds spend the non-breeding period at sites located south of the Richmond River in New South Wales. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies) (DOE, 2024).	3	Habitat may occur within area.	No	TBC	No	Unlikely	Preferred habitat is absent.
Aphelocephala leucopsis	Southern Whiteface	V	V	Occurs across most of mainland Australia south of the tropics, from the northeastern edge of the Western Australian wheatbelt, east to the Great Dividing Range. Southern Whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains.	0	Habitat likely to occur within area.	No	Ecosystem	No	Low	Low quality / common habitat present although this species has not been recorded locally. The remnant woodland areas may provide some marginal habitat.
Chthonicola sagittata	Speckled Warbler	V	-	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy.	16	N/A	Yes	Ecosystem	No	Moderate	Associated with PCT 589. The remnant woodland vegetation on site may provide suitable habitat for this species.
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	17	N/A	Yes	Ecosystem	No	Moderate	Associated with PCT 589. The remnant woodland vegetation on site may provide suitable habitat for this species.

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				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.							
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	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) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.	18	Habitat known to occur within area.	Yes	Ecosystem	No	Moderate	Associated with PCT 589. The remnant woodland vegetation on site may provide suitable habitat for this species.
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.	20	Habitat known to occur within area.	Yes	Ecosystem	No	Low	Associated with PCT 589. The remnant woodland vegetation on site may provide suitable habitat for this species.
Anthochaera phrygia	Regent Honeyeater	CE	CE	Inhabits eucalypt open forests and woodlands, predominantly box-ironbark types, but also Spotted Gum and Swamp Mahogany on the coast. The species also inhabits River She-oak gallery forest with *Amyema cambagei* (Needle-leaf Mistletoe). There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region.	0	Habitat known to occur within area.	Yes	Dual Credit Species	Yes	Low	Associated with PCT 589. The proposal area is not located within an area mapped as important habitat for this species. The trees on site may provide some marginal seasonal foraging habitat.
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, Victoria, and southern Queensland. The species habitat includes Boree/Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*), Box-Gum Woodlands and Box-	1	Habitat likely to occur within area.	No	Ecosystem	No	Low	The remnant woodland vegetation on site may provide some seasonal foraging habitat.

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				Ironbark Forests. The species preferentially feeds on Amyema genus mistletoes and insects.							
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	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. 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*).	3	N/A	No	Ecosystem	No	Low	Low quality / common habitat present. May forage or rest within proposal site but not considered important habitat for this species.
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.	2	N/A	No	Ecosystem	No	Low	Low quality / common habitat present. May forage or rest within proposal site but not considered important habitat for this species.
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E	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.	4	N/A	Yes	Ecosystem	No	Low	Associated with PCT 589. The remnant woodland vegetation on site may provide suitable habitat for this species.
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains.	1	N/A	No	Ecosystem	No	Low	The remnant woodland vegetation on site may provide suitable habitat for this species. Nests indicative of breeding were not recorded within the site.
Mammals											
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites with basking and latrine sites often nearby.	11	Habitat known to occur within area.	Yes	Ecosystem	No	Low	Associated with PCT 589. Low quality / common habitat present. May rarely use woodland habitat available within the site but not considered important habitat for this species. No potential den sites were observed on site.
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	V	Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occurs in tall mature eucalypt forest generally in areas with may rainfall and nutrient rich soils. Den, often in family groups, in hollows of large trees. This species is very mobile	0	Habitat may occur within area.	No	Ecosystem	No	Unlikely	Preferred habitat is absent.

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				and occupies large home ranges (20 to 85 ha) to encompass dispersed and seasonally variable food resources.							
Petaurus norfolcensis	Squirrel Glider	V	-	Inhabits dry sclerophyll forests and woodlands preferably with a canopy composed of multiple species, a shrub or Acacia mid-storey and a heath understorey. Requires abundant tree hollows for refuge and nest sites.	8	N/A	No	Species	No	Low	The woodland habitat on site is marginalised by relatively low tree diversity and a paucity of hollows suitable for nesting and shelter.
Phascolarctos cinereus	Koala	E	E	Low-density koala populations are scattered throughout the highly fragmented and cleared Northern Tablelands Koala Management Area. The distribution of koalas in this area is poorly understood. They are found in a range of habitat types including small woodland and forest remnants, paddock trees within fertile agricultural areas, and more rugged woodlands and forests. Preferred food trees in the local area include a range of eucalypt species including *Eucalyptus albens* (White Box), *E. nicholii* (Narrow-leaved Black Peppermint), *E. camaldulensis* (River Red Gum), *E. tereticornis* (Forest Red Gum), *E. dealbata* (Tumbledown Red Gum) and *E. microcorys* (Tallowwood).	15	Habitat known to occur within area.	No	Species	No	Low	No signs of this species were recorded within the site. The remnant trees, predominantly White Box may provide some potential foraging habitat. This species is rarely recorded in the surrounding area with all local records associated with wildlife rehabilitation in Tamworth and no additional sighting information is provided.
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	Extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. Occupies rocky escarpments, outcrops, and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.	1	Habitat may occur within area.	No	Species	Yes	Unlikely	The proposal site lacks suitable rocky habitats required by this species.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water and in vegetation with a dense canopy.	98	Habitat known to occur within area.	Yes	Dual Credit Species	No	Low	Associated with PCT 589. The trees on site provide potential foraging habitat. No breeding camps were recorded or are known to occur within the proposal area.
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.	1	N/A	No	Ecosystem	No	Moderate	This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide suitable roosting habitat.
Chalinolobus dwyeri	Large-eared Pied Bat	V	E	Occupies dry sclerophyll forest and woodland. Roosts in caves, abandoned mud-nests of Fairy Martins and mine tunnels.	2	Habitat known to occur within area.	No	Dual Credit Species	Yes	Low	This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide some marginal roosting habitat. Roosting habitat suitable for breeding is absent.

Scientific Name	Common Name	BC Act 2016	EPBC Act 1999	Habitat Description and Locally Known Populations	BioNet Records[1]	EPBC Act Protected Matters Report[2]	BAM-C[3]	Credit Type	Potential SAII	Likelihood of occurrence	Justification
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Inhabits sclerophyll forests preferring moist habitats with trees taller than 20m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	1	N/A	No	Ecosystem	No	Moderate	This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide suitable roosting habitat.
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	Distribution of 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. Roosts in tree hollows, crevices, and under loose bark.	0	Habitat known to occur with area.	No	Ecosystem	No	Moderate	This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide suitable roosting habitat.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	Inhabits a range of timbered habitats. Caves are the primary roosting habitat, but may also use derelict mines, storm-water tunnels, buildings, and other man-made structures.	5	N/A	No	Dual Credit Species	Yes	Low	Associated with PCT 589. This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide some marginal roosting habitat. Roosting habitat suitable for breeding is absent.
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-	The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW. Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range.	5	N/A	No	Ecosystem	No	Low	This species may forage within the site. Hollow-bearing trees and trees with dead branches and / or exfoliating bark may provide suitable roosting habitat.
Pseudomys novaehollandiae	New Holland Mouse	P	V	Is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	0	Habitat may occur within area.	No	Ecosystem	No	Unlikely	Preferred habitat is absent.

[1] Number of OEH wildlife atlas records in selected area [North: -30.94 West: 150.79 East: 150.99 South: -31.14] – Database searched (15/07/2024 11.22 AM).

[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 V BAM - Calculator Outputs

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00049863/BAAS17100/24/00049886

Assessment name
Oxley Vale - 24183

BAM data last updated *
28/10/2024

Assessor Name
Luke Pickett

Report Created
28/11/2024

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

Assessor Number
BAAS17100

Assessment Type
Part 4 Developments (Small Area)

BAM Case Status
Finalised

Assessment Revision
0

BOS entry trigger
BOS Threshold: Area clearing threshold

Date Finalised
28/11/2024

* 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	589_Woodland	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	Woodland	0.24	1	APZ (0.16 ha) Direct (0.08 ha)

2	589_ModifiedUn	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	ModifiedUn	0.33	1	APZ (0.25 ha) Direct (0.08 ha)
3	589_Woodland_Cypress	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	Woodland_Cypress	0.01	1	APZ (0.01 ha)
4	589_Low	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	Low	2.64	2	

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049863/BAAS17100/24/00049886	Oxley Vale - 24183	28/10/2024
Assessor Name	**Report Created**	**BAM Data version ***
Luke Pickett	28/11/2024	Current classification (live - default) (80)
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17100	Part 4 Developments (Small Area)	Finalised
Assessment Revision	**BOS entry trigger**	**Date Finalised**
0	BOS Threshold: Area clearing threshold	28/11/2024

* 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.

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)
Black Falcon	Falco subniger	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Diamond Firetail	Stagonopleura guttata	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Flame Robin	Petroica phoenicea	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Little Lorikeet	Glossopsitta pusilla	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Regent Honeyeater	Anthochaera phrygia	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
South-eastern Hooded Robin	Melanodryas cucullata cucullata	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Speckled Warbler	Chthonicola sagittata	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
Swift Parrot	Lathamus discolor	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion
White-throated Needletail	Hirundapus caudacutus	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Threatened species Manually Added

None added

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 00049863/BAAS17100/24/00049886	Proposal Name Oxley Vale - 24183	BAM data last updated * 28/10/2024
Assessor Name Luke Pickett	Report Created 28/11/2024	BAM Data version * Current classification (live - default) (80)
Assessor Number BAAS17100	Assessment Type Part 4 Developments (Small Area)	BAM Case Status Finalised
Assessment Revision 0	BOS entry trigger BOS Threshold: Area clearing threshold	Date Finalised 28/11/2024

* 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
Acacia atrox Myall Creek Wattle	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

Common name	Scientific name	Justification in the BAM-C
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Refer to BAR
Regent Honeyeater	Anthochaera phrygia	Habitat constraints

Swift Parrot	Lathamus discolor	Habitat constraints
Tusked Frog population in the Nandewar and New England Tableland Bioregions	Adelotus brevis - endangered population	Habitat degraded

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049863/BAAS17100/24/00049886	Oxley Vale - 24183	28/10/2024
Assessor Name	Report Created	BAM Data version *
Luke Pickett	28/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS17100	Finalised	28/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
0	BOS Threshold: Area clearing threshold	Part 4 Developments (Small Area)

* 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

White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion												
1	589_Woodland	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	71	41.3	0.24	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	6

2	589_ModifiedUn	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	59.6	32.7	0.33	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	7

3	589_Woodland_Cypress	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	87.5	59.0	0.01	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	1

4	589_Low	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	2.8	2.8	2.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0
											Subtotal	**14**
											Total	**14**

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 Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00049863/BAAS17100/24/00049886

Proposal Name
Oxley Vale - 24183

BAM data last updated *
28/10/2024

Assessor Name
Luke Pickett

Assessor Number
BAAS17100

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

Proponent Names

Report Created
28/11/2024

BAM Case Status
Finalised

Assessment Revision
0

BOS entry trigger
BOS Threshold: Area clearing threshold

Assessment Type
Part 4 Developments (Small Area)

Date Finalised
28/11/2024

* 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
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

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

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	3.2	0	14	14

589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	589_Woodland	No	6	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	589_ModifiedUn	No	7	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

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

	3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710,	-	589_Woodland _Cypress	No	1	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	589_Low	No	0	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

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

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id

00049863/BAAS17100/24/00049886

Proposal Name

Oxley Vale - 24183

BAM data last updated *

28/10/2024

Assessor Name

Luke Pickett

Assessor Number

BAAS17100

BAM Data version *

Current classification (live - default) (80)

Proponent Name(s)

Report Created

28/11/2024

BAM Case Status

Finalised

Assessment Revision

0

BOS entry trigger

BOS Threshold: Area clearing threshold

Assessment Type

Part 4 Developments (Small Area)

Date Finalised

28/11/2024

* 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
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

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
589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	3.2	0	14	14.00

589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	589_Woodland	No	6	Peel,Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau.
					or

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	White Box - Yellow Box -	-	589_Modifi	No	7	Peel,Eastern Nandewars, Hunter, Inverell

	Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,		edUn			Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606,	-	589_Woodland_Cypress	No	1	Peel,Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710,	-	589_Low	No	0	Peel,Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like options

Scattered Tree Report

Proposal Details

Assessment Id
00049863/BAAS17100/24/00049887

Assessment name
Oxley Vale - 24183

BAM data last updated *
28/10/2024

Assessor Name
Luke Pickett

Report Created
28/11/2024

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

Assessor Number
BAAS17100

BAM Case Status
Finalised

Date Finalised
28/11/2024

Assessment Revision
1

Assessment Type
Scattered Trees

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.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
589	White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	3	Eucalyptus albens	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049863/BAAS17100/24/00049887	Oxley Vale - 24183	28/10/2024
Assessor Name	Report Created	BAM Data version *
Luke Pickett	28/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS17100	Finalised	28/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
1	BOS Threshold: Area clearing threshold	Scattered Trees

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

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
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
Painted Honeyeater	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami
South-eastern Hooded Robin	Melanodryas cucullata cucullata
Southern Whiteface	Aphelocephala leucopsis
Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera

White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

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 Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049863/BAAS17100/24/00049887	Oxley Vale - 24183	28/10/2024
Assessor Name	Report Created	BAM Data version *
Luke Pickett	28/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS17100	Finalised	28/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
1	BOS Threshold: Area clearing threshold	Scattered Trees

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

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion			
3	True	3.0	3
			3
			3

Species credits for threatened species

Nil

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00049863/BAAS17100/24/00049887

Assessor Name
Luke Pickett

Proponent Names

Assessment Revision
1

BAM Case Status
Finalised

Proposal Name
Oxley Vale - 24183

Assessor Number
BAAS17100

Report Created
28/11/2024

BOS entry trigger
BOS Threshold: Area clearing threshold

BAM data last updated *
28/10/2024

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

Date Finalised
28/11/2024

Assessment Type
Scattered Trees

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

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	3	0	3

Credit classes for 589

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	3	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00049863/BAAS17100/24/00049887

Proposal Name
Oxley Vale - 24183

BAM data last updated *
28/10/2024

Assessor Name
Luke Pickett

Assessor Number
BAAS17100

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

Proponent Name(s)

Report Created
28/11/2024

Assessment Type
Scattered Trees

Date Finalised
28/11/2024

Assessment Revision
1

BOS entry trigger
BOS Threshold: Area clearing threshold

BAM Case Status
Finalised

* 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

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
589-White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	3	0	3

Credit classes for 589

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	3	Peel, Eastern Nandewars, Hunter, Inverell Basalts, Kaputar, Liverpool Plains, Liverpool Range, Northern Basalts, Tomalla and Walcha Plateau. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

APPENDIX VI EPBC Protected Matters Assessment

CONSIDERATIONS UNDER THE EPBC ACT 1999

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). 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 species and ecological communities and migratory species. The DCCEEW protected matters search for the site is provided in **Appendix VII**. An assessment has been made to determine whether the proposal will have or is likely to have a significant impact on these MNES and is provided below.

Forty-six (46) nationally threatened species and four (4) endangered ecological communities were returned by the MNES search and May have potential habitat available within 10km of the site as listed below.

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

Scientific Name	Common Name	NSW Status	Commonwealth Status
Tylophora linearis	-	V	E
Lepidium aschersonii	Spiny Peppercress	V	V
Lepidium monoplocoides	Winged Pepper-cress	E	E
Swainsona murrayana	Slender Darling-pea	V	V
Acacia pubifolia	Velvet Wattle	E	V
Callistemon pungens	-	-	V
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V
Homoranthus prolixus	Granite Homoranthus	V	V
Syzygium paniculatum	Magenta Lilly Pilly	E	V
Prasophyllum sp. Wybong (C.Phelps ORG 5269)	a leek-orchid	-	CE
Euphrasia arguta	-	CE	CE
Arthraxon hispidus	Hairy-joint Grass	V	V
Dichanthium setosum	Bluegrass	V	V
Thesium australe	Austral Toadflax	V	V
Cadellia pentastylis	Ooline	V	V
Litoria booroolongensis	Booroolong Frog	E	E
Hirundapus caudacutus	White-throated Needletail	V	V
Calyptorhynchus lathami lathami	Glossy Black-Cockatoo	V	V
Lathamus discolor	Swift Parrot	E	CE
Neophema chrysostoma	Blue-winged Parrot	V	V
Polytelis swainsonii	Superb Parrot	V	V
Falco hypoleucos	Grey Falcon	V	V
Calidris acuminata	Sharp-tailed Sandpiper	P	V
Calidris ferruginea	Curlew Sandpiper	CE	CE
Botaurus poiciloptilus	Australasian Bittern	E	E
Rostratula australis	Australian Painted Snipe	E	E
Gallinago hardwickii	Latham's Snipe	V	V
Aphelocephala leucopsis	Southern Whiteface	V	V
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	V
Stagonopleura guttata	Diamond Firetail	V	V
Anthochaera phrygia	Regent Honeyeater	CE	CE
Grantiella picta	Painted Honeyeater	V	V
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E	E
Pteropus poliocephalus	Grey-headed Flying-fox	V	V
Chalinolobus dwyeri	Large-eared Pied Bat	V	E
Nyctophilus corbeni	Corben's Long-eared Bat	V	V
Dasyurus maculatus	Spotted-tailed Quoll	V	E
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	V

Petrogale penicillata	Brush-tailed Rock-wallaby	E	V
Pseudomys novaehollandiae	New Holland Mouse	P	V
Phascolarctos cinereus	Koala	E	E
Uvidicolus sphyrurus	Border Thick-tailed Gecko	V	V
Aprasia parapulchella	Pink-tailed Legless Lizard	V	V
Hemiaspis damelii	Grey Snake	E	E
Anomalopus mackayi	Five-clawed Worm-skink	E	V
Myuchelys belli	Western Sawshelled Turtle	E	E

Threatened Ecological Communities	**Commonwealth Status**
Weeping Myall Woodlands	Endangered
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered
New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands	Critically Endangered

One nationally listed Critically Endangered Ecological Community, White Box - Yellow Box - Blakely's Red Gum Grassy Woodland was recorded on site and is assessed below under the provisions of the EPBC significant impact guidelines. No other nationally listed EECs or threatened species were recorded or are known to occur within the proposal area.

Other species assessed were considered to have low potential of occurring within in the study area and no further assessment under the provisions of the EPBC Act is warranted.

Assessment of Significance for Critically Endangered or Endangered Ecological Communities

Significant Impact Criteria **An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:**	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland (CEEC)**
a) Reduce the extent of an ecological community	This TEC is widely distributed occurring on the inland slopes and tablelands of the Great Dividing Range throughout southern Queensland, NSW, the ACT and Victoria. The TEC has been extensively cleared and now less than 5% remains in good condition and much of this occurs in small isolated patches (Threatened Species Scientific Committee, 2006). The conservation advice for this TEC identifies that any areas of the ecological community that meet the minimum condition criteria outlined in Section 2.3 of the conservation advice (TSSC, 2023) should be considered critical to the survival of this ecological community. This includes consideration of the overstorey species, native ground layer, size of patch and number of native understorey species. Site investigations identified that Vegetation Zones 1 and 3 of PCT 589 recorded within the site are consistent with and meet the minimum condition thresholds to be protected under the EPBC Act. The remaining vegetation recorded within the site (Vegetation Zone 2 and cleared grassland areas) do not meet the minimum condition thresholds to form part of the TEC as the ground layers are predominantly exotic. Vegetation Zone 3 was identified as a development constraint during the design phase of the project and impacts to this vegetation were largely avoided by buffering the required APZs from the outer edge of this vegetation zone. This area was targeted for avoidance as APZs in Vegetation Zone 3 have the potential to require significant amounts of clearing to achieve APZ requirements. As a result, only a narrow band (≤ 6m wide comprising a total of 0.01ha) of White Cypress regrowth occurring at the northern extent of Vegetation Zone 3 would be affected by a proposed APZ. Impacts from the proposal were largely limited to Vegetation Zone 1 which includes the removal of 0.08 ha to accommodate the proposal footprint and the modification of 0.16 hectares to provide the associated APZs. The existing woodland structure of Vegetation Zone 1 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing.

Significant Impact Criteria **An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:**	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland (CEEC)**
	Approximately 2138 ha of PCTs associated with this TEC (PCTs 433, 434, 435, 516, 544, 563, 589, 599) has been mapped within 10km of the site (OEH, 2015; VIS ID: 4468). The removal and / or modification of 0.25 ha to accommodate the proposal footprint and associated APZs represents 0.01% of this CEEC previously mapped within the 10 km extent. The small area to be impacted by the proposal is relatively minor and is unlikely to significantly reduce the extent or threaten the persistence of the TEC within the site or local area.
b) Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	Much of the site and surrounding area has been extensively cleared for agriculture and residential purposes and is primarily comprised of modified grasslands. The areas of TEC on site form the northern part of a relatively large patch of native vegetation that extends to the south east of the site. The proposal area largely consists of low condition grasslands and would not further isolate or fragment any areas of White Box TEC. Connectivity to vegetation occurring to the southeast of the site would be maintained.
c) Adversely affect habitat critical to the survival of an ecological community	As stated above, impacts from the proposal have mostly been limited to Vegetation Zone 1 and a narrow band of White Cypress pine regrowth (0.01ha) in Vegetation Zone 3. In total 0.25 ha would be affected which includes the removal of 0.08 ha to accommodate the proposal footprint and the modification of 0.17 hectares to provide the associated APZs. The existing woodland structure of Vegetation Zone 1 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing. The retained areas of TEC, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management. Measures to be detailed within the VMP may include but not be limited to: • APZ management requirements. • Protocols to manage weeds and pathogens. • Monitoring and reporting requirements.

Significant Impact Criteria **An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:**	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland (CEEC)**
	It is noted that several threatening processes including weed incursion, grazing and rural management practices are existing threats associated with the current land use. The small area to be impacted by the proposal is relatively minor and would not significantly reduce the extent of TEC in the local area. Given measures to largely avoid the existing areas of White Box Woodland TEC within the site and manage threatening processes such as weeds via the implementation of a VMP, it is considered that the proposal is unlikely to adversely affect habitat critical to the survival of the TEC.
d) Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The proposal is unlikely to modify or destroy abiotic factors necessary for the ecological community's survival. The proposed works would not intercept groundwater or reduce local groundwater levels and impacts would largely be confined to the proposal footprint.
e) Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The proposal is unlikely cause a substantial change in the species composition and /or to exacerbate edge effects given the existing disturbance associated with the current management of the site and safeguards to manage weeds. The retained areas of TEC, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management. The implementation of a VMP would also address existing threatening processes occurring within the site including weeds and impacts associated with rural management (e.g., slashing, tracks, grazing).
f) Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: i. assisting invasive species, that are harmful to the listed ecological community, to become established, or	i. Weed invasion is, and continues to be one of the key mechanisms and indicators of degradation of this TEC (TSSC, 2006), particularly agricultural weeds and perennial exotic grasses such as Coolatai Grass which is the dominant ground cover over large parts of the site. As stated in e), the retained areas of TEC, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management including the management of weeds within the site. Subsequently, the proposal is expected to reduce the risks associated with existing weed invasions occurring throughout the site and it is unlikely that the proposal will assist in any invasive species becoming established in any retained areas of TEC.

Significant Impact Criteria **An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:**	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland (CEEC)**
ii. causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	ii. The proposed construction and operation of the proposal is unlikely to cause regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into retained areas of TEC.
g) Interfere with the recovery of an ecological community	The proposal is unlikely to interfere with the recovery of this EEC. The proposal would result in a minor reduction in the extent of the TEC in the local area and is unlikely to threaten its viability or persistence.
Conclusion	It is considered that the proposal is unlikely to result in a significant impact on this TEC given: • The proposed vegetation impacts are considered minor representing only 0.01% of the ecological community mapped within the locality (10km). • Fragmentation of the CEEC would be minor and no areas of this TEC would be isolated by the development. • The proposal will not impact on habitat that is critical to the survival of this TEC. • The proposal is unlikely to affect the recovery of this TEC.

MIGRATORY SPECIES PROTECTED UNDER INTERNATIONAL AGREEMENTS

Ten (10) migratory species were listed on the MNES 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/s	Migratory Category
Apus pacificus	Fork-tailed Swift	Migratory Marine Species
Hirundapus caudacutus	White-throated Needletail	Migratory Terrestrial Species
Motacilla flava	Yellow Wagtail	Migratory Terrestrial Species
Myiagra cyanoleuca	Satin Flycatcher	Migratory Terrestrial Species
Rhipidura rufifrons	Rufous Fantail	Migratory Terrestrial Species
Gallinago hardwickii	Latham's Snipe	Migratory Wetlands Species

The proposed development would likely have a negligible impact on these species, on the basis that all species are highly mobile, and the proposal impacts are minor in the context of 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 VII 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: 15-Jul-2024

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	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	46
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at 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:	42
Commonwealth Heritage Places:	1
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	14
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	1000 - 1100km upstream from Ramsar site	In feature area
Riverland	900 - 1000km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1100 - 1200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			
Community Name	Threatened Category	Presence Text	Buffer Status
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area	In feature area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community may occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Aphelocephala leucopsis](#) Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Botaurus poiciloptilus](#) Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	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
[Calyptorhynchus lathami lathami](#) South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Climacteris picumnus victoriae](#) Brown Treecreeper (south-eastern) [67062]	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
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
[Grantiella picta](#) Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat 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 likely to occur within area	In feature area
Neophema chrysostoma			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Polytelis swainsonii			
Superb Parrot [738]	Vulnerable	Species or species habitat may 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			
Maccullochella peelii			
Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
FROG			
Litoria booroolongensis			
Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Nyctophilus corbeni			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Acacia pubifolia			
Velvet Wattle [19799]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arthraxon hispidus			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cadellia pentastylis			
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Callistemon pungens			
[55581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum			
bluegrass [14159]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus nicholii			
Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat known to occur within area	In feature area
Euphrasia arguta			
[4325]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Homoranthus prolixus [55198]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may 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
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In feature area
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area
Myuchelys belli Western Sawshelled Turtle [86075]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Uvidicolus sphyrurus Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat known 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			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	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 Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [12980]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [16080]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12972]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12958]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [12964]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [12993]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian & Overseas Telecommunications Corporation [12962]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12965]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12963]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12953]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12955]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12954]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [12956]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12973]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12957]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [12969]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12968]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12967]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12966]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12970]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12979]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12975]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12971]	NSW	In buffer area only
Commonwealth Land - Director of Defence Service Homes [12978]	NSW	In buffer area only
Defence - TAMWORTH GRES DEPOT ; BEERSHEBA BARRACKS-TAMWORTH [11202]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [12960]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16158]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16070]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12976]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12977]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15428]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15429]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15427]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16100]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16103]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16101]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [16102]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12981]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12959]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16069]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12961]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12974]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Tamworth Post Office	NSW	Listed place	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]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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]	Vulnerable	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 known to occur within area overfly marine area	In feature area
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
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Pterodroma cervicalis			
White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known 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

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Chaffey Dam Pipeline Project	2022/09314		Completed	In buffer area only
Controlled action				
Hills Plain subdivision	2005/2432	Controlled Action	Completed	In feature area
One Tree Hill Estate - Stage 13	2003/1142	Controlled Action	Post-Approval	In feature area
Operation of Peel River Drought Protection Works	2019/8590	Controlled Action	Post-Approval	In buffer area only
Rosewood Estate (Stage 3) Rural Residential Subdivision	2013/7060	Controlled Action	Post-Approval	In buffer area only
Rural residential subdivision, Rosewood Estate, Moore Creek, NSW	2013/6905	Controlled Action	Completed	In buffer area only
Vegetation clearing for a residential subdivision	2013/6812	Controlled Action	Post-Approval	In feature area
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Replacement Pipeline between Dungowan Village and Calala	2021/9091	Not Controlled Action	Completed	In buffer area only
Residential Development & Assoc Infrastructure 31 & 41 Panorama	2005/2115	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Road				
Residential Subdivision, Warramunga Avenue	2005/2201	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Rural residential subdivision, Lots 172 and 180 DP753851 Barakula Drive, Moore Creek, NSW	2016/7736	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

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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APPENDIX VIII SAII Assessment Criteria – White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

BAM 9.1.2: Additional impact assessment provisions for threatened species at risk of an SAII for principles 1 and 2	
SAII Entity:	White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC (White Box Woodland CEEC)
Development scenario and actions to avoid and minimise impacts:	The proposed development involves construction of a manufactured home estate (MHE) development providing 223 long-term sites and associated internal road network. The proposed development footprint is largely sited within existing low condition grassland areas with limited habitat value however a relatively small area of White Box Woodland CEEC would be impacted by the proposal. The proposal layout has aimed to avoid and minimise impacts to higher quality woodland vegetation occurring within the central part of the site. This was largely achieved by buffering the minimum required APZs from woodland areas with a dense sub canopy White Cypress Pine (PCT 589 - Zone 3) as any APZ in this area may require significant amounts of clearing to achieve APZ requirements. The existing woodland structure of Zones 1 and 2 allows the proposed APZ to be established without the need for tree removal with impacts limited to maintenance of shrubs and ground cover to APZ specifications. This is similar to the existing disturbance regime which includes regular slashing and grazing. The retained areas of vegetation, including reserve and APZ areas, would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management. Measures to be detailed within the VMP may include but not be limited to APZ management requirements, revegetation works, weed management procedures and monitoring and reporting requirements. 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) and VMP to be developed for the construction works and the ongoing operation of the site.

SAII information for *White Box Woodland CEEC*			
Principle	**SAII Status**	**Justification**	**BAM 2020 summary data prior to any additional assessment impact**
Principle 1	Applicable	Species or ecological community currently in a rapid rate of decline	No additional data provided
Principle 2	Applicable	Species or ecological communities with a very small population size	No additional data provided
Principle 3	N/A	N/A	N/Z
Principle 4	N/A	N/A	N/A

Avoid and minimise (see Section 9.1.2(1) BAM 2020)

Refer to BDAR, Section 5.1 and Section 6 for actions taken to avoid and minimise impacts to White Box Woodland CEEC habitat.

Current Status of *White Box Woodland CEEC*

SAII Principle	SAII risk	BAM criteria (Section 9.1.1(2))	Current status of White Box Woodland CEEC
Principle 1	At risk	(2.a) Reduction in geographic distribution as the current total geographic extent of the TEC in NSW AND the estimated reduction in geographic extent of the TEC since 1970 (not including impacts of the proposal)	The Conservation Assessment for White Box Woodland CEEC (NSW TSSC, 2020), states "the community has been extensively cleared throughout its range and remnants are typically small, isolated, highly fragmented and occur in predominantly cleared landscapes and exhibit highly modified understoreys (TSSC 2006). Based on a compilation of available maps depicting the current extent of the community, TSSC (2006) estimated that less than 5% of the original distribution of the Ecological Community remained at that time. This very large historical decline in geographic distribution is corroborated by other sources (e.g. Benson 2008, Tozer et al. 2010, Armstrong et al. 2013, QLD DES 2018, NSW DPIE 2019). There is circumstantial evidence which suggests that clearing of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland is ongoing and has increased in recent years, at least in NSW which accounts for three quarters of the distribution of the Ecological Community. Clearing is likely to continue at least in the short term in NSW under the current regulatory framework."
Principle 2	At risk	(2.b) Extent of reduction in ecological function for the TEC using evidence that describes the degree of environmental degradation or disruption to biotic processes (Principle 2, clause 6.7(2)(b) BC Regulation) indicated by: i) change in community structure ii) change in species composition iii) disruption of ecological processes iv) invasion and establishment of exotic species v) degradation of habitat; and vi). fragmentation of habitat	The Conservation Assessment for White Box Woodland CEEC (NSW TSSC, 2020), states the community is subject to a number of threatening processes that have caused severe disruption to biotic processes and interactions throughout its range and are likely to cause continuing decline in the future. Key threatening processed affecting the community include dryland salinity, elevated soil nitrogen from agricultural processes, complete or partial conversion of the community for agricultural production (including grazing and pasture improvement) and weed incursion. Commonwealth TSSC (2006) has stated: "There has been an overall reduction in the integrity of this ecological community compared with its pre-1750 state. There are essentially no areas remaining that could be considered fully intact, as most patches have at least some degree of weed invasion. The majority of the remaining extent has lost its native understorey, lost whole suites of species, been invaded by

Current Status of *White Box Woodland CEEC*			
SAII Principle	**SAII risk**	**BAM criteria (Section 9.1.1(2))**	**Current status of White Box Woodland CEEC**
			exotic species or lost structural integrity in terms of the loss of shrub, tree or ground layers. Further invasion by exotic species and landscape-scale effects such as salinity, nutrient enrichment, soil structural decline and altered fire regimes are likely to detrimentally effect the integrity of the remaining ecological community in the future.

Projected Impacts to *White Box Woodland CEEC*			
Impacts from the proposal	**SAII risk**	**BAM criteria (Section 9.1.1(4))**	**Projected impact to *White Box Woodland CEEC***
Impact on the geographic extent of the TEC (Principles 1 and 3)	Meets the SAII criteria for Principle 1.	(4.a.i) Estimate of the total area of the TEC to be impacted by the proposal in: i) hectares, and ii) as a percentage of the current geographic extent of the TEC in NSW.	The proposal would impact up to 0.67 hectares of this community which includes the removal of 0.25 ha to accommodate the proposal footprint and the modification of 0.42 hectares to provide the associated APZs. According to Gellie (2005) 134,202 ha of White Box Woodland CEEC remains in Nandewar Bioregion of NSW. The loss and or modification of 0.67 ha of this community from the proposal area represents approximately for 0.00005 per cent of the known geographic extent in Nandewar Bioregion. Approximately 1.4 hectares of White Box Woodland CEEC would be retained within the site and would be subject to a Vegetation Management Plan (VMP) to outline mitigation measures and guide on-going management.
Extent of impacts that are likely to contribute to further environmental degradation or the disruption of biotic processes (Principles 2)	Meets the SAII criteria for Principle 2.	(4.b.i) estimating the size of any remaining, but now isolated, areas of the TEC; including areas of the TEC within 500 m of the development footprint or equivalent area for other types of proposals	Much of the site and surrounding area has been extensively cleared for agriculture and residential purposes and is primarily comprised of modified grasslands. The areas of TEC on site form the northern part of a relatively large patch of native vegetation that extends to the south east of the site. The proposal area largely consists of low condition grasslands and would not further isolate or fragment any areas of White Box TEC. Connectivity to vegetation occurring to the southeast of the site would

Projected Impacts to *White Box Woodland CEEC*			
Impacts from the proposal	**SAII risk**	**BAM criteria (Section 9.1.1(4))**	**Projected impact to *White Box Woodland CEEC***
			be maintained and retained vegetation would be managed under a VMP to outline mitigation measures and guide on-going management. Approximately 19.2 ha of vegetation PCT associated with this TEC (PCT 589) has been mapped within 500m of the site (OEH, 2015; VIS ID: 4468). The removal and / or modification of 0.67 ha to accommodate the proposal footprint and associated APZs represents 3.5% of this CEEC previously mapped within the 500m of the site.
		(4.b.ii) describing the impacts on connectivity and fragmentation of the remaining areas of TEC measured by: • distance between isolated areas of the TEC, presented as the average distance if the remnant is retained AND the average distance if the remnant is removed as proposed, and • estimated maximum dispersal distance for native flora species characteristic of the TEC, and • other information relevant to describing the impact on connectivity and fragmentation, such as the area to perimeter ratio for remaining areas of the TEC as a result of the development.	As above.
		(4.b.iii) describing the condition of the TEC according to the vegetation integrity score for the relevant vegetation zone(s). The assessor must also 42 Biodiversity Assessment Method include the relevant composition, structure and function	See section 3.4 of the BDAR.

Projected Impacts to *White Box Woodland CEEC*			
Impacts from the proposal	**SAII risk**	**BAM criteria (Section 9.1.1(4))**	**Projected impact to *White Box Woodland CEEC***
		condition scores for each vegetation zone.	

References:

NSW Scientific Committee (2020), *Conservation Assessment of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Planning, Industry and Environment, NSW Government.*

NSW Scientific Committee (2020), *CEEC Final determination for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*

TSSC (Threatened Species Scientific Committee) (2006) *Commonwealth Listing Advice on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/box-gum.html. Department of the Environment and Heritage, Commonwealth of Australia.