



# **BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT (SMALL AREA)**

FOR A  
**PROPOSED RESIDENTIAL  
SUBDIVISION**  
AT  
**131 WOLLOMBI ROAD,  
FARLEY NSW 2320**

Prepared by:

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<b>Prepared for:</b>	The Bathla Group				
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	1	Version 3	14/12/2022	Oliver Broun/Stephanie Sheehy	Sarah Jones

# Executive Summary

## Introduction

Firebird ecoSultants Pty Ltd has been engaged by The Bathla Group, to provide a Biodiversity Development Assessment Report (BDAR) for a proposed residential subdivision ('the proposal') at 131 Wollombi Road, Farley NSW 2320 (Lot 1 DP 1049391) ('the site' or 'the subject site').

The proposal includes a Torrens title subdivision (1 lots into 26 residential lots) of 131 Wollombi Road, Farley NSW 2320 to provide development space for the construction of 26 dwellings as well as associated infrastructure such as site access, services and asset protection zones (APZs).

The site is ~1.65 ha in size and is located in the eastern periphery of the residential portion of Farley. The site is zoned predominantly as R1 General Residential, with a strip of RU2 Rural Landscape zoning within the eastern portion of the site. The site currently contains one existing dwelling, three associated sheds, exotic pasture, lawn grass and some remnant native vegetation. Remnant patches of native vegetation occur within the southern portion of the site and scattered through the northern portion. A drainage line transverses through the southern portion of the site from east to west. This stream would be classified as a 2<sup>nd</sup> order watercourse (in accordance with the Strahler stream ordering system in Appendix E of the BAM). The site is surrounded by large residential lots to the east and south, and smaller residential lots as part of new subdivisions to the north and west. The site does not contain important mapped areas for threatened species or any mapped biodiversity values.

## Landscape features

Details	Response
<b>IBRA Region and Subregion</b>	Dominant landscape forms have been used to divide Australia into bioregions. The site is within the Sydney Basin IBRA bioregion and the Hunter IBRA subregion. There are no other IBRA bioregions or subregions near the site. See previous Figure 1-1 for the locations of IBRA regions/subregions within 1.5 km of the site.
<b>Mitchell Landscape</b>	Mitchell Landscapes are used to describe areas in NSW in a broad sense and group together areas with relatively homogenous geomorphology, soils and broad vegetation types and are mapped at a scale of 1:250000. The subject site is within the Hunter – Newcastle Coastal Ramp landscape. This landscape region has an estimated cleared fraction of 0.54. See previous Figure 1-1 for the locations of Mitchell Landscapes within 1.5 km of the site.
<b>Percent Native Vegetation Cover</b>	All areas of native vegetation cover, within the site and within a 1,500 m buffer area surrounding the site, have been mapped; see Figure 2-1. It is estimated, from this mapping, that the native vegetation cover would be 15%.
<b>Wetlands, Rivers, Streams and Estuaries</b>	A tributary of Stone Creek passes through the site from east to west. This stream would be classified as a 2 <sup>nd</sup> order watercourse (in accordance with the Strahler stream ordering system in Appendix E of the BAM). See previous Figure 1-1 for watercourses within 1.5 km of the site.

<b>Connectivity Features</b>	The highly degraded and largely managed state of vegetation within and on surrounding sites indicates that the small patch of remnant vegetation in the south of the site is highly isolated. It is likely that this patch once formed part of the patch of forest vegetation to the south-west of the site. The site's connectivity would likely only be suitable for species that are comfortable crossing relatively open areas due to the lack of canopy and shrub layer throughout the site.
<b>Areas of Geological Significance and Soil Hazard Features</b>	No karst, caves, crevices or cliffs were located on the site or within a 1,500 m buffer around the site. No soil hazards were identified on the site or within a 1,500 m buffer around the site.
<b>Areas of Outstanding Biodiversity Value</b>	Under the BC Act, the Minister for the Environment may declare Areas of Outstanding Biodiversity Value (AOBV). These are special areas that contain irreplaceable biodiversity values that are considered important to NSW, Australia or globally. No listed AOBV occur within the site or within a 1,500 m buffer around the site.

### Patch Size

The site's native vegetation is connected to other small patches of remnant vegetation on neighbouring sites. These patches are connected to a large area of intact bushland to the south-west of the site that is greater than 100 ha in area. Therefore, the patch size has been assessed as >100 ha.

### Plant Community Types

Attribute	Details
<b>PCT 1598 – Forest Red Gum grassy open forest on floodplains of the lower Hunter</b>	
<b>Formation</b>	Forested Wetlands
<b>Vegetation Class</b>	Coastal Floodplain Wetlands
<b>TEC status</b>	Not associated with a TEC
<b>PCT Percent Cleared</b>	0%
<b>Justification for PCT Selection</b>	<p>Surveys undertaken by Firebird ecoSultants have confirmed the presence of a few typical species associated with PCT 1598, including <i>Eucalyptus tereticornis</i> (Forest Red Gum).</p> <p>Note: Due to extensive clearing having occurred on the subject site, removing the majority of native species, identifying a PCT which matched the sites vegetation was difficult. Remaining vegetation within</p>



	the site and relevant PCTs from the surrounding area were used to estimate the closest PCT relevant to the site.
<b>Other PCTs considered</b>	<b>PCT 1588 – Grey Ironbark – Broad-leaved Mahogany – Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast</b>
<b>Impacted by the proposal?</b>	Yes – Both directly and indirectly impacted by the proposal

## Vegetation Integrity

PCT	Vegetation Zone (VZ)	Composition Score	Structure Condition Score	Function Condition Score	Vegetation Integrity Score
1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	VZ 1: Moderate	57.5	48.5	70.2	58.1
1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	VZ 2: Poor	62	22.7	70.2	46.2

## Habitat Assessment

The following describes the habitat attributes of the study area;

- A tributary of Stone Creek passes through the southern portion of the site from east to west. This stream would be classified as a 2<sup>nd</sup> order watercourse (in accordance with the Strahler stream ordering system in Appendix E of the BAM). This is to be retained as part of the proposed development.
- The study area contains tree species that are listed as Koala Feed Trees.
- The study area provides open grassland habitat which may provide habitat for species adapted to open areas.
- The site contains three (3) hollow-bearing trees; being medium and large sized hollows, suitable for microbats, mammals, birds, mammals or herpetofauna.
- The study area contains limited fallen logs and timber which would provide limited habitat for reptiles and foraging birds.
- No caves, tunnels, mines or culverts occur within the study area or the site.
- No stick nests occur within the study area or the site (at the time of surveys)



- No flying fox camps occur within or near the site.

### Avoidance of Impacts to the site's biodiversity values

The sites PCT 1598 is not considered to be threatened. The site has been subject to extensive previous disturbance, which has left the site with limited native species. The construction and operational development footprint is therefore positioned within an area of the site that has already been predominantly cleared of native vegetation and contains a less intact area of the PCT.

PCT 1598 covers an area of 0.46 ha within the site and contains two vegetation zones:

- Vegetation zone 1 – Moderate: This vegetation zone occurs in a moderate condition, with an intact canopy stratum with a few large mature trees. Three (3) hollow-bearing trees were observed in this area. There is a moderate shrub layer present within this zone and the density of ground cover is a mix of native and exotics species.
- Vegetation zone 2 – Poor: There is little to no upper or regrowth canopy stratum, no shrub layer and a mix of native and exotic groundcover.

PCT 1598 will be directly impacted by the proposal by vegetation clearing (0.46ha) and may be indirectly impacted by changes in edge effects, noise, light pollution and dust from construction phase activities and post-development activities. All of the direct impacts to this PCT occur within zone 1 and 2;

### Direct Impacts

PCT	BC Act Name / Listing Status	EPBC Act Name / Listing Status	Vegetation Zone (VZ) Name	Direct Impact
1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	Not listed	Not listed	VZ 1: Moderate	0.306 ha
			VZ 1: Poor	0.152 ha



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## Abbreviations

<b>Abbreviation</b>	<b>Meaning</b>
AOBV	Areas of Outstanding Biodiversity Value
BAM	Biodiversity Assessment Methodology 2020
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
DCP	Development Control Plan
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DEE	Department of Environment and Energy
DoE	Department of Environment
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
Ha	Hectare
LEP	Local Environmental Plan
LGA	Local Government Area
MU	Map Unit
NPWS	NSW National Parks and Wildlife Service
OEH	Office of Environment and Heritage
PCT	Plant Community Type
PFC	Projected Foliage Cover
SAII	Serious and Irreversible Impacts
TBCD	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community
VMP	Vegetation Management Plan



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# I INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged by The Bathla Group, to provide a Biodiversity Development Assessment Report (BDAR) for a proposed residential subdivision ('the proposal') at 131 Wollombi Road, Farley NSW 2320 (Lot 1 DP 1049391) ('the site' or 'the subject site'). See Figure 1-1 for the Location Map and Figure 1-2 for the Site Map. This BDAR has been prepared to satisfy the requirements of the *Biodiversity Conservation Act 2016* (BC Act). This assessment has been undertaken in accordance with the Biodiversity Assessment Method 2020.

## I.1 Description of the Proposal

The proposal is for a Torrens title subdivision (1 lots into 26 residential lots) of 131 Wollombi Road, Farley NSW 2320 to provide development space for the construction of 26 dwellings as well as associated infrastructure such as site access, services and asset protection zones (APZs).

The development footprint is to be located over predominately disturbed land containing exotic pasture grasses and weeds, with some small areas of disturbed remnant native vegetation.

The proposed development footprint is indicated in Figure 1-2. It totals an area of ~1.65ha of land/vegetation and encompasses the following areas:

- The designated area for residential lots, building envelopes, APZs and site access is 1.65ha. The majority of this land is grassland (1.08 ha), planted vegetation (0.95 ha) and highly disturbed areas of PCT 1598 (0.15 ha). Refer to the Vegetation Map in Figure 1-5 below.
- The proposed operational footprint would include the same areas as the construction footprint indicated in Figure 1-2; that being the developed areas for the residential lots, detention basin and site access and the APZs.

Refer to Appendix A for Site Plans.

## I.2 General Site Description

The site is ~1.65ha in size and is located in the eastern periphery of the growing residential portion of Farley. The site is zoned predominantly as R1 General Residential, with a strip of RU2 Rural Landscape zoning within the eastern portion of the site. The site currently contains one existing dwelling, three associated sheds, exotic pasture, lawn grass and some remnant native vegetation. Remnant patches of native vegetation occur within the southern portion of the site and scattered through the northern portion. The vegetated areas of the site are not currently grazed by livestock however, there is strong evidence of past grazing in the area. One drainage canal occurs within the site that drains through the site from west to east toward Stoney Creek which eventually drains into Swamp Creek. The drainage canal within the site would be classed as a 2nd order



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watercourse (in accordance with the Strahler stream ordering system in Appendix 3 of the BAM). The site is surrounded by large residential lots to the east and south, and smaller residential lots as part of new subdivisions to the north and west. The site does not contain important mapped areas for threatened species or any mapped biodiversity values.

See Figure 1-1 for the site location.

### **I.3 The Study Area**

The study area is the area of land within the site that has been assessed in this report, which is the area of vegetation within the site that is relevant to this BDAR i.e. the area of vegetation within or potentially impacted by the construction and operational footprint. Land within the site that is not considered to be impacted by the proposal (either directly or indirectly) is considered to be outside the study area. In this case however, the study area encompasses the entire site.

### **I.4 Information sources**

#### **I.4.1 Database Searches**

The following database searches were undertaken, in order to compile a list of threatened flora and fauna species predicted to occur in the area:

- Review of threatened fauna and flora records within a 10 km radius of the site, contained in the OEH *Atlas of NSW Wildlife* (NSW BioNet).
- Review of the MNES records within a 10 km radius of the site, using the Commonwealth Department of Environment and Energy (DEE), EPBC Act Protected Matters Search Tool.

#### **I.4.2 Regional Vegetation Mapping**

Regional scale vegetation mapping, previously undertaken in the area, was reviewed. This included a review of *Greater Hunter Native Vegetation Mapping v4.0. VIS ID 3855* and Greater Hunter Vegetation Community & Plant Community Types Map.



### I.4.3 Literature Review

Information sources reviewed included, but were not limited to:

- Aerial Photograph Interpretation (API)
- Relevant guidelines, including:
  - OEH *Biodiversity Assessment Method*, 2020
  - *NSW Guide to Surveying Threatened Plants* (OEH, 2016)
  - *'Species credit' threatened bats and their habitats: NSW survey guide for the Biodiversity Assessment Method* (OEH, 2018)
  - *NSW Survey Guide for Threatened Frogs: A guide for the survey of frogs and their habitats for the Biodiversity Assessment Method* (DPI&E, 2020)
  - *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities* (Department of Environment and Conservation (DEC), 2004)
- Environmental / planning reports relevant to the site / area, including:
  - *Maitland LEP 2011*;
  - *Maitland DCP 2011*;
- Any environmental / ecological reports relevant to the site or area, including vegetation mapping.
- Online tools and resources, including:
  - BAM Calculator (OEH, 2020)
  - BioNet Vegetation Classification (OEH, 2020)
  - BioNet Threatened Biodiversity Data Collection (OEH, 2020)
  - Directory of Important Wetlands in Australia (Department of Environment and Energy (DEE), 2010)
  - NSW Scientific Committee Final Determinations (NSW Scientific Committee various dates)
  - Commonwealth Threatened Species Scientific Committee (TSSC) Final Determinations for threatened species (TSSC Various Dates)
  - OEH Threatened Species, Populations and Ecological Communities website
  - Commonwealth DEE Species, Profile and Threats Database
  - PlantNET NSW (Botanic Gardens Trust, 2018).



Figure 1-1: Location Map

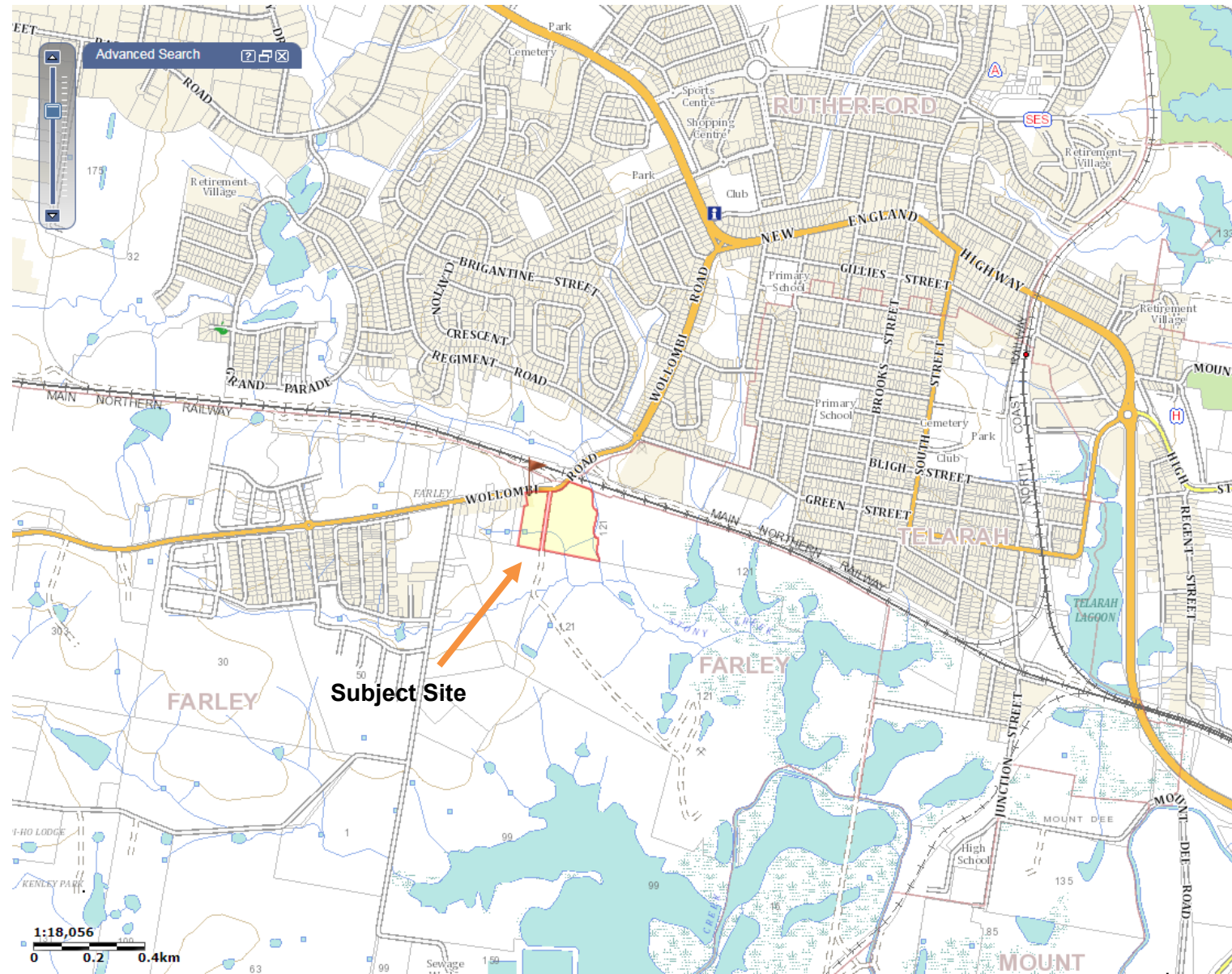
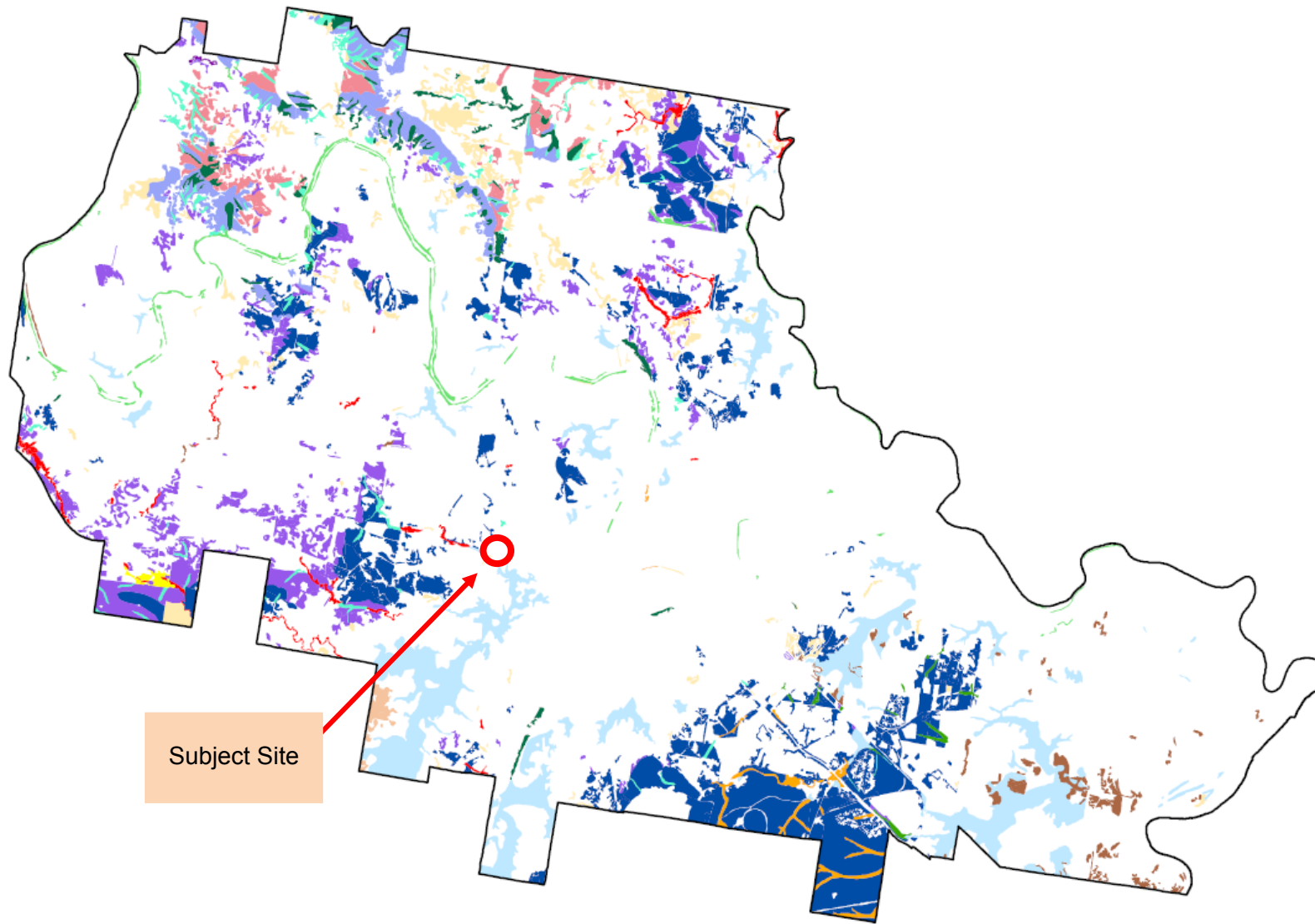




Figure 1-2: Location Map within Maitland LGA (NGH)



within City of Maitland (2020-21)

- Vegetation Community**
- Freshwater Wetland Complex
  - Alluvial River Oak Forest
  - Alluvial Tall Moist Forest
  - Central Hunter Riparian Forest
  - Central Hunter Riparian Forest and Hunter Lowlands Redgum Forest Variant
  - Lower Hunter Spotted Gum Ironbark Forest
  - Hunter Lowlands Redgum Forest Variant
  - Hunter Lowlands Redgum Moist Forest
  - Hunter Stringybark Spotted Gum Ironbark Forest
  - Hunter Valley Dry Rainforest
  - Hunter Valley Moist Forest
  - Kurri Sand Swamp Woodland
  - Riparian
  - Scattered Trees
  - Seaham Spotted Gum Ironbark Forest
  - Swamp Oak Alluvial Forest

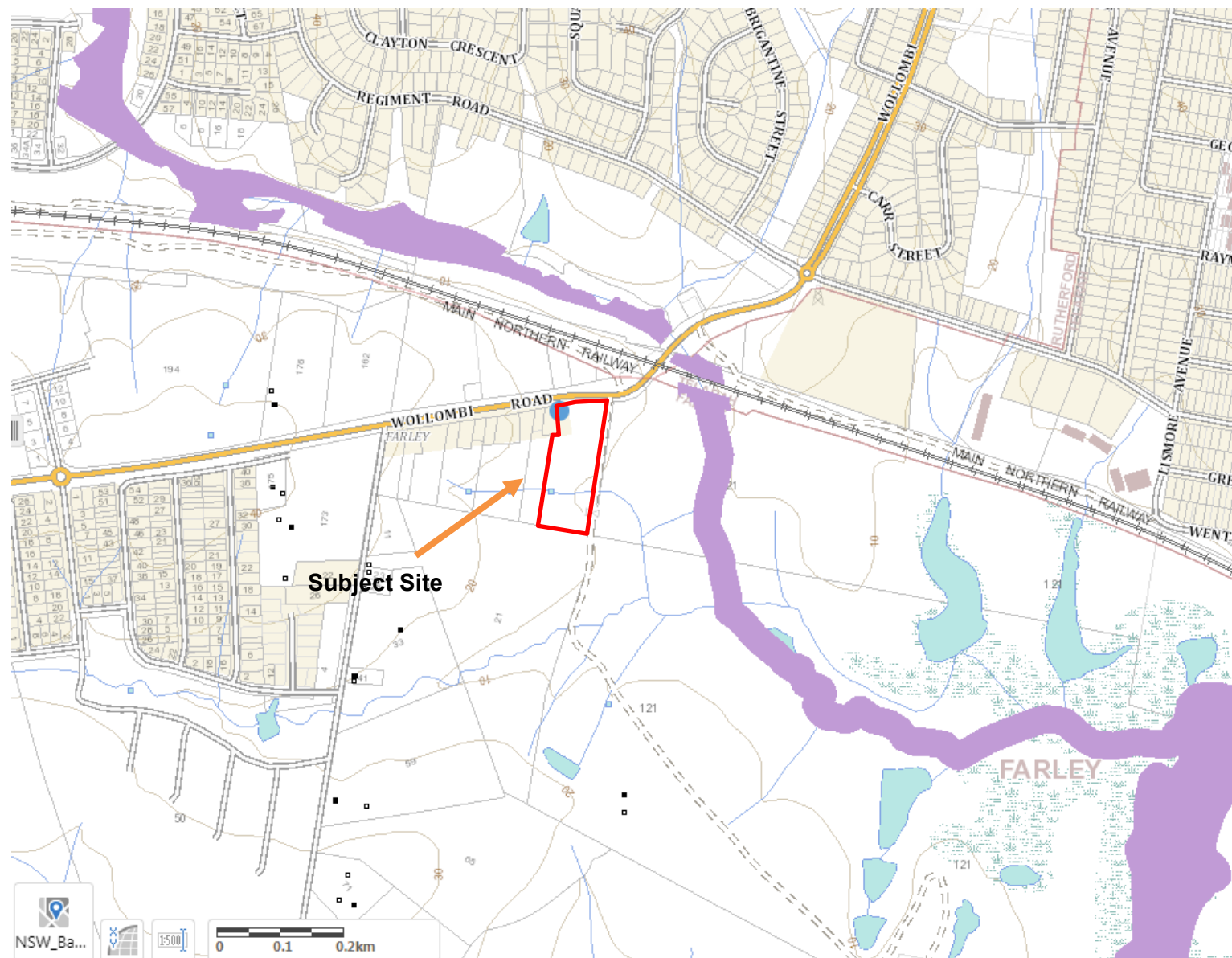
Data Attribution  
 © NGH 2021  
 © Maitland City Council 2021  
 © NSW S5 SDS 2021  
 © NSW OEH 2021  
 Ref: 21-137 Fig Updated Maitland Native Vegetation 2020\_21  
 Author: Rebecca Sims  
 Date created: 22/09/2021  
 Datum: GDA94 / MGA zone 56



0 0.5 1 2 Km



Figure 1-3: Biodiversity Values Map



Legend

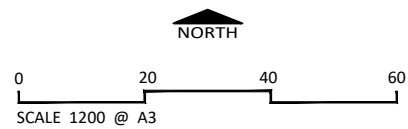
- █ Subject Site
- █ 100m Buffer
- █ Proposed Building Envelope



Note:  
 Boundaries are not survey accurate.  
 Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 1-4: SITE MAP

CLIENT Client  
 No.131 Wollombi Road Farley  
 DATE 23 November 2022



Firebird ecoSultants Pty Ltd  
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 Level 1, 146 Hunter Street, Newcastle NSW 2300  
 P O Box 354 Newcastle NSW 2300



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**Legend**

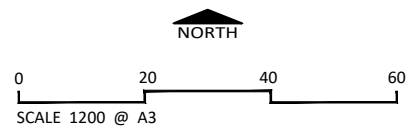
- ▭ Subject Site
- ▭ PCT 1588 - Vegetation Zone Poor
- ▭ PCT 1588 - Vegetation Zone Moderate
- ▭ Planted Vegetation
- ▨ Grassland



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**FIGURE 1-5: VEGETATION MAP**

CLIENT Client  
 SITE DETAILS No.131 Wollombi Road Farley  
 DATE 6 December 2022



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 P O Box 354 Newcastle NSW 2300



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## 2 STAGE I – BIODIVERSITY ASSESSMENT

### 2.1 Landscape features

This section details the landscape features occurring on the Subject Land or within the assessment area (i.e. a 1.5 km buffer) surrounding the Subject Land; see Table 2-1.

**Table 2-1: Landscape Features**

Details	Response
<b>IBRA Region and Subregion</b>	Dominant landscape forms have been used to divide Australia into bioregions. The site is within the Sydney Basin IBRA bioregion and the Hunter IBRA subregion. There are no other IBRA bioregions or subregions near the site. See previous Figure 1-1 for the locations of IBRA regions/subregions within 1.5 km of the site.
<b>Mitchell Landscape</b>	Mitchell Landscapes are used to describe areas in NSW in a broad sense and group together areas with relatively homogenous geomorphology, soils and broad vegetation types and are mapped at a scale of 1:250000. The subject site is within the Hunter – Newcastle Coastal Ramp landscape. This landscape region has an estimated cleared fraction of 0.54. See previous Figure 1-1 for the locations of Mitchell Landscapes within 1.5 km of the site.
<b>Percent Native Vegetation Cover</b>	All areas of native vegetation cover, within the site and within a 1,500 m buffer area surrounding the site, have been mapped; see Figure 2-1. It is estimated, from this mapping, that the native vegetation cover would be 15%.
<b>Wetlands, Rivers, Streams and Estuaries</b>	A tributary of Stone Creek passes through the site from east to west. This stream would be classified as a 2nd order watercourse (in accordance with the Strahler stream ordering system in Appendix E of the BAM). See previous Figure 1-1 for watercourses within 1.5 km of the site.
<b>Connectivity Features</b>	The highly degraded and largely managed state of vegetation within and on surrounding sites indicates that the small patch of remnant vegetation in the south of the site is highly isolated. It is likely that this patch once formed part of the patch of forest vegetation to the south-west of the site. The site's connectivity would likely only be suitable for species that are comfortable crossing relatively open areas due to the lack of canopy and shrub layer throughout the site.
<b>Areas of Geological Significance and Soil Hazard Features</b>	No karst, caves, crevices or cliffs were located on the site or within a 1,500 m buffer around the site. No soil hazards were identified on the site or within a 1,500 m buffer around the site.
<b>Areas of Outstanding Biodiversity Value</b>	Under the BC Act, the Minister for the Environment may declare Areas of Outstanding Biodiversity Value (AOBV). These are special areas that contain irreplaceable biodiversity values that are considered important to NSW, Australia or globally. No listed AOBV occur within the site or within a 1,500 m buffer around the site.



## 2.2 Native vegetation

### 2.2.1 Native Vegetation Cover Within the Site

The site contains 0.46 ha of native vegetation. The extent of native vegetation to be assessed in this BDAR (i.e., the area of native vegetation within or potentially impacted by the construction and operational footprint) is 0.46 ha; see Figure 2-2 for the native vegetation extent within the site.

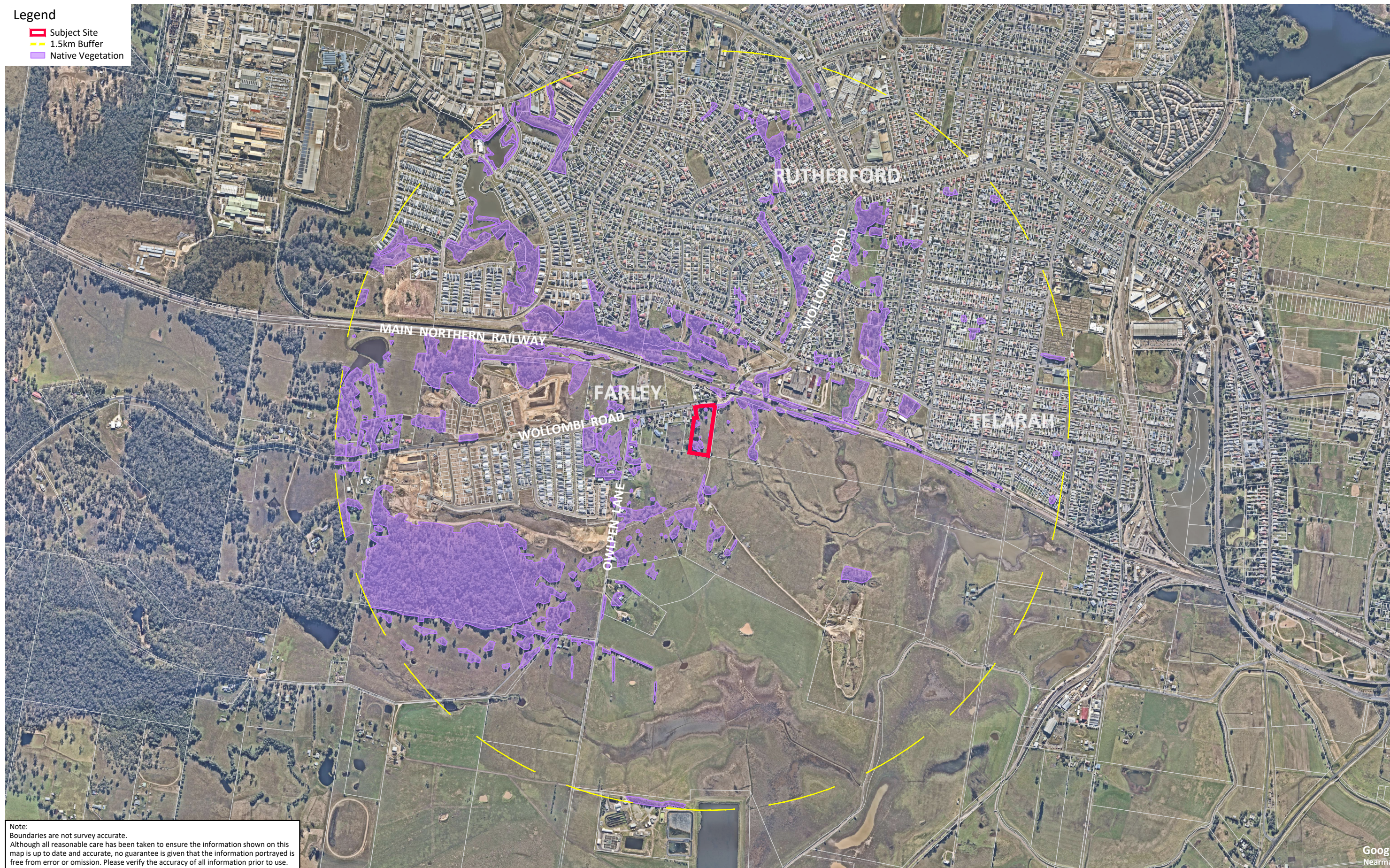
### 2.2.2 Patch Size

A patch is defined in the BAM as an area of intact native vegetation that occurs on the subject land. The patch may extend onto adjoining land beyond the footprint of the subject land, and for woody ecosystems, includes native vegetation separated by  $\leq 100$  metres from the next area of intact native vegetation. For non-woody vegetation, this gap is reduced to  $\leq 30$  metres. Intact vegetation must contain all structural layers (strata) characteristic of the PCT. Plot data should not be solely relied upon when determining whether vegetation is intact. If all structural growth form groups expected to exist within the community are present within the vegetation zone and/or adjoining off-site native vegetation, then the vegetation meets the definition of intact. For example, if all structural growth form groups except the shrub layer are present in the plots but species that belong to the shrub growth form group occur elsewhere within the vegetation zone, then the shrub growth form group is present, and the vegetation is intact.

The patch size has been assessed as  $> 101$ ha.

**Legend**

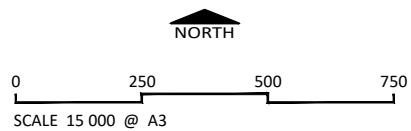
- Subject Site
- 1.5km Buffer
- Native Vegetation



Note:  
 Boundaries are not survey accurate.  
 Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

**FIGURE 2-1: NATIVE VEGETATION EXTENT**

CLIENT Client  
 SITE DETAILS No.131 Wollombi Road Farley  
 DATE 23 November 2022



Firebird ecoSultants Pty Ltd  
 ABN - 16 105 985 993  
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Legend

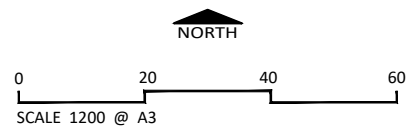
- Subject Site
- Native Vegetation



Note:  
 Boundaries are not survey accurate.  
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FIGURE 2 - 2: NATIVE VEGETATION WITHIN THE SITE

CLIENT Client  
 No.131 Wollombi Road Farley  
 DATE 6 December 2022



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### 2.2.3 Identifying Plant Community Types

#### Review of Existing Information

Table 2-3 details the review on existing information on the site’s PCTs/vegetation communities.

**Table 2-2: Review of Existing Information on the Site’s PCTs**

Vegetation Mapping Project	Response
Greater Hunter Native Vegetation Mapping v4.0. VIS ID 3855	There were no PCT’s mapped within the site

#### 2.2.3.1 Plot-based Floristic Surveys

Plot-based floristic vegetation surveys were undertaken within the study area in accordance with s.5.2.1.9 of the BAM, by two ecologists on 14<sup>th</sup> October 2022. The 20 m x 20 m plots were sampled for the presence of flora species; see Figure 2-3 for the plot locations undertaken within the impacted PCTs (the study area) and see Appendix I for photos. The plots were carefully examined to identify all flora species present. This search continued until it was confident that all flora species within the plots were detected. Data collected for each species included:

- Stratum and layers in which each species occurs;
- Growth form for each species;
- Scientific and common name for each species;
- Percentage foliage cover (PFC) across the plot, of each species rooted in or overhanging the plot; and
- Abundance rating for each species.

Plant Community Type/s (PCTs) on the site were identified according to the NSW PCT classification described in the BioNet Vegetation Classification. Two native PCTs have been identified within the site; these PCTs are described below. The distribution of the PCTs in the development footprint is indicated in Figure 2-4. Plot data is provided in Appendix B. A full recorded species list is provided in Appendix C.

#### 2.2.3.2 Plant Community Types

The PCT identified within the site was not found to be consistent with the PCT mapped on *Greater Hunter Native Vegetation Mapping v4.0. VIS ID 3855* and Lake Macquarie City Council Vegetation Community & Plant Community Types Map. The distribution of the site’s PCT is indicated in Figure 2-4. See Appendix I for photos.

The sites PCT was difficult to determine given the degraded nature of the site and there only being two native tree species present. PCT 1598 was chosen as it includes the Forest Red Gum as its primary species which was found on the site.

**Table 2-3: Plant Community Types within the site that are impacted by the proposal**

Attribute	Details
<b>1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter</b>	
<b>Formation</b>	Forested Wetlands
<b>Vegetation Class</b>	Coastal Floodplain Wetlands
<b>TEC status</b>	Not associated with a TEC
<b>PCT Percent Cleared</b>	0%
<b>Justification for PCT Selection</b>	<p>Surveys undertaken by Firebird ecoSultants have confirmed the presence of several typical species associated with PCT 1598, including <i>Eucalyptus tereticornis</i> (Forest Red Gum).</p> <p>Note: Due to extensive clearing having occurred on the subject site, removing the majority of native species, identifying a PCT which matched the sites vegetation was difficult. Remaining vegetation within the site and relevant PCTs from the surrounding area were used to estimate the closest PCT relevant to the site.</p>
<b>Other PCTs considered</b>	<p>PCT 1588 – Grey Ironbark – Broad-leaved Mahogany – Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast. However, as the subject site is not considered to be within a coastal wetland area this PCT was deemed not applicable.</p>
<b>Impacted by the proposal?</b>	Yes – Both directly and indirectly impacted by the proposal

Legend

- ▭ Subject Site
- ▭ Floristic Plot

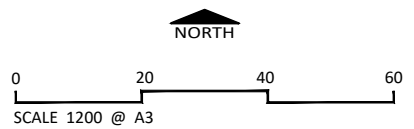


Note:  
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Google  
Nearmap

FIGURE 2-3: FLORISTIC SURVEY PLOT

CLIENT Client  
 No.131 Wollombi Road Farley  
 DATE 23 November 2022



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**Legend**

- ▭ Subject Site
- ▭ PCT 1598 - Vegetation Zone Poor
- ▭ PCT1598 - Vegetation Zone Moderate

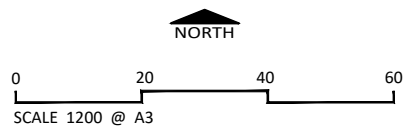


Note:  
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Google  
 Nearmap

**FIGURE 2-4: PLANT COMMUNITY TYPES**

CLIENT Client  
 No.131 Wollombi Road Farley  
 DATE 6 December 2022



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## 2.2.4 Vegetation Integrity Assessment

### Vegetation Zones

For the purposes of the BAM, a vegetation zone is an area of native vegetation on the site that is the same PCT and has a similar broad condition state. The site's impacted PCTs have been divided into several vegetation zones (as detailed in Table 2-4) (see Appendix I for photos). A patch size area has been assigned to each vegetation zone, as a class (as detailed in Table 2-4). See Appendix I for photos of each vegetation zone.

**Table 2-4: Vegetation Zones and Patch Size Classes**

PCT	Vegetation Zone (VZ) Name	Vegetation Zone Description	Patch Size Class
PCT 1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	VZ 1: Moderate	This vegetation zone occurs in a moderate condition, with a few large mature trees. Three (3) hollow-bearing trees were observed in this area. There is a high number of regenerating trees and a moderate shrub layer present within this zone. The density of native ground cover is a mix of native and exotics species.	>100 ha
	VZ 2: Poor	There is little to no upper or regrowth canopy stratum, no shrub layer and a mix of native and exotic groundcover. No hollow-bearing trees were observed within this zone.	>100 ha

### Vegetation Integrity Scores

Each vegetation zone identified on the site has been surveyed to obtain a quantitative measure for each zone, of the composition, structure and function attributes listed in Table 3 of the BAM. These attributes are listed below:

- Growth form groups used to assess composition and structure:
  - Tree
  - Shrub
  - Grass and grass like
  - Forb
  - Fern
  - Other



- Attributes used to assess function:
  - Number of large trees
  - Tree regeneration
  - Tree stem size class
  - Total length of fallen logs
  - Litter cover
  - High threat exotic vegetation cover
  - Hollow-bearing trees

Plot-based surveys were conducted, in accordance with s.5.3.4 of the BAM, by two ecologists on 14<sup>th</sup> October 2022. Survey plots were established around a central 50 m transect and included:

- One 400 m<sup>2</sup> (20 m x 20 m) plot to assess the composition and structure attributes listed above.
- One 1000 m<sup>2</sup> (20 m x 50 m) plot to assess the function attributes: number of large trees, stem size class, tree regeneration and length of logs.
- Five 1 m<sup>2</sup> sub-plots to assess average litter cover (and other optional groundcover components).

See previous Figure 2-3 for plot locations. Plot data is provided in Appendix B. Table 2-5 details the vegetation integrity score.

**Table 2-5: Vegetation Integrity Scores**

<b>PCT</b>	<b>Vegetation Zone (VZ)</b>	<b>Composition Score</b>	<b>Structure Condition Score</b>	<b>Function Condition Score</b>	<b>Vegetation Integrity Score</b>
<b>PCT 1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter</b>	VZ 1: Moderate	57.5	48.5	70.2	58.1
	VZ 2: Poor	62	22.7	70.2	46.2

### 2.3 Threatened Species

The following has been undertaken in accordance with section 6 of the BAM.

Under the BAM, threatened species are separated into two classes, ‘ecosystem’ and ‘species’ credit species. Those threatened species where the likelihood of occurrence of a species or elements of the species’ habitat can be predicted by vegetation surrogates and landscape features, or for which a targeted survey has a low probability of detection, are identified as ‘ecosystem’ credit species. Targeted surveys are not required for ecosystem species and potential impacts to these species are assessed in conjunction with impacts to PCTs.

Threatened species where the likelihood of occurrence of a species or elements of suitable habitat for the species cannot be confidently predicted by vegetation surrogates and landscape features and can be reliably detected by survey are identified as ‘species’ credit species. A targeted survey or an expert report is required to confirm the presence or absence of these species on the subject land.

For some threatened species, they are identified as both ecosystem and species credit species, with different aspects of the habitat and life cycle representing different credit types. Commonly, threatened fauna species may have foraging habitat as an ecosystem credit, while their breeding habitat represents a species credit.

The following sections outline the process for determining the habitat suitability for threatened species within the subject lands, and the results of targeted surveys for candidate threatened species.



### 2.3.1 Identify Threatened Species for Assessment

Threatened species that require assessment are initially identified based upon the following criteria:

- the distribution of the species includes the IBRA subregion in which the subject land occurs
- the study area is within any geographic constraints of the distribution of the species within the IBRA subregion.
- the species is associated with any of the PCTs identified within the study area
- the native vegetation cover within an assessment area including a 1500m buffer around the study area is equal to or greater than the minimum required for the species.
- the patch size that each vegetation zone is part of is equal to or greater than the minimum required for that species.
- the species is identified as an ecosystem or species credit species in the Threatened Biodiversity Data Collection.

The process for identifying threatened species which meet the above criteria is completed through the BAM Calculator. The PCTs identified within the study area, patch sizes and native vegetation cover, as outlined in Section 3, were entered into the BAM Calculator and a preliminary list of threatened species were identified.

### 2.3.2 Ecosystem Credit Species

Ecosystem credit species are those where the likelihood of occurrence of the species or elements of the species' habitat, can be predicted by vegetation surrogates and landscape features, or for which targeted survey has a low probability of detection. The Threatened Biodiversity Data Collection (TBCD) has identified several ecosystem credit species as requiring assessment, for the proposal; these are listed in Table 2-6.



**Table 2-6: Ecosystem Credit Species Predicted to occur within the Study Area**

<b>Ecosystem Credit Species</b>	<b>Habitat Constraints</b>	<b>Veg Zone - Confirmed Predicted Species</b>	<b>Justification when not confirmed for a Veg Zone</b>	<b>BC Act listing</b>	<b>EPBC Act listing</b>
<b><i>Chthonicola sagittata</i></b> Speckled Warbler	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Climacteris picumnus victoriae</i></b> Brown Treecreeper (eastern subspecies)	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Daphoenositta chrysoptera</i></b> Varied Sittella	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Dasyurus maculatus</i></b> Spotted-tailed Quoll	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	E
<b><i>Glossopsitta pusilla</i></b> Little Lorikeet	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Haliaeetus leucogaster</i></b> White-bellied Sea Eagle (Foraging)	<ul style="list-style-type: none"> <li>• N/A Waterbodies</li> <li>• Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines = Yes</li> </ul>	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Hirundapus caudacutus</i></b> White-throated Needletail	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	-	V
<b><i>Neophema pulchella</i></b> Turquoise Parrot	-	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A	V	-
<b><i>Ninox connivens</i></b>	-	PCT 1598 VZ1 = Yes	N/A	V	-



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Barking Owl (Foraging)		PCT 1598 VZ2 = Yes			
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### 2.3.3 Species Credit Species (Candidate Species)

Species credit species (or candidate species) are those where the likelihood of occurrence of the species or elements of suitable habitat for the species, cannot be confidently predicted by vegetation surrogates and landscape features and can be reliably detected by survey. The TBDC has identified 1 candidate species as requiring assessment for the subject proposal. Refer to Table 2.7 for Candidate Species.

**Table 2-7: Ecosystem Credit Species Candidate to occur within the Study Area**

Ecosystem Credit Species	Habitat Constraints	Veg Zone - Confirmed Predicted Species	Justification when not confirmed for a Veg Zone
<b><i>Persoonia pauciflora</i></b> North Rothbury Persoonia	Geographical Limitations- Site is not located within 10km of North Rothbury	PCT 1598 VZ1 = Yes PCT 1598 VZ2 = Yes	N/A





### 2.3.4 Habitat Assessment

The following describes the habitat attributes of the study area;

- A tributary of Stone Creek passes through the southern portion of the site from east to west. This stream would be classified as a 2<sup>nd</sup> order watercourse (in accordance with the Strahler stream ordering system in Appendix E of the BAM).
- The study area contains *E. tereticornis* species that are listed as Koala Feed Trees.
- The study area provides cleared exotic grassland areas which may provide habitat for species adapted to open areas.
- The site contains three (3) hollow-bearing trees, including multiple medium and large sized hollows, suitable for microbats, mammals, birds, mammals or herpetofauna.
- The study area contains limited fallen logs and timber which would provide limited habitat for reptiles and foraging birds.
- No caves, tunnels, mines or culverts occur within the study area or the site.
- No stick nests occur within the study area or the site (at the time of surveys)
- No flying fox camps occur within or near the site.

See Appendix I for site vegetation photos and hollow-bearing trees.

#### 2.3.4.1 Koala Habitat Protection SEPP 2021

A development proposal must be assessed under the development assessment process under the SEPP in LGAs where no approved Koala Plan of Management is in place. This includes all land;

- a. with an area of at least 1 hectare, including adjoining land (meaning land the next cadastre over) within the same ownership, and
- b. that is within an LGA to which the SEPP applies.

The site is greater than 1 hectare and Farley occurs within the Maitland City Council LGA which lies within the Central Coast Koala Management Area. There is no Koala Plan of Management for the Maitland LGA and so this development proposal must be assessed under the development assessment process under the Koala Habitat Protection SEPP 2021.

Because the subject site contains koala feed trees (Forest Red Gum), ecologists from Firebird ecoSultants conducted the survey for core koala habitat. The Forest Red Gum



trees within the site were visually inspected for scratch marks, and scats searches were conducted. No evidence of koalas were found on the site.

In addition, the koala feed trees within the site are isolated. It is considered unlikely for koalas to reside within isolated groups of trees. There are nearby areas of vegetation which would be more suitable for this species. It was therefore concluded that the site does not contain core koala habitat. No further provisions of the Koala Habitat Protection SEPP 2021 apply.

### **2.3.5 Targeted Threatened Flora & Fauna Surveys**

The *Persoonia pauciflora* (North Rothbury Persoonia) has been identified as a candidate threatened species. Targeted surveys were undertaken within the site. The species was not recorded and does not occur within the site.



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## 3 STAGE 2 – IMPACT ASSESSMENT

### 3.1 Avoiding and Minimising Impacts

The following sections 3.1.1 to 3.1.2 describe efforts undertaken to avoid and minimise impacts on biodiversity values in accordance with Chapter 7 of the BAM.

#### 3.1.1 Avoidance of Impacts to the site's biodiversity values

The sites PCT 1598 is not considered to be threatened. The site has been subject to extensive previous disturbance, which has left the site with limited native species. The construction and operational development footprint is therefore positioned within an area of the site that has already been predominantly cleared of native vegetation and contains a less intact area of the PCT.

PCT 1598 covers an area of 0.46ha within the site and contains two vegetation zones:

- Vegetation zone 1 – Moderate: This vegetation zone occurs in a moderate condition, with an intact canopy stratum with a few large mature trees. Three (3) hollow-bearing trees were observed in this area. There is a moderate shrub layer present within this zone and the density of ground cover is a mix of native and exotics species.
- Vegetation zone 2 – Poor: There is little to no upper or regrowth canopy stratum, no shrub layer and a mix of native and exotic groundcover.

PCT 1598 will be directly impacted by the proposal by vegetation clearing (0.46ha) and may be indirectly impacted by changes in edge effects, noise, light pollution and dust from construction phase activities and post-development activities. All of the direct impacts to this PCT occur within zone 1 and 2.

A sub-regional corridor is located over the subject site which connects to a regional corridor further to the west (Vegetation Canopy Assessment Report, NGH). However, given there are more suitable areas of vegetation nearby compared to the sites isolated patches of vegetation, the proposed vegetation removal is not considered to impact upon the sub-regional corridor. The highly mobile species that utilise the site for foraging are not expected to be impacted.

Refer to Figure 3-1 for an overview of direct and indirect impact areas. Refer to Table 3-1 for Impact avoidance and minimisation.

**Table 3-1 - Impact avoidance and minimisation**

<b>Locating a Project to Avoid and Minimise Impacts on Native Vegetation and Habitat</b>	
<b>Objectives/Requirements</b>	<b>Compliance</b>
<p><b>Project location decisions should be informed by knowledge of biodiversity values. The biodiversity values set out in Stage 1 of the BAM may be used to provide early consideration in planning the route or location of a proposal.</b></p>	<p>Under the Maitland Local Environment Plan 2011 (the LEP), the site is zoned R1 General Residential. The site is highly disturbed due to the existing use as residential rural property.</p> <p>The vegetation within the site has not been identified as being of high conservation value on the Biodiversity Values Map (refer to Figure 1-4).</p>
<p><b>Final selection of project location may be an iterative process. Location decisions may need to be revisited when all field surveys have been completed.</b></p> <p><b>Direct impacts on clearing of native vegetation and habitat can be avoided and minimised by:</b> (a) locating the development outside of biodiversity values            (b) locating the project in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower vegetation integrity score)            (c) locating the project in areas that avoid habitat for species that have a high biodiversity risk weighting or land mapped on the important habitat map, or native vegetation that is a TEC or highly cleared PCT.            (d) locating the project so its outside of the buffer area around breeding habitat features such as nest trees or caves</p>	<p>a) As reflected in the Biodiversity Values Map states that the development footprint does not contain any areas containing biodiversity values.</p> <p>b) The proposed development footprint has been located over areas containing both native remnant vegetation and areas of planted vegetation. Areas of remnant vegetation exist in highly degraded condition across the site.</p> <p>c) Threatened species with the potential to occur on site do not attract species credits and are highly mobile. The vegetation within the site has not been identified as of high conservation value during current detailed surveys as indicated by the VIS. The site being highly disturbed, contains no threatened Flora Species and any threatened fauna species that would utilise the site would be highly mobile) and would be adapted to highly modified environments.</p> <p>d) The proposal will remove some hollow bearing trees. These trees are however considered isolated. No threatened species were identified on site. Species which may be inhabiting these trees are likely to be highly mobile species.</p>
<p><b>Justifications for the decisions in determining the final location must be based on consideration of</b></p> <p><b>(a) an analysis of alternative modes or technologies that would avoid or</b></p>	<p>The proposed development occurs on already cleared / disturbed land, that has been impacted by the exiting use as residential and rural land as such this land in terms of biodiversity values is better outcome than locating a development in</p>

<p>minimise impacts on biodiversity values</p> <p>(b) an analysis of alternative routes that would avoid or minimise impacts on biodiversity values</p> <p>(c) an analysis of alternative sites that within a property on which the project is proposed that would avoid or minimise impacts on biodiversity values</p>	<p>vegetation that isn't disturbed and has a high VIS.</p>
<p>The proposal may also list and map constraints, such as:</p> <p>(a) Bushfire protection requirements, including clearing for asset protection zones</p> <p>(b) Flood planning levels</p> <p>(c) Servicing constraints</p>	<p>The APZs have been detailed on Figure 3-1.</p>
<p><b>Design the proposal to avoid or minimise direct and indirect impacts on native vegetation, threatened species, threatened ecological communities and their habitat</b></p>	
<p>Justifications for the decisions in determining the final location must be based on consideration of</p> <p>(a) reducing the clearing footprint of the project</p> <p>(b) locating ancillary facilities in areas where there are no biodiversity values</p> <p>(c) locating ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower vegetation integrity score)</p> <p>(d) locating ancillary facilities in areas that avoid habitat for species and vegetation in high threat status categories (e.g. an EEC or CEEC or entity at risk of SAI)</p> <p>(e) Actions and activities that provide for rehabilitation, ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation, threatened species, threatened ecological communities and their habitat on the development site</p>	<p>The proposed development will not impact upon any areas containing higher quality habitat or biodiversity values within the site. The trees proposed for removal are considered isolated. No threatened species were identified on site. Species which may be inhabiting these trees are likely to be highly mobile species which can easily relocate to more suitable areas for habitat.</p>



**Avoid or Minimise Prescribed Impacts when planning the proposal**

<p>Prescribed impacts may occur on habitat features that are not native vegetation e.g. caves, rocky outcrops and flyways. Because these types of features cannot readily be replaced or offset, it is important that measures to avoid minimise impacts are undertaken and are clearly documented</p>	<p>No prescribed impacts will occur as a result of the proposal. The proposed vegetation removal will only remove predominantly foraging habitat for the highly mobile species utilizing the sub-regional corridor which passes over the site.</p>
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**Locating a Project to Avoid and Minimise Prescribed Biodiversity Impacts**

<p>Prescribed biodiversity impacts can be avoided and minimised by:</p> <ul style="list-style-type: none"> <li>(a) locating surface works to avoid direct impacts on the habitat features identified in Chapter 6</li> <li>(b) locating of sub-surface works, both in the horizontal and vertical plane, to avoid and minimise operations beneath the habitat features identified in Chapter 6 e.g. locating longwall panels away from geological features of significance or water dependent plant communities and their supporting aquifers</li> <li>(c) locating the project to avoid severing or interfering with corridors connecting different areas of habitat, migratory flight paths to important habitat or local movement pathways</li> <li>(d) optimising project layout to minimise interactions with threatened species and ecological communities, e.g. designing turbine layout to allow buffers around features that attract and support aerial species, such as forest edges, riparian corridors and wetlands, ridgetops and gullies</li> <li>(e) locating the project to avoid direct impacts on water bodies or hydrological processes</li> </ul>	<p>Threatened species predicted to utilise the site are considered highly mobile species. It is therefore considered unlikely that movement throughout the landscape will be hindered by the proposed development. The proposed landscape plantings along the entry drive may aid in creating movement pathways for these species. No structures will be developed that would interfere with migratory birds (wind turbines).</p>
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<p><b>When locating a proposal, the following need to be analysed and justification should be provided for each alternative selected:</b></p> <ul style="list-style-type: none"> <li><b>(a) alternative modes or technologies that would avoid or minimise prescribed impacts</b></li> <li><b>(b) alternative routes that would avoid or minimise prescribed impacts</b></li> <li><b>(c) alternative locations that would avoid or minimise prescribed impacts</b></li> <li><b>(d) alternative sites within a property on which the project is proposed that would avoid or minimise prescribed impacts</b></li> </ul>	<p>Clearing of this area allows for the site to be developed to meet the objectives of the Maitland LEP and avoids other areas that have a higher biodiversity value.</p>
<p><b>Justifications for project location decisions should identify any other site constraints that the proponent has considered in determining the location and design of the project, e.g. bushfire protection requirements including clearing for asset protection zones, flood planning levels, servicing constraints.</b></p>	<p>The proposed development has been located within a site that has been previously cleared and are highly disturbed. The trees proposed for removal are considered isolated. No threatened species were identified on site. Species which may be inhabiting these trees are likely to be highly mobile species which can easily relocate to more suitable areas for habitat.</p>
<p><b>Design the proposal to avoid or minimise prescribed impacts</b></p>	
<p><b>Design measures that can avoid or minimise prescribed impacts include:</b></p> <ul style="list-style-type: none"> <li><b>(a) engineering solutions, such as proven techniques to:</b> <ul style="list-style-type: none"> <li><b>i. minimise fracturing of bedrock underlying features of geological significance, or groundwater-dependent communities and their supporting aquifers</b></li> <li><b>ii. restore connectivity and movement corridors</b></li> </ul> </li> <li><b>(b) design elements that minimise interactions with threatened entities, such as:</b> <ul style="list-style-type: none"> <li><b>i. designing turbines to dissuade perching and minimise the diameter of the rotor swept area</b></li> <li><b>ii. designing fencing to prevent animal entry to transport corridors</b></li> <li><b>iii. providing vegetated buffers rehabilitated with native species</b></li> </ul> </li> <li><b>(c) maintaining environmental processes that are critical to the formation and persistence of habitat features not associated with native vegetation</b></li> <li><b>(d) maintaining hydrological processes that sustain threatened entities</b></li> <li><b>(e) controlling the quality of water released from the site, to avoid or</b></li> </ul>	<p>Water Sensitive Urban Design (WSUD) will be implemented to ensure that water quality and runoff are appropriately similar to existing conditions on site and minimise prescribed impacts on biodiversity values.</p>



<b>minimise downstream impacts on threatened entities.</b>	
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### **3.1.2 Minimisation of Impacts**

Mitigation measures are proposed to minimise potential impacts to the site's biodiversity values; these are summarised in Table 3-1. These include measures to be implemented in the pre-construction, construction and post-construction phases. It is considered that these measures would serve to minimise any potential direct or indirect impacts.



**Table 3-2: Proposed Mitigation Measures**

Action	Responsibility	Timing
<b>Pre-construction Phase Measures</b>		
The proposed APZs are to be managed to the standards of an APZ as defined in <i>Planning for Bushfire Protection 2019</i> . No exotic trees or shrubs are to be planted within the proposed APZs. It is recommended that this should be protected in perpetuity through a positive / restrictive covenant, registered on title, under Section 88B or 88E of the Conveyancing Act 1919.	Landowner	Covenant to be established prior to commencement of any excavation or clearing works.
The boundaries of the development footprint will be delineated in the field using bunting / flagging tape to ensure inadvertent clearing / disturbance of the adjacent vegetation does not occur.	Project manager.	Prior to commencement of any excavation or clearing works.
Any site workers / contractors are to be inducted on the ecological sensitivities of the site, including, but not limited to, the importance of avoiding disturbance to the vegetation / habitat external to the development footprint.	Project manager in consultation with the project ecologist.	Prior to commencement of any excavation or clearing works.
Erosion and sediment control measures (e.g. silt fences, straw bales wrapped in geotextile etc) must be established before excavation or vegetation clearance begins and are to remain in place until all surfaces have been fully restored and stabilised.	Project manager.	Prior to commencement of any excavation or clearing works.
A pre-clearing survey will be conducted by a qualified ecologist and will include the following; <ul style="list-style-type: none"> <li>➤ Any habitat trees (hollow-bearing trees or nest trees) within the clearing footprint shall be clearly marked (with flagging tape or fluoro spray-paint). Any salvageable habitat features (such as ground timber), identified during the pre-clearing survey, shall be redistributed in the site's retained area of vegetation.</li> <li>➤ Installation of nest boxes at a ratio of 1:1 for any removed within the site</li> </ul>	Project Ecologist	Prior to commencement of any excavation or clearing works.
<b>Construction Phase Management Actions</b>		



<p>During the clearing of native vegetation, and only if habitat trees occur within the development footprint, a suitably qualified and experienced ecologist must:</p> <ol style="list-style-type: none"> <li>a) Ensure no vegetation clearing occurs outside of the approved clearing footprint.</li> <li>b) Ensure soft felling techniques are utilised for felling of any habitat/hollow-bearing trees.</li> <li>c) Supervise all habitat/hollow-bearing tree removal to capture and/or relocate any dispersed fauna.</li> <li>d) Transport any injured wildlife to appropriate veterinary care or transfer the animal to a local volunteer wildlife carer group.</li> <li>e) Provide post-clearing reporting back to Council should any threatened species be captured or encountered by clearing operations.</li> </ol>	<p>Project ecologist</p>	<p>During clearing.</p>
<p>Appropriate weed control measures must be implemented, including for instance:</p> <ul style="list-style-type: none"> <li>• All weeds removed from the site must be transported in a sealed container or bag and disposed at a waste management facility licenced to accept green waste.</li> <li>• Vehicles, machinery and equipment must be free from weed material (including seeds) before entering the construction corridor.</li> </ul>	<p>Project manager.</p>	<p>During excavation, clearing and construction works.</p>
<p>Any spoil storage areas or stockpiles will have appropriate erosion control devices installed to control runoff and prevent sedimentation.</p>	<p>Project manager.</p>	<p>During excavation, clearing and construction works.</p>
<p>Materials, plant and equipment are not to be stored within the drip-lines of any retained trees at the site or near the site.</p>	<p>Project manager.</p>	<p>During excavation, clearing and construction works.</p>
<p>Topsoil is to be removed from newly cleared areas and then stockpiled for later use in the rehabilitation and/or landscaping works.</p>	<p>Project manager.</p>	<p>During excavation, clearing and construction works.</p>



Cleared vegetation will be mulched and stockpiled for later use in any vegetation restoration/landscaping activities (provided that it doesn't contain weed material). Where possible, any felled trees may be cut into manageable sections and redistributed in the site.	Project manager.	During excavation, clearing and construction works.
Sediment and erosion control devices will be inspected regularly, maintained to ensure effectiveness over the entire duration of the project, and cleaned out before 30% capacity is reached.	Project manager.	During excavation, clearing and construction works.
<b>Post-construction Phase Management Actions</b>		
All temporary erosion and sediment control devices such as silt-stop fencing will be removed from the site at the completion of the works, but not until the site is fully revegetated/stabilised.	Project manager.	After construction, but not until the site is fully revegetated/stabilised.
A vegetation management plan will be implemented across the retained riparian zone that run west to east across site. This plan will revegetate and provide habitat to a variety of species occurring in the area.	Project manager.	After construction, but not until the site is fully revegetated/stabilised.

### 3.2 Assessment of Direct and Indirect Impacts

The following sections 3.2.1 to 3.2.3 provide an assessment of direct and indirect impacts which were unable to be avoided at the development site in accordance with Section 8 of the BAM.

#### 3.2.1 Direct Impacts

The following describes direct impacts on native vegetation, including impacts on TECs and threatened species through the removal of potential habitat. Direct impacts of the development are detailed in the following Tables 3-2 to 3-3.

**Table 3-2: Direct Impacts on Native Vegetation**

PCT	BC Act Name / Listing Status	EPBC Act Name / Listing Status	Vegetation Zone (VZ) Name	Direct Impact
1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	TEC- Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	Not listed	VZ 1: Moderate	0.306 ha
			VZ 2: Poor	0.152 ha

**Table 3-3: Change in Vegetation Integrity (VI) Scores**

PCT	Vegetation Zone (VZ)	Management Zone / Area Impacted	Current VI Score	Future VI Score	Change in VI Score	Total Change in VI Score
1598 - Forest Red Gum grassy open forest on floodplains of the lower Hunter	VZ 1: Moderate	To be cleared entirely / 0.306 ha	58.1	0	-58.1	-58.1
	VZ 2: Poor	To be cleared entirely / 0.152 ha	46.2	0	-46.2	-46.2



### 3.2.2 Indirect Impacts

The indirect impacts of the development have been identified and are outlined in Table 3-8. A risk assessment has been undertaken for any residual impacts likely to remain after the mitigation measures have been applied. Likelihood criteria, consequence criteria and risk matrix are provided in Table 3-5, Table 3-6 and Table 3-7.

**Table 3-4: Likelihood Criteria**

Likelihood criteria	Description
<b>Almost certain (Common)</b>	Will occur, or is of a continuous nature, or the likelihood is unknown. There is likely to be an event at least once a year or greater (up to ten times per year). It often occurs in similar environments. The event is expected to occur in most circumstances.
<b>Likely (Has occurred in recent history)</b>	There is likely to be an event on average every one to five years. Likely to have been a similar incident occurring in similar environments. The event will probably occur in most circumstances.
<b>Possible (Could happen, has occurred in the past, but not common)</b>	The event could occur. There is likely to be an event on average every five to twenty years.
<b>Unlikely (Not likely or uncommon)</b>	The event could occur but is not expected. A rare occurrence (once per one hundred years).
<b>Remote (Rare or practically impossible)</b>	The event may occur only in exceptional circumstances. Very rare occurrence (once per one thousand years). Unlikely that it has occurred elsewhere; and, if it has occurred, it is regarded as unique.

**Table 3-5: Consequence Criteria**

Consequence category	Description
<b>Critical (Severe, widespread long-term effect)</b>	Destruction of sensitive environmental features. Severe impact on ecosystem. Impacts are irreversible and/or widespread. Regulatory and high-level government intervention/action. Community outrage expected. Prosecution likely.
<b>Major (Wider spread, moderate to long term effect)</b>	Long-term impact of regional significance on sensitive environmental features (e.g. wetlands). Likely to result in regulatory intervention/action. Environmental harm either temporary or permanent, requiring immediate attention. Community outrage possible. Prosecution possible.
<b>Moderate (Localised, short-term to moderate effect)</b>	Short term impact on sensitive environmental features. Triggers regulatory investigation. Significant changes that may be rehabilitated with difficulty. Repeated public concern.
<b>Minor (Localised short-term effect)</b>	Impact on fauna, flora and/or habitat but no negative effects on ecosystem. Easily rehabilitated. Requires immediate regulator notification.
<b>Negligible (Minimal impact or no lasting effect)</b>	Negligible impact on fauna/flora, habitat, aquatic ecosystem or water resources. Impacts are local, temporary and reversible. Incident reporting according to routine protocols.

**Table 3-6: Risk Matrix**

Consequence	Likelihood				
	Almost certain	Likely	Possible	Unlikely	Remote
<b>Critical</b>	Very High	Very High	High	High	Medium
<b>Major</b>	Very High	High	High	Medium	Medium
<b>Moderate</b>	High	Medium	Medium	Medium	Low
<b>Minor</b>	Medium	Medium	Low	Low	Very Low
<b>Negligible</b>	Medium	Low	Low	Very Low	Very Low



**Table 3-7: Risk Assessment for all Identified Potential Indirect Impacts**

Indirect Impact	Development Phase	Risk (pre-mitigation)	Risk (post-mitigation)	Nature	Extent	Frequency	Duration	Timing
Inadvertent impacts on adjacent habitat or vegetation	Construction and operation	Medium	Low	Potential damage to adjacent habitat or vegetation	Adjacent vegetation	Daily, during construction	During construction	Potentially long-term impacts
Sedimentation and contaminated and/or nutrient rich run-off	Construction and operation	Medium	Low	Potential runoff during construction works	Into downstream areas	During heavy rainfall or storm events	During rainfall events	Potentially long-term impacts
Noise, dust or light spill	Construction and operation	Medium	Low	Noise and dust created from machinery during construction. No night works during construction. Minor noise and light during operation from residents	Adjacent vegetation	Daily during construction and sporadically during operation	Daily during construction and sporadically during operation	Short-term impacts during construction phase, long-term impacts during operation
Transport of weeds and pathogens from the site to adjacent vegetation	Construction and operation	Medium	Low	Potential spread of weed and pathogens from incoming machinery and equipment, as well as from gardens established in new lots	Potential to spread into nearby habitat	During construction and operation	Ongoing for the life of the development	Potentially long-term impacts
Rubbish dumping	Construction and operation	Low	Low	Potential rubbish dumped by workers and/or residents	Potential for rubbish to spread into areas outside the development footprint	Anytime during construction and operation	Ongoing for the life of the development	Ongoing for the life of the development





Wood collection	Construction and operation	Low	Low	Potential removal of habitat by workers and/or residents	Potential habitat to be removed from areas outside the development footprint	Anytime during construction and operation	Ongoing for the life of the development	Ongoing for the life of the development
Bush rock removal and disturbance	Construction and operation	Low	Low	Potential removal of habitat by workers and/or residents	Potential habitat to be removed from areas outside the development footprint	Anytime during construction and operation	Ongoing for the life of the development	Ongoing for the life of the development
Vehicle strike	Construction and operation	Low	Very Low	Potential for native fauna to be struck by working machinery and moving vehicles	Within access roads and within development footprint	Daily, during construction and operational phases	Ongoing for the life of the development	Potential long-term impacts.
Increased risk of fire	Construction and operation	Medium	Low	Potential for fire to spark during construction and operation from any machinery or electrical works	Adjacent vegetation	Anytime during construction and operation	Anytime during construction and operation	Anytime during construction and operation

### 3.2.3 Potential Prescribed Biodiversity Impacts

No prescribed biodiversity impacts are anticipated from the proposed development. The site does not contain any habitat features identified in s.8.2.1.2 of the BAM. The proposal would not severe or significantly interfere with a habitat corridor.

## 3.1 Impact Summary

### 3.1.1 Serious and Irreversible Impacts

The OEH (2017) *Guidance to Assist a Decision-maker to Determine a Serious and Irreversible Impact* lists the ecological communities and species that are ‘potential serious and irreversible impact (SAII) entities. There are no series and irreversible impact (SAII) entities relevant to this assessment.

### 3.1.2 Impacts Which Require an Offset

#### 3.1.3 Ecosystem Credits

As per Section 10.2 of the BAM, the removal of native vegetation within the site requires offsetting to achieve the ‘no net loss standard’. To calculate the required offsets in the form of ecosystem credits, the BAM Calculator has taken into consideration the impact area along with the loss in VIS and the biodiversity risk weighting of the PCTs. Table 3-8 Details the Credits required

**Table 3-8 Ecosystem Credits required**

Vegetation Zone (PCT)	Impact Area (ha)	Future VIS	Vegetation Integrity Score Loss	Biodiversity Risk Weighting	Credit Requirements
Zone 1 PCT 1598 Moderate	0.306	0	-58.1	1.5	7
Zone 2 PCT 1598 Poor	0.152	0	-46.2	1.5	3
Total					10



### **3.1.4 Species Credits**

If a Species Credit species is either identified on the site during survey, assumed to be present, or confirmed present within an expert report, a 'species polygon' is required to be produced for the area of suitable habitat within the site for the species. The size of this polygon is entered into the BAM Calculator, which determines the number of credits required to offset the removal of suitable habitat based upon the quality of habitat and biodiversity risk weighting of the species. No species credits are required for the proposal.

Refer to Appendix E for BAM summary reports.

### **3.1.5 Impacts Not Requiring an Offset**

The removal of exotic grassland.

### **3.1.6 Identification of Areas Not Requiring Assessment**

N/A



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## 4 BIODIVERSITY CREDIT REPORT

The Biodiversity Credit Report is provided in the following pages.



# BAM Biodiversity Credit Report (Like for like)

## Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00036113/BAAS18020/22/00036836	131 Wollombi Rd Farley 1598	14/10/2022
Assessor Name	Assessor Number	BAM Data version *
Sarah Elizabeth Jones	BAAS18020	55
Proponent Names	Report Created	BAM Case Status
	05/12/2022	Finalised
Assessment Revision	Assessment Type	Date Finalised
0	Part 4 Developments (Small Area)	05/12/2022
BOS entry trigger	* 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.	
BOS Threshold: Area clearing threshold		

## Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
<b>Nil</b>		
Species		
<b>Nil</b>		

## Additional Information for Approval

Assessment Id	Proposal Name
00036113/BAAS18020/22/00036836	131 Wollombi Rd Farley 1598



## BAM Biodiversity Credit Report (Like for like)

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
1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter	Not a TEC	0.5	10	0	10

## BAM Biodiversity Credit Report (Like for like)

1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Coastal Floodplain Wetlands This includes PCT's: 780, 828, 835, 924, 926, 941, 1145, 1234, 1235, 1236, 1386, 1594, 1598, 1651, 1715, 1720, 1727, 1728, 1749, 1800	Coastal Floodplain Wetlands <50%	1598_Classname1	Yes	7	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo.  or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Coastal Floodplain Wetlands This includes PCT's: 780, 828, 835, 924, 926, 941, 1145, 1234, 1235, 1236, 1386, 1594, 1598, 1651, 1715, 1720, 1727, 1728, 1749, 1800	Coastal Floodplain Wetlands <50%	1598_Classname101	Yes	3	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo.  or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.	

### Species Credit Summary

No Species Credit Data



# BAM Biodiversity Credit Report (Like for like)

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## Credit Retirement Options

Like-for-like credit retirement options





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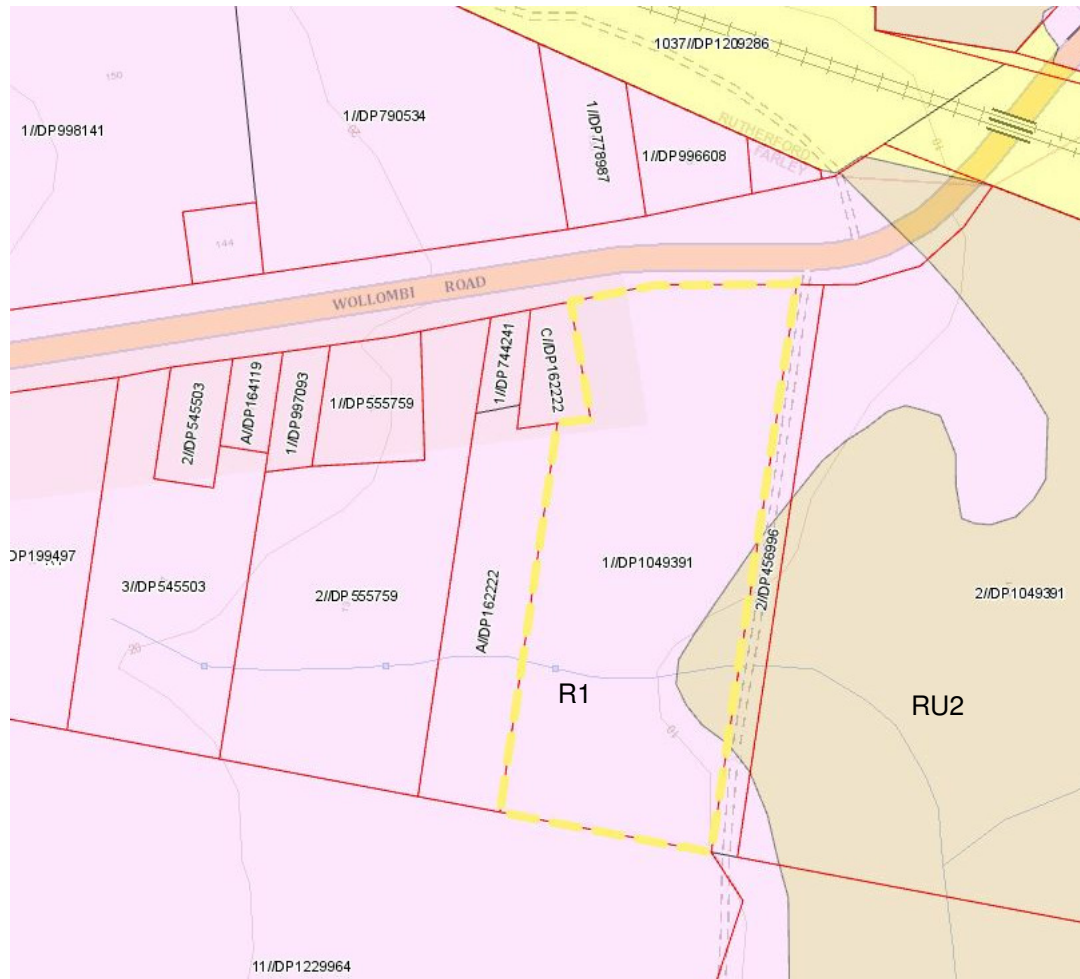
# APPENDIX A      SITE PLANS

# 131 WOLLOMBI ROAD, FARLEY NSW 2320



LOCATION MAP(NTS)

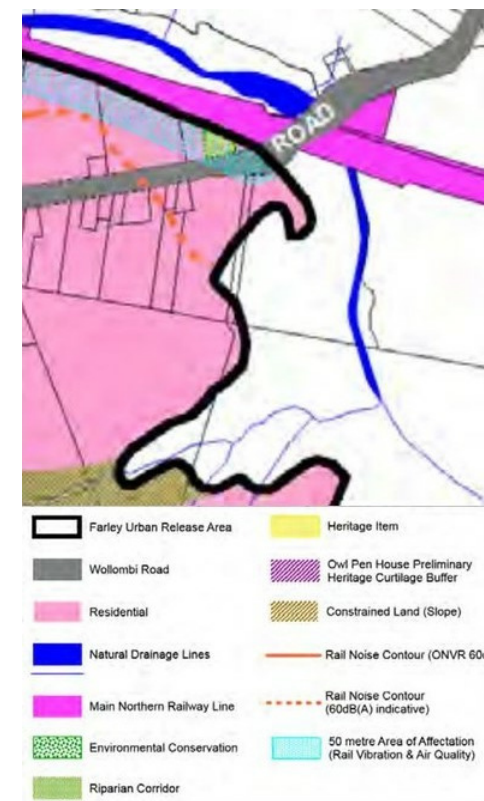
SOURCE: SIX MAPS



1 OVERLAID PLAN  
DA01 1:2000



FARLEY URA AREA PLAN  
SOURCE: FARLEY URA MAP



ENVIRONMENTAL CONSTRAINTS & BUFFERS  
SOURCE: FARLEY URA MAP



ROAD NETWORK, TREATMENTS & ROAD WIDENING  
SOURCE: FARLEY URA MAP

DO NOT SCALE  
USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER, CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

REV	DATE	DESCRIPTION	BY
1	05.07.2022	ISSUED FOR PRE-DA	PS

GENERAL NOTES:  
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PROJECT:  
**131 Wollombi Road,  
Farley NSW 2320**

LOT NUMBER:  
LOT 1 DP 1049391

DRAWING TITLE:  
**OVERLAID PLAN**

PROJECT No.	DATE	DRAWING No.	REV.
PS	JULY 2022	DA01	1
DRWN BY:	SCALE:	ISSUED BY:	
PS	As indicated	PS	

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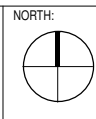


1 SUBDIVISION PLAN  
DA02 1:400

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Farley NSW 2320**

LOT NUMBER:  
LOT 1 DP 1049391

DRAWING TITLE:  
**SUBDIVISION PLAN**

PROJECT No.	DATE	DRAWING No.	REV.
PS	JULY 2022	DA02	1
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PRE-DA ISSUE

## Appendix B DATA

## PLOT FLORISTIC SURVEY

### Plot I

Scientific Name	Common Name
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Melaleuca nodosa</i>	
<i>Microlaena stipoides</i>	Weeping Grass
<i>Commelina cyanea</i>	Native Wandering Jew
<i>Einadia trigonos</i>	Fishweed
<i>Dichondra repens</i>	Kidney Weed
<i>Murdannia graminea</i>	
<i>Juncus usitatus</i>	
<i>Digitaria didactyla</i>	Queensland Blue Couch
<i>Solanum sisymbriifolium</i>	
<i>Rumex crispus</i>	Curled Dock
<i>Stellaria media</i>	Common Chickweed
<i>Euphorbia peplus</i>	Petty Spurge
<i>Ehrharta erecta</i>	Panic Veldtgrass
<i>Bromus catharticus</i>	Prairie Grass
<i>Lantana camara</i>	Lantana
<i>Senecio madagascariensis</i>	Fireweed
<i>Cirsium vulgare</i>	Spear Thistle
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Sonchus oleraceus</i>	Common Sowthistle
<i>Plantago lanceolata</i>	Lamb's Tongues
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Hypochoeris radicata</i>	Catsear
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Phytolacca octandra</i>	Inkweed
<i>Axonopus compressus</i>	Broad-leaved Carpet Grass
<i>Romulea rosea</i>	
<i>Briza minor</i>	Shivery Grass
<i>Centaureum erythraea</i>	Common Centaury
<i>Vulpia myuros</i> f. <i>myuros</i>	
<i>Isolepis levynsiana</i>	
<i>Sisyrinchium rosulatum</i>	Scourweed
<i>Juncus tenuis</i>	
<i>Juncus capitatus</i>	
<i>Conyza</i> spp.	
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Gamochaeta americana</i>	Cudweed
<i>Cerastium glomeratum</i>	Mouse-ear Chickweed



Tree Count	Absent=0, Present =1
80cm +	2
50-79 cm	3
30-49 cm	1
20-29 cm	0
10-19 cm	6
5-9 cm	0
<5 cm	1

Logs	<sum of logs on ground >10cm
0	

Hollows	<Number of hollow bearing trees
3	

**1 x 1 m  
Plots**

Subplot	Leaf Litter	Average
5	10	24.0
15	30	
25	40	
35	10	
45	30	

Subplot	Bare Ground	Average
5	0	40.0
15	2	
25	2	
35	5	
45	30	

Subplot	Cryptogram	Average
5	0	0.0
15	0	
25	0	
35	0	
45	0	

Subplot	Rock Cover	Average
5	0	0.0
15	0	
25	0	
35	0	
45	0	



## Plot 2



Scientific Name	Common Name
<i>Eucalyptus grandis</i>	Flooded Gum
<i>Melilotus</i> spp.	
<i>Commelina cyanea</i>	Native Wandering Jew
<i>Geranium homeanum</i>	
<i>Lophostemon confertus</i>	Brush Box
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Solanum chenopodioides</i>	Whitetip Nightshade
<i>Cerastium vulgare</i>	Mouse-ear Chickweed
<i>Stellaria multiflora</i>	
<i>Cynodon dactylon</i>	Common Couch
<i>Cyperus brevifolius</i>	
<i>Juncus</i> spp.	
<i>Hypochaeris glabra</i>	Smooth Catsear
<i>Vulpia myuros</i> f. <i>myuros</i>	
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Bromus catharticus</i>	Prairie Grass
<i>Senecio madagascariensis</i>	Fireweed
<i>Cirsium vulgare</i>	Spear Thistle
<i>Hypochoeris radicata</i>	Catsear
<i>Plantago lanceolata</i>	Lamb's Tongues
<i>Modiola caroliniana</i>	Red-flowered Mallow
<i>Avena sativa</i>	Oats
<i>Oxalis corniculata</i>	Creeping Oxalis
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Verbena bonariensis</i>	Purpletop
<i>Conyza</i> spp.	
<i>Trifolium repens</i>	White Clover
<i>Gamochaeta americana</i>	Cudweed
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Gomphocarpus fruticosus</i>	Narrow-leaved Cotton Bush
<i>Medicago polymorpha</i>	Burr Medic

Tree Count	Absent=0, Present =1
80cm +	2
50-79 cm	3
30-49 cm	1
20-29 cm	0
10-19 cm	6
5-9 cm	0
<5 cm	1

Logs	<sum of logs on ground >
0	

Hollows	<Number of hollow bearing
3	

**1 x 1 m Plots**

Subplot	Leaf Litter	Average
5	10	24.0
15	30	
25	40	
35	10	
45	30	

Subplot	Bare Ground	Average
5	0	40.0
15	2	
25	2	
35	5	
45	30	

Subplot	Cryptogram	Average
5	0	0.0
15	0	
25	0	
35	0	
45	0	

Subplot	Rock Cover	Average
5	0	0.0
15	0	
25	0	
35	0	
45	0	

## APPENDIX C RECORDED SPECIES LIST

Scientific Name	Common Name
<i>Cacatua galerita</i>	Sulphur Crested Cockatoo
<i>Cacatua sanguinea</i>	Little Corella
<i>Canis lupus familiaris</i>	Common Dog
<i>Corvus coronoides</i>	Australian Raven
<i>Crinia signifera</i>	Brown Froglet
<i>Eolophus roseicapilla</i>	Galah
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Lichenostomus chrysops</i>	Yellow-Faced Honeyeater
<i>Manorina melanocephala</i>	Noisy Miner
<i>Platycercus elegans</i>	Crimson Rosella
<i>Platycercus eximius</i>	Eastern Rosella
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet

# APPENDIX D QUALIFICATIONS, LICENSING AND CERTIFICATION

## Qualifications

Fieldwork for this project was undertaken by Logan Shea and Ollie Broun. Report writing for this project was undertaken by Logan Shea and Ollie Broun with editing and review by Sarah Jones. Qualifications are provided in the table below.

<b>Sarah Jones</b>	<b><i>Ecologist / Bushfire Planning Consultant</i></b> B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas) <i>BAAS 18020 Accredited Assessor, as required by the Biodiversity Conservation Regulation 2017 and accredited to apply the BAM</i> Member of the Ecological Consultants Association of NSW
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## Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100533;
- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.

## Certification

As the project certifier, I, Sarah Jones make the following certification:

- This Biodiversity Development Assessment Report has been prepared in accordance with the Biodiversity Assessment Method established under the NSW Biodiversity Conservation Act 2016.
- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, or where the survey work has been undertaken with specified departures from industry standard guidelines, details of which are discussed and justified in Section 2;

- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995*, *National Parks and Wildlife Act 1974* and the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*.

Signature of Certifier:



Sarah Jones

B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)

Ecologist / Bushfire Planner

BAAS 18020 Accredited Assessor

# **APPENDIX E      BAM SUMMARY REPORTS**

## Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00036113/BAAS18020/22/00036836	131 Wollombi Rd Farley 1598	14/10/2022
Assessor Name	Report Created	BAM Data version *
Sarah Elizabeth Jones	05/12/2022	55
Assessor Number	BAM Case Status	Date Finalised
BAAS18020	Finalised	05/12/2022
Assessment Revision	Assessment Type	BOS entry trigger
0	Part 4 Developments (Small Area)	BOS Threshold: Area clearing threshold

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

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

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
<b>Forest Red Gum grassy open forest on floodplains of the lower Hunter</b>												
1	1598_Classname1	Not a TEC	58.1	58.1	0.31	PCT Cleared - 0%	High Sensitivity to Gain			1.50		7

## BAM Credit Summary Report

2	1598_Classname101	Not a TEC	46.2	46.2	0.15	PCT Cleared - 0%	High Sensitivity to Gain			1.50		3
										<b>Subtotal</b>	<b>10</b>	
										<b>Total</b>	<b>10</b>	

### 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 SAI	Species credits



## Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00036113/BAAS18020/22/00036836	131 Wollombi Rd Farley 1598	14/10/2022
Assessor Name	Report Created	BAM Data version *
Sarah Elizabeth Jones	05/12/2022	55
Assessor Number	Assessment Type	BAM Case Status
BAAS18020	Part 4 Developments (Small Area)	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
0	BOS Threshold: Area clearing threshold	05/12/2022

\* 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)
Barking Owl	Ninox connivens	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Black Falcon	Falco subniger	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Little Lorikeet	Glossopsitta pusilla	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Scarlet Robin	Petroica boodang	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Speckled Warbler	Chthonicola sagittata	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Spotted-tailed Quoll	Dasyurus maculatus	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
Varied Sittella	Daphoenositta chrysoptera	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
White-bellied Sea-Eagle	Haliaeetus leucogaster	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter



## BAM Predicted Species Report

White-throated Needletail	Hirundapus caudacutus	1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter
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### 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
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## Proposal Details

Assessment Id 00036113/BAAS18020/22/00036836	Proposal Name 131 Wollombi Rd Farley 1598	BAM data last updated * 14/10/2022
Assessor Name Sarah Elizabeth Jones	Report Created 05/12/2022	BAM Data version * 55
Assessor Number BAAS18020	Assessment Type Part 4 Developments (Small Area)	BAM Case Status Finalised
Assessment Revision 0	Date Finalised 05/12/2022	BOS entry trigger BOS Threshold: Area clearing threshold

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

## List of Species Requiring Survey

Name	Presence	Survey Months
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### 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
North Rothbury Persoonia	Persoonia pauciflora	Refer to BAR

## Proposal Details

### Assessment Id

00036113/BAAS18020/22/00036836

### Assessor Name

Sarah Elizabeth Jones

### Proponent Name(s)

### Assessment Revision

0

### BOS entry trigger

BOS Threshold: Area clearing threshold

### Proposal Name

131 Wollombi Rd Farley 1598

### Assessor Number

BAAS18020

### Report Created

05/12/2022

### Assessment Type

Part 4 Developments (Small Area)

### BAM data last updated \*

14/10/2022

### BAM Data version \*

55

### BAM Case Status

Finalised

### Date Finalised

05/12/2022

\* 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
<b>Nil</b>		
Species		
<b>Nil</b>		

## Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

# BAM Biodiversity Credit Report (Variations)

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

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

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter	Not a TEC	0.5	10	0	10.00

<b>1598-Forest Red Gum grassy open forest on floodplains of the lower Hunter</b>	<b>Like-for-like credit retirement options</b>					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Coastal Floodplain Wetlands This includes PCT's: 780, 828, 835, 924, 926, 941, 1145, 1234, 1235, 1236, 1386, 1594, 1598, 1651, 1715, 1720, 1727, 1728, 1749, 1800	Coastal Floodplain Wetlands <50%	1598_Class name1	Yes	7	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

## BAM Biodiversity Credit Report (Variations)

	Coastal Floodplain Wetlands This includes PCT's: 780, 828, 835, 924, 926, 941, 1145, 1234, 1235, 1236, 1386, 1594, 1598, 1651, 1715, 1720, 1727, 1728, 1749, 1800	Coastal Floodplain Wetlands <50%	1598_Class name101	Yes		3 Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
<b>Variation options</b>						
	<b>Formation</b>	<b>Trading group</b>	<b>Zone</b>	<b>HBT</b>	<b>Credits</b>	<b>IBRA region</b>
	Forested Wetlands	Tier 4 or higher threat status	1598_Class name1	Yes (including artificial)	7	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Forested Wetlands	Tier 4 or higher threat status	1598_Class name101	Yes (including artificial)	3	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

### Species Credit Summary

No Species Credit Data

### Credit Retirement Options Like-for-like options

# APPENDIX F PHOTOS



