

APPENDIX 4

January 2026

Wingham Urban Release Area 1



**ADDENDUM LETTER –
PRELIMINARY
BIODIVERSITY
DEVELOPMENT
ASSESSMENT REPORT**

Tim Colless
Hampstead Property
PO Box 358
Kiama NSW 2533
Supplied by email

22 October 2025

Re: Revised Subject Land, Lot 92 Wingham Road, (Lot 92 // DP1285477), Wingham, NSW

Dear Tim,

Ecoplanning have been engaged by Hampstead Property on behalf of MPT Farms Pty Ltd to prepare an addendum letter to support the previously prepared Preliminary Biodiversity Development Assessment Report (PBDAR) Version 1.3 (Ecoplanning 2025). This letter has been prepared to outline the changes to proposed Subject Land that have occurred since the PBDAR was submitted to Council. This letter should be read in conjunction with the PBDAR (Ecoplanning 2025).

PROJECT BACKGROUND

The PBDAR (Ecoplanning 2025) dated 10 March 2025 was prepared to support a Planning Proposal application that was lodged with MidCoast Council (Council) and provided by Council to the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) for initial feedback.

Following feedback and consultation with Council and DCCEEW, Hampstead Property has revised the areas that are proposed to be rezoned as R1 General Residential, C4 Environmental Living and C2 Environment Conservation (**Figure 1**). A reduction in the proposed R1 area has reduced the size of the Subject Land (being the area that would be impacted under the proposal) previously assessed in the PBDAR.

Hampstead Property has instructed Ecoplanning to prepare this letter addendum to the PBDAR to document the reduction in the Subject Land, provide justification for the revised impact on biodiversity values and describe the avoided impacts. If the Planning Proposal progresses, further biodiversity assessment will be required to support a Development Application (DA).

CONSULTATION

During the consultation for the project, DCCEEW issued 'Statewide High Environmental Value criteria and identification methods' (DCCEEW undated) and advised that under this document, vegetation at the north of the Subject Land is considered High Ecological Value (HEV). The vegetation identified as HEV included the small portion of PCT 4042, which is an Endangered Ecological Community (EEC), and the PCT 3329. PCT 3329 is not listed as a TEC under either the EPBC or BC Act's, however it is identified as being >70 % cleared from its pre-European extent (Criterion 2, DCCEEW [undated]). As documented in the PBDAR, the vegetation on the subject site is highly modified and mapped in a 'disturbed' condition class, occurring as scattered paddock trees and regrowth over 'exotic grassland' (Vegetation Integrity score 0.9/100), that has been grazed by cattle for >50 years (see Section 3.3., PBDAR).

Following consultation with Council and DCCEEW, the proposed Subject Land has been reduced to further avoid impacts upon biodiversity values present within the property. The revised boundary has reduced impacts along the northern, eastern and western extents of the PBDAR Subject Land, which achieves increased avoidance of the land identified by DCCEEW as HEV (see **Figures 2-5** and **Table 1**).

Table 1: Changes to Subject Land in the PBDAR

A to C	- The extent of impact between these two markers is broadly consistent to the PBDAR with the exception of an amendment near the 'B' marker to retain two HBTs, one being large (>20cm). - Some of the irregularities to the Subject Land boundary are a legacy of an early civil engineering design that will be rationalised as part of a future DA. - The impact on native vegetation in this area of the site has been decreased.
C to E	- Considerable changes have been undertaken to reduce the impact in this area, targeted at increasing the portion of HEV native vegetation that will be avoided by the proposed development and rezoned C2 - The area marked 'D' shows a small encroachment that has no impact to HBTs, no impact on TEC and is acceptable in the context of the overall strategy that reduces the impact on native vegetation to 0.73ha (from 3.42ha in the PBDAR) across the 61.37ha study area and expands the C2 Environmental Conservation land to cover the majority of the previously impact regrowth vegetation at this location. - The impact on native vegetation in this area of the site has been significantly decreased.
E to F	- The western boundary has been varied to greater avoid impact on native vegetation, removing any impact on six HBTs, five of which are medium sized (15-20cm). - A minimum 50 metre buffer to Cedar Party Creek is retained. - The impact on native vegetation in this area of the site has been significantly decreased.

REVISED IMPACT TO BIODIVERSITY VALUES

The Biodiversity Assessment Method (BAM) (DPE 2020) defines land proposed to be directly or indirectly impacted by the proposal as the 'Subject Land'. The PBDAR relies on this definition to identify 'Subject Land' at the Wingham property of approximately 32.51 hectares (ha), with a 'study area' defined in the PBDAR to include the total site area of Lot 92 // DP 1285477, approximately 61.37 ha. **Figure 2** shows the previously provided PBDAR Subject Land, the revised Subject Land and the study area.

Section 5 of the PBDAR provided an approach for avoiding and minimising impacts on biodiversity detailing the overall strategy, including retention of ~8 ha of threatened ecological communities (TEC) vegetation along the riparian corridor (>70% of native vegetation within study area) and a minimum 50 m buffer to Cedar Party Creek, opportunities to avoid impacting some of the hollow bearing trees (HBTs) located within the Subject Land and a proposal for replacement nest boxes to compensate the removal of any HBTs.

The PBDAR undertook an assessment for credit requirements for the development to achieve the 'no net loss standard' as established by the BAM after applying the 'avoid, minimise, mitigate then offset' approach, confirming that the removal of 3.42 ha of native vegetation would result in a maximum of 69 ecosystem credits (66 x PCT 3329 and 3 x PCT 4042).

The PBDAR Subject Land is 32.51 ha in size and resulted in 3.42 ha of native vegetation removal. This included 3.32 ha of Plant Community Type (PCT) 3329 and 0.10 ha of PCT 4042. The revised Subject Land is 26.41 ha in size and results in 0.73 ha of native vegetation impacts. This includes 0.73 ha of PCT 3329, with no impact to PCT 4042 within the revised Subject Land (**Figure 3**). **Table 2** summarises the native vegetation impacts that were proposed within the PBDAR and the revised impacts that will occur as a result of the revised Subject Land. The revised footprint would equate to an impact of approximately 15 PCT 3329 ecosystem credits (to be confirmed at the DA stage).

PCT 4042 is associated with the TEC, Subtropical Coastal Floodplain Forest (NSW *Biodiversity Conservation Act 2016* – endangered) and Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and South East Queensland bioregions (Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* – endangered). Impacts to this EEC are completely avoided under the revised Subject Land.



Table 2: Comparison of vegetation impacts between PBDAR Subject Land and the revised Subject Land.

Plant Community Type (PCT)	Vegetation formation & class	Condition class	TEC	PBDAR Subject Land (ha)*	Revised Subject Land (ha)*
3329 Northern Hinterland Valleys Red Gum Grassy Forest	Grassy Woodlands/Coastal Valley Grassy Woodlands	Disturbed	NA	3.32	0.73
4042 Lower North Riverflat Eucalypt-Paperbark Forest	Forested Wetlands/Coastal Floodplain Wetlands	Disturbed	Y Endangered, EPBC and BC Act's)	0.10	0
Total native vegetation				3.42	0.73
Camphor			NA	0.02	0.02
Exotic grassland			NA	29.07	25.66
Total vegetation				32.51	26.41

*subject to rounding.

As well as the additional 2.69 ha of native vegetation that will be retained under the revised footprint, specific adjustments to the revised Subject Land were made to avoid hollow bearing trees (HBTs). An additional 18 HBTs will be avoided as a result of the revised Subject Land. This includes one large HBT (30 cm diameter), nine medium sized HBTs (15-20 cm diameter) and eight small sized HBTs (7-15 cm diameter). See **Figure 4** the location of HBTs within the revised Subject Land.

In Section 4 of the PBDAR, an assessment was conducted following the BAM to determine threatened species likely to occur on the Subject Land, identifying both ecosystem and species credit species through habitat suitability analysis and field surveys. Species with suitable habitat or required survey triggers were either included for further assessment or excluded based on degraded habitat, absence of key features, or being outside known distributions.

Targeted surveys for several fauna species were undertaken as part of this PBDAR, which included stag watching, bird census, spotlighting and Spot Assessment Technique (SAT) for Koala). Whilst Koala was not detected during survey, prior to the surveys in July 2024, Council's Senior Ecologist inspected the property and identified a Koala scat approximately 80 m north of the PBDAR Subject Land boundary and approximately 150 metres from the revised subject land.

Surveys did not detect any species credits species, and none were considered likely to occur, however, to meet the requirements of the BAM further survey was recommended for some fauna species in the PBDAR at the DA stage (Section 4.4, PBDAR). As the revised footprint is <1 ha, allowing for a Streamlined Assessment under the BAM, additional surveys are only necessary for species considered to be at risk of Serious and Irreversible Impacts (SAIL). No SAIL species credits were identified for additional survey in the PBDAR.



SUMMARY

Further assessment of the revised Subject Land will be required at the DA stage. This will include a BDAR prepared in accordance with the BAM to assess impacts to native vegetation and threatened species. Given that the proposed impact to native vegetation is less than 1 ha, in accordance with the guidance outlined in Appendix C of the BAM 2020, a Streamlined Assessment Module for small area developments can be applied at the DA stage.

In summary, the proposed Subject Land has reduced from 32.51 ha to 26.41 ha. Native vegetation impacts have reduced from 3.42 ha to 0.73 ha, resulting in an additional 2.69 ha of native vegetation being avoided from the original proposal. In addition, all impacts on the Subtropical Coastal Floodplain Forest EEC (BC Act) and Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and South East Queensland bioregions EEC (EPBC Act) have been avoided. An additional 18 HBTs have been avoided as a result of the revised Subject Land. This is a substantial reduction in the impact to biodiversity values across the property.

In accordance with Appendix C of the BAM (2020), a BDAR prepared in accordance with the 'streamlined assessment module - small area' will be required to support a future DA submission.

Yours sincerely,



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REFERENCES

Ecoplanning (2025). Preliminary Biodiversity Development Assessment Report– Lot 92 Wingham Rd, Wingham (Final v1.3). Prepared for MPT Farms Pty Ltd c/o Hampstead Property.

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NSW Department of Planning, Industry and Environment (DPIE) (2020a). *Biodiversity Assessment Method*. Department of Planning, Industry and Environment, Sydney.

NSW Department of Planning and Environment (DPE) (2022). Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide. Accessed at: <https://www.environment.nsw.gov.au/research-and-publications/publications-search/koala-phascolarctos-cinereus-biodiversity-assessment-method-survey-guide>.

NSW Department of Planning, Industry and Environment (DPIE) (2020). *Surveying threatened species and their habitats*. Accessed at: <https://www.environment.nsw.gov.au/research-and-publications/publications-search/surveying-threatened-plants-and-their-habitats-survey-guide-for-the-biodiversity-assessment-method>



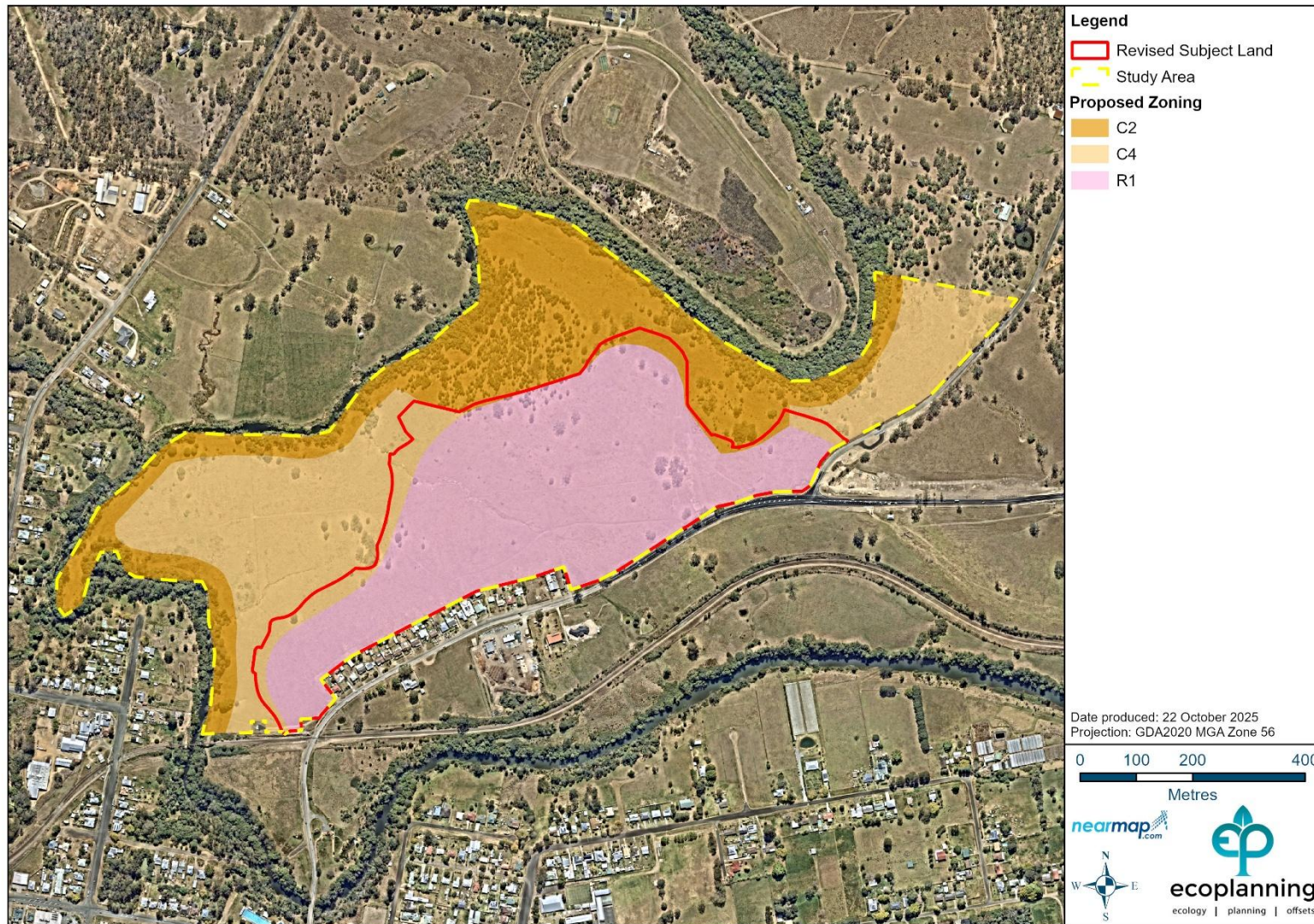


Figure 1: Revised Subject Land boundary from PBDAR (Ecoplanning2025), including with proposed revised zoning boundaries in the Study area.

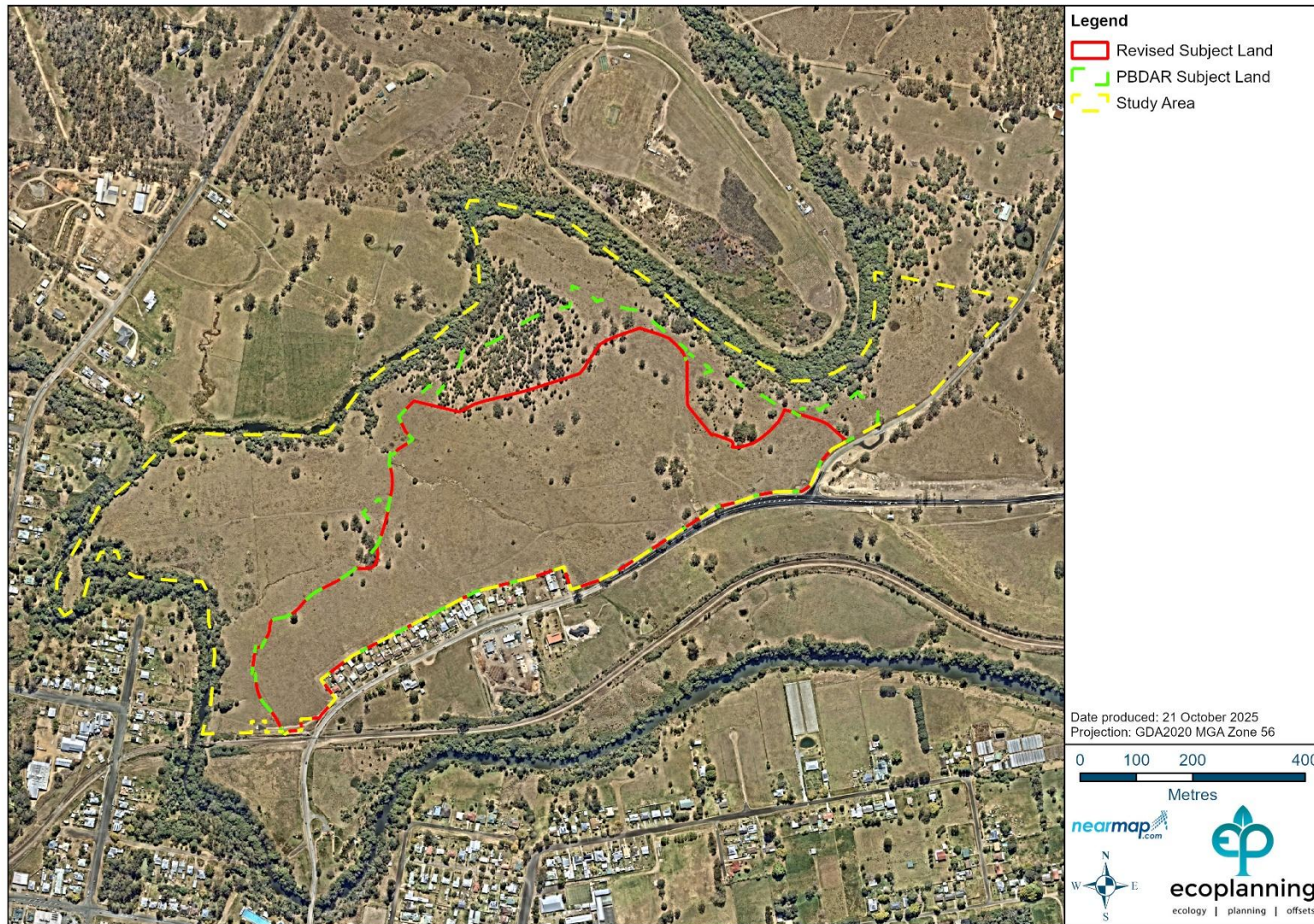


Figure 2: PBDAR Subject Land and the revised Subject Land.

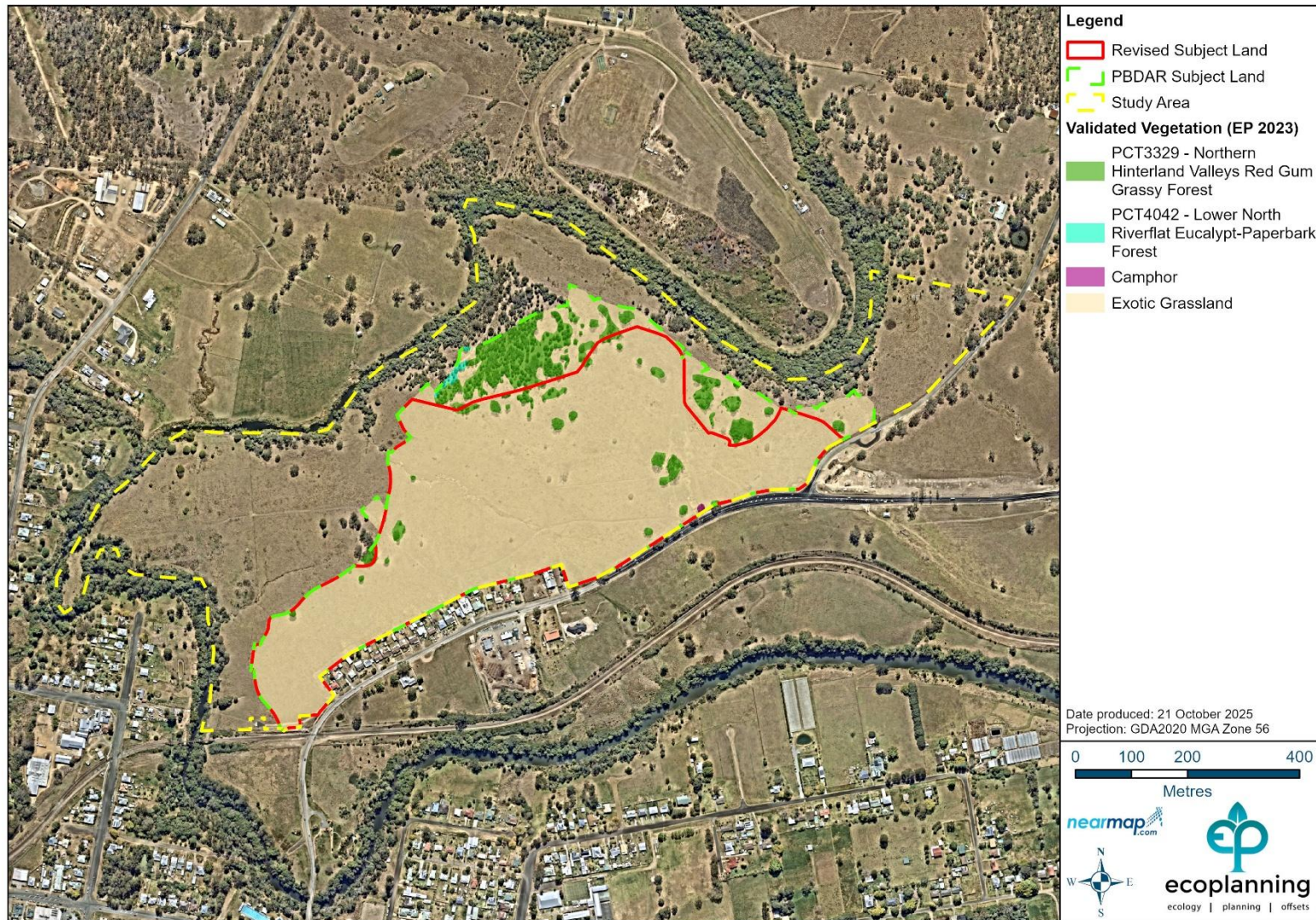


Figure 3: Plant community type mapping with the PBDAR Subject Land and revised Subject Land.

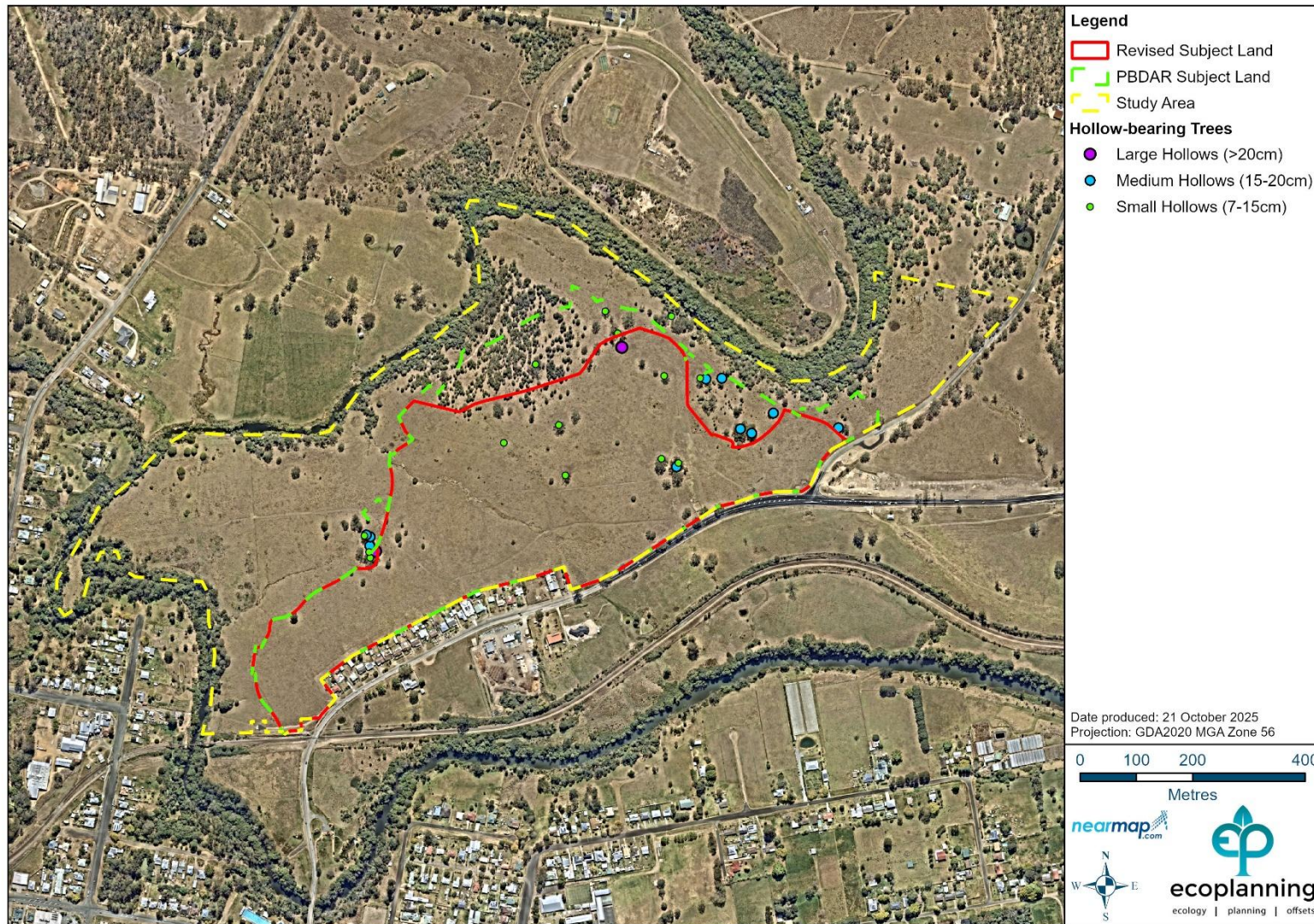


Figure 4: Locations of hollow bearing trees within the PBDAR Subject Land and revised Subject Land.

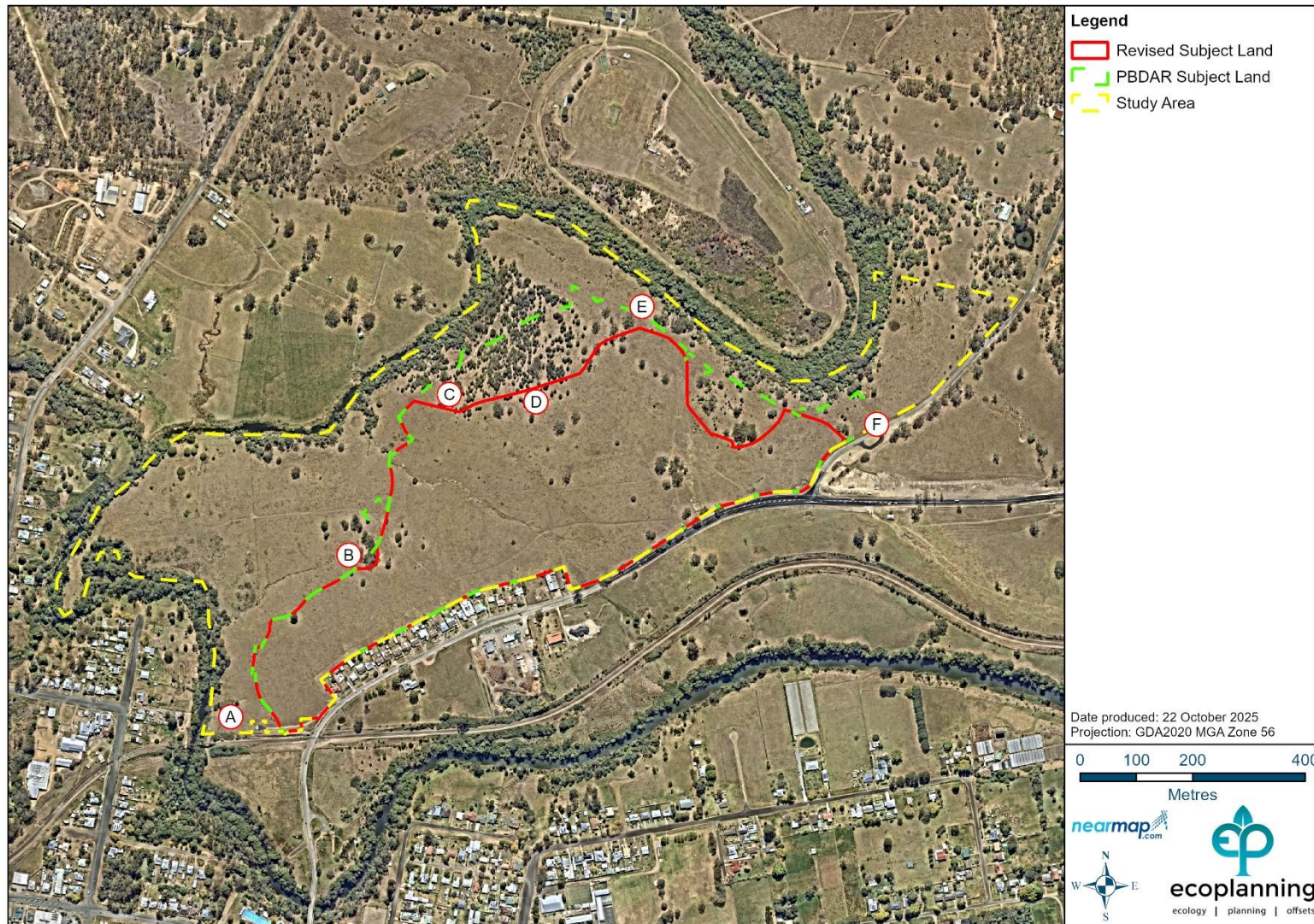


Figure 5: Areas of additional avoidance in the revised Subject Land (see annotations in Table 1).

AMENDED PRELIMINARY BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT



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Preliminary Biodiversity Development Assessment Report



Lot 92 Wingham Rd, Wingham

Preliminary Biodiversity Development Assessment Report

Prepared for: MPT Farms Pty Ltd c/o Hampstead Property

10 March 2025 Version: 1.3 – Final

PROJECT NUMBER	2023-040			
PROJECT NAME	Preliminary Biodiversity Development Assessment Report			
PROJECT ADDRESS	Lot 92 Wingham Rd, Wingham			
PREPARED FOR	MPT Farms Pty Ltd c/o Hampstead Property			
AUTHOR/S	Sophie Starrett, Geoffrey Coates			
REVIEW	Technical	QA	Version	Date to client
	Lucas McKinnon		0.1 – Draft	18 October 2024
			1.0 – Draft	22 October 2024
			1.1 – Final	22 October 2024
			1.2 – Final	15 January 2025
			1.3 – Final	10 March 2025
LICENCES	Scientific Licence		SL101557	
	Bionet Sensitive Species Data Licence		1115	
	Animal Research Authority Ethics Licence		Fauna Surveys and Monitoring (16/346)	
	Scientific Collection - Aquatic		P19/0009-1.0 & OUT19/2602	

This report should be cited as: ‘Ecoplanning (2024). Preliminary Biodiversity Development Assessment Report– Lot 92 Wingham Rd, Wingham (Final v1.3). Prepared for MPT Farms Pty Ltd c/o Hampstead Property.’

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Contents

1	Introduction.....	1
1.1	Location and site identification	1
1.2	Purpose of report	2
1.3	Proposed development	2
2	Landscape context	5
2.1	Identifying landscape features	5
2.1.1	IBRA regions and subregions	5
2.1.2	NSW landscape regions (Mitchell Landscapes)	5
2.1.3	Other features	5
2.2	Determining site context	6
2.2.1	Assessing native vegetation cover	6
2.2.2	Assessing patch size	6
3	Native vegetation.....	10
3.1	Plant community types (PCTs) and threatened ecological communities.....	10
3.1.1	Regional vegetation mapping	10
3.2	Vegetation extent	11
3.3	PCT identification survey methodology	12
3.3.1	Plant Community Type selection and descriptions.....	15
3.3.2	Threatened Ecological Communities	23
3.4	Vegetation zones	26
3.4.1	Vegetation integrity (VI) survey plots.....	26
3.4.2	Current and future vegetation integrity scores.....	26
4	Threatened species.....	27
4.1	Threatened species for assessment.....	27
4.2	Ecosystem credit species	28
4.3	Identify candidate species (species credit species).....	31
4.4	Determine presence or absence of candidate species credit species.....	45
4.4.1	Targeted field surveys – flora	45
4.4.2	Recommended flora surveys.....	45
4.4.3	Targeted field surveys – fauna	45
4.4.4	Recommended fauna surveys.....	47
4.5	Identify potential prescribed biodiversity impacts on threatened species.....	49
5	Avoiding and minimising impacts on biodiversity	50
5.1	Avoiding and minimising impacts on native vegetation and habitat during project planning.....	50
5.2	Avoiding and minimising prescribed biodiversity impacts during project planning	51
6	Assessing and offsetting impacts	52
6.1	Assessment of impact	52
6.1.1	Assessing impacts to native vegetation and habitat.....	52



6.1.2	Assessing indirect impacts on native vegetation	52
6.2	Assessing prescribed biodiversity impacts	52
6.3	Mitigating and managing impacts on biodiversity values.....	53
6.3.1	Pre-clearance protocols.....	53
6.3.2	Construction Environmental Management Plan (CEMP)	53
6.4	Adaptive management for uncertain impacts	53
7	Offset requirements and credit calculations	54
7.1	Impacts which require an offset	54
7.1.1	Ecosystem credits.....	54
7.1.2	Impacts on threatened species.....	54
7.2	Areas not requiring assessment	54
8	References	56

Appendices

Appendix A	Significant impact assessment.....	58
Appendix B	Plot data collected	60
Appendix C	Flora and fauna species inventories	61
Appendix D	BAM Calculator Report.....	64



Figures

Figure 1.1: Subject land, study area and mapped watercourses.....	3
Figure 1.2: Land subject to rezoning and indicative lot layout.	4
Figure 2.1: Landscape context map.....	8
Figure 2.2: Areas of the subject land identified under the Resilience and Hazards SEPP (2021).....	9
Figure 3.1: Regional vegetation mapping (DPE 2023).	13
Figure 3.2: Survey effort including the location of VI plots and recorded tracks.....	14
Figure 3.3: Validated vegetation within the subject land (Ecoplanning 2024).	16
Figure 3.4: PCT 3329 in a 'disturbed' condition class in the subject land.....	17
Figure 3.5: PCT 3329 in a 'disturbed' condition class within the subject land.	18
Figure 3.6: PCT 4042 in a 'disturbed' condition class in an area adjacent to the subject land.....	20
Figure 3.7: Exotic grassland in the subject land	22
Figure 3.8: Condition thresholds for EPBC listed Subtropical eucalypt floodplain forest and woodland TEC (TSSC 2022)	24
Figure 3.9: Threatened Ecological Communities and PCTs associated with the subject land.....	25
Figure 4.1: Habitat features within the subject land.	48
Figure 7.1: Areas that require offsetting within the subject land and areas not requiring offsetting within the subject land.	55

Tables

Table 3.1 Relationship between vegetation communities, PCTs and TECs.	11
Table 3.2: Minimum number of plots required per vegetation zone (Section 4.3.4.2 of the BAM)	12
Table 3.3 Details of PCT within the subject land	15
Table 3.4 BioNet Vegetation Classification Database PCT profile (NSW DCCEEW 2024b) - Northern Hinterland Valleys Red Gum Grassy Forest. Species that are listed in the PCT profile are in bold.	19
Table 3.5: BioNet Vegetation Classification Database PCT profile (NSW DCCEEW 2024b) - Lower North Riverflat Eucalypt-Paperbark Forest. Species that are listed in the PCT profile are in bold.	21
Table 3.6: Number of VI plots required for each vegetation zone based on their respective sizes	26
Table 3.7: Vegetation Integrity Scores.....	26

Table 4.1:	Assessment of habitat constraints and geographic limitations of ecosystem credit species.	28
Table 4.2:	Assessment of habitat constraints and geographic limitations of candidate species credit species.	32
Table 4.3:	Nominated survey months for threatened flora species	45
Table 4.4:	Nominated survey months for threatened fauna species.	46
Table 4.5:	Nominated survey months for candidate threatened fauna species recommended to be surveyed.....	47
Table 4.6:	Prescribed Biodiversity Impacts.....	49
Table 7.1:	Ecosystem credit summary.....	54

Glossary and abbreviations

Acronym	Description
BAM	Biodiversity Assessment Method
BAR	Biodiversity Assessment Report
BC Act	<i>NSW Biodiversity Conservation Act 2016</i>
BC Reg	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Scheme
BV map	Biodiversity Values Map
DCCEEW	Commonwealth Department of Climate Change, Environment, Energy and Water
DPE	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EP	Ecoplaning Pty Ltd
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
GTLEP	Greater Taree Local Environmental Plan 2010
ha	Hectare
IBRA	Interim Biogeographic Regionalisation of Australia
KFH	Key Fish Habitat
LEP	Greater Taree Local Environmental Plan 2010
LGA	Local Government Area
NSW DCCEEW	NSW Department of Climate Change, Environment, Energy and Water
PCT	Plant Community Type
PMST	Protected Matters Search Tool
Study area	The land studied in this report, which is all of Lot 92/-/DP1285477
SVTM	State Vegetation Type Map



Acronym	Description
Subject land	The land which is proposed for R1 rezoning within Lot 92/-/DP1285477
TBDC	Threatened Biodiversity Data Collection
TECs	Threatened Ecological Communities
WM Act	<i>NSW Water Management Act 2000</i>

1 Introduction

Ecoplanning Pty Ltd (Ecoplanning) have been engaged by MPT Farms Pty Ltd c/o Hampstead Property to prepare a Preliminary Biodiversity Development Assessment Report (PBDAR) for Wingham Road, Wingham. A BDAR is required and the Biodiversity Assessment Method (BAM) (DPIE 2020a) is applied when any one of three Biodiversity Offset Scheme (BOS) thresholds for local development under Part 4 of the NSW *Environment Planning and Assessment Act 1997* (EP&A Act) are triggered:

- Exceeding the native vegetation clearing threshold (based on minimum lot size)
- Direct impacts occur on land included in the Biodiversity Values Map (BVM)
- Significant impact on threatened species, ecological communities (or their habitat).

The proposal requires the clearing of approximately 3.42 ha of native vegetation, which triggers the BOS. Specifically, the trigger is:

- Clearing >1 ha of native vegetation, on land with a minimum lot size of 40 ha to less than 1000 ha.

This PBDAR has been prepared to support a Planning Proposal and to document the predicted impacts to biodiversity values, to address comments received from MidCoast Council (MidCoast 2024a) on the Biodiversity Assessment Report (BAR) (Ecoplanning 2024) submitted with the original Planning Proposal (PP-2024-1218). Specifically, the comments related to Council's preference to have Stage 1 of the BAM addressed in the BAR (MidCoast Council 2024). Further consultation with Council resolved that a PBDAR should be prepared with sufficient detail to determine likelihood for any significant impacts to biodiversity values at the consequent Development Application (DA) stage, if the Planning Proposal was approved to proceed.

The PBDAR is not suitable for a DA submission and will require amendments should it proceed to a DA, however it is considered to adequately address the further information requested and subsequent correspondence with Council. The PBDAR describes the outcome of the development assessment case (00051895/BAAS17012/24/00051896) conducted to address Stage 1 of the BAM. This PBDAR has been approved by Lucas McKinnon, an Accredited Assessor (#17012) under the BC Act and NSW *Biodiversity Conservation Regulation 2017* (BC Reg).

1.1 Location and site identification

The BAM defines land proposed to be directly or indirectly impacted by the proposal as the **subject land**. For the purposes of this PBDAR, the subject land includes approximately 32.51 ha of land within the red polygon shown in (**Figure 1.1**). The study area includes land described as Lot 92/-/DP1285477. The broader study area is 61.37 ha and is outlined in yellow in **Figure 1.1**.

The subject land is situated in the MidCoast Council Local Government Area (LGA) and is zoned under the *Greater Taree Local Environmental Plan 2010* (LEP) as RU1 – Primary Production. The subject land is located in Wingham, approximately 1.0 km to the northeast of the Wingham railway station.

The subject land has been modified by past clearing and grazing, which continues on site. Much of the vegetation on site has been confirmed as supporting 'exotic grassland', with remnant native vegetation mostly consisting of disturbed vegetation. The broader study area includes vegetation associated with Cedar Party Creek, and one 1st order watercourse is mapped within the subject land.

The study area is located along Wingham Road and Youngs Road which borders the study area to the south, as well as a number of residential properties located along Wingham Road. The north, east and west of the study area is directly abutted by Cedar Party Creek. Beyond the creek land in the north and west is zoned as Primary Production (RU1) and land in the east is zoned as Public Recreation (RE1) associated with the Wingham Racecourse Reserve.

1.2 Purpose of report

A Biodiversity Assessment Report (BAR) was previously prepared by Ecoplaning on 24 May 2024 to support the Planning Proposal. This BAR was submitted to Mid-Coast Council (Council) as part of the Planning Proposal for the Wingham URA1. Council undertook an adequacy assessment for biodiversity. Council determined that an assessment in accordance with the BAM 2020 was necessary to support the Planning Proposal, as such this PBDAR has been prepared. It is noted that this PBDAR is a preliminary assessment in accordance with the BAM and an assessment of detailed design and additional targeted surveys are likely to be required at the Development Application (DA) stage.

1.3 Proposed development

This PBDAR has been prepared to support a Planning Proposal. The planning proposal has been submitted to Council for the purpose of rezoning the existing RU1 zoned land to R1 General Residential, C4 Environmental Living and C2 Environmental Conservation. Given that this project is only in the Planning Proposal phase, detailed design is not required, and therefore has not been included in the PBDAR. An updated BDAR at the Development Application stage would be required to assess detailed design.

The proposed rezoning area and indicative lot layout is presented in **Figure 1.2**.

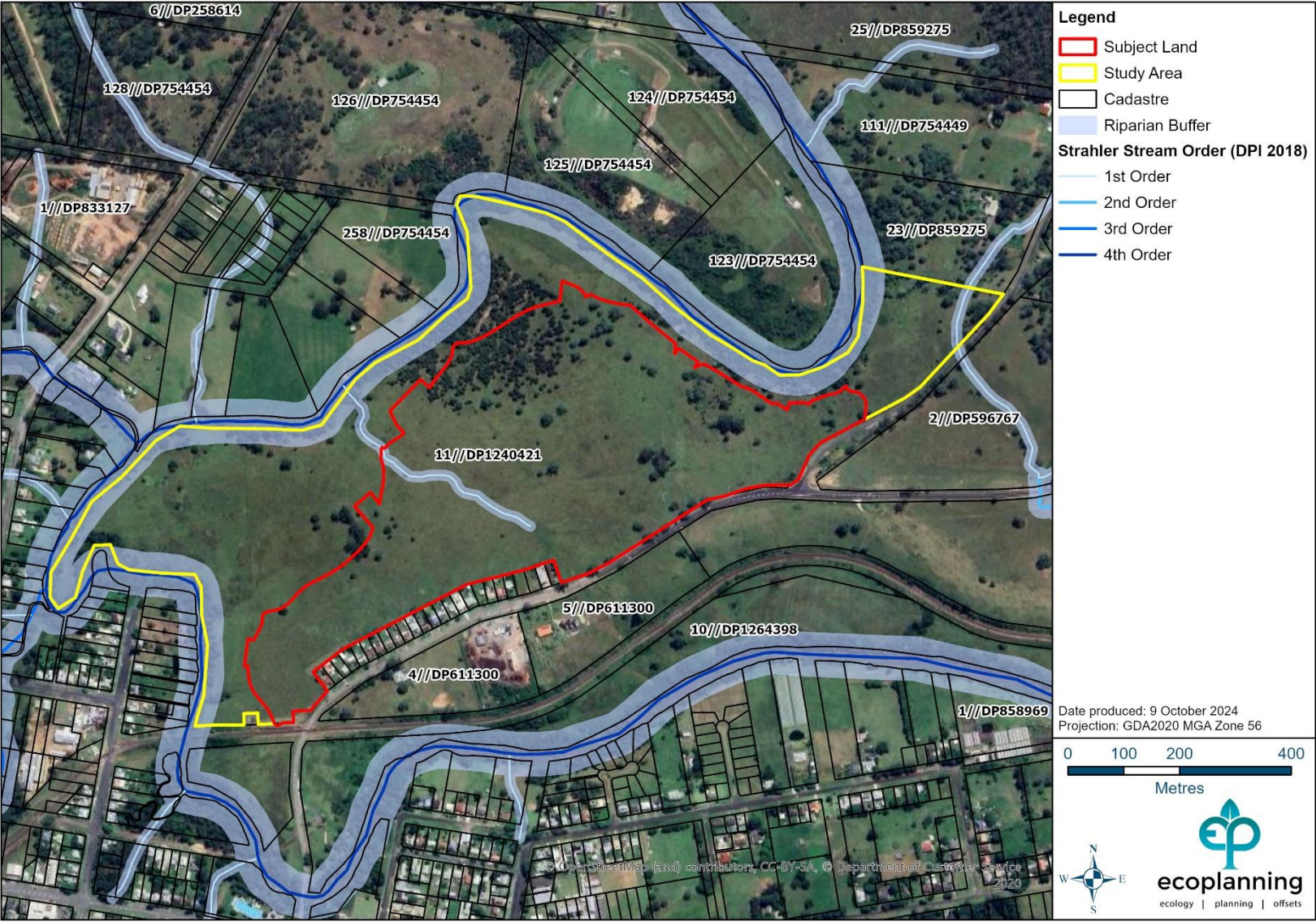


Figure 1.1: Subject land, study area and mapped watercourses.

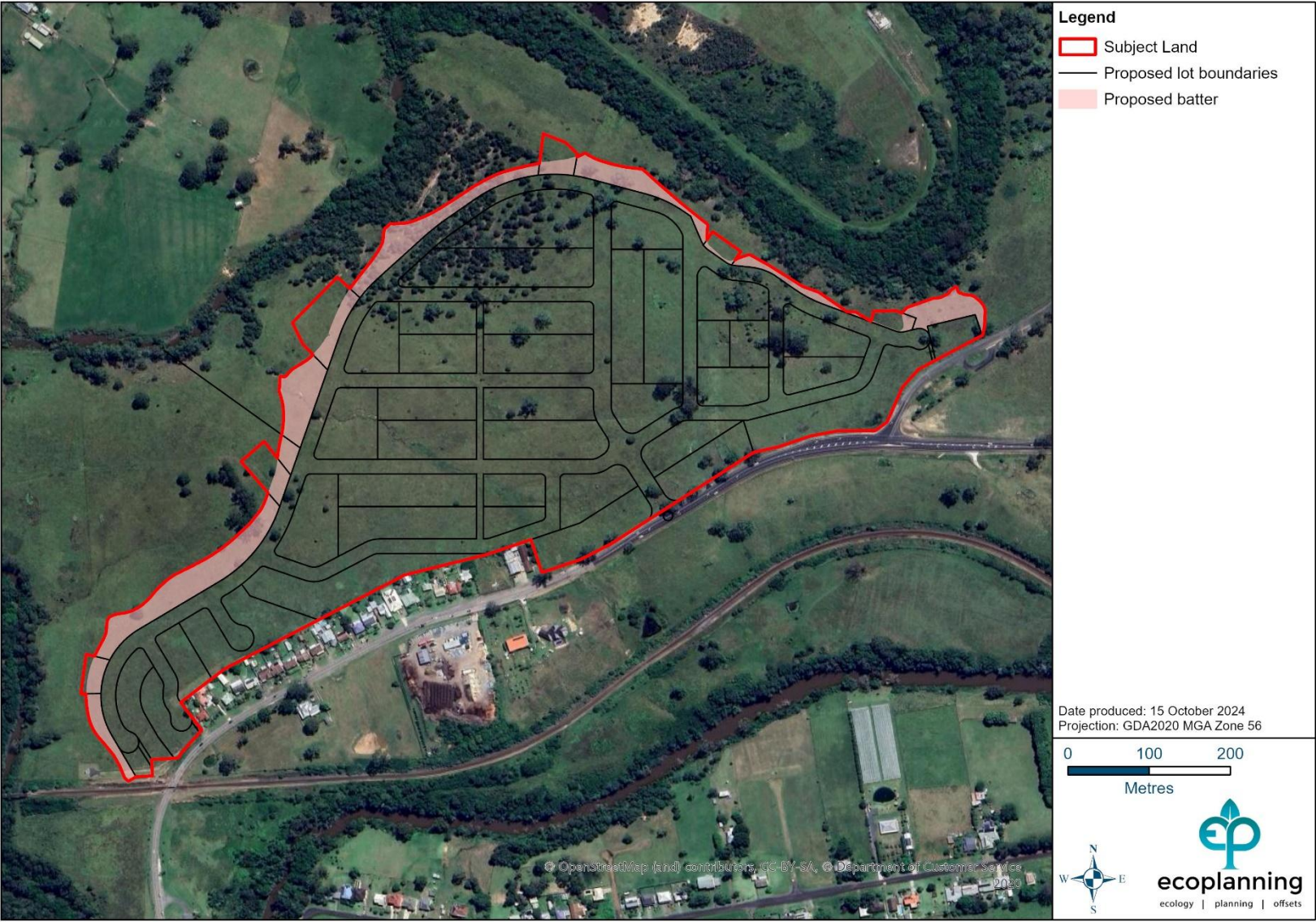


Figure 1.2: Land subject to rezoning and indicative lot layout.

2 Landscape context

2.1 Identifying landscape features

In accordance with Section 3.1 of the BAM, several features are assessed within the subject land and a 1,500 m buffer area surrounding the subject land. Provided below are details related to the Interim Biogeographic Regionalisation of Australia (IBRA) (DoEE 2012) regions, its associated subregions and NSW landscapes (Mitchell Landscapes; DECC 2016). Other features, such as rivers, streams, estuaries, and wetlands, habitat connectivity, karst areas or areas of outstanding biodiversity value are considered, where appropriate. In accordance with Section 3.1.2 of the BAM, relevant features are shown in **Figure 2.1** unless otherwise stated.

2.1.1 IBRA regions and subregions

IBRA regions represent a landscape-based approach to classifying the land surface, including attributes of climate, geomorphology, landform, lithology, and characteristic flora and fauna species present. The subject land is located entirely within the Karuah Manning subregion (version 7.0) which is part of the NSW North Coast IBRA region (version 7.0) (**Figure 2.1**). These attributes were entered into the BAM calculator.

2.1.2 NSW landscape regions (Mitchell Landscapes)

The subject land is located within the 'Port Macquarie Coastal Ramp' landscape unit (Mitchell Landscapes v3.1; (**Figure 2.1**). Within the 1,500 m assessment buffer, the Manning-Macleay Channels and Floodplains and Wauchope Coastal Foothills landscapes also occur.

2.1.3 Other features

Rivers, streams, and estuaries

Rivers, streams and wetlands located within the 1,500 m buffer of the subject land, including the associated riparian corridors, are shown in **Figure 2.1**.

One watercourse is mapped within the subject land, an unnamed 1st order Strahler stream. There are a number of other mapped streams or watercourses outside the subject land within the 1,500 m buffer zone, including Cedar Party Creek to the north, west and south.

Local and important wetlands

Under the BAM, a **Local Wetland** is identified as an area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and dependant on, moist conditions for at least part of their life cycle (DPIE 2020a). An **Important Wetland** is a wetland listed under the Directory of Important Wetlands of Australia (DIWA; Environment Australia 2001) or an area included under the State Environmental Planning Policy (Resilience and Hazard) 2021 (Resilience and Hazards SEPP).

No Important Wetlands are found within the subject land. Some land relating to the Resilience and Hazards SEPP is located within the subject land and surrounding areas this included land identified on the Coastal Environment Area Map and land on the Coastal Use Area Map. A large portion of the subject land is identified on the Coastal Environment Area Map. A small portion of the subject land is mapped on the Coastal Use Area Map (see **Figure 2.2**).

Habitat connectivity

Within a 5 km radius from the study area (the 'locality'), regional vegetation mapping by DPE (2023) indicates that native vegetation occurs over approximately 26% of the locality (**Figure 2.1**). The adjacent lands are predominantly used for rural residential and agriculture purposes, with the town of Wingham lying directly to the west.

The main connectivity associated with the site is the vegetated corridor along Cedar Party Creek. This corridor extends from the Manning River to the south of the study area, north for a considerable distance (approximately 15 km). This corridor is outside the subject land meaning that the proposal does not impact directly on Cedar Party Creek or the associated riparian buffer.

Areas of geological significance and soil hazard features

No other landscape features, including areas of geological significance (karst, caves, crevices, cliffs, etc) or soil hazard features have been identified within the subject land and 1,500 m assessment buffer.

Areas of outstanding biodiversity values

No areas of outstanding biodiversity value have been identified within the subject land.

The riparian vegetation within the study area is mapped on the Biodiversity Values (BV) Map (NSW DEECW 2024).

2.2 Determining site context

2.2.1 Assessing native vegetation cover

In accordance with Section 3.2 and Section 4.3.2 of the BAM, native vegetation cover must be assessed within a 1,500 m assessment buffer around the subject land for habitat suitability for threatened species. The extent of native vegetation on the subject land and immediate surrounds was mapped using vegetation mapping compiled by NSW DPE (2023) as part of the State Vegetation Type Map (SVTM) (C1.1.M1) (DPE 2023), with edits made to improve linework where obvious changes to vegetation extent had occurred using SIX Maps NSW Imagery (LPI 2024) **Figure 2.1**.

The total area of the 1,500 m buffer around the subject land is 1,175 ha, with the area of native vegetation mapped within the buffer being 302 ha. This is a native vegetation cover of 26% (>10-30 % class as defined in the BAM). The value '26%' was entered into the BAM calculator.

2.2.2 Assessing patch size

Patch size is defined by the BAM as '*an area of native vegetation that:*

- *occurs on the development site or biodiversity stewardship, and*
- *includes native vegetation that has a gap of <100 m from the next area of native vegetation (or <30 m for non-woody ecosystems).*

Patch size may extend into adjoining land that is not part of the development site.

In assessing patch size, stands of native vegetation within 100 m of other areas of native vegetation, but which are separated by hard barriers (permanent artificial structures, wide

roads, etc) have been treated as separate patches. These highly modified breaks in vegetation connectivity would significantly alter ecological function of these areas of native vegetation such that these areas warrant recognition as separate patches.

Patch size is required to be assessed as one of four classes per vegetation zone mapped, being <5 ha, 5-<25 ha, 25-100 ha, or ≥100 ha. Although disturbed and of low quality, the vegetation of the subject land is contiguous with vegetation along Cedar Party Creek. This vegetation retains connectivity to other riparian corridors that connect with large vegetated areas such as Brimbin Nature Reserve. As such, the vegetation patch associated with the subject land is >100 ha, and this has been entered into the BAM calculator for all vegetation zones.

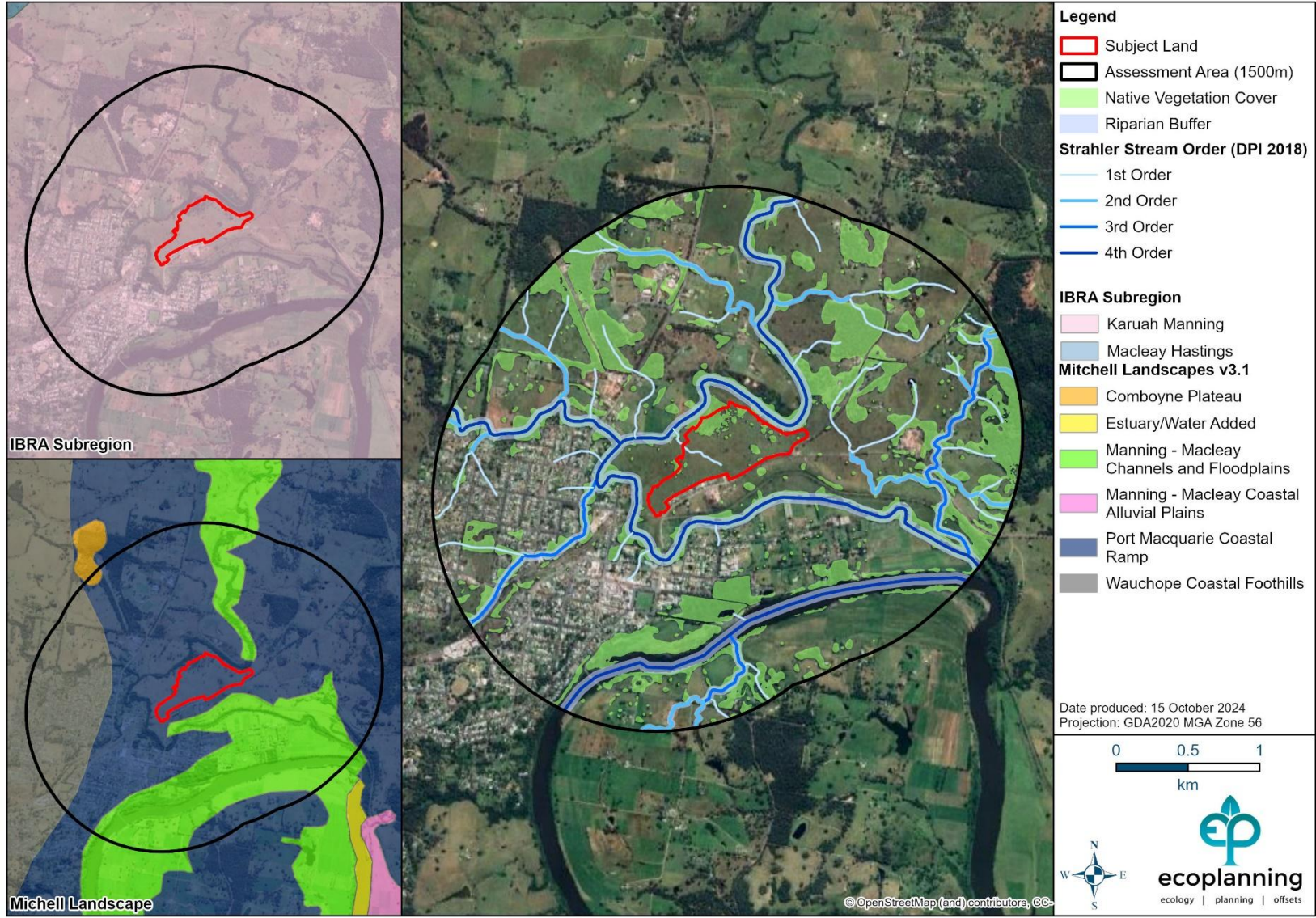


Figure 2.1: Landscape context map.



Figure 2.2: Areas of the subject land identified under the Resilience and Hazards SEPP (2021).

3 Native vegetation

3.1 Plant community types (PCTs) and threatened ecological communities

3.1.1 Regional vegetation mapping

In accordance with Section 4.1 of the BAM, existing information relevant to the native vegetation of the subject land and the 1,500 m buffer area has been reviewed. Vegetation information associated with regional vegetation assessments (DPE 2023) have been reviewed.

The NSW SVTM (DPE 2023) identifies three native vegetation communities within the study area and the majority of study area as not containing native vegetation, see **Figure 3.1**. The regional vegetation map identifies some patches of PCT 3329 – Northern Hinterland Valleys Red Gum Grassy Forest, PCT 3089 – Lower North Waterhousea Riparian Rainforest along the creekline and areas of PCT 4042 – Lower North Riverflat Eucalypt-Paperbark Forest.

A number of previous assessments were reviewed related to the construction of a new road bridge over Cedar Party Creek. The bridge is located directly adjacent to the study area, and therefore the assessments provide useful and relevant information and thus have been reviewed as part of this PBDAR.

Assessments undertaken by Key Botany (2017) identified riparian vegetation to the south of the subject land as Weeping Lilly Pilly – Water Gum Riparian Rainforest, dominated by *Waterhousea floribunda* (Weeping Lilly Pilly). The condition of the vegetation was assessed as generally degraded, from weed invasion and livestock; however, overall the vegetation still conforms to the NSW listed TEC Lowland Rainforest on Floodplain in the NSW North Coast Bioregion (Key Botany 2017). The community was further confirmed through work completed by MidCoast Council (2023).

Areas of Acacia Scrub, Weeds and Exotics, Modified Lands, Artificial Wetlands, Fig Trees and Cleared lands were also mapped (Key Botany 2017).

Vegetation mapped within the subject land was also assessed against the final determinations for Threatened Ecological Communities (TECs) listed under the BC Act and EPBC Act to determine whether the vegetation within the subject land formed part of a TEC. These communities and the equivalent Plant Community Types (PCTs) and TECs are listed in **Table 3.1**.

Table 3.1 Relationship between vegetation communities, PCTs and TECs.

Plant Community Type (PCT) (DPE 2023)	BC Act	EPBC Act
PCT 3089 - Lower North Waterhousea Riparian Rainforest	EEC - Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions EEC - Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	CEEC - Lowland Rainforest of Subtropical Australia
PCT 3329 - Northern Hinterland Valleys Red Gum Grassy Forest	-	-
PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest	EEC - Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	EEC - Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

3.2 Vegetation extent

In accordance with Section 4.1 of the BAM, the extent of native vegetation was identified and mapped across the subject land. A total of 3.42 ha of the 32.51 ha of the subject land was mapped as supporting native vegetation. Areas that did not support native vegetation included areas of exotic grasses in which vegetation clearing had previously occurred for agricultural purposes, and scattered patches of exotic woody vegetation found across the subject land.

3.3 PCT identification survey methodology

An initial inspection of the study area was conducted by Lucas Mckinnon (Principal Ecologist) on 3 April 2023. The inspection included traversing the study area to determine the presence of native vegetation, areas of ecological value and habitat features, including hollow-bearing trees. The primary focus of the survey effort was to perform rapid assessments of the dominant species in each stratum at different locations across the study area, thereby facilitating vegetation mapping. Areas of native vegetation were assigned to a vegetation zone and condition class.

The study area was inspected again on 9 and 10 September 2024 by Geoffrey Coates (Consultant Ecologist) and Antony Von Chrismar (Principal Ecologist, Flame Tree Enviro) to survey hollow-bearing trees and stick nests including those pre-recorded by Council. The survey also included targeted Koala surveys using the Spot Assessment Technique (SAT), call-playback to target Koalas, and assessing the vegetation of the site in greater detail using the BAM (DPIE 2021).

Based upon traverses of the subject land and revisions to mapped boundaries, vegetation communities present were identified within the subject land and their boundaries were mapped. The floristics of each vegetation communities were then sampled by plot-based floristic vegetation surveys consistent with Section 4.3.4.2 of the BAM (**Table 3.2**). A total of four plots were undertaken within the subject land, the location of floristic plots is shown in **Figure 3.2**. The plot locations also represented the location of vegetation integrity (VI) plots in accordance with Section 4.3 of the BAM. The location of floristic vegetation plots was determined by randomly locating plots in representative areas of each vegetation community.

Table 3.2: Minimum number of plots required per vegetation zone (Section 4.3.4.2 of the BAM)

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

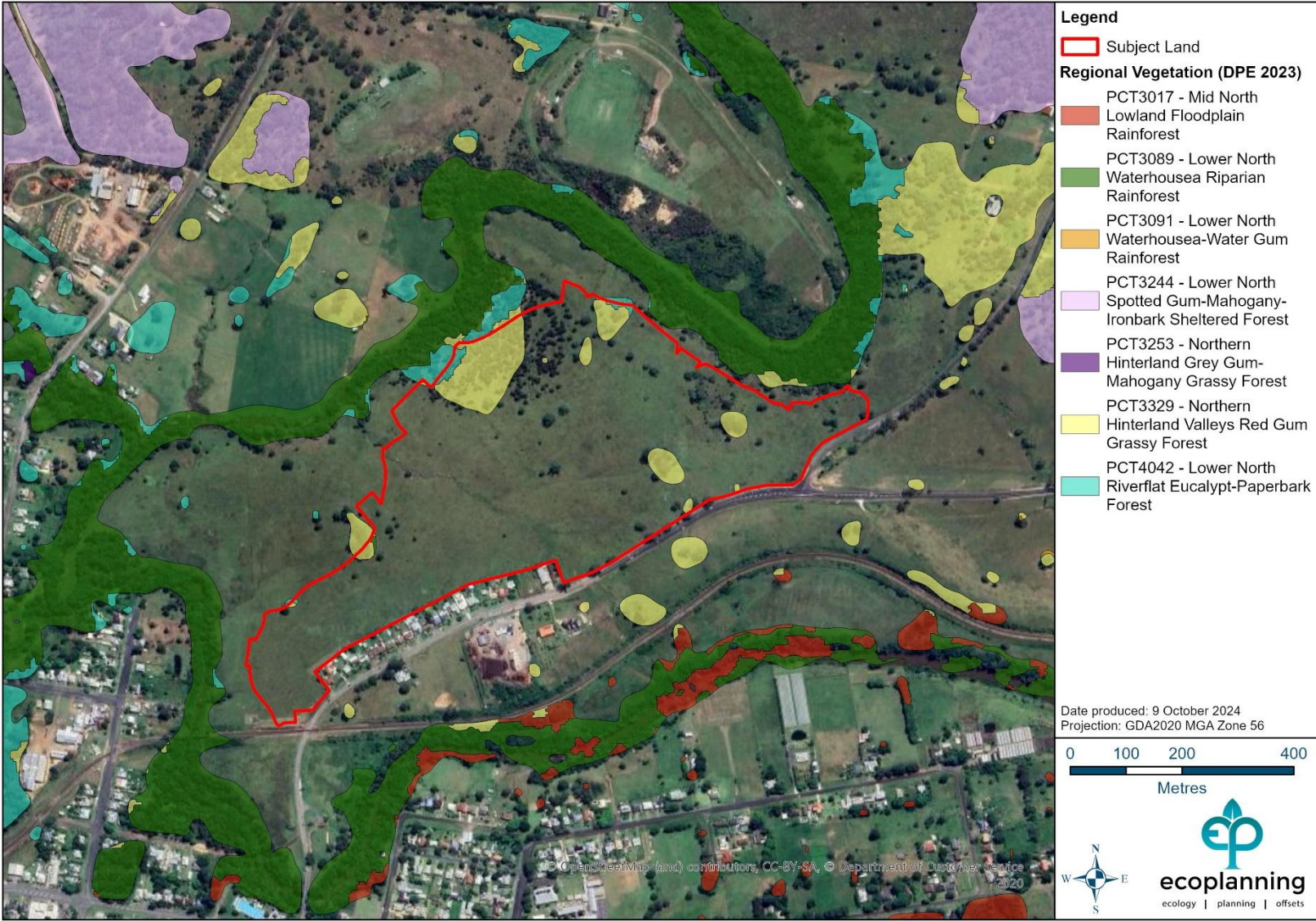


Figure 3.1: Regional vegetation mapping (DPE 2023).

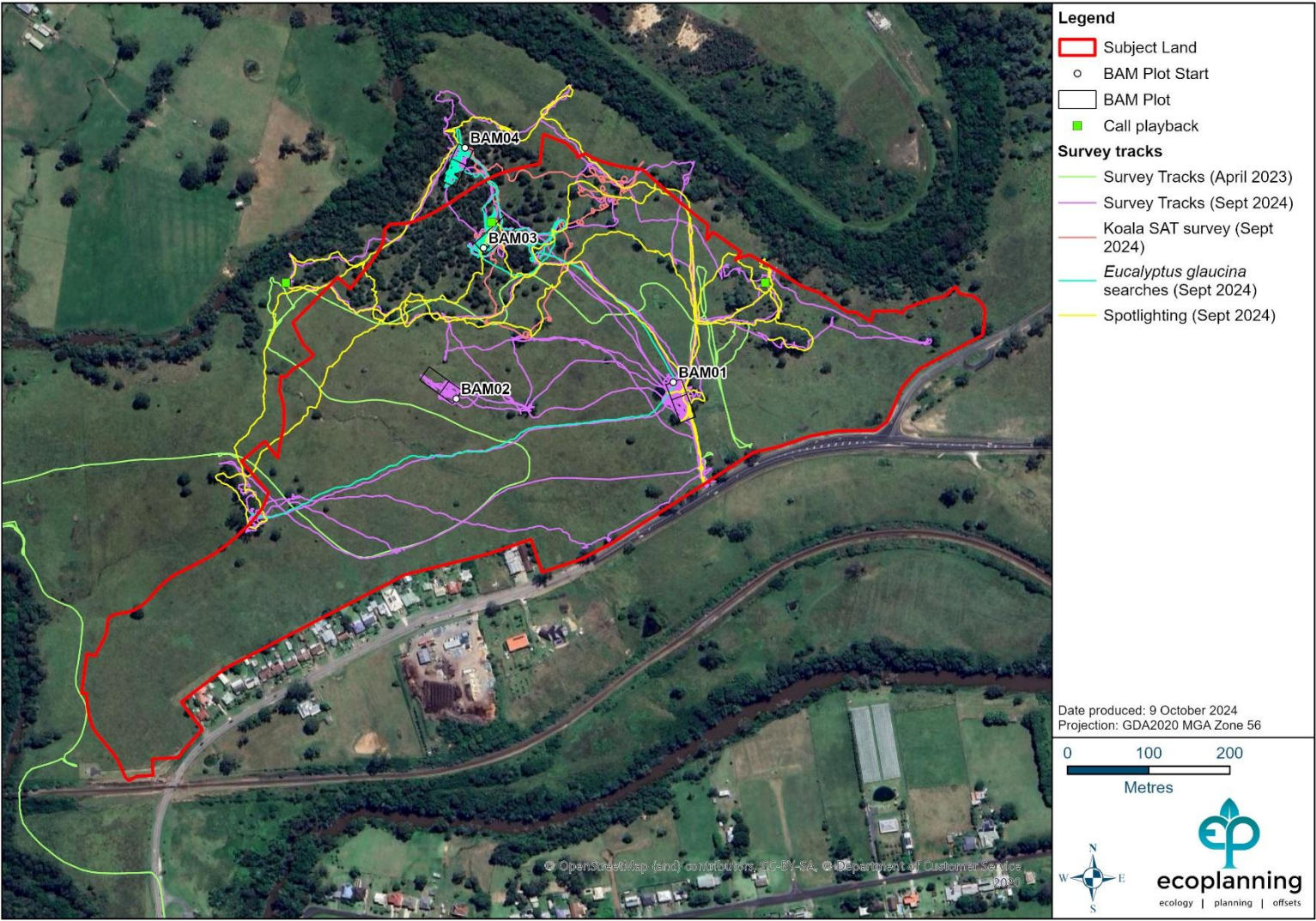


Figure 3.2: Survey effort including the location of VI plots and recorded tracks.

3.3.1 Plant Community Type selection and descriptions

A summary of the PCT and vegetation zones within the subject land is provided in **Table 3.3**. A description of the vegetation community, including justification for the assigned PCT and vegetation zone, is provided in the following sections.

In determining the PCT for the subject land, various attributes were considered in combination to assign vegetation to the best fit PCT. Attributes included (but are not limited to) consideration of IBRA subregion, dominant species in each stratum and relative abundance, community composition, previous vegetation mapping, soils and landscape position. Reference was made to the PCT descriptions in the BioNet Vegetation Classification Database (NSW DCCEEW 2024b).

Based on the floristic composition of the vegetation in the subject land, two native vegetation communities were identified in two condition classes as shown in **Figure 3.3**. The identification of PCTs for each vegetation community was undertaken in accordance with the NSW PCT classification as described in the BioNet Vegetation Classification Database (NSW DCCEEW 2024b). A total of 3.42 ha of the 32.51 ha subject land was identified as supporting native vegetation. The subject land was confirmed to be generally consistent with the regional mapping (DPE 2023) in terms of extent and type.

The remainder of the subject land was mapped as 'Exotic grassland' (29.07 ha), 'Camphor' (0.02 ha), made up of *Cinnamomum camphora* (Camphor Laurel) trees (**Figure 3.3**). These non-native vegetation units are not associated with any threatened species. One VI plot was undertaken in the 'Exotic grassland' vegetation zone to confirm the area was dominated by exotic species. Areas which are not native vegetation do not require further assessment, except where they represent habitat for threatened species. No further assessment of the vegetation within areas mapped as exotic grassland or planted vegetation has been undertaken. Details of VI plots are provided in **Section 3.4**.

Table 3.3 Details of PCT within the subject land

Plant Community Type (PCT)	Vegetation formation & class	Condition class	Area (ha)*
3329 Northern Hinterland Valleys Red Gum Grassy Forest	Grassy Woodlands/Coastal Valley Grassy Woodlands	Disturbed	3.32
4042 Lower North Riverflat Eucalypt-Paperbark Forest	Forested Wetlands/Coastal Floodplain Wetlands	Disturbed	0.10
Total native vegetation			3.42
-	Camphor	-	0.02
-	Exotic grassland	-	29.07
Total vegetation			32.51

*subject to rounding.

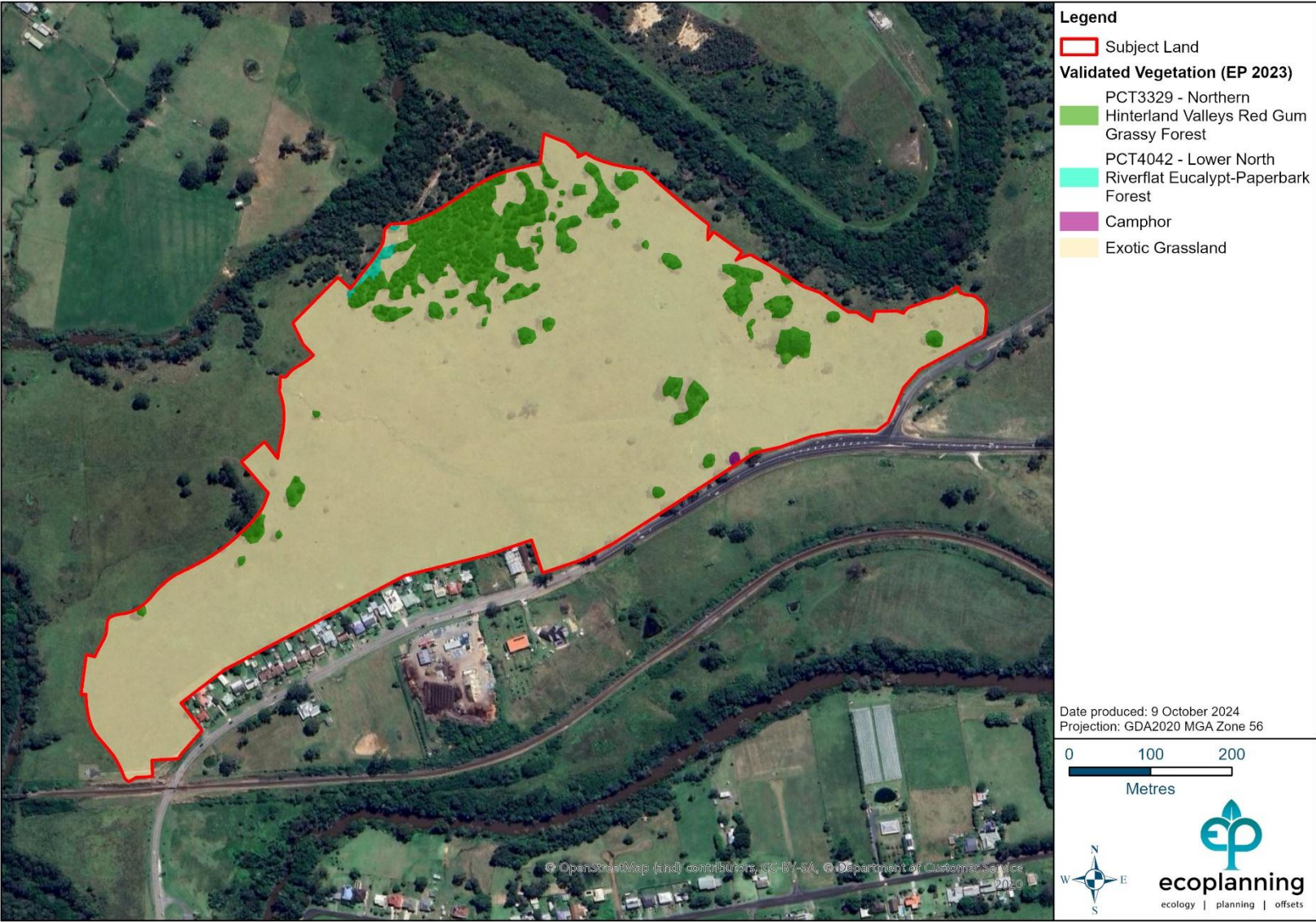


Figure 3.3: Validated vegetation within the subject land (Ecoplanning 2024).

PCT 3329 - Northern Hinterland Valleys Red Gum Grassy Forest

The BioNet describes the community as a tall to extremely tall sclerophyll open forest with a sparse mid-stratum of soft-leaved shrubs and small trees and a distinct, grassy ground layer that occurs on undulating hills in the hinterland valleys of the Manning, Hastings, Macleay and Clarence River valleys. The canopy almost always includes red gums (*Eucalyptus tereticornis* or *Eucalyptus amplifolia*), and occasionally localised areas include *Eucalyptus eugenioides*, *Eucalyptus moluccana* and apples (*Angophora subvelutina* or *Angophora floribunda*). However, the species assemblage in the BioNet is extensive, with over 40 species listed as characteristics in the canopy, so the PCT allocation was primarily based on the landscape position and groundtruthing of the SVTM.

This PCT primarily occurs on fine-grained sediments; however, is also known from acid volcanics or granite. The hinterland valleys where it occurs have been extensively cleared and it often occurs in small patches, around the margin of the valley floor or on lower slopes of the adjoining hills. It typically occurs at elevations of below 350 metres asl in hot, moist environments.

PCT 3329 was found in the subject land to be 'Disturbed' generally lacking a midstorey layer and a ground layer dominated by exotic species. This disturbance is attributed to past clearing and historical agricultural use across the subject land.



Figure 3.4: PCT 3329 in a 'disturbed' condition class in the subject land.



Figure 3.5: PCT 3329 in a 'disturbed' condition class within the subject land.

Table 3.4 BioNet Vegetation Classification Database PCT profile (NSW DCCEEW 2024b) - Northern Hinterland Valleys Red Gum Grassy Forest. Species that are listed in the PCT profile are in bold.

Plant community type (PCT)	Northern Hinterland Valleys Red Gum Grassy Forest
PCT ID	PCT 3329
Percent cleared	79.18
Vegetation formation	Grassy Woodlands
Vegetation class	Coastal Valley Grassy Woodlands
Conservation status	BC Act: N/A EPBC Act: N/A
Subject land description	
Description and occurrence	PCT 3329 occurs in one vegetation zone; 'disturbed'. The 'disturbed' zone consists of an open canopy that includes: <i>Eucalyptus siderophloia</i> (Grey Ironbark), <i>Eucalyptus amplifolia</i> (Cabbage Gum), <i>Corymbia maculata</i> (Spotted Gum), <i>Eucalyptus punctata</i> (Grey Gum) and <i>Eucalyptus resinifera</i> (Red Mahogany) with a mixed native and exotic understorey.
Upper stratum¹	<i>Eucalyptus siderophloia</i> (Grey Ironbark), <i>Eucalyptus amplifolia</i> (Cabbage Gum), <i>Corymbia maculata</i> (Spotted Gum), <i>Eucalyptus punctata</i> (Grey Gum), <i>Eucalyptus resinifera</i> (Red Mahogany), <i>Acacia maidenii</i> (Maidens Wattle), <i>Glochidion ferdinandi</i> (Cheese Tree), <i>Cinnamomum camphora</i> *
Middle stratum¹	<i>Callistemon salignus</i> (Willow Bottlebrush), <i>Gonocarpus teucroides</i> (Raspwort), <i>Daviesia ulicifolia</i> (Gorse Bitter Pea)
Dominant ground stratum¹	<i>Cynodon dactylon</i> (Couch), <i>Axonopus fissifolius</i> * (Narrow-leafed Carpet Grass), <i>Carex appressa</i> (Tall Sedge), <i>Cymbopogon refractus</i> (Barbed Wire Grass), <i>Cenchrus clandestinus</i> * (Kikuyu Grass), <i>Senecio madagascariensis</i> * (Fireweed).

* Denotes exotic vegetation

¹ Species listed are those located within PCT 3329 in the subject land. The BioNet Vegetation Classification Database PCT profile lists all species that occur within the PCT. The species found within the subject land that are listed in the PCT profile are in bold.

PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest

The BioNet describes the community as a very tall to extremely tall sclerophyll open forest with a sub-canopy of *Melaleuca* trees and a grassy and herbaceous ground cover found on low-lying coastal alluvial soils between Wyong and Nambucca, Central and North Coast. The tree canopy includes a range of eucalypt species, with no single species consistently recorded across all sites and each being occasional or rarely occurring. Collectively however, species are mostly from *Angophora*, red gum, mahogany and ironbark eucalypt groups. However, the species assemblage in the BioNet is extensive, with over 60 species listed as characteristics in the canopy, so the PCT allocation was primarily based on the landscape position and groundtruthing of the SVTM.

This PCT occurs on creek flats, river flats and elevated residual alluvial terraces mainly below 50 metres asl and in the coastal rainfall zones that generally exceed 1000 mm per annum. The original extent of this PCT is likely to have been heavily depleted by past clearing, with remnants only remaining in narrow ribbons in the headwaters of catchments or as isolated patches in cleared landscapes.



Figure 3.6: PCT 4042 in a 'disturbed' condition class in an area adjacent to the subject land.

Table 3.5: BioNet Vegetation Classification Database PCT profile (NSW DCCEEW 2024b) - Lower North Riverflat Eucalypt-Paperbark Forest. Species that are listed in the PCT profile are in bold.

Plant community type (PCT)	Lower North Riverflat Eucalypt-Paperbark Forest
PCT ID	PCT 4042
Percent cleared	73.11
Vegetation formation	Forested Wetlands
Vegetation class	Coastal Floodplain Wetlands
Conservation status	BC Act – EEC – Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion EPBC Act – EEC – Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions
Subject land description	
Description and occurrence	PCT 4042 occurs in one vegetation zone (disturbed), which is found along the northern boundary of the subject land. The upper stratum is dominated by <i>Eucalyptus tereticornis</i> (Forest Red Gum) and <i>Eucalyptus moluccana</i> (Grey Box). The middle stratum is dominated by <i>Callistemon salignus</i> (Willow Bottlebrush). The understorey is a mix of exotic and native species, however native species are dominant in this area.
Upper stratum²	<i>Eucalyptus tereticornis</i> (Forest Red Gum), <i>Eucalyptus moluccana</i> (Grey Box), <i>Acacia maidenii</i> (Maidens Wattle)
Middle stratum²	<i>Breynia oblongifolia</i> (Coffee Bush), <i>Callistemon salignus</i> (Willow Bottlebrush), <i>Daviesia ulicifolia</i> (Gorse Bitter Pea), <i>Lissanthe strigose</i> (Peach Heath), <i>Ozothamnus diosmifolius</i> (Rice Flower), <i>Kunzea ambigua</i> (Tick Bush)
Dominant ground stratum²	<i>Carex appressa</i> (Tall Sedge), <i>Cymbopogon refractus</i> (Barbed Wire Grass), <i>Cynodon dactylon</i> (Couch), <i>Microlaena stipoides</i> (Weeping Grass), <i>Schoenus apogon</i> (Common Bog Rush)

² Species listed are those located within PCT 4042 in the subject land. The BioNet Vegetation Classification Database PCT profile lists all species that occur within the PCT. The species found within the subject land that are listed in the PCT profile are in bold.

Exotic Pine and Camphor

Planted exotic vegetation is found predominantly near the boundary of the subject land along Wingham Road. This area contains Camphor Laurel trees.

Exotic grassland

A large proportion of the subject land was found to contain 'exotic grassland' (29.07 ha; 89%). This land was dominated by exotic pasture grasses namely *Andropogon virginicus** (Whisky Grass) and *Axonopus fissifolius** (Narrow-leaved Carpet Grass) (**Figure 3.7**).

Given the highly modified state of this vegetation zone and the lack of native vegetation, this vegetation zone was not assigned to a PCT under the BAM. One VI plot (Plot 2) was completed in an area of 'exotic grassland' which included discernible cover of native vegetation. This plot was used to confirm that all areas mapped as 'exotic grassland' are of a VI score <15 and, therefore, do not require offsetting. Plot 2 was entered into the BAM-C under PCT 3329 due to the proximity of PCT 3329 vegetation to the plot location.



Figure 3.7: Exotic grassland in the subject land

3.3.2 Threatened Ecological Communities

PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest

PCT 4042 occurs within the correct bioregion and is consistent with the description provided in the final determination for the TEC 'Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions' (NSW Scientific Committee 2011). As such the community is consistent with the BC Act listed endangered ecological community Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion.

The criteria for listing under the BC Act differs from the EPBC Act listing. The BC Act captures all stands of Subtropical Coastal Floodplain Forest regardless of condition. The EPBC Act focuses on capturing stands with highest relative ecological quality, whilst largely excluding heavily degraded patches which do not meet the condition thresholds for listing under the EPBC Act.

A review of the relevant Commonwealth guidelines was undertaken to determine the presence of the Subtropical eucalypt floodplain forest and woodland protected under the EPBC Act. The review identified that areas of PCT 4042 within the subject land is consistent with the community in a Class C2 condition (**Figure 3.8**). Although only 0.10 ha of PCT 4042 is located within the subject land, this vegetation is connected to a patch of PCT 4042 0.72 ha in size contained within the study area. Furthermore, this vegetation is contiguous with the riparian vegetation located along Cedar Party Creek. A review of the floristic plot data shows that ground layer contains 17 native species and native perennial understorey cover is approximately 75%, however no large trees were present.

Given the presence of the EPBC Act endangered ecological community an impact assessment against the significant impact guidelines has been undertaken and supplied as **Appendix A**. Owing to the small impact (0.10 ha) the proposed development will not result in a significant impact to the community.

PCT 3329 - Northern Hinterland Valleys Red Gum Grassy Forest

PCT 3329 is not associated with any TECs under the BC Act or the EPBC Act.

Patch size thresholds →		Large patch Patch size ≥2 ha	Small contiguous ⁴ patch ≥ 0.5 ha, within a larger area of native vegetation ≥ 5 ha	Small patch Patch size ≥ 0.5 ha
Biotic thresholds ↓				
Vegetation	Arboreal mammals			
HIGH CONDITION Ground cover richness ¹ ≥ 10 native species per sample plot AND ≥ 20 <u>large</u> native trees ² per ha. AND ≥ 80% of its total perennial understorey vegetation cover ³ comprises native species		CLASS A1 Large or contiguous ⁴ patch, with high quality understorey and many large native trees	CLASS B1 Small patch, with high quality understorey and many large native trees	
GOOD CONDITION Ground cover richness ¹ ≥ 6 native species per sample plot AND ≥ 10 <u>large</u> native trees ² per ha. AND ≥ 50% of its total perennial understorey vegetation cover ³ comprises native species	AND ≥5 species of arboreal mammals ⁵ detected ⁶ in the patch.	CLASS A2 Large or contiguous ⁴ patch, with good quality understorey, large native trees and evidence of many arboreal mammal species	CLASS B2 Small patch, with good quality understorey, large native trees and evidence of arboreal mammals	
		CLASS B3 Large or contiguous ⁴ patch, with good quality understorey and large native trees	CLASS C1 Small patch, with good quality understorey and large native trees	
MODERATE CONDITION Ground cover richness ≥ 4 native species per sample plot ¹ AND at least one of: ≥ 6 <u>very large</u> native trees ⁷ per ha AND/OR ≥ 30% of its total perennial understorey vegetation cover ³ comprises native species		CLASS C2 Large or contiguous ⁴ patch, with moderate quality understorey and/or some <u>very</u> large native trees	Not nationally protected	
Notes ¹ Ground cover richness includes combined species richness of native grasses, forbs, ferns and sedges per 0.04 ha (20 x 20 m sample plot) on average. ² <u>Large</u> native trees are <u>greater than 45 cm [diameter at breast height (dbh)]</u> . This is used as a surrogate for tree hollows and other habitat values. These should be counted, and averaged across the patch as a whole. For larger patches, they can be counted in plots of at least 0.5 ha. ³ Perennial understorey vegetation cover includes all vegetation below the canopy layer, from species with a life-cycle of more than two growing seasons. It includes herbs (graminoids and forbs), grasses, shrubs, shorter trees, juvenile canopy species, resprouting or suckering of the lower portions of canopy trees, and cryptogams; but it does not include annual plants, plant litter, or exposed soil. ⁴ Contiguous means the patch is connected to, or in close proximity to (i.e., within 30 m of), one or more areas of native vegetation (i.e., an area where the total perennial vegetation cover is dominated (50% or more) by native plant species). ⁵ For the purposes of this calculation, evidence of any number of micro-bat species (Microchiroptera) found in the patch counts as one species of arboreal mammal. ⁶ Survey guidelines include DSEWPC (2011). ⁷ <u>Very large</u> native trees are <u>greater than 60 cm dbh</u> . These should be counted, and averaged across the patch as a whole. For larger patches, they can be counted in plots of at least 0.5 ha (i.e., an average of 3 very large native trees per 0.5 ha plot).				

Figure 3.8: Condition thresholds for EPBC listed Subtropical eucalypt floodplain forest and woodland TEC (TSSC 2022)

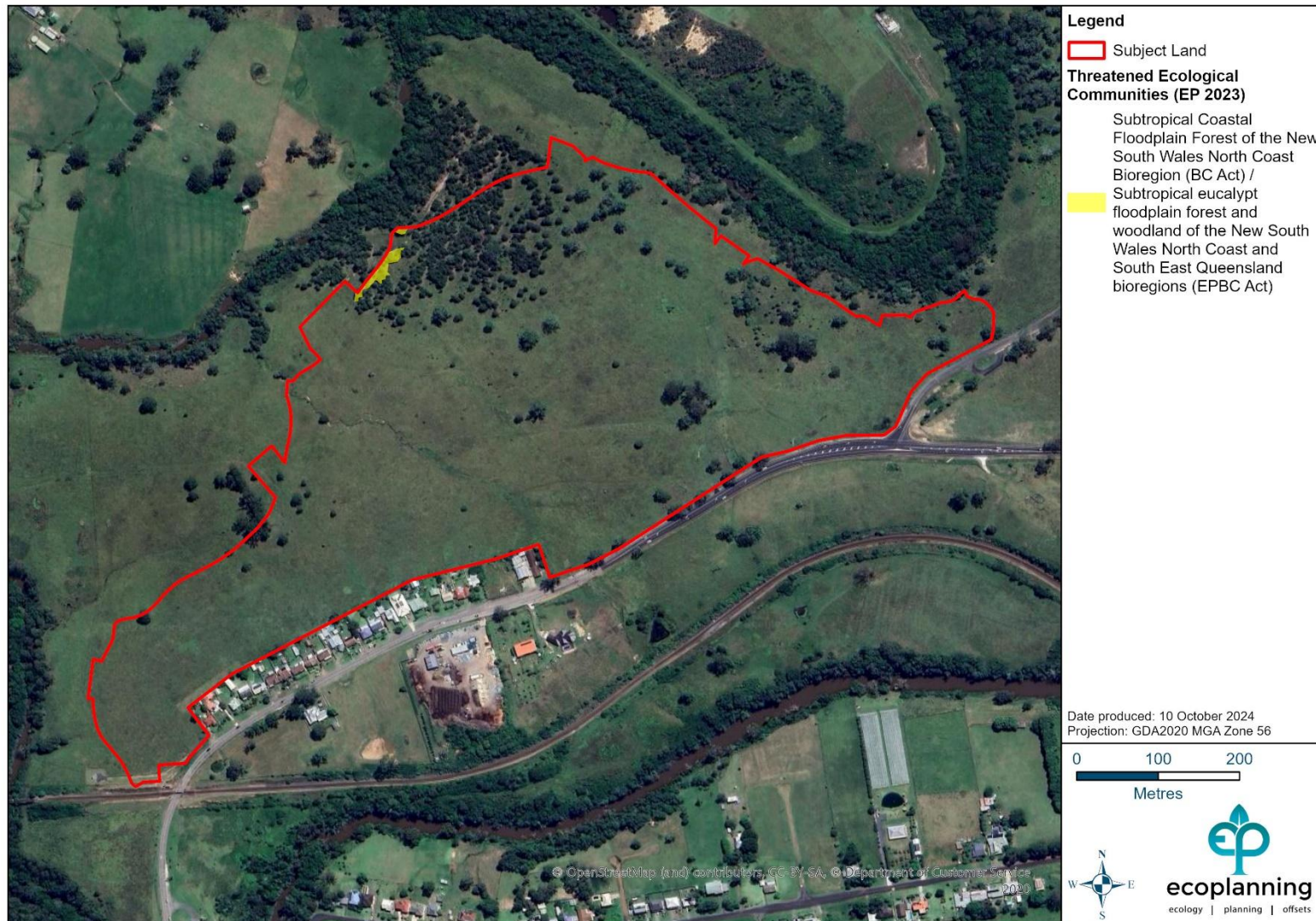


Figure 3.9: Threatened Ecological Communities and PCTs associated with the subject land.

3.4 Vegetation zones

3.4.1 Vegetation integrity (VI) survey plots

Four VI plots were completed, one in each mapped native vegetation zone and one in the large area of 'Exotic grassland' to meet the requirements of Table 3 of the BAM (**Figure 3.2** and **Table 3.6**). Given the small size of the vegetation zones, plots were oriented as best as possible to capture the most representative parts of each zone and to avoid ecotones, zone boundaries and disturbances such as tracks. However, this was not always possible. The representative plot of PCT 4042 (Plot 4) was taken outside of the subject land but within the study area. This is because only a small area of the PCT is within the subject land (0.01 ha) and it occurs along the ecotone of PCT 4042 and PCT 3329.

The plot in 'Exotic grassland' was located in an area which appeared to contain the highest proportion of native groundcover. The purpose of this plot was to verify that all areas which have been mapped as 'Exotic grasses' have a VI score of less than 15 and are therefore below the threshold for offsetting if the vegetation were determined to be representative of an EEC or a CEEC.

Table 3.6: Number of VI plots required for each vegetation zone based on their respective sizes

PCT name	Vegetation zone	Area in Subject Land	# plots required (completed)
4042 – Lower North Riverflat Eucalypt-Paperback Forest	Disturbed	0.10	1 (1)
3329 – Northern Hinterland Valleys Red Gum Grassy Forest	Disturbed	3.32	2 (2)
Exotic grassland	N/A	29.07	0 (1)
Total		32.51	3 (4)

'Camphor' vegetation zone totals 0.02 ha

3.4.2 Current and future vegetation integrity scores

Vegetation integrity scores were calculated based on the VI plots collected for each vegetation zone where possible. Data collected for each plot is included in **Table 3.7** and **Appendix B**. The VI scores for each vegetation zone, before and after development, are representative of a condition score / class out of 100 and shown in **Table 3.7**. The VI score of exotic grassland is < 15 and therefore an offset is not required for these impacts.

Table 3.7: Vegetation Integrity Scores.

Veg zone	PCT	Condition class	Area impacted (ha)	Vegetation Integrity Score	
				Before	After
1	3329	Disturbed	3.32	39.6	0
2	4042	Disturbed	0.10	66.6	0
3	-	Exotic Grassland	29.07	0.9	0



4 Threatened species

Section 5 of the BAM details the process for determining the habitat suitability for threatened species. 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 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 identifiable 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 identifiable as both ecosystem and species credit species, with different aspects of the habitat and life cycle representing different credit types. Commonly, threatened fauna species foraging habitat is classed 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 land, and the results of the targeted surveys for candidate threatened species.

4.1 Threatened species for assessment

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

- the distribution of the species including the IBRA subregion in which the subject land occurs (Karuah Manning IBRA subregion),
- the species is associated with any of the PCTs identified within the subject land,
- the native vegetation cover within the assessment area including the 1,500 m assessment circle around the subject and 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 PCT identified within the subject land, patch size, and native vegetation cover, as outlined in **Section 3**, were entered into the BAM calculator and a preliminary list of ecosystem and species credit species was tabulated below (**Table 4.1**).

4.2 Ecosystem credit species

A review of the predicted ecosystem credit species was conducted to determine the likelihood of species occurring on the subject land. The review considers whether necessary habitat components are present as described above (**Table 4.1**). It is acknowledged that the BAM-C uses a precautionary approach to predict the presence of ecosystem credit species potentially located within the study area. Nevertheless, no ecosystem credit species were excluded from the assessment based on habitat constraints.

Table 4.1: Assessment of habitat constraints and geographic limitations of ecosystem credit species.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as an Ecosystem Credit Species
<i>Anthochaera phrygia</i> Regent Honeyeater (Foraging)	-	-	Included
<i>Artamus cyanopterus</i> <i>cyanopterus</i> Dusky Woodswallow	-	-	Included
<i>Botaurus poiciloptilus</i> Australasian Bittern	Waterbodies Brackish or freshwater wetlands	-	Included
<i>Calidris ferruginea</i> Curlew Sandpiper (Foraging)	-	-	Included
<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo (Foraging)	-	-	Included
<i>Calyptorhynchus lathami lathami</i> South-eastern Glossy Black- Cockatoo (Foraging)	Presence of <i>Allocasuarina</i> and <i>Casuarina</i> species	-	Included
<i>Chthonicola sagittata</i> Speckled Warbler	-	-	Included
<i>Circus assimilis</i> Spotted Harrier	-	-	Included
<i>Climacteris picumnus victoriae</i> Brown Treecreeper (eastern subspecies)	-	-	Included
<i>Coracina lineata</i> <i>Barred Cuckoo-shrike</i>	-	-	Included
<i>Daphoenositta chrysoptera</i> Varied Sittella	-	-	Included

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as an Ecosystem Credit Species
<i>Dasyurus maculatus</i> Spotted-tailed Quoll	-	-	Included
<i>Ephippiorhynchus asiaticus</i> Black-necked Stork	Swamps Shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 300 m of these swamps. Water bodies Shallow lakes, lake margins and estuaries within 300 m of these waterbodies	-	Included
<i>Glossopsitta pusilla</i> Little Lorikeet	-	-	Included
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle (Foraging)	Waterbodies Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines	-	Included
<i>Hieraaetus morphnoides</i> Little Eagle (Foraging)	-	-	Included
<i>Hirundapus caudacutus</i> White-throated Needletail	-	-	Included
<i>Lathamus discolor</i> Swift Parrot (Foraging)	-	-	Included
<i>Lophoictinia isura</i> Square-tailed Kite (Foraging)	-	-	Included
<i>Melithreptus gularis gularis</i> Black-chinned Honeyeater (eastern subspecies)	-	-	Included
<i>Micronomus norfolkensis</i> Eastern Coastal Free-tailed Bat	-	-	Included

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as an Ecosystem Credit Species
<i>Miniopterus australis</i> Little Bent-winged Bat (Foraging)	-	-	Included
<i>Miniopterus orianae oceanensis</i> Large Bent-winged Bat (Foraging)	-	-	Included
<i>Neophema pulchella</i> Turquoise Parrot	-	-	Included
<i>Pandion cristatus</i> Eastern Osprey (Foraging)	-	-	Included
<i>Petroica boodang</i> Scarlet Robin	-	-	Included
<i>Petroica phoenicea</i> Flame Robin	-	-	Included
<i>Pomatostomus temporalis</i> <i>temporalis</i> Grey-crowned Babbler (eastern subspecies)	-	-	Included
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox (Foraging)	-	-	Included
<i>Ptilinopus superbus</i> Superb Fruit-Dove	-	-	Included
<i>Rostratula australis</i> Australian Painted Snipe	-	-	Included
<i>Stagonopleura guttata</i> Diamond Firetail	-	-	Included
<i>Thylogale stigmatica</i> Red-legged Pademelon	-	-	Included

4.3 Identify candidate species (species credit species)

In accordance with Section 5.2.1 of the BAM, a predicted candidate species can be considered unlikely to occur within the subject land (or specific vegetation zones) where habitat is substantially degraded (based on microhabitat features) to the point the species is unlikely to use the area, or where an expert report identifies that the species is unlikely to be present within the subject land (or a vegetation zone within the subject land). A predicted candidate species credit species that is not considered to have suitable habitat on the subject land (or specific vegetation zones) in accordance with Section 5.2.3 of the BAM does not require further assessment on the subject land (or specific vegetation zones). The reasons and justifications for determining that a predicted species credit species is unlikely to have suitable habitat on the subject land (or specific vegetation zones) and, therefore, has been excluded from further assessment is provided in **Table 4.2**.

Opportunistic and targeted surveys were undertaken as part of the field assessments, including surveys for the threatened flora species which are known to occur in the area. The habitat present is extremely modified with the majority of native vegetation within the subject land in a degraded condition, having been cleared and grazed in the past and largely lacking a shrub layer and subject to an infestation of exotic and/or high threat weeds.

An assessment of available habitat for predicted candidate species within the subject land is further detailed in **Section 4.4** of this report.

Table 4.2: Assessment of habitat constraints and geographic limitations of candidate species credit species.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Angophora inopina</i> Charmhaven Apple	-	South of Wootton	<u>Excluded:</u> The subject land is located north of Wootton and therefore outside of the species geographic limitations.
<i>Anthochaera phrygia</i> Regent Honeyeater (Breeding)	• Other • As per mapped areas	-	<u>Excluded:</u> The subject land is not part of the species Important Habitat Area Map.
<i>Burhinus grallarius</i> Bush Stone-curlew	• Fallen/standing dead timber including logs	-	<u>Excluded:</u> Excluded based on habitat constraints. The subject land is dominated by exotic grasses. Very little fallen timber or logs are found anywhere within the subject land. The subject land lacks required habitat and is also substantially degraded.
<i>Calidris ferruginea</i> Curlew Sandpiper (Breeding)	• Other • As per mapped areas	-	<u>Excluded:</u> The subject land is not part of the species Important Habitat Area Map.
<i>Callistemon linearifolius</i> Netted Bottle Brush	-	-	<u>Excluded:</u> The subject land is beyond the known distribution of species. The nearest records are in Bulahdelah in 1902 and Lorne State Forest in 1976 (NSW DCCEW 2024c). Recently, the species is not known to occur further north than Nelson Bay (NSW TSSC 2021). The species grows in dry sclerophyll forest on the coast and adjacent ranges (NSW TSSC 2021). The subject land is outside of the species known range and does not contain suitable habitat.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo (Breeding)	• Hollow bearing trees • Eucalypt tree species with hollows at least 3 m above the ground and with hollow diameter of 7 cm or larger	-	<u>Included:</u> Targeted surveys recommended during the DA phase of the project. A total of 21 hollows greater than 7 cm in diameter are located within the subject land. Notably there are only 7 records of Gang Gang Cockatoo in the MidCoast LGA in the past 25 years, and none in the past 14 years, so whilst survey for this species is required, it considered highly unlikely to be breeding onsite.
<i>Calyptorhynchus lathamii</i> Glossy Black-Cockatoo (Breeding)	• Hollow bearing trees • Living or dead tree with hollows greater than 15 cm diameter and greater than 8 m above ground	-	<u>Included:</u> Targeted surveys recommended during the DA phase of the project. A total of 10 hollows 15 cm in diameter or greater are located within the subject land.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Cercartetus nanus</i> Eastern Pygmy-possum	-	-	<u>Excluded:</u> Suitable habitat is not present in the subject land. This species is found in a broad range of habitats from rainforest through to sclerophyll forest and woodland to heath, but in most areas woodlands and heath appear to be preferred. Feeds largely on nectar and pollen collected from banksias, eucalypts, and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits or insects are eaten when flowers are unavailable. In accordance with Section 5.2.3, 2 (a ii) of the BAM - the subject land has been subject to considerable disturbance and modification, being regularly grazed in the past and with a groundcover dominated by exotic grasses. This species requires dense shrub cover in a variety of habitats, however the mid-storey and ground layer woody vegetation across the subject land has been removed or with very little cover or shelter offered by the disturbed / reduced structure of the vegetation. The subject land contains a low abundance and cover of potential food trees (trees producing fruits or nectar on which this species may forage).
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	• Cliffs • Within 2 km of rocky area containing caves, overhangs, escarpments, outcrops, or crevices, or within 2 km of old mines or tunnels	-	<u>Excluded:</u> Excluded based on habitat constraints. The subject land is not within 2 km of old mines, tunnels, cliffs or other rocky areas which could provide potential roost sites.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Dromaius novaehollandiae</i> - endangered population Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	-	-	<u>Excluded:</u> The species can be found in a diverse range of habitats however, the endangered population is known from coastal and near-coastal areas between Evans Head and Red Rock and a small isolated population further west in the Bungawalbin area. The nearest record for the species is in Port Macquarie from 2000 (NSW DCCEEW 2024c). As such this species has been excluded as a candidate species.
<i>Eucalyptus largeana</i> Craven Grey Box	-	-	<u>Excluded:</u> Not observed during survey
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	-	-	<u>Excluded:</u> There are two separate meta-populations of <i>E. parramattensis</i> subsp. <i>decadens</i> . The two populations are within the Kurri Kurri area and the Tomago Sandbeds area. The species prefers deep, low-nutrient sands, often those subject to periodic inundation or where water tables are relatively high. This habitat is absent from the subject land and therefore this species has been excluded as a candidate species.
<i>Eucalyptus seeana</i> - endangered population Eucalyptus seeana population in the Greater Taree local government area	-	Greater Taree LGA	<u>Excluded:</u> Not observed during survey

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Grevillea guthrieana</i> Guthrie's Grevillea	-	-	<u>Excluded:</u> The species is known to grow along creeks and cliff lines in eucalypt forest, on granitic or sedimentary soil. This habitat is absent from the subject land, as only one first order stream is mapped, that does not contain any riparian vegetation. As such any potential habitat within the subject is degraded to the point that they species is unlikely to occur.
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle (Breeding)	• Other • Living or dead mature trees within suitable vegetation within 1 km of a river, lake, large dam or creek, wetlands and coastlines	-	<u>Excluded:</u> no large stick nests observed during survey
<i>Hieraaetus morphnoides</i> Little Eagle (Breeding)	• Other • Nest trees – live (occasionally dead) large old trees within vegetation	-	<u>Excluded:</u> no large stick nests observed during survey
<i>Lathamus discolor</i> Swift Parrot (Breeding)	• Other • As per mapped areas -	-	<u>Excluded:</u> The subject land is not part of the species Important Habitat Area Map.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Litoria aurea</i> Green and Golden Bell Frog	• Semi-permanent/ephemeral wet areas • Within 1km of wet areas Swamps • Within 1km of swamp Waterbodies • Within 1km of waterbody	-	<u>Excluded:</u> No suitable habitat for Green and Golden Bell Frog in the subject land.
<i>Litoria brevipalmata</i> Green-thighed Frog	• Semi-permanent/ephemeral wet areas Swamps Waterbodies	-	<u>Excluded:</u> The species required habitat for breeding is any semi-permanent or ephemeral waterbody of >25 square metres in surface area located within native vegetation or immediately adjacent to or within 10 metres of native vegetation. Non-breeding habitat is native vegetation adjacent to the breeding habitat (DPIE 2020b). There is one first order stream within the subject land that may hold water during high rainfall events, however no riparian vegetation is located within the subject land. As such this species has been excluded given that any suitable habitat within the subject land is degraded.
<i>Lophoictinia isura</i> Square-tailed Kite (Breeding)	• Other • Nest trees	-	<u>Excluded:</u> no large stick nests observed during survey

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Maundia triglochinosoides</i>	• Other • Riparian areas/drainage lines, water ponding, man-made dams and drainage channels up to 1 m deep Semi-permanent/ephemeral wet • Shallow swamps up to 1 m deep Waterbodies • Shallow waterbodies up to 1 m deep	-	<u>Excluded:</u> The required habitat for the species is absent from the subject land. The species is known to grow in swamps or shallow fresh water on heavy clay. Given that standing water is absent from the subject land this species has been excluded based on habitat constraints.
<i>Melaleuca biconvexa</i> Biconvex Paperbark	-	-	<u>Excluded:</u> This species is known to occur along watercourses. The mapped first order stream within the subject land has been substantially modified and is devoid of native vegetation. As such any suitable habitat in the subject land is degraded to the point that this species is unlikely to occur.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Miniopterus australis</i> Little Bent-winged Bat (Breeding)	• Caves • Caves, tunnels, mines, culverts, or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave' • Observation type code 'E nest-roost' • With roost number of individuals >500 • or from the scientific literature	-	<u>Excluded:</u> Excluded based on a lack of habitat constraints.
<i>Miniopterus orianae oceanensis</i> Large Bent-winged Bat (Breeding)	• Caves • Caves, tunnels, mines, culverts, or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave' • Observation type code 'E nest-roost' • With roost number of individuals >500	-	<u>Excluded:</u> Excluded based on a lack of habitat constraints.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Mixophyes iteratus</i> Giant Barred Frog	• Other • Land within 50m of semi permanent and permanent drainages	-	<u>Excluded:</u> Suitable habitat is not present in the subject land. The species is found in rainforest and wet, tall open forest and breeding habitat includes permanent or ephemerally flowing streams with permanent pools. The subject land contains grassy woodland communities, and the watercourse are highly degraded due to historical grazing lacking riparian vegetation and lack permanent pools.
<i>Myotis macropus</i> Southern Myotis	• Hollow bearing trees • Within 200 m of riparian zone • Bridges, caves, or artificial structures within 200 m of riparian zone • Waterbodies; this includes rivers, creeks, billabongs, lagoons, dams, and other waterbodies 200 m of the site	-	<u>Included:</u> Targeted surveys recommended at the DA phase of the project. Given the proximity of Cedar Party Creek and the presence hollow bearing trees within the subject land it is possible that Southern Myotis may use the subject land.
<i>Ninox connivens</i> Barking Owl (Breeding)	• Hollow bearing trees • Living or dead trees with hollows greater than 20 cm diameter and greater than 4 m above the ground	-	<u>Included:</u> Targeted survey recommended during the DA phase of the project. There are three suitable hollows located within the subject land, two night of call playback surveys did not illicit any response, however survey guidelines require 8 nights.
<i>Ninox strenua</i> Powerful Owl (Breeding)	• Hollow bearing trees • Living or dead trees with hollows greater than 20 cm diameter and greater than 4 m above the ground	-	<u>Included:</u> Targeted survey recommended during the DA phase of the project. There are three suitable hollows located within the subject land, two night of call playback surveys did not illicit any response, however survey guidelines require 8 nights.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Pandion cristatus</i> Eastern Osprey (Breeding)	- Other - Presence of stick-nests in living and dead trees (>15m) or artificial structures within 100m of a floodplain for nesting)	-	<u>Excluded:</u> no large stick nests observed during survey
<i>Petaurus norfolcensis</i> Squirrel Glider	-	-	<u>Excluded:</u> Suitable habitat is not present on the subject land. Inhabits Blackbutt-Bloodwood forest with heath understorey in coastal areas. These habitat features are not represented in the subject land. .
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby	- Other - Land within 1km of rocky escarpments, gorges, steep slopes, boulder piles, rock outcrops or cliff lines		<u>Excluded:</u> Excluded based on lack of habitat constraints.
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	-	-	<u>Excluded:</u> No suitable habitat in the subject land.
<i>Phascolarctos cinereus</i> Koala	- Other - Presence of koala use trees - refer to Survey Comments field in TBDC	-	<u>Included:</u> presence of koala use trees .
<i>Planigale maculata</i> Common Planigale	-		<u>Excluded:</u> No suitable habitat in the subject land.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Pomaderris queenslandica</i> Scant Pomaderris	-		<u>Excluded:</u> Habitat within the subject land is degraded. The species is found in moist eucalypt forest or sheltered woodlands with a shrubby understorey, and occasionally along creeks. The vegetation within the subject land does not conform with the required habitat for this species. This is largely due to the degraded nature of the subject land. This includes lack of riparian vegetation, lack of dense canopy and lack of dense shrub layer.
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox (GHFF) (Breeding)	• Other • Breeding camps	-	<u>Excluded:</u> The GHFF is the largest of Australia's bats and is found within 200 km of NSW coast. Roosting camps are commonly found in areas within a dense canopy that are close to gullies, and within 20 km of regular food sources. No breeding camps were identified on the subject land from the field assessments. While this species is associated with PCTs of the subject land, due to the nature of the past disturbance within the subject land and lack of breeding camps the species has been excluded.
<i>Pterostylis chaetophora</i>	-	-	<u>Excluded:</u> Habitat degraded, and suitable habitat is not present on the subject land. The groundcover and lower stratum vegetation is dominated by a high cover of exotic species. The subject land is also impacted by grazing. Due to past land use practices and the current degraded condition of vegetation within the subject land, suitable habitat is not present, and this species has been excluded as a candidate species.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Rhodamnia rubescens</i> Scrub Turpentine	-	-	<u>Excluded:</u> This species is found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This habitat type is absent from the subject land.
<i>Rhodomyrtus psidioides</i> Native Guava	-	-	<u>Excluded:</u> Suitable habitat for the species is absent from the subject land. The species is known as a pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. This habitat is absent from the subject land.
<i>Syzygium paniculatum</i> Magenta Lilly Pilly	-	-	<u>Excluded:</u> Suitable habitat for the species is absent from the subject land. This species is largely restricted to remnant stands of littoral (coastal) rainforest. This habitat is absent from the subject land.
<i>Turnix maculosus</i> Red-backed Button-quail	-	-	<u>Excluded:</u> This species has a wide but discontinuous distribution in Australia from the Kimberley region of Western Australia, through the Top End of the Northern Territory and the southern Gulf of Carpentaria, to Cape York Peninsula and eastern Queensland and central-eastern and north-eastern NSW. It is mainly a species of coastal and subcoastal regions. The species prefers areas with dense grass cover and close to water. Although the subject land located adjacent to Cedar Party Creek it lacks dense grass cover due to historical grazing and disturbance. As such habitat for this species is degraded within the subject land.

Scientific name/ Common name	Habitat constraints	Geographic limitations	Maintained as a Candidate Species Credit ¹
<i>Tyto novaehollandiae</i> Masked Owl (Breeding)	- Hollow bearing trees - Living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground	-	<u>Included:</u> Targeted survey recommended during the DA phase of the project. There are three suitable hollows located within the subject land, two night of call playback surveys did not illicit any response, however survey guidelines require 8 nights.
<i>Vespadelus troughtoni</i> Eastern Cave Bat	- Caves - Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, crevices or boulder piles, or within two kilometres of old mines, tunnels, old buildings or sheds."	-	<u>Excluded:</u> Excluded based on habitat constraints.

¹ Unless otherwise stated information quoted within Table 4.2 regarding habitat requirements for threatened species was obtained from NSW Office of Environment and Heritage (OEH) threatened species profiles, accessed at: <https://threatenedspecies.bionet.nsw.gov.au/> or the Threatened Species Profiles Database Collection.

4.4 Determine presence or absence of candidate species credit species

Confirmed candidate species are to be assessed consistent with Section 5.2.3 of the BAM. Targeted surveys for species credit species are to be undertaken in accordance with Section 5.3 of the BAM, in accordance with *Surveying threatened plants and their habitats* (DPIE 2020a). The survey effort, timing and locations for threatened flora are outlined in the following sections.

Species not identified as candidate species for further assessment do not require targeted threatened species survey; however, informal survey was opportunistically conducted whilst surveying for other threatened species and general field assessments.

4.4.1 Targeted field surveys – flora

One threatened flora species was identified as having the potential to occur and as such a targeted survey was undertaken. This species is *Eucalyptus glaucina* (Slaty Red Gum). Targeted survey for the species were conducted by Antony Von Chrismar and Geoffrey Coates on 9 September and 10 September 2024. The nominated survey period for this species is shown in **Table 4.3**.

Targeted surveys initially involved identification of areas of potential habitat for threatened flora species within the subject land. Areas of suitable habitat were then surveyed along parallel field-traverses with approximately 40 m separation, consistent with the requirements of the DPIE 2020. Areas of exotic grassland were not assessed as of potential habitat for threatened flora, hence were not surveyed in accordance with the DPIE 2020. Survey effort is shown in **Figure 3.2**.

Table 4.3: Nominated survey months for threatened flora species

Candidate species	Survey period (BAM Calculator)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Eucalyptus glaucina</i> Slaty Red Gum	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Blue column indicates month survey undertaken.

4.4.2 Recommended flora surveys

Based on the results of this preliminary BDAR no threatened flora species have been identified in the subject land. No flora surveys are required for the future DA.

4.4.3 Targeted field surveys – fauna

Targeted surveys for the Koala were undertaken as part of this PBDAR, due to the presence of Koala use feed trees. This included surveys in accordance with the *Koala (Phascolarctos cinereus) Biodiversity Assessment Method Survey Guide* (DPE 2022). In accordance with the Survey Guide the minimum survey effort to detect Koala presence on the subject land requires the total effort for two standard survey methods to be met. As such, the Spot Assessment

Technique (SAT) and spotlighting survey were carried out across the study area, survey effort is shown in **Figure 3.2** and the nominated survey period is provided in Error! Reference source not found. An anecdotal record of a scat was provided by MNC (MNC 2024), which could not conclusively be determined to be a Koala scat without scale or reference material (NB: Koala scats are notably similar to Brush-tailed Possum scats). However, as Koalas were not detected during the specified BAM surveys techniques they may therefore be considered absent. Additional survey to substantiate these findings should be considered at the DA stage, concurrent with further surveys discussed below.

Table 4.4: Nominated survey months for threatened fauna species.

Candidate species	Survey period (BAM Calculator)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Phascolarctos cinereus</i> Koala	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

A targeted survey for hollow bearing trees was undertaken to assess suitable habitat for a number of threatened species.

The survey identified a total of 27 hollow bearing trees within and in close proximity to the subject land. Twenty one (21) of which that may be suitable for threatened species. This included three large hollows with a diameter greater than 20 cm that may be suitable for threatened owls. Ten (10) hollows with a diameter of 15 cm or larger which may be suitable for Glossy Black-Cockatoo and 21 hollows with a diameter of 7 cm or larger that may be suitable for Gang-gang Cockatoo. Notably there are only 7 records of Gang Gang Cockatoo in the MidCoast LGA in the past 25 years, and none in the past 14 years, so whilst survey for this species is required, it is considered highly unlikely to be breeding onsite. The location of hollows is shown in **Figure 4.1**.

In addition, during this survey three small and one larger stick nests were identified within the subject land. The smaller stick nests are likely used by Ravens. However, given the presence of the larger stick nest raptor, surveys have been recommended during the preparation of the BDAR to support a DA.

Recent Brush-tailed Phascogale records are known within 5 km, however the habitat in the subject land is not considered suitable for this species. The nearby records are in patches of 10-30 ha of intact native vegetation, approximately 5 km south-east of the site. Conversely, the subject land does not retain any unmodified vegetation, it is dominated by underscrubbed scattered paddock trees and regrowth vegetation. It is unlikely that this species would utilise the vegetation on the subject land or migrate from the larger patches of vegetation to the subject land, which retains only small patches of vegetation, mostly confined to the riparian corridor. However, in consultation with Council, it has been recommended that further survey be undertaken at the DA stage for this species.

Recommended targeted surveys for threatened fauna species are supplied below in **Table 4.5**.

4.4.4 Recommended fauna surveys

Targeted surveys for candidate threatened fauna species requiring further assessment and their associated survey periods are outlined for each of the candidate threatened fauna species below (**Table 4.5**).

Table 4.5: Nominated survey months for candidate threatened fauna species recommended to be surveyed.

Candidate species	Survey period (BAM Calculator)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo	Y									Y	Y	Y
<i>Calyptorhynchus lathami</i> Glossy Black-Cockatoo	Y	Y	Y	Y	Y	Y	Y	Y	Y			
<i>Myotis macropus</i> Southern Myotis	Y	Y	Y							Y	Y	Y
<i>Ninox strenua</i> Powerful Owl	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Ninox connivens</i> Barking Owl	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	Y	Y	Y	Y	Y	Y	Y					
<i>Tyto novaehollandiae</i> Masked Owl	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

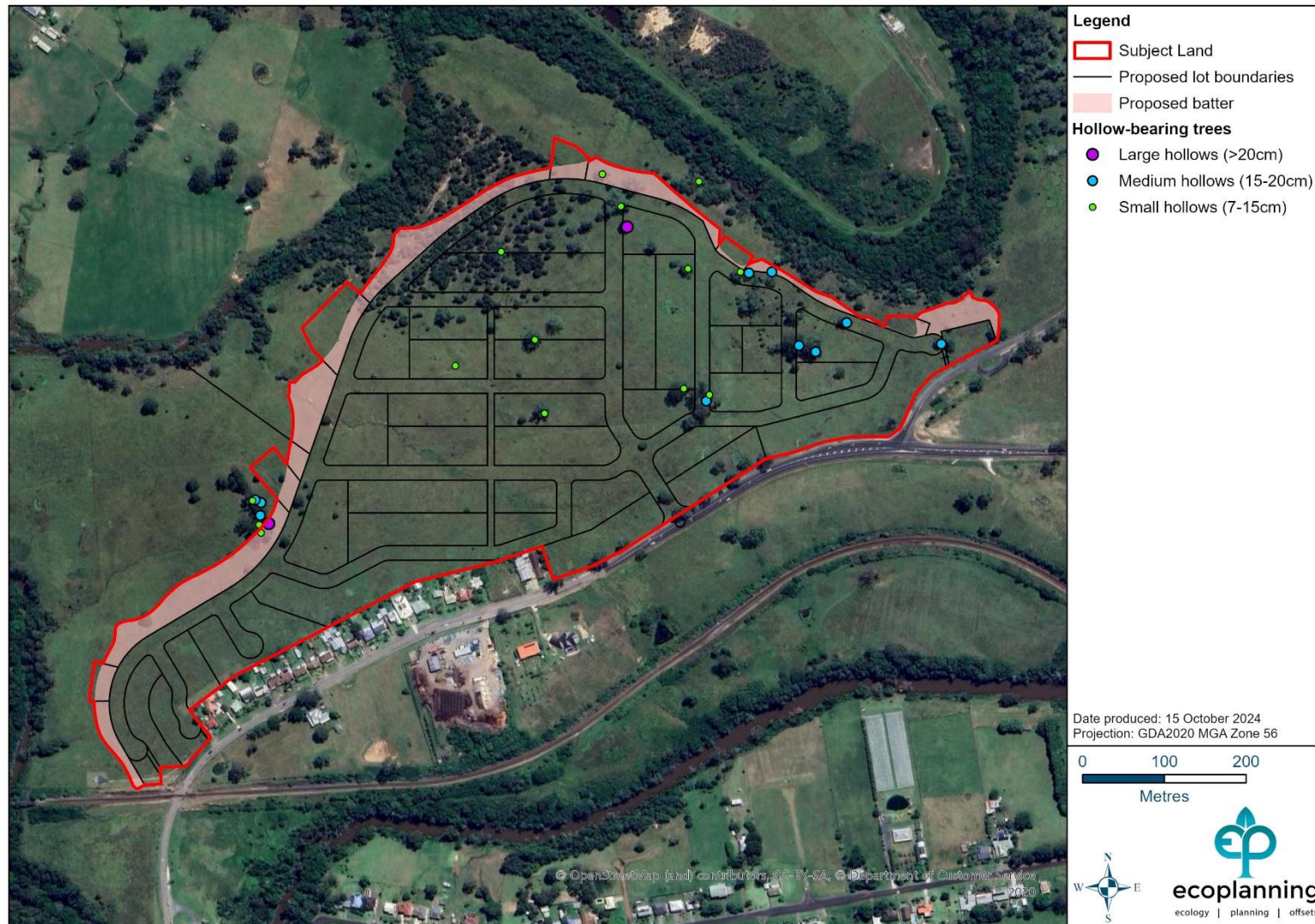


Figure 4.1: Habitat features within the subject land.

4.5 Identify potential prescribed biodiversity impacts on threatened species

The presence of biodiversity values prescribed by the BC Reg have been considered in context of the subject land **Table 4.6**.

Table 4.6: Prescribed Biodiversity Impacts

Prescribed Biodiversity Impacts	Presence within the Subject Land
(a) the impacts of development on the following habitat of threatened species or ecological communities: (i) karst, caves, crevices, cliffs and other geological features of significance, (ii) rocks, (iii) human made structures, (iv) non-native vegetation,	There nearest cliffs are approximately 19 km to the southeast of the subject land. No karst or cave systems were identified within the subject land. No prescribed impacts will occur to these geological features. Non-native vegetation within the subject land includes areas mapped as 'exotic grassland' and 'Camphor'. Non-native vegetation within the subject land does not conform to any ecological community, nor is it likely to support any threatened species with the potential to occur. Hence, these areas do not constitute a prescribed biodiversity impact.
(b) the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range,	The subject land may facilitate the movement of threatened species across their range. However, the impact is considered 'low', as more intact vegetation outside the subject land is to be retained, for example the vegetation along Cedar Party Creek. This vegetation outside the subject land is of quality to facilitate the movement of threatened species across their range and into the surrounding native vegetation.
(c) the impacts of development on movement of threatened species that maintains their lifecycle,	
(d) the impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or subsidence resulting from underground mining or other development)	One first order watercourse has been mapped within the subject land, with a sixth order watercourse (Cedar Party Creek) mapped directly adjacent to the subject land. Changes to drainage within the subject land may impact downstream ecosystems, but impacts will be mitigated if appropriate measures are enacted (see Section 5).
(e) the impacts of wind turbine strike on protected animals,	Not applicable.
(f) the impacts of vehicle strike on threatened species of animals or on animals that are part of a threatened ecological community.	Not applicable.

5 Avoiding and minimising impacts on biodiversity

5.1 Avoiding and minimising impacts on native vegetation and habitat during project planning

In accordance with Section 8.1.1 6 of the BAM, actions taken to avoid and minimise impacts through locating impacts associated with the project must be documented and justified in the BDAR. Additionally, Section 8.1.1 4 of the BAM states that in selecting a project location, the following should be addressed, as they apply to the project:

- An analysis of alternative modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology.
- An analysis of alternative routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route.
- An analysis of alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location.
- An analysis of alternative sites within a property on which the project is proposed that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site.

The proposed R1 residential land has been defined in a way that avoids impacts to land of highest biodiversity values within the study area. The development has optimised the location of impacts within areas of exotic vegetation including modifying the boundary of the development to avoid areas of more intact native vegetation, threatened ecological communities and, to the greatest extent possible, watercourses. The remnants of native vegetation within the area proposed to be rezoned for residential are generally small, fragmented, and subject to existing disturbance from grazing and weeds.

A minimum buffer of 50 metres has been retained for the proposed R1 land from the Cedar Party Creek and the riparian corridor is proposed to be rezoned to C2 Environmental Conservation to ensure long-term protection.

The indicative lot layout would be considered a controlled activity under the WM Act due to the impacts proposed on the first order stream, and therefore would require CAA unless NRAR permits the first order tributaries within the subject land to be extinguished. A riparian assessment of the first order stream is therefore required at the DA-stage to map the presence of bed and bank.

Within the 61.37 ha study area, 11.25 ha of native vegetation is mapped. Of this vegetation, 3.42 ha is proposed to be subject to rezoning for residential purposes, representing approximately 6% of the study area, and ~30% of the native vegetation on site. The proposed R1 land mainly impacts areas of low or no constraint, with 29.09 ha of the total 32.5 ha (89.5%) subject land being low constraint.

The majority of the study area is composed of cleared land made up of exotic vegetation. The land has historically been used for agricultural purposes and grazing and thus is degraded. A plot within the areas mapped as 'exotic grasses/cleared land' was undertaken for confirmation of the VI score of these areas and returned a VI score of 0.9. In its current location, the proposed development will impact 3.42 ha of native vegetation and 29.09 ha of exotic

grasslands and trees (Camphor). Avoidance has been demonstrated by maximising the use of existing cleared land within the study area.

The proposed rezoning has completely avoided all riparian vegetation directly abutting Cedar Party Creek. This riparian vegetation is identified as a TEC under the BC Act and EPBC Act and is identified on the Biodiversity Values Map. This vegetation retains connectivity to surrounding areas of large intact bushland including Killabakh Nature Reserve located north of the subject land.

A total of 21 hollow bearing trees that may support habitat for threatened species were located within the subject land. Six of the hollows identified would not be avoided under the current Precinct Plan which will be refined for DA preparation. However, there are opportunities to avoid some of the remaining 15 hollows during the detailed design phase of the project through the siting of building and supporting infrastructure. This includes four hollow bearing trees that are located within the batter will be considered for retention at the detailed design phase of the DA. Any removal of hollow bearing trees should be augmented by replacement nest boxes in the Cedar Party Creek riparian corridor or within any future DA management planning.

5.2 Avoiding and minimising prescribed biodiversity impacts during project planning

Prescribed biodiversity impacts are defined under Clause 6.1 of the BC Reg and include impacts on biodiversity values in addition to, or instead of, impacts from clearing vegetation and/or loss of habitat. Prescribed biodiversity impacts are outlined within **Section 4.5** including their relevance to the proposal. No prescribed biodiversity impacts are anticipated in relation to the proposal, and on this basis avoidance and minimisation of these impacts has been achieved.

6 Assessing and offsetting impacts

6.1 Assessment of impact

6.1.1 Assessing impacts to native vegetation and habitat

The proposed rezoning may lead to direct impacts to:

- 3.32 ha of PCT 3329 Northern Hinterland Valleys Red Gum Grassy Forest in a disturbed condition; and
- 0.10 ha of PCT 4042 Lower North Riverflat Eucalypt-Paperbark Forest in a disturbed condition.

Any future direct clearing and subsequent development of the subject land would represent a permanent impact, and in accordance with Section 9.1.2 5) of the BAM, the future VI score for all vegetation within the subject land has been assigned a VI score of zero (0).

Impacts to the areas mapped as exotic grassland do not require offset due to a VI score <15. Areas that require offsetting and areas that do not require offsetting under the BAM are shown on **Figure 7.1**.

6.1.2 Assessing indirect impacts on native vegetation

It is difficult to quantify the indirect impacts associated with the project. Indirect impacts may include, but are not limited to, noise pollution, erosion and increased shading of vegetation associated with the proposed residential zoned land. The rezoning is considered unlikely to reduce viability of any adjacent native vegetation or habitat due to edge effects, noise, dust, or light spill as these impacts are already occurring within the area, as much of the area has been cleared and used for agricultural purposes and exists within a peri-urban landscape east of the Wingham township.

It is possible that the proposed rezoning may lead to an increase in trampling of flora, rubbish dumping, firewood or bushrock collection, or introduce pests, weeds, or pathogens within adjacent areas of native bushland. However, these impacts should be investigated further during the DA phase of the project.

Changes to the drainage and hydrology of the subject land have the potential to impact on downstream habitats through erosion, sedimentation, and bank scour. These impacts are difficult to quantify; however, the implementation of a Construction Environmental Management Plan (CEMP) will help reduce potential impacts.

Indirect impacts will be managed through the development of a CEMP, whereby sediment and erosion controls, and weed management will be put in place. Further information regarding mitigation measures which would aim to avoid any indirect impacts are included in **Section 6.3**.

6.2 Assessing prescribed biodiversity impacts

No prescribed biodiversity impacts are anticipated in relation to the proposal, and on this basis avoidance and minimisation of these impacts has been achieved. Impacts to habitat associated with native vegetation are calculated and included in **Section 7**.

6.3 Mitigating and managing impacts on biodiversity values

During the DA phase of the project multiple measures will be implemented to mitigate and manage direct and indirect impacts where possible, including preparation of a CEMP, appropriate preclearance protocols and potentially a Vegetation Management Plan (VMP). Details are provided in the following sections.

6.3.1 Pre-clearance protocols

Common, non-threatened fauna species would be expected to utilise the subject land, such as Common Brushtail Possum (*Trichosurus vulpecula*), various frog species, and bird species. Appropriate pre-clearance protocols are to be put in place at the time of vegetation clearing to mitigate and avoid potential harm or injury to these individuals. These protocols should include, as a minimum, soft tree felling techniques and the ecological supervision during clearing.

6.3.2 Construction Environmental Management Plan (CEMP)

A site-specific CEMP will be developed prior to construction taking place and implemented over the life of the project. The CEMP will incorporate adaptive management principles. The CEMP will outline management actions to avoid inadvertently causing additional impacts to those described in this PBDAR. Management actions will avoid and/or limit the potential for indirect offsite impacts and include an appropriate erosion and sedimentation control plan and weed control activities. Any management actions should follow best practice protocols such as Landcom (2004).

An appropriate pre-clearance and unexpected finds procedure will be put in place at the time of construction to avoid and mitigate any potential harm or injury to non-threatened fauna species.

The CEMP will be required to span the pre, during, and post construction periods, and will include the above pre-clearance and fauna management protocols.

6.4 Adaptive management for uncertain impacts

Impacts associated with the proposal are largely certain and associated with the direct impacts due to vegetation clearing as documented in **Section 6.1**. Uncertain impacts associated with the proposal would be limited to potential impacts to downstream environments, although the risk of these impacts is relatively low and can be mitigated. The areas directly downstream of the subject land have been subjected to recent development impacts. During the construction phase of this project, the works should be undertaken in accordance with best practice sediment and erosion controls and in accordance with any license issued under the NSW *Protection of the Environment Operations Act 1997*.

Aside from the need for a CEMP, no additional adaptive management measures are proposed.

7 Offset requirements and credit calculations

A biodiversity offset requirement for residual impacts of a proposed development must be calculated in accordance with Section 10.1 and Section 10.2 of the BAM. The following section outlines the credit requirements for the development to achieve the 'no net loss standard' as established by the BAM.

7.1 Impacts which require an offset

Section 9.2.1 of the BAM indicates that the following vegetation zones require offsets:

- vegetation zones that have a vegetation integrity score $\geq 15^3$ where the PCT is representative of an endangered (EEC) or critically endangered ecological community (CEEC)
- a vegetation zone that has a vegetation integrity score of ≥ 17 where the PCT is associated with threatened species habitat or is a vulnerable ecological community
- a vegetation zone that has a vegetation integrity score ≥ 20 .

7.1.1 Ecosystem credits

Under the PBDAR, the proposal would remove 3.42 ha of native vegetation resulting in a maximum of **69 ecosystem credits** to offset the impacts to vegetation within the subject land, see **Table 7.1**. However, the impact will be assessed further as part of the BDAR that is prepared as part of the DA and detail design may result in reduced impacts.

Table 7.1: Ecosystem credit summary

Veg zone number	Plant community type	Condition class	Total impact (ha)	Credits
1	3329	Disturbed	3.32	66
2	4042	Disturbed	0.10	3
3	-	Exotic grassland	29.07	0
Total				69

7.1.2 Impacts on threatened species

Impacts to threatened species have not been assessed within this preliminary BDAR. It is expected that during the DA phase of the project, once detailed design is understood, an assessment of impacts to threatened species will be undertaken. This potentially includes targeted surveys for threatened species that may occur within the subject land, assessment of impact to the threatened species and associated offset requirements.

7.2 Areas not requiring assessment

Impacts to non-native vegetation were assessed and do not require offset due to the vegetation integrity score being < 15 (**Figure 7.1**).

³ This threshold is relevant to the vegetation within the subject land

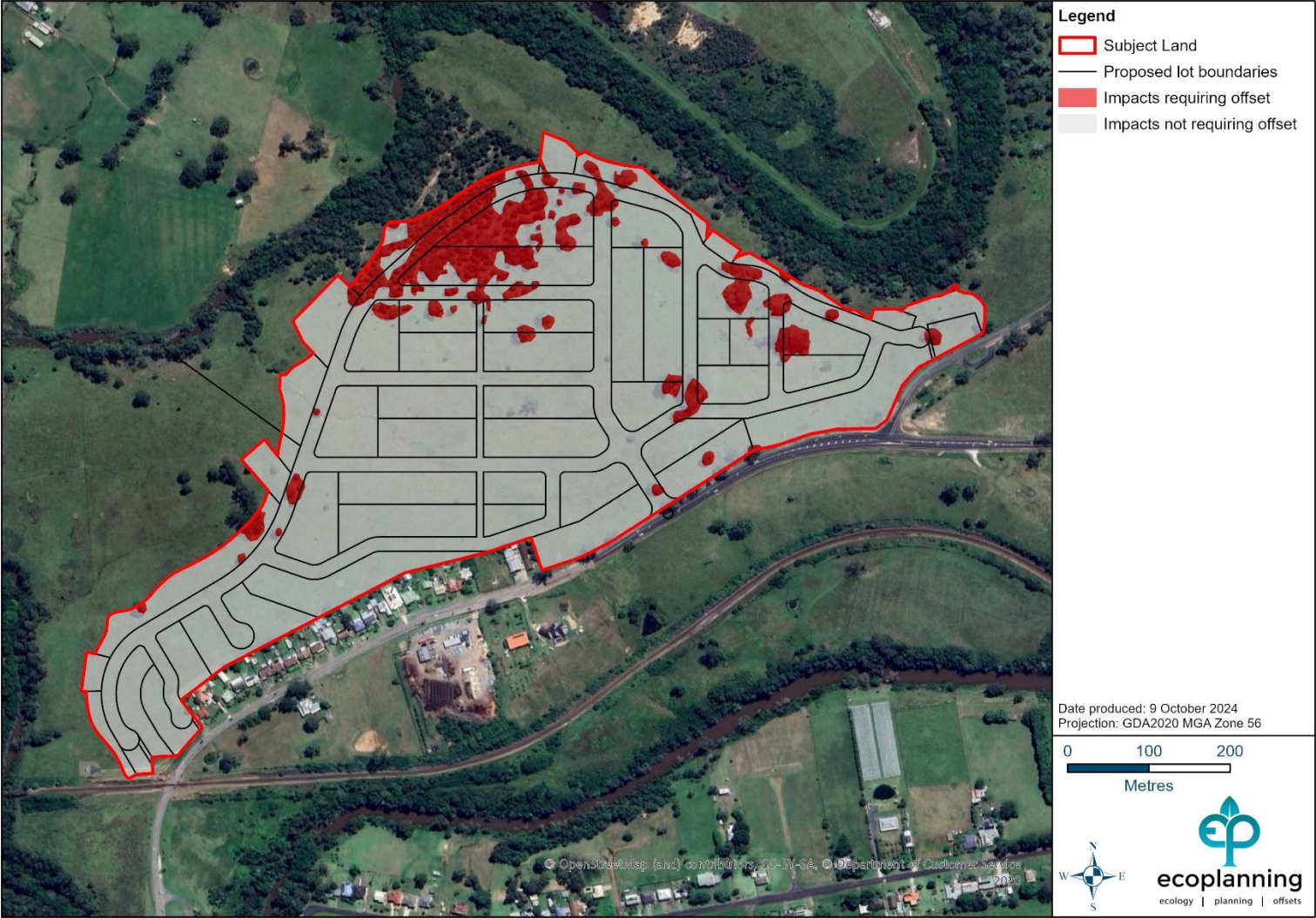


Figure 7.1: Areas that require offsetting within the subject land and areas not requiring offsetting within the subject land.

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Appendix A Significant impact assessment

Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

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:

- reduce the extent of an ecological community

The proposed activity will reduce the extent of this community by 0.10 ha in an 'disturbed' condition class.

- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

The proposed activity will reduce the extent of the community by 0.10 ha. However, the proposal will not result in one area of the community becoming fragmented from another. In addition, the larger patch (0.62 ha) of the community will be retained outside the subject land and this area retains connectivity to the riparian vegetation along Cedar Party Creek.

- adversely affect habitat critical to the survival of an ecological community

In accordance with the conservation advice areas that meet the minimum condition C are important to the survival of the ecological community (TSSC 2022). However condition class A and B are critical to the survival of the ecological community (TSSC 2022). Nonetheless, 0.10 ha of the ecological community will be impacted by the proposal.

- 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 proposed will involve a direct impact to the community by clearing 0.10 ha of PCT 4042 in an 'disturbed' condition class. The proposed will not modify or destroy abiotic factors necessary for the EEC survival.

- 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 proposed would not cause a substantial change in the species composition of an occurrence of this community. This is because the activity involves clearing only a relatively small area (0.10 ha). All species that occur in the community are expected to continue to persist in the patches of the community mapped as adjoining the subject land.

- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- assisting invasive species, that are harmful to the listed ecological community, to become established, or
- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or

The proposed activity would not cause a substantial reduction in the quality or integrity of an occurrence of this community. The proposed will not result in invasive species becoming established nor will it result in the mobilisation of fertilisers, herbicides or other chemical or pollutants.

- interfere with the recovery of an ecological community.

The proposed activity will not interfere with the recovery of this community as only a small, disturbed area will be removed.

Conclusion of EPBC Act Significant Impact Guidelines (DotE 2013) for Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions ecological community

A referral is not recommended for the Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions ecological community, as:

- only a relatively small area 0.10 ha of this community would be removed
- the proposed activity will not interfere with the recovery of this community
- the proposed activity will not further substantially fragment the community
- The proposed activity will not adversely affect habitat critical to this community

Appendix B Plot data collected

Plot No.	PCT	Area (ha)	Condition class	Zone	Easting	Northing	Bearing
1	3329	0.68	Disturbed	56	441628	6474886	156
2	-	0.19	Exotic Grassland	56	441361	6474866	305
3	3329	0.03	Disturbed	56	441395	6475052	43
4	4042	0.11	Disturbed	56	441372	6475175	207

Plot No.	Composition					
	Tree	Shrub	Grass	Forb	Fern	Other
1	4	0	2	3	0	0
2	0	2	1	3	0	0
3	5	2	10	8	0	1
4	4	6	9	6	1	1

Plot No.	Structure					
	Tree	Shrub	Grass	Forb	Fern	Other
1	25.1	0	20.1	0.3	0	0
2	0	0.2	0.1	0.3	0	0
3	25.3	15.1	24.1	1.7	0	0.1
4	15.2	30.5	43.4	0.6	0.1	0.1

Plot No.	Function										
	Large trees	Hollow trees	Litter cover (%)	Fallen logs (m)	Tree stem 5-10 cm	Tree stem 10-20 cm	Tree stem 20-30 cm	Tree stem 30-50 cm	Tree stem 50-80 cm	Tree regen	High threat exotic
1	4	1	10	0	-	-	-	-	4	-	70.1
2	0	0	19	0	-	-	-	-	0	-	85.5
3	1	0	28	14	x	x	x	x	1	x	45.7
4	1	0	58	2	x	x	x	x	1	-	0.9

Appendix C Flora and fauna species inventories

Flora species inventories

Common Name	Scientific name	Native/Exotic	Plot 1	Plot 2	Plot 3	Plot 4
Maiden's Wattle	<i>Acacia maidenii</i>	Native			0.1	0.1
Whisky Grass	<i>Andropogon virginicus</i>	Exotic		20	0.1	0.1
Narrow-leaved Carpet Grass	<i>Axonopus fissifolius</i>	Exotic	5	65	30	0.2
Cobbler's Pegs	<i>Bidens pilosa</i>	Exotic	0.1			
Coffee Bush	<i>Breynia oblongifolia</i>	Native				0.1
Shivery Grass	<i>Briza minor</i>	Exotic	0.1		0.1	
Willow Bottlebrush	<i>Callistemon salignus</i>	Native		0.1	15	30
Hairy Bittercress	<i>Cardamine hirsuta</i>	Exotic	0.1			
Tall Sedge	<i>Carex appressa</i>	Native		0.1	2	5
	<i>Carex inversa</i>	Native		0.1	0.1	
Kikuyu Grass	<i>Cenchrus clandestinus</i>	Exotic	50			
Indian Pennywort	<i>Centella asiatica</i>	Native		0.1	0.1	
Mouse-ear Chickweed	<i>Cerastium glomeratum</i>	Exotic			0.1	0.1
-	<i>Cheilanthes sieberi</i>	Native				0.1
Camphor Laurel	<i>Cinnamomum camphora</i>	Exotic			15	
Spotted Gum	<i>Corymbia maculata</i>	Native	10			
	<i>Cotula sp.</i>	Native	0.1			
Tuckeroo	<i>Cupaniopsis anacardioides</i>	Native	0.1			
Barbed Wire Grass	<i>Cymbopogon refractus</i>	Native			0.5	15
Couch	<i>Cynodon dactylon</i>	Native	20		10	1
Gorse Bitter Pea	<i>Daviesia ulicifolia</i>	Native			0.1	0.1
Blue Flax Lily	<i>Dianella caerulea</i>	Native			0.1	
Shorthair Plumegrass	<i>Dichelachne micrantha</i>	Native				0.1
Kidney Weed	<i>Dichondra repens</i>	Native	0.1		0.1	0.1
-	<i>Drosera peltata</i>	Native			0.1	
Brown's Lovegrass	<i>Eragrostis brownii</i>	Native			2	1
African Lovegrass	<i>Eragrostis curvula</i>	Exotic		0.2		
Paddock Lovegrass	<i>Eragrostis leptostachya</i>	Native			1	
Cabbage Gum	<i>Eucalyptus amplifolia</i>	Native			20	
Grey Box	<i>Eucalyptus moluccana</i>	Native				5

Common Name	Scientific name	Native/Exotic	Plot 1	Plot 2	Plot 3	Plot 4
Grey Gum	<i>Eucalyptus punctata</i>	Native	10			
Red Mahogany	<i>Eucalyptus resinifera</i>	Native	5			
Grey Ironbark	<i>Eucalyptus siderophloia</i>	Native			5	
Forest Red Gum	<i>Eucalyptus tereticornis</i>	Native				10
Japanese Cudweed	<i>Euchiton japonicus</i>	Native				0.1
Common Fringe-sedge	<i>Fimbristylis dichotoma</i>	Native				0.1
Cleaver	<i>Galium aparine</i>	Exotic			0.1	
-	<i>Geranium sp.</i>	Native	0.1			
Cheese Tree	<i>Glochidion ferdinandi</i>	Native			0.1	
-	<i>Glycine clandestina</i>	Native			0.1	
Raspwort	<i>Gonocarpus teucroides</i>	Native			0.1	
-	<i>Goodenia bellidifolia</i>	Native			1	0.1
Small St. John's Wort	<i>Hypericum gramineum</i>	Native		0.1	0.1	0.1
Smooth Cats Ear	<i>Hypochaeris glabra</i>	Exotic		0.1		
Flatweed	<i>Hypochaeris radicata</i>	Exotic		0.1	0.1	0.1
Common Rush	<i>Juncus usitatus</i>	Native			1	1
Tick Bush	<i>Kunzea ambigua</i>	Native				0.1
Lantana	<i>Lantana camara</i>	Exotic			0.1	0.1
Tantoon	<i>Leptospermum polygalifolium</i>	Native		0.1		
Small-leaved Privet	<i>Ligustrum sinense</i>	Exotic			0.2	0.2
Peach Heath	<i>Lissanthe strigosa</i>	Native				0.1
Wattle Mat-rush	<i>Lomandra filiformis</i>	Native			0.1	
Alfalfa	<i>Medicago sativa</i>	Exotic	0.1			
Weeping Grass	<i>Microlaena stipoides</i>	Native	0.1		5	20
Large Mock-olive	<i>Notelaea longifolia</i>	Native			0.1	0.1
	<i>Notothixus incanus</i>	Native				0.1
Australian Basket Grass	<i>Oplismenus aemulus</i>	Native			0.5	0.2
-	<i>Oxalis perennans</i>	Native	0.1			
Rice Flower	<i>Ozothamnus diosmifolius</i>	Native				0.1
Wonga Wonga Vine	<i>Pandorea pandorana</i>	Native				0.1
Lamb's Tongue	<i>Plantago lanceolata</i>	Exotic	0.2	0.1	0.1	0.1
Winter Grass	<i>Poa annua</i>	Exotic	0.1			0.1
	<i>Polymeria calycina</i>	Native			0.1	0.1
-	<i>Poranthera microphylla</i>	Native			0.1	0.1



Common Name	Scientific name	Native/Exotic	Plot 1	Plot 2	Plot 3	Plot 4
Onion Grass	<i>Romulea rosea</i>	Exotic		0.1	0.1	0.1
Common Bog Rush	<i>Schoenus apogon</i>	Native		0.1	2	5
Fireweed	<i>Senecio madagascariensis</i>	Exotic	15	0.1	0.1	0.1
Paddy's Lucerne	<i>Sida rhombifolia</i>	Exotic	0.5		0.1	
Black-berry Nightshade	<i>Solanum nigrum</i>	Exotic			0.1	
Common Sowthistle	<i>Sonchus oleraceus</i>	Exotic	0.1		0.1	0.1
Paramatta Grass	<i>Sporobolus africanus</i>	Exotic	1	1	0.5	0.1
Kangaroo Grass	<i>Themeda triandra</i>	Native			2	
	<i>Tricoryne simplex</i>	Native		1		
White Clover	<i>Trifolium repens</i>	Exotic	1			
Purpletop	<i>Verbena bonariensis</i>	Exotic		0.1	0.1	0.1
Native Violet	<i>Viola betonicifolia</i>	Native				0.1
Sprawling Bluebell	<i>Wahlenbergia gracilis</i>	Native			0.1	0.1
-	<i>Wurmbea biglandulosa</i>	Native		0.1		

Fauna recorded on site

Species	Common Name	Observed/Heard
Birds		
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	O
<i>Eolophus roseicapilla</i>	Galah	O
<i>Ocyphaps lophotes</i>	Crested Pigeon	O
<i>Podargus strigoides</i>	Tawny Frogmouth	O
Mammals		
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	OW
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	O
<i>Bos taurus</i>	Domestic Cattle	OP
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	O
<i>Pteropus alecto</i>	Black Flying-fox	O
<i>Pseudocheirus peregrinus</i>	Ringtail Possum	O
Amphibian		
<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog	W
<i>Litoria fallax</i>	Eastern Dwarf Tree Frog	W
<i>Crinia signifera</i>	Common Eastern Toadlet	W



Appendix D BAM Calculator Report



BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00051895/BAAS17012/24/00051896	Wingham	14/03/2024
Assessor Name	Assessor Number	BAM Data version *
Lucas McKinnon	BAAS17012	67
Proponent Names	Report Created	BAM Case Status
	15/10/2024	Open
Assessment Revision	Assessment Type	Date Finalised
0	Part 4 Developments (General)	To be finalised
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
Nil		
Species		
Nil		

Additional Information for Approval

Assessment Id	Proposal Name	Page 1 of 4
00051895/BAAS17012/24/00051896	Wingham	



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
3329-Northern Hinterland Valleys Red Gum Grassy Forest	Not a TEC	32.4	66	0	66
4042-Lower North Riverflat Eucalypt-Paperbark Forest	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	0.1	0	3	3

3329-Northern Hinterland Valleys Red Gum Grassy Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
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Assessment Id

00051895/BAAS17012/24/00051896

Proposal Name

Wingham

Page 2 of 4



ecoplanning

ecology | planning | offsets



BAM Biodiversity Credit Report (Like for like)

	Coastal Valley Grassy Woodlands This includes PCT's: 618, 1603, 1604, 1691, 3312, 3314, 3315, 3318, 3319, 3320, 3323, 3325, 3327, 3328, 3329, 3330, 3332, 4052	Coastal Valley Grassy Woodlands >=70% and <90%	3329_Disturbed	Yes	66	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Coastal Valley Grassy Woodlands This includes PCT's: 618, 1603, 1604, 1691, 3312, 3314, 3315, 3318, 3319, 3320, 3323, 3325, 3327, 3328, 3329, 3330, 3332, 4052	Coastal Valley Grassy Woodlands >=70% and <90%	3329_Exotic	No	0	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
4042-Lower North Riverflat Eucalypt-Paperbark Forest	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region





BAM Biodiversity Credit Report (Like for like)

	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion This includes PCT's: 621, 3067, 3102, 3420, 3428, 3574, 3984, 4002, 4003, 4005, 4032, 4033, 4036, 4042, 4045, 4046	-	4042_Disturbed	No	3	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. 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 credit retirement options



