Streamlined Biodiversity Development Assessment Report

Cessnock Hospital Redevelopment

Report prepared by Narla Environmental Pty Ltd

For Health Infrastructure

November 2024

NARLA
environmental

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Report Certification

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Document Control

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As the accredited assessor, I Chris Moore, certify that:

- The information presented in this report is a true and accurate record of the study findings in the opinion of the authors.

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General Manager / Principal Ecologist
Accredited Biodiversity Assessor (BAAS21009)
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Glossary

Acronym/ Term	Definition
Accredited Biodiversity Assessor	Individuals accredited by the NSW Department of Climate Change, Energy, the Environment and Water (NDCCEEW) to apply the Biodiversity Assessment Method.
BAM	The NSW Biodiversity Assessment Method
BAMC	The NSW Biodiversity Assessment Method Calculator
BC Act	New South Wales Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
Biodiversity credit report	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified.
Biodiversity Offsets	Management actions that are undertaken to achieve a gain in biodiversity values on areas of land in order to compensate for losses to biodiversity from the impacts of development.
Biodiversity values	The composition, structure and function of ecosystems, including threatened species, populations and ecological communities, and their habitats.
BOS	NSW Biodiversity Offset Scheme
DPE	NSW Department of Planning and Environment (now NDCCEEW)
DPIE	NSW Department of Planning, Industry and Environment (now NDCCEEW)
Ecosystem credit	The class of biodiversity credit that relates to a vegetation type and the threatened species that are reliably predicted by that vegetation type (as a habitat surrogate).
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ha	Hectares
HTE	High Threat Exotic
km	Kilometres
LGA	Local Government Area
Locality	A 1500m buffer area surrounding the Subject Land
m	metres
Native Vegetation	Means any of the following types of plants native to New South Wales: (a) trees (including any sapling or shrub), (b) understorey plants, (c) groundcover (being any type of herbaceous vegetation), (d) plants occurring in a wetland.
NDCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NSW	The State of New South Wales
OEH	Office of Environment and Heritage (now NDCCEW)
PCT	NSW Plant Community Type
Proposal	The development, activity or action proposed.
SAII	Serious and Irreversible Impacts
SAII entity	Species and ecological communities that are likely to be the subject of serious and irreversible impacts (SAIIs)
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
Species credit	The class of biodiversity credit that relate to threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.

Acronym/ Term	Definition
REF	Review of Environmental Factors
Subject Land	The footprint of the proposed development
Subject Property	Cessnock Hospital: 24 View Street, Cessnock NSW 2325 (Lot 2/DP1173784, Lot 7/DP13203, Lot 8/DP13203, Lot 1/DP103663, Lot 10/DP5442/ Lot B DP103664, Lot 2/Section 20/DP5442, Lot 1/DP254743, Lot 11/DP882585)
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1 and 2 of the BC Act 2016.
TPZ	Tree Protection Zone: A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development
VIS Plot	Vegetation Integrity Survey Plot

Executive Summary

This Streamlined Biodiversity Development Assessment Report (SBDAR) has been prepared by Narla Environmental Pty Ltd (Narla) on behalf of Health Infrastructure to assess the potential environmental impacts that could arise from the redevelopment of the Cessnock Hospital health service at 24 View Street, Cessnock (Lot 2/DP1173784, Lot 7/DP13203, Lot 8/DP13203, Lot 1/DP103663, Lot 10/DP5442/ Lot B DP103664, Lot 2/Section 20/DP5442, Lot 1/DP254743, Lot 11/DP882585), hereafter referred to as the Subject Property.

The SBDAR will assess the biodiversity impacts of the proposed development in accordance with the requirements of the Biodiversity Conservation Act 2016 and Biodiversity Conservation Regulation 2017. The assessment has been completed as a streamlined assessment in accordance with Appendix L of the BAM (DPIE 2020a).

This report accompanies a Review of Environment Factors (REF) that seeks approval for the construction and operation of a new two-storey clinical services building and refurbishment works including:

- Demolition of select existing structures.
- Construction of a new hospital building on the site's northern portion.
- Realignment of internal roads and a new primary vehicular and pedestrian entrance to the hospital campus from Jurd Street.
- Refurbishment of the existing at-grade car park
- Installation and realignment of selected services
- Installation of ancillary development including, but not limited to, lighting and signage
- Landscaping
- New kerb, gutter and road resurfacing on Jurd Street

For a detailed project description, refer to the Review of Environmental Factors prepared by Ethos Urban.

Based on the identification of potential issues and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are low to moderate and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

Owing to the requirement to provide access for the project, complete avoidance of impacts to native vegetation was not possible. However, these impacts have largely been restricted to select native street trees and disturbed grassland vegetation. Consultation was had with Narla Environmental during the development stage, and the best quality vegetation (canopy trees) has been largely retained and will be protected following the development. Furthermore, a series of trees will be planted as part of the proposed landscape works for the project which will result in a net gain for biodiversity within the site.

The proposed development is expected to impact One (1) Plant Community Types (PCT):

- PCT 3444: Lower Hunter Spotted Gum-Ironbark Forest

No ecosystem credits were required to be offset for the impacts to this PCT, due to its low VI Score as a result of its altered state. This vegetation was found to not conforms to any Biodiversity Conservation Act 2016 (BC Act) or Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) listed Threatened Ecological Community.

Anthochaera phrygia (Regent Honeyeater) has been assumed present due the Subject Land containing areas of NDCCEEW mapped important habitat. The following species credits are required to be offset in order to mitigate the impacts upon this species as a result of the proposed development:

- One (1) species credit for *Anthochaera phrygia* (Regent Honeyeater; **Assumed Present – Important Habitat**).

This species is listed as an 'SAII entity' within the BioNet Threatened Biodiversity Data Collection (NDCCEEW 2024c). Due to the potential sensitivity of these threatened species to any impact, a determination of whether or not the proposed impacts are serious and irreversible has been undertaken in accordance with Section 9.1 of the BAM (DPIE 2020a): 'Additional impact assessment provisions for threatened species or populations.'

To minimise potential impacts of the proposal on local biodiversity values, a series of mitigation and management measures have been identified, which are to be implemented as part of any Construction Environmental Management Plan (CEMP) produced for the site. This includes assigning a Project Ecologist to undertake an extensive pre-clearing survey (inclusive of roof cavities of buildings to be demolished) and to supervise the clearing of all vegetation in relation to the proposed development.

1. Introduction

1.1 Overview

This Streamlined Biodiversity Development Assessment Report (SBDAR) has been prepared by Narla Environmental Pty Ltd (Narla) on behalf of Health Infrastructure to assess the potential environmental impacts that could arise from the redevelopment of the Cessnock Hospital health service at 24 View Street, Cessnock (Lot 2/DP1173784, Lot 7/DP13203, Lot 8/DP13203, Lot 1/DP103663, Lot 10/DP5442/ Lot B DP103664, Lot 2/Section 20/DP5442, Lot 1/DP254743, Lot 11/DP882585), hereafter referred to as the Subject Property (**Figure 1**).

This report will assess the biodiversity impacts of the proposed development in accordance with the requirements of the Biodiversity Conservation Act 2016, Biodiversity Conservation Regulation 2017 and Biodiversity Assessment Method (BAM; DPIE 2020a). Narla have produced this report in order to assess any potential impacts associated with the REF and recommend appropriate measures to minimise and mitigate any potential ecological impacts in line with the requirements of the Consent Authority. The assessment has been completed in accordance with Appendix L of the BAM (DPIE 2020a).

This report accompanies a Review of Environment Factors (REF) that seeks approval for the construction and operation of a new two-storey clinical services building and refurbishment works including:

- Demolition of select existing structures.
- Construction of a new hospital building on the site's northern portion.
- Realignment of internal roads and a new primary vehicular and pedestrian entrance to the hospital campus from Jurd Street.
- Refurbishment of the existing at-grade car park
- Installation and realignment of selected services
- Installation of ancillary development including, but not limited to, lighting and signage
- Landscaping
- New kerb, gutter and road resurfacing on Jurd Street

For a detailed project description, refer to the Review of Environmental Factors prepared by Ethos Urban.

1.1.1 Statement of Significance

Based on the identification of potential issues and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are low to moderate and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.2 Assessment Method Applied

This BDAR will be prepared utilising the following 'Streamlined Assessment Modules' in accordance with Appendix L of the BAM (DPIE 2020a):

- 'Streamlined assessment module – small area': as the proposal does not exceed the vegetation impact area clearing threshold for small area developments as outlined in the BAM (DPIE 2020a; **Table 1**).

Table 1. Area limits for application of small area development threshold. Dark border indicates clearing threshold relevant to this report.

Minimum lot size associated with the property	Maximum area limit for application of the small area development module
Less than 1ha	≤1ha
Less than 40ha but not less than 1ha	≤2ha
Less than 1000ha but not less than 40ha	≤3ha
1000ha or more	≤5ha

1.3 The Proposed Development

The proposed development will involve the demolition of some existing buildings and structures within the northern extent of the Subject Property, as well as the development of a new hospital building, creation of new accessways to Jurd Street, new and updated carparking areas (including line marking), associated landscaping works, fire tanks and pump room, bus stop, service bay and street parking well and new kerb alignment works along Jurd Street. All components of the proposed development are collectively referred to as the 'Subject Land' and covers a total area of approximately 1.96ha (Figure 1; Appendix A).

The majority of the Subject Land is currently occupied by historically cleared exotic, grassland vegetation as well as areas of hardstand and existing structures. Only a small area was found to contain native tree species above a disturbed and managed understory.

1.4 Site Location and Description

The Subject Property is situated within a residential landscape, in the suburb of Cessnock in the Cessnock City Council Local Government Area (LGA; Figure 2). It is currently utilised as Cessnock Hospital and covers an approximate area of 4.22ha, and is also located within the boundaries of the Mindaribba Local Aboriginal Land Council (Mindaribba LALC).

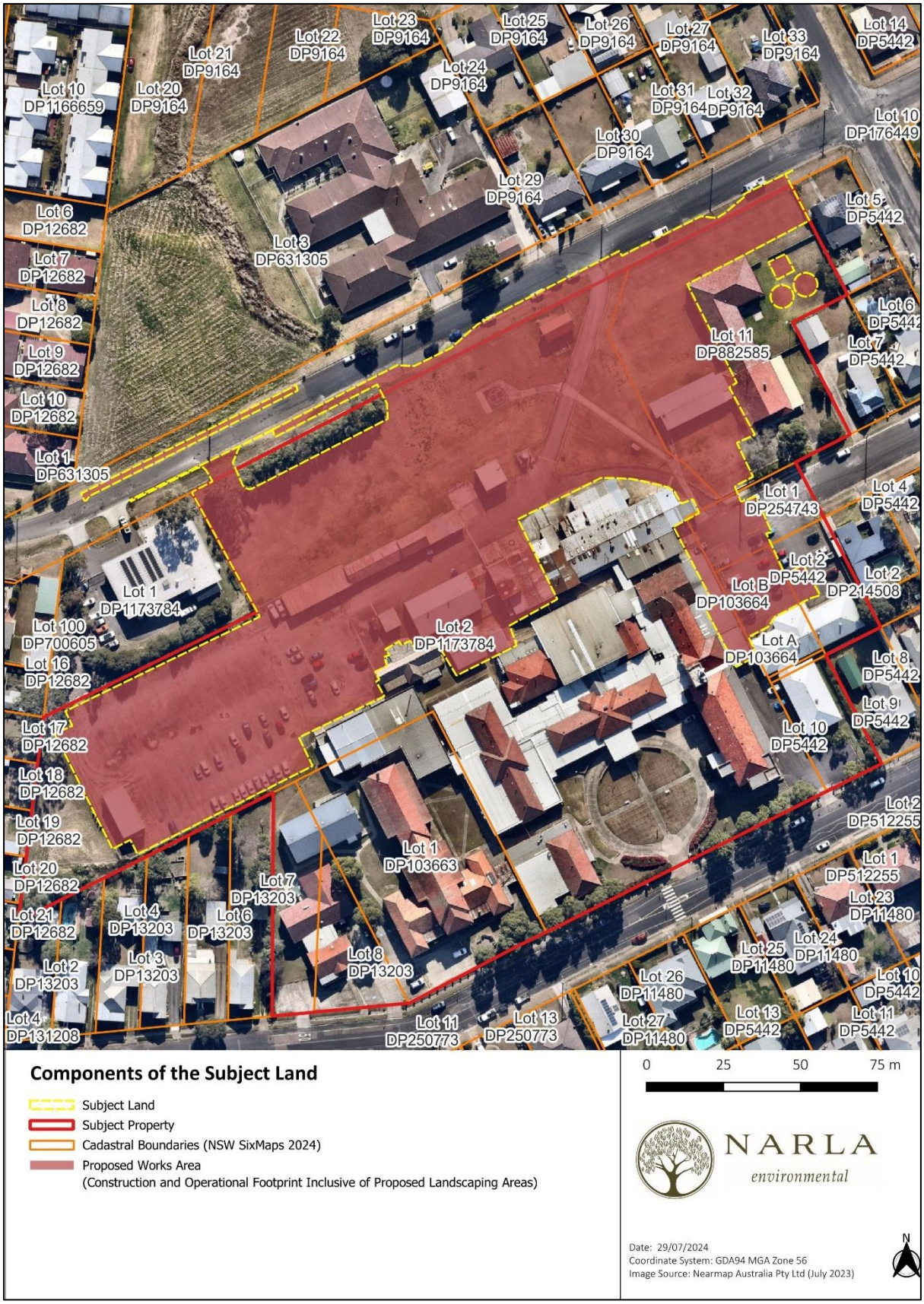

Figure 1. The components of the Subject Land.

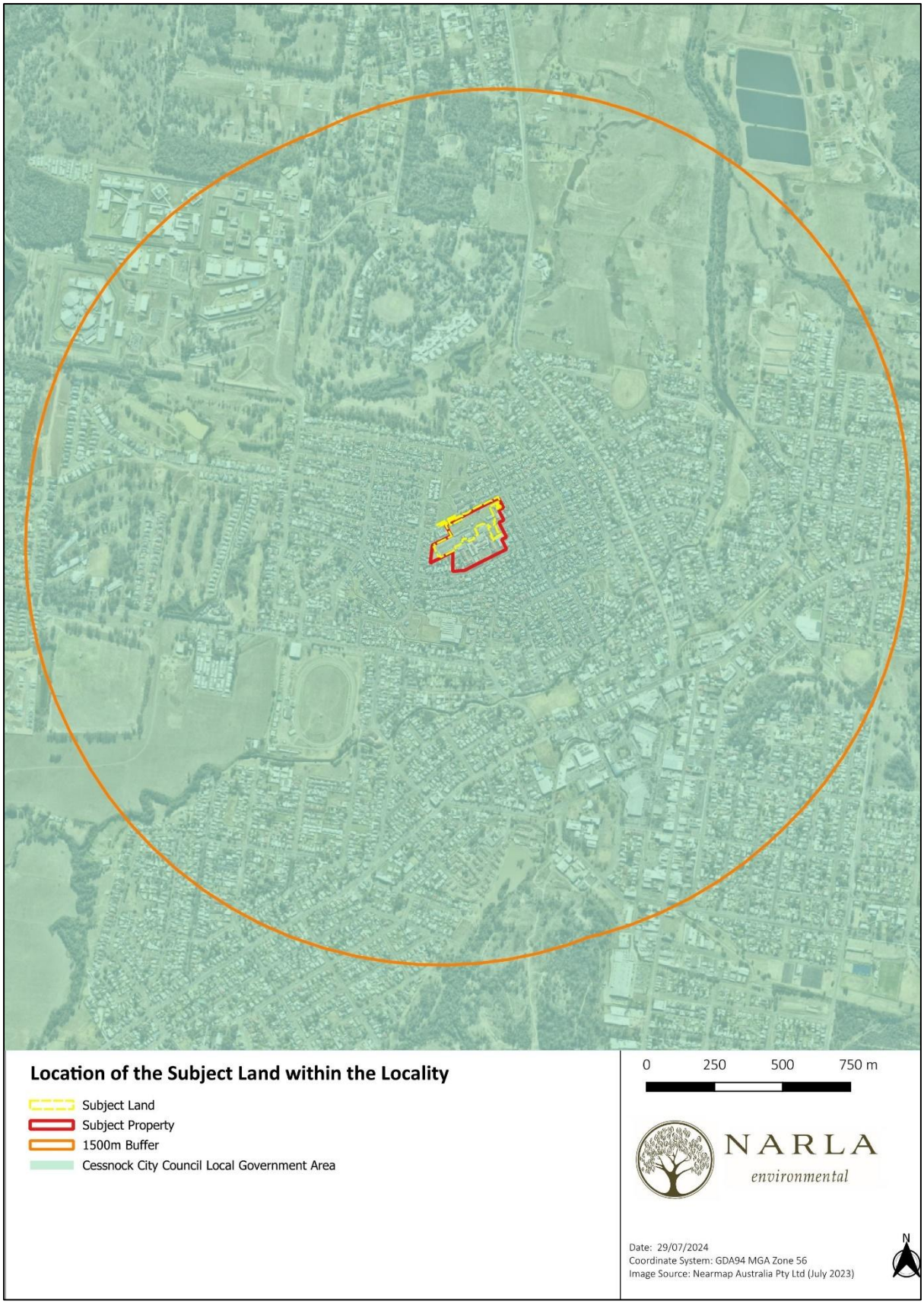

Figure 2. The location of the Subject Land within the locality.

1.5 Sources of Information Used

A thorough literature review was undertaken to gain an insight into the ecology and applicable legislation within the locality and the Cessnock City Council LGA, including:

- Relevant State and Commonwealth Databases & Datasets:
    - DPE Biodiversity Values Map v16 (NDCCEEW 2024a)
    - NSW BioNet. The website of the Atlas of NSW Wildlife (NDCCEEW 2024b)
    - NSW BioNet. Threatened Biodiversity Data Collection (NDCCEEW 2024c)
    - NSW BioNet. Vegetation Classification System (NDCCEEW 2024d)
    - NSW Government Spatial Services: Six Maps Clip & Ship (NSW Government Spatial Services 2024)
- Vegetation, Geology and Soil Mapping:
    - State Vegetation Type Map (DPE 2022); and
    - Soil Landscapes of the Singleton 1:250,000 Sheet (Kovac and Lawrie 1991).
- NSW State Guidelines:
    - Biodiversity Development Assessment Method (DPIE 2020a);
    - Guidance to assist a decision-maker to determine a serious and irreversible impact (DPIE 2019);
    - Biodiversity Assessment Method Calculator Version 1.4.0.00 (NDCCEEW 2024f);
    - Biodiversity Offsets and Agreement Management System (BOAMS);
    - Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPIE 2020b);
    - NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method (DPIE 2020c); and
    - Threatened Species Survey and Assessment: Guidelines for developments and activities. Working Draft (DoEC 2004).
- Council Documents:
    - Cessnock Local Environmental Plan (CLEP) 2011;
    - Cessnock Development Control Plan (CDCP) 2010.

Preparation of this SBDAR also involved the review of the following accompanying project documents:

- Site Plans: Cessnock Hospital Redevelopment (Fitzpatrick and Partners 2024; **Appendix A**).

These sources were used to gain an understanding of the natural environment and ecology of the Subject Land and its surrounds. Searches using NSW Wildlife Atlas (BioNet) were conducted to identify current threatened flora and fauna records within and surrounding the Subject Land. These data were used to assist in establishing the presence or likelihood of any biodiversity values as occurring on, or adjacent to, the Subject Land, and helped inform our Ecologist on what to look for during the site assessment.

1.6 Aim and Approach

This report has been prepared in accordance with the BAM (DPIE 2020a) and aims to:

- Describe the biodiversity values present within the Subject Land, including the extent of native vegetation, vegetation integrity and the presence of Threatened Ecological Communities (TECs);
- Determine the habitat suitability within the Subject Land for candidate threatened species;
- Prepare an impact assessment in regard to potential impacts of the proposed development on biodiversity values, including potential prescribed impacts and SAIIs within the Subject Land;
- Discuss and recommend efforts to avoid and minimise impacts on biodiversity values; and
- Calculate the biodiversity credits (i.e., ecosystem credits and species credits) that measure potential impacts of the development on biodiversity values. This calculation will inform the decision maker as to the number and class of offset credits required to be purchased and retired as a result of the proposed development.

2. Landscape

2.1 IBRA bioregion and subregion

The Subject Land occurs within the 'Hunter' Interim Biogeographic Regionalisation for Australia 7 (IBRA7) Subregion, which is part of the 'Sydney Basin' IBRA7 Bioregion (**Figure 3**).

2.2 NSW (Mitchell) Landscapes

Mitchell Landscapes (2002) groups ecosystems into meso-ecosystems representing larger natural entities based on topography and geology. The naming of ecosystems and meso-ecosystems was standardised so that each name provided location information and a meaningful descriptive landscape term.

The Subject Land is mapped as occurring on the 'Central Hunter Foothills' landscape (**Figure 4**). This landscape is characterised as undulating lowlands, rounded to steep hills with rock outcrop on ridges on Permian lithic sandstone, conglomerate, shale and coal, general elevation 40 to 300m with a few higher peaks, local relief 30 to 120m. Red-brown to yellow brown harsh texture-contrast soils on slopes, dark coloured clays in valleys and limited accumulations of sand and gravel in streams. Woodlands to open forest of Spotted Gum *(Corymbia maculata*), Forest Red Gum *(Eucalyptus tereticornis*), Narrow-leaved Ironbark *(Eucalyptus crebra*), Red Ironbark *(Eucalyptus sideroxylon*), White Box *(Eucalyptus albens*), Slaty Gum *(Eucalyptus dawsonii*), Rough-barked Apple (*Angophora floribunda*) with Kangaroo Grass (*Themeda triandra*) and Wallaby Grass (*Austrodanthonia* sp.).

2.3 Topography, Geology and Soils

The Subject Land is located on mostly flat terrain, with elevation ranging from approximately 84m-88m above sea level (asl; Google Earth 2024). The Subject Land is mapped as occurring on the Branxton Soil Landscape, as per the Soil Landscapes of the Singleton 1:250,000 Sheet (Kovac and Lawrie 1991) which often occupies undulating low hills and rises with many small creek flats, extending over a large area between Singleton and Cessnock. The main soils are Yellow Podzolic Soils on midslopes with Red Podzolic Soils on crests. Yellow Soloths occur on lower slopes and in drainage lines. Alluvial Soils occur in some creeks with Siliceous Sands on flats within large valleys. Some acid topsoil problems are encountered in the area. (Kovac and Lawrie 1991).

2.3.1 Areas of Geological Significance and Soil Hazards

The Subject Land did not contain any areas of geological significance, such as karsts, caves, cliffs or crevices and none were identified using aerial imagery within the broader locality (1500m buffer) owing to the generally flat landscape (Google Earth 2024).

2.4 Hydrology

No mapped or unmapped watercourses were located within the Subject Land. A number of mapped watercourses occur within the 1500m buffer surrounding the Subject Land, ranging from 1st to 4th+ order watercourses (**Figure 5**).

2.5 State Environmental Planning Policy (Resilience and Hazards) 2021: Chapter 2: Coastal Management

No areas of native vegetation mapped as 'Coastal Wetlands' or 'Littoral Rainforest' as per the State Environmental Planning Policy (Resilience and Hazards) 2021: Chapter 2: Coastal Management are located within the Subject Land or within the broader locality (1500m buffer).

2.6 Native Vegetation Cover and Connectivity

Native vegetation cover and connectivity have been assessed in accordance with Sections 3.2 and 3.1.3 of the BAM (DPIE 2020a). The native vegetation cover will be used to assess the habitat suitability of the Subject Land for threatened species. Areas of connectivity will determine the extent of habitat that may facilitate the movement of threatened species across their range. A 1500m buffer around the boundary of the Subject Land was calculated to determine the extent of native vegetation and habitat connectivity. Native vegetation covered approximately 142ha of the terrestrial area within the 1500m buffer circle (total area = 824ha). Therefore, native vegetation cover was assigned to the >10-30% class (17%; **Figure 6**).

Areas of habitat connectivity between the Subject Land and the broader locality were minimal owing to historic land uses. The connectivity present was limited to the canopy trees immediately adjacent to the Subject Land (**Figure 7**)

2.7 Areas of Outstanding Biodiversity Value

No Areas of Outstanding Biodiversity Value occur on the Subject Land or surrounding area.

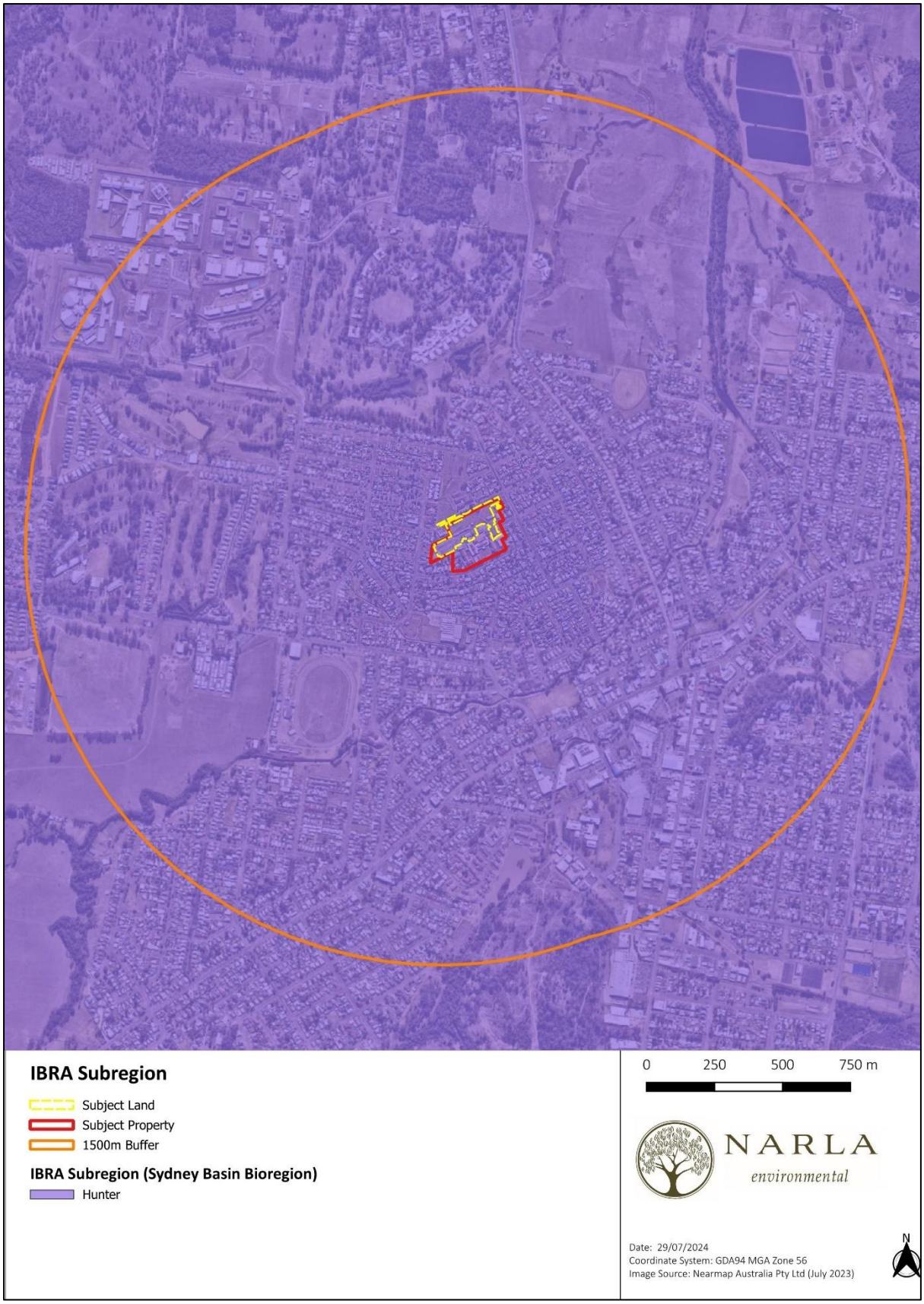

Figure 3. IBRA Bioregion and Subregion of the Subject Property and Subject Land, and within a 1500m buffer.

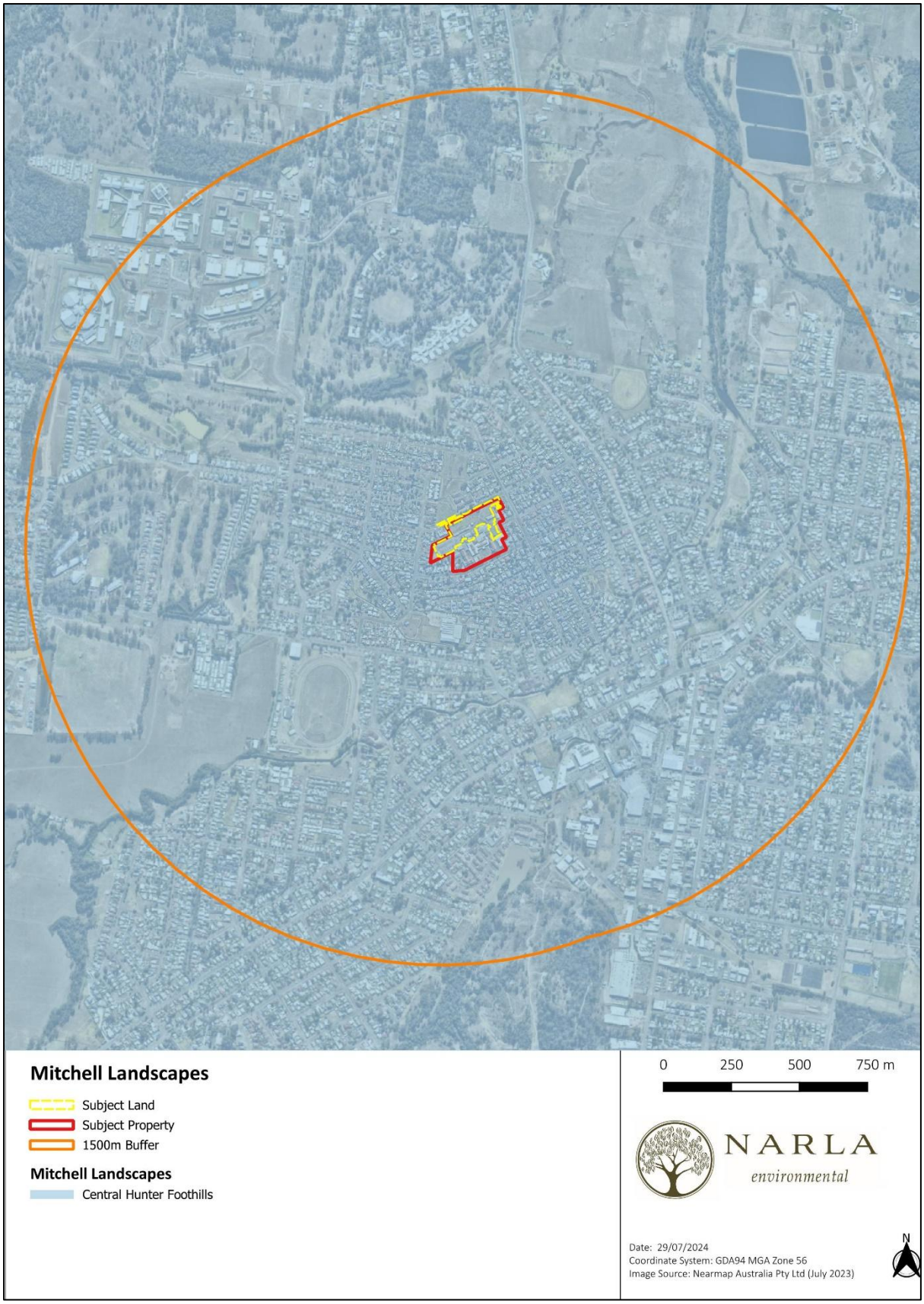

Figure 4. Mitchell Landscapes of the Subject Property and Subject Land, and within a 1500m buffer.

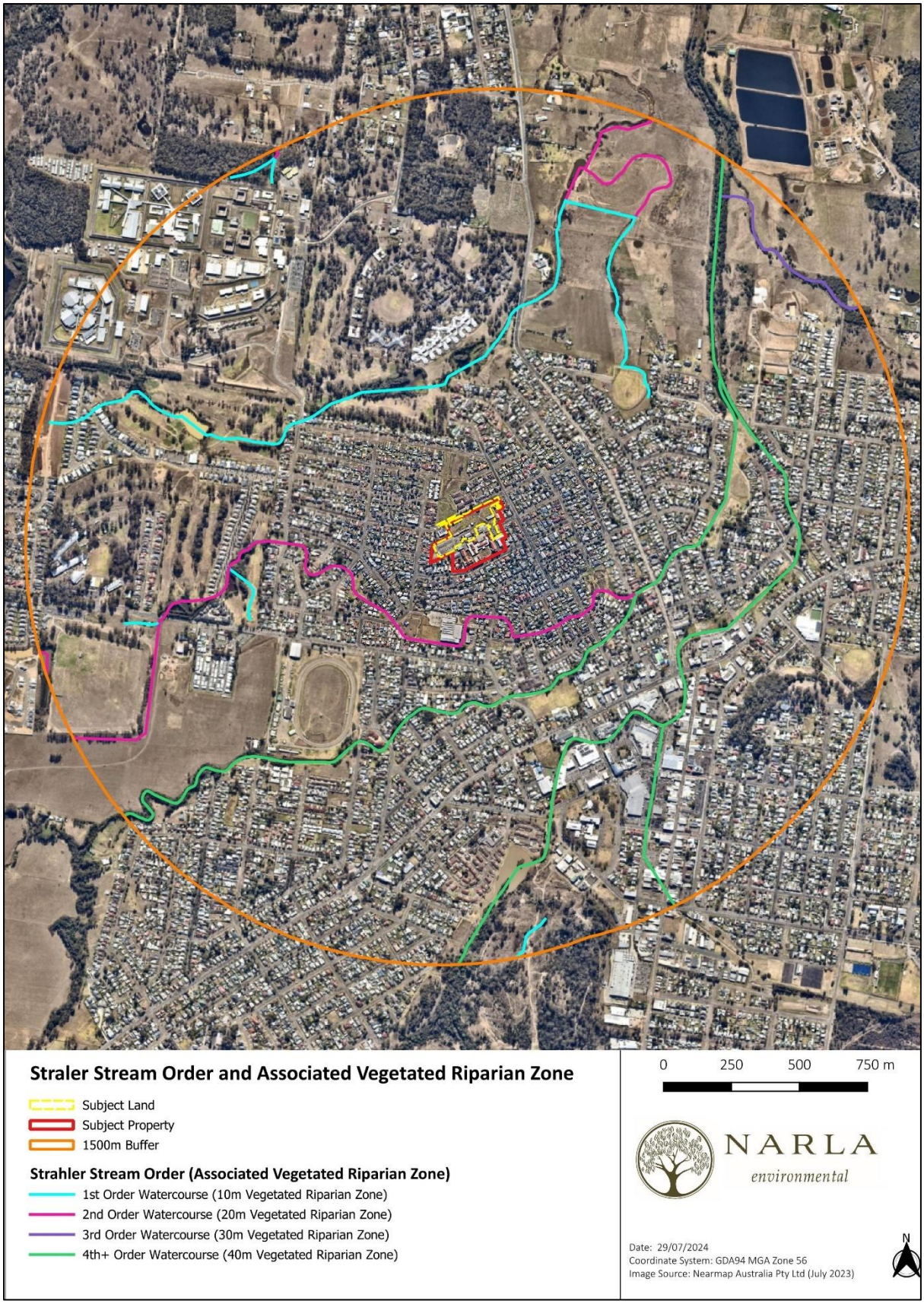

Figure 5. Rivers and streams (with associated riparian buffers) occurring within the 1500m buffer.

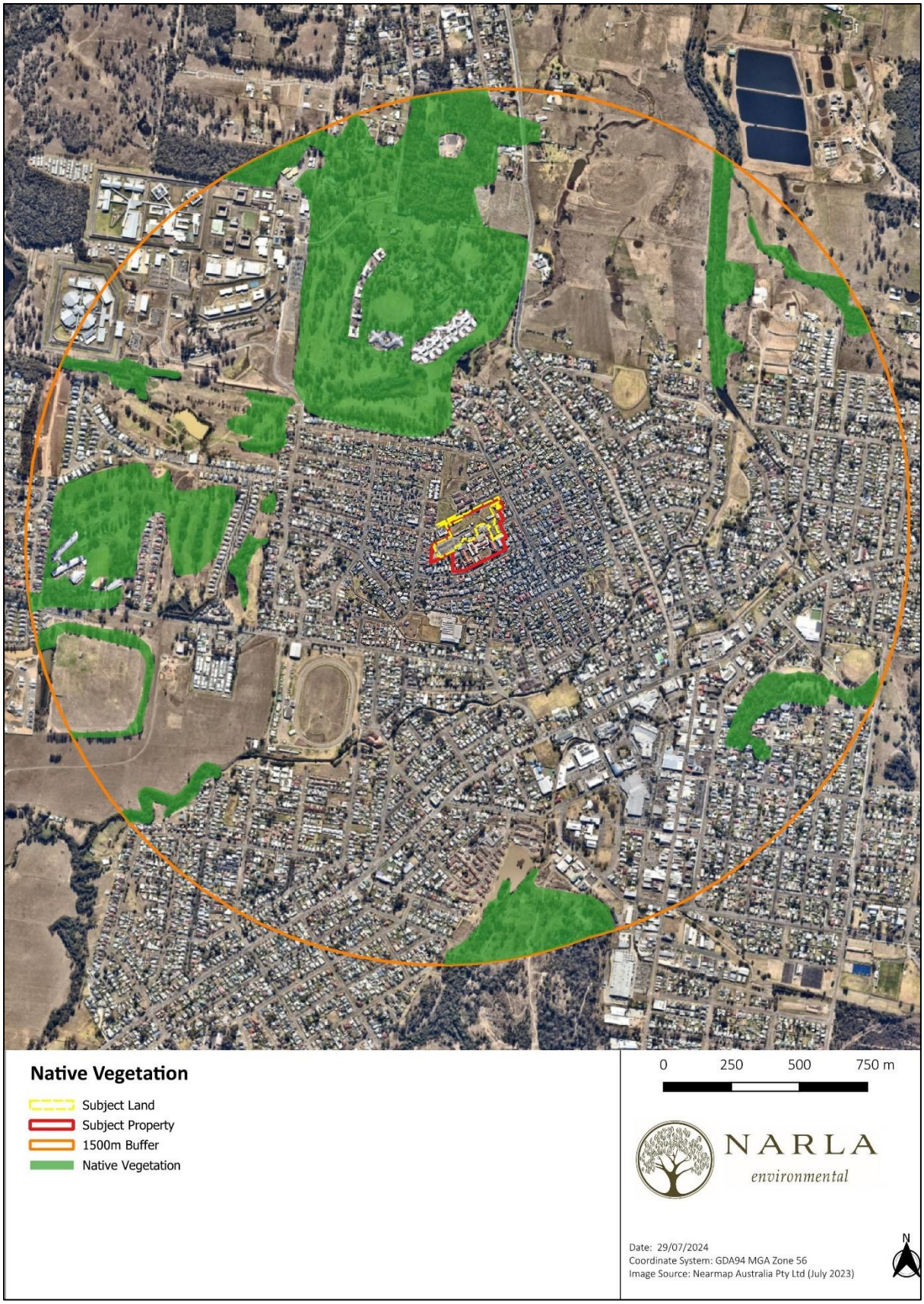

Figure 6. The extent of native vegetation occurring within the 1500m buffer.

Figure 7. Native vegetation and habitat connectivity in relation to the Subject Land

3. Native Vegetation

3.1 Plant Community Types (PCT) Identified within the Subject Land

3.1.1 Historically Mapped Vegetation

The NSW State Vegetation Type Map (DPE 2022) indicates the presence of five (5) native vegetation communities within and surrounding the Subject Property (**Figure 8**) in addition to areas of not classified vegetation:

- PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest;
- PCT 4023: Coastal Valleys Swamp Oak Riparian Forest;
- PCT 3631: Kurri Sand-Clay Woodland;
- PCT 3442: Lower Hunter Lowland Ironbark-Paperbark Forest; and
- PCT 3444: Lower Hunter Spotted Gum-Ironbark Forest

3.1.2 Plant Community Type Selection Process

Field surveys conducted by Narla confirmed that one (1) native vegetation communities occurred within the Subject Land.

Owing to the highly altered state of the native vegetation present within the Subject Land, being compromised of locally occurring native species (*Syncarpia glomulifera*) interspersed with native species that are likely planted within this landscape (*Eucalyptus botryoides* and *Lophostemon confertus*), the PCT filter tool (NDCCEEW 2024d) could not be accurately relied upon.

Therefore, to determine the "best fit" PCT, the PCTs that have been historically mapped within the broader locality (DPE 2022) were analysed as they were considered most likely to best represent the vegetation present within the Subject Land.

The geographical distribution, geology and frequency of *Syncarpia glomulifera* characterised by each historically mapped PCT was then compared against that of the Subject Land (**Table 2**). As a result, Narla have assigned PCT 3444 to the vegetation within the Subject Land as it most accurately describes the geology, landscape features and native canopy frequence associated with the vegetation of the Subject Land.

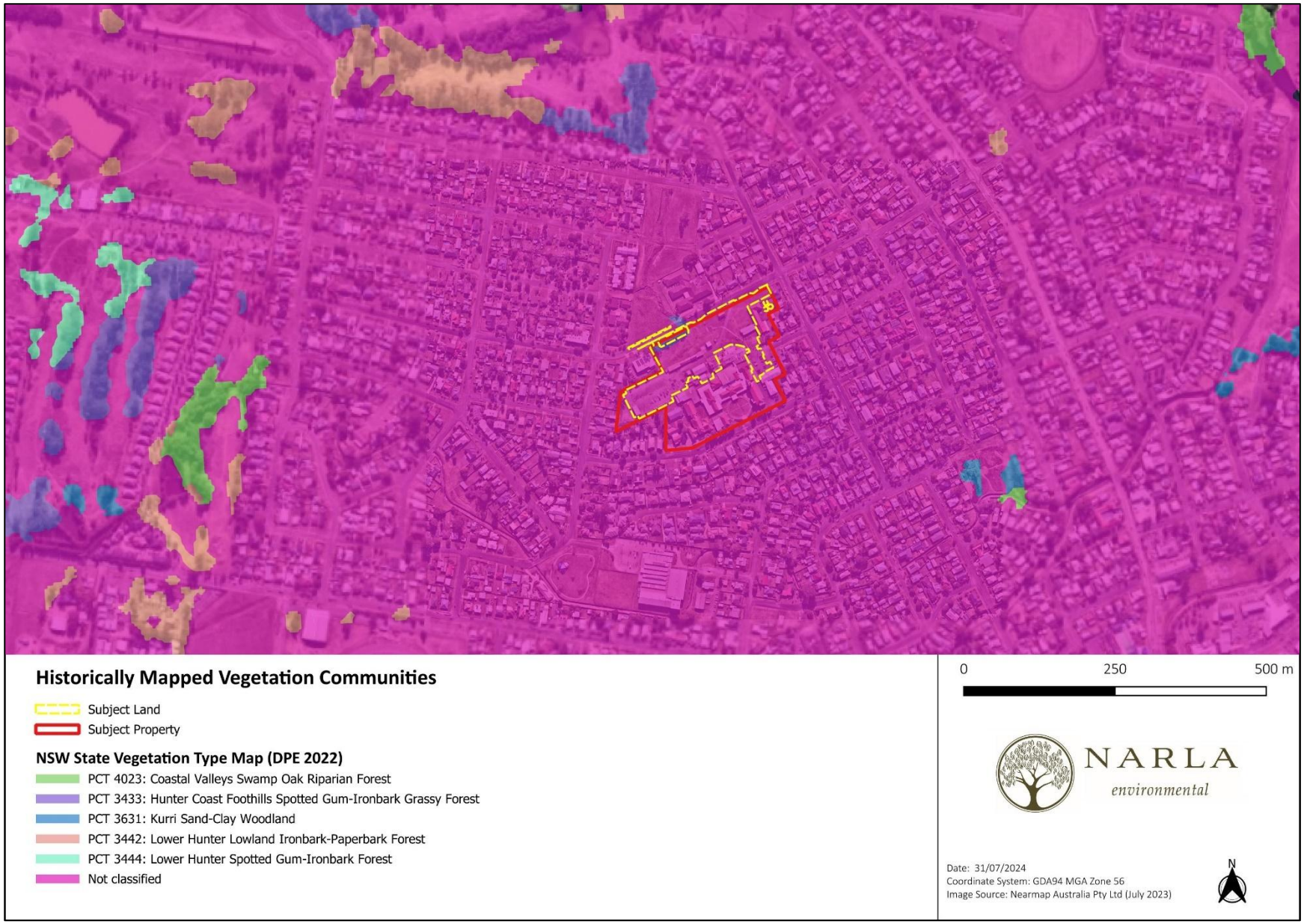

Figure 8. Historically mapped vegetation communities within and surrounding the Subject Land.

Table 2. Historically mapped PCTs (DPE 2022). Green shading indicates the selected best fit dominant PCT.

Plant Community Type (PCT)	Subject Land within known distribution/landscape position and on correct geology.	Frequency of *Syncarpia Glomulifera* (NDCCEEW 2024d)
PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Yes. This PCT occurs primarily on Permian sediments, however is also present on claystones of the Narrabeen Group. It is commonly recorded at elevations below 150 metres asl, with scattered records up to 300 metres asl. The Subject Land is located within this elevation range and occurs on the appropriate geology.	8%
PCT 3442: Lower Hunter Lowland Ironbark-Paperbark Forest	Yes. This PCT typically occurs at elevations of below 100 metres asl in a hot, moist climate, on Permian sediments often with a moderately high quartz content. The Subject Land is located within this elevation range and occurs on the appropriate geology.	4%
PCT 3444: Lower Hunter Spotted Gum-Ironbark Forest	Yes. This PCT occurs primarily on coarser grained Permian sediments between the footslopes of the Sugarloaf Range and Broke, on undulating to hilly terrain in the lower Hunter valley to the west of Newcastle. The Subject Land is located within this distribution and on the appropriate geology.	17%
PCT 3631: Kurri Sand-Clay Woodland	No. This PCT is found on sand and gravel deposits in the district. The Subject Land is not located on sand gravel deposits.	0%
PCT 4023: Coastal Valleys Swamp Oak Riparian Forest	No. This PCT typically occurs at elevations below 70 metres asl in a hot, dry climate. The Subject Land is located above 70m asl.	0%

3.1.3 Final PCT and Vegetation Zone Selection

Field surveys conducted by Narla confirmed areas of disturbed grassland as well as one native PCT within the Subject Land:

- PCT 3444: Lower Hunter Spotted Gum-Ironbark Forest

This PCT within the Subject Land has therefore been assigned to the following vegetation zone:

- Zone 1: PCT 3444– Low Condition (Canopy Only).

The other vegetation within the Subject Land that did not conform to a locally occurring PCT will hereafter be referred to as:

- Disturbed Grassland

These vegetation communities are detailed in **Table 3** and **Table 4** and displayed in **Figure 9.**

Table 3. PCT 3444 identified within the Subject Land.

Vegetation Zone 1: PCT 3444– Low Condition (Canopy Only).	
	
Vegetation class	Hunter-Macleay Dry Sclerophyll Forests
Field survey effort	One (1) 20x50m VIS plots were established.
Total Area within the Subject Land	0.02ha
Description of vegetation within the Subject Land	The vegetation within this zone was in low condition. The canopy largely consisted of *Syncarpia glomulifera* as well as likely planted native species *Eucalyptus botryoides* and *Lophostemon confertus*. There was no shrub layer present and they groundlayer was regularly managed as a lawn consisting of species such as *Cynodon dactylon, Cenchrus clandestinus, Hypochaeris radicata, Plantago lanceolata* and *Senecio madagascariensis*.
Structure of vegetation	Canopy cover was low within the plot, with native trees accounting for 9% cover. Native shrub cover was absent. Native groundcovers consisted of 75% grass owing to the presence of the common lawn species *Cynodon dactylon*, 0.1% forb, 0% fern and 0% other. A low coverage of leaf litter (12%) was apparent with 0m of fallen logs. High Threat Exotics were low at 0.3% cover. The VIS plots contained a low diversity of tree stem sizes, with tree stems recorded in just two (2) DBH classes with no regenerating stems. No large trees (>50dbh) or hollows were identified within the plot.
TEC Status (BC Act 2016)	This PCT is associated with the BC Act listed Endangered Ecological Community (EEC) Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast

Vegetation Zone 1: PCT 3444– Low Condition (Canopy Only).	
	Bioregions, however the vegetation present within the Subject Land was found to not meet the listing definitively for this community (see Section 3.2).
TEC Status (EPBC Act 1999)	NA
Scientific Reference from VIS (NDCCEEW 2024a)	Connolly, D., Binns, D., Turner, K., Hager, T., Lyons, M., Magarey, E. (in prep.) A revised classification of Plant Community Types for eastern New South Wales. NSW DPIE, Parramatta
Estimate of percent cleared value of PCT in the major catchment area	62.33%

Table 4. Disturbed Grassland Vegetation within the Subject Land.

Disturbed Grassland	
	
Total Area within the Subject Land	0.87ha
Field survey effort	No VIS plots were conducted within this zone owing to its exotic and unnatural nature
Description of vegetation	This vegetation within this portion of the Subject Land comprised of cleared disturbed grassland areas comprised of grasses such as *Cynodon dactylon* and *Cenchrus clandestinus* and exotic weed species *Hypochaeris radicata, Oxalis corniculata, Cardamine hirsuta, Plantago lanceolata, Ehrharta erecta* and *Senecio madagascariensis.*
Justification of vegetation assignment	The vegetation within this zone comprised of disturbed exotic species within a historically managed part of the Subject Property. As this vegetation cannot be reasonably assigned a locally occurring PCT, it has been called "Disturbed Grassland."
TEC Status (BC Act 2016 and EPBC Act 1999)	No associated TECs

Figure 9. Narla field validated vegetation mapping and location of the VIS plot within the Subject Land.

3.2 Threatened Ecological Communities

3.2.1 Biodiversity Conservation Act 2016: Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions

PCT 3444 is associated with the BC Act listed EEC, Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions. Within the Subject Land, the only species that is considered to be locally occurring is *Syncarpia glomulifera.* The Final Determination (NSW Threatened Species Scientific Committee 2019) states in paragraph 4.3, that whilst this species may occur within this community, it is not considered to be characteristic of Lower Hunter Spotted Gum Ironbark Forest. Therefore, as there were no characteristic species present, the vegetation within the Subject Land identified as PCT 3444 was found to NOT meet the listing advice for this community.

3.3 Assessing Patch Size

A patch is defined by the BAM (DPIE 2020a) as an area of native vegetation that occurs on the Subject Land and includes native vegetation that has a gap of less than 100m from the next area of native vegetation (or ≤ 30m for non-woody ecosystems). A patch may extend onto adjoining land.

For each vegetation zone, the assessor must determine the patch size in hectares and assign it to one of the following classes:

- <5ha
- 5–<25ha
- 25–<100ha
- ≥100ha.

The patch size class is used to assess habitat suitability on the Subject Land for threatened species. The assessor may assign more than one patch size class to the vegetation zone if both of the following apply:

- A vegetation zone comprises two or more discontinuous areas of native vegetation, and
- The areas of discontinuous native vegetation have more than one patch size class.

The vegetation zones identified within the Subject Land have been allocated to the following ecosystem categories to allow for aerial mapping of patch size within the broader area (Table 5; Figure 10)

- Woody Ecosystems (Vegetation Zone 1: PCT 3444).

Table 5. Patch size classes that each PCT and associated vegetation zone fall into.

Plant Community Type	Vegetation Zone	Patch Size Class
PCT 3444	Zone 1	<5ha

Figure 10. Patch size for the vegetation zone identified within the Subject Land.

3.4 Vegetation Integrity Survey (VIS) Plots

One (1) VIS Plot was established within and adjacent to the Subject Land within vegetation representative of that found within the Vegetation Zones. Plot data gathered for each attribute used to assess the function of the Subject Land vegetation is detailed in **Appendix B**. Vegetation Integrity (VI) Scores represented by existing vegetation within each vegetation zone is detailed in **Table 6**.

3.4.1 Determining future vegetation integrity scores

Most projects will result in complete clearing of vegetation and threatened species habitat within the Subject Land. In this scenario, the assessor must assess the proposed future value of each of the VI attributes as zero in the BAMC. However, in circumstances where partial clearing of vegetation is proposed and remaining vegetation will be maintained, the assessor may determine that the future value of the relevant VI attributes is greater than zero (DPIE 2020a).

The Subject Land will experience complete clearing to facilitate the proposed development. Therefore, all future conditions scores must be considered as zero. Consequently, the vegetation within the Subject Land has been assigned to the following management zones (**Figure 11**):

- Vegetation Zone 1: PCT 3444 – Low Condition:
    - Management Zone 1: PCT 3444- Complete removal - this area will require the removal of all vegetation to allow for the proposed development.

The attributes influencing future vegetation scores within this management zone are detailed in **Table 7.** Owing to the exotic nature of the vegetation within the Disturbed Grassland, it has not been assigned to a management zone and does not require further assessment.

Figure 11. Management zones within the Subject Land.

Table 6. Vegetation integrity scores for the vegetation zone identified within the Subject Land.

Vegetation Zone	Management Zone	Area (ha)	Survey Effort	Composition Condition Score	Structure Condition Score	Function Condition Score	VI Score	Future VI Score	Change in VI Score	Total VI Loss	Hollow bearing trees
Zone 1: PCT 3444 - Low Condition	Zone 1 – Complete removal	0.02	1 x VIS Plot (20m x 50m)	8.8	41	9.9	15.3	0	-15.3	15.3	Absent

Table 7. Management Zone within the Subject Land, and relevant vegetation attributes (composition, structure and function) affecting future VI scores.

Vegetation Zone	Management Zone	Changes in current vegetation attributes	Vegetation attributes not changed	Future vegetation scores and justification
Zone 1 – PCT 3444: Low Condition	Zone 1 – Complete removal	All vegetation will be removed	NA	▪ All vegetation within this zone has been assessed as lost as a result of the proposed development. ▪ Future composition, structure and function score is 0.

4. Threatened Species

4.1 Candidate Ecosystem Credit Species

Ecosystem credit species associated with the Subject Land are listed below in **Table 8.** No species predicted by the BAM calculator (NDCCEEW 2024f) as potential ecosystem credits were excluded from the assessment due to habitat constraints.

Table 8. Candidate ecosystem credits predicted to occur within the Subject Land.

Scientific Name	BC Act Status	Sensitivity to Gain Class	Excluded from Assessment	Reason for Exclusion from Assessment
Anthochaera phrygia Regent Honeyeater (Foraging)	Critically Endangered	High	No	-
Artamus cyanopterus cyanopterus Dusky Woodswallow	Vulnerable	Moderate	No	-
Callocephalon fimbriatum Gang-gang Cockatoo (Foraging)	Vulnerable	Moderate	No	-
Calyptorhynchus lathami South- eastern Glossy Black-Cockatoo (Foraging)	Vulnerable	High	No	-
Chthonicola sagittata Speckled Warbler	Vulnerable	High	No	-
Circus assimilis Spotted Harrier	Vulnerable	Moderate	No	-
Climacteris picumnus victoriae Brown Treecreeper (eastern subspecies)	Vulnerable	High	No	-
Daphoenositta chrysoptera Varied Sittella	Vulnerable	Moderate	No	-
Dasyurus maculatus Spotted-tailed Quoll	Vulnerable	High	No	-
Ephippiorhynchus asiaticus Black-necked Stork	Endangered	Moderate	No	-
Falco subniger Black Falcon	Vulnerable	Moderate	No	-
Glossopsitta pusilla Little Lorikeet	Vulnerable	High	No	-
Haliaeetus leucogaster White-bellied Sea-Eagle (Foraging)	Vulnerable	High	No	-
Hieraaetus morphnoides Little Eagle (Foraging)	Vulnerable	Moderate	No	-
Hirundapus caudacutus White-throated Needletail	Vulnerable	High	No	-

Scientific Name	BC Act Status	Sensitivity to Gain Class	Excluded from Assessment	Reason for Exclusion from Assessment
Ixobrychus flavicollis Black Bittern	Vulnerable	Moderate	No	-
Lathamus discolour Swift Parrot (Foraging)	Endangered	Moderate	No	-
Limicola falcinellus Broad-billed Sandpiper (Foraging)	Vulnerable	High	No	-
Lophoictinia isura Square-tailed Kite (Foraging)	Vulnerable	Moderate	No	-
Micronomus norfolkensis Eastern Coastal Free-tailed Bat	Vulnerable	High	No	-
Miniopterus australis Little Bent-winged Bat (Foraging)	Vulnerable	High	No	-
Miniopterus orianae oceanensis Large Bent-winged bat (Foraging)	Vulnerable	High	No	-
Neophema pulchella Turquoise Parrot	Vulnerable	High	No	-
Pandion cristatus Eastern Osprey (Foraging)	Vulnerable	Moderate	No	-
Petroica boodang Scarlet Robin	Vulnerable	Moderate	No	-
Petroica phoenicea Flame Robin	Vulnerable	Moderate	No	-
Pomatostomus temporalis temporalis Grey-crowned Babbler (eastern subspecies)	Vulnerable	Moderate	No	-
Pteropus poliocephalus Grey-headed Flying-fox (Foraging)	Vulnerable	High	No	-
Saccolaimus flaviventris Yellow-bellied Sheathtail-bat	Vulnerable	High	No	-

4.2 Candidate Species Credit Species Summary

This section provides a summary of the candidate species credit fauna and flora species for the Subject Land derived from BAMC (DPE 2024f). A summary of the targeted survey effort applied to each species is provided along with the results of the survey effort, specifically whether or not the species credit needs to be offset through retiring of Biodiversity Offset Credits (**Table 9** and **Table 10**).

Table 9. Candidate Fauna Credit Species predicted to occur within the Subject Land.

Scientific Name	Included in Assessment?	Targeted Survey conducted?	Present within Subject Land?	Biodiversity Risk Weighting	Biodiversity Offset Credits Required?
Anthochaera phrygia Regent Honeyeater (Breeding)	Yes, the Subject Land is included on the map of important areas for Regent Honeyeater therefore, it required to be assumed present.	NA	**Assumed Present**	Very High – 3	**Yes**
Chalinolobus dwyeri Large-eared Pied Bat	No. The SAII threshold for this species is potential breeding habitat and presence of breeding individuals. Potential breeding habitat is identified as land within 100m of rocky areas containing caves, overhangs, crevices, cliffs, escarpments, old mines, tunnels, culverts, or derelict concrete buildings. As no rocky areas containing caves, overhangs, crevices, cliffs, escarpments, old mines, tunnels, culverts, or derelict concrete buildings were present within 100m of the Subject Land, the SAII threshold is not met for this species and therefore does not require assessment under the streamlined assessment method.	NA	NA	Very High - 3	No
Lathamus discolour Swift Parrot (Breeding)	No, the Subject Land is not included on the map of important areas for Swift Parrot.	NA	NA	Very High - 3	No
Miniopterus australis Little Bent-winged Bat (Breeding)	This species is known to breed in caves, tunnels, mines and culverts. As such habitat constraints are not present within the Subject Land, this species was excluded from the assessment.	NA	NA	Very High - 3	No
Miniopterus orianae oceanensis Large Bent-winged Bat (Breeding)	This species is known to breed in caves, tunnels, mines and culverts. As such habitat constraints are not present within the Subject Land, this species was excluded from the assessment.	NA	NA	Very High - 3	No

Table 10. Candidate Flora Credit Species predicted to occur within the Subject Land.

Scientific Name	Included in Assessment?	Targeted Survey conducted?	Present within Subject Land?	Biodiversity Risk Weighting	Biodiversity Offset Credits Required?
Eucalyptus pumila Pokolbin Mallee	Yes. This species was considered to have potential habitat within the Subject Land and was therefore required to be included in the assessment.	NA	NA	Very High – 3	No
Persoonia pauciflora North Rothbury Persoonia	Yes. This species was considered to have potential habitat within the Subject Land and was therefore required to be included in the assessment.	NA	NA	Very High – 3	No
Prasophyllum sp. Wybong	No. Owing to the highly disturbed and regularly managed as a lawn nature of the groundlayer within the Subject Land, the habitat was considered highly degraded such that the presence of this species was highly unlikely. This in conjunction with this species only being known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area (DPIE 2020d), with the closest of which to the Subject Land being Muswellbrook which is approximately 93km away, has resulted in this species being excluded from the assessment.	NA	NA	Very High - 3	No

4.3 Surveys for SAII Species Credit and their Habitats

Species credit surveys were undertaken for SAII species credit species and their habitats considered to have potential to occur within the Subject Land (**Figure 12**). These surveys were implemented in accordance with Section 5.3 of the BAM and all relevant government threatened species survey guidelines.

Targeted surveys were undertaken by the following experienced ecologists on the following dates:

- Jayden Maloney and Elly Baker: 15/08/2023

Weather conditions taken from the nearest weather station (Cessnock Airport AWS no. 061260) in the lead up and during the field survey are outlined in **Table 11.** Numerous days of rainfall combined with moderate temperatures in the week prior to the site assessment is likely to have produced favourable conditions for the emergence of threatened flora species.

Table 11. Weather conditions taken from the nearest weather stations (Station number 061260) in the lead up and during the field survey (BOM 2024). Survey date is in bold.

Timing/activities	Undertaken By (Approximate Hours Spent)	Date	Day	Temperature		Rainfall (mm)
				Min	Max	
Lead up to the survey	-	08.08.2023	Tuesday	4.0	18.6	0.2
		09.08.2023	Wednesday	2.3	20.5	0
		10.08.2023	Thursday	0.0	24.6	0
		11.08.2023	Friday	1.4	19.9	0
		12.08.2023	Saturday	-1.3	24.6	0
		13.08.2023	Sunday	8.5	19.9	0.2
		14.08.2023	Monday	9.6	16.9	4.4
Vegetation and Habitat Assessment and Survey	**Jayden Maloney and Elly Baker (16 hours)**	**15.08.2023**	**Tuesday**	**7.9**	**18.5**	**6.6**

4.3.1 Fauna Species Credit Survey

A total five (5) SAII threatened fauna species were identified within the BAMC (NDCCEEW 2024f) as having the potential to occur within the Subject Land. Following the site assessment, it was then determined that all four (4) of the predicted species were unlikely to be present within the Subject Land due to the follow:

- The assessor determines that microhabitats required by a species are absent from the Subject Land (or specific vegetation zone) [(Section 5.2.3(2ai) of the BAM (DPIE 2020a)].

The remaining species, *Anthochaera phrygia* (Regent Honeyeater), was assumed present as the Subject Land contains an area identified on the important habitat map (as per Section 5.3.1 of the BAM), so the species is therefore required to be assumed present.

4.3.1.1 Threatened Microchiropteran Bat Survey

Owing to the presence of man-made structures within the Subject Land that will require demolition to facilitate the proposed works, a targeted survey for threatened microchiropteran bat (microbats) species with potential to

utilise such habitat was conducted. The following threatened microbat species, which are known to inhabit buildings, occur within the locality of the Subject Land (NDCCEEW 2024b):

- *Miniopterus orianae oceanensis* (Large Bent-winged Bat);
- *Miniopterus australis* (Little Bent-winged Bat)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath Tail Bat);
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle);
- *Scoteanax rueppellii* (Greater Broad-nosed Bat);
- *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat); and

The survey was conducted during daylight hours, on the 15th of August by experienced Narla Ecologists Jayden Maloney and Elly Baker. During the site assessment the Ecologists conducted a walk over of both the inside and outside of all structure which are proposed to be demolished as part of this SSDA.

The ecologists focussed searches on potential entry and exit points as well as cracks, crevices and holes that could be utilised for roosting. Each area of potential habitat was examined using an endoscope as well as a EchoMeter Touch 2 Pro to record any potential individuals for analysis.

No threatened microbats, were observed within or surrounding the structures during the site assessment. Photos from the assessment can be found in **Appendix D**.

4.3.2 Flora Species Credit Survey

A total of three (3) SAII threatened flora species were identified within the BAMC (NDCCEEW 2024f) as having the potential to occur within the Subject Land. Following the site assessment, only two (2) of these species were identified as having the potential to occur within the Subject Land due to suitable habitat.

The excluded species was not surveyed for due to the following (BAM Section 5.2.3 DPIE 2020a):

- The assessor determines that microhabitats required by a species are absent from the subject land (or specific vegetation zone). The assessor must include a description of the microhabitats assessed as being required by the species in the BDAR. This must be based on evidence such as published literature, or
- The assessor determines that the habitat constraints or microhabitats are degraded to the point that the species is unlikely to use the Subject Land (or specific vegetation zones).

A targeted survey was undertaken for the remaining potentially occurring SAII species in accordance with the 'Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method' (DPIE 2020b; **Figure 12**). These species were not detected within the Subject Land.

Table 12. Species credit flora species requiring targeted surveys. Targeted surveys were conducted within endorsed survey periods.

Candidate Flora Species	Survey Period (BAMC)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Eucalyptus pumila Pokolbin Mallee								✓				
Persoonia pauciflora North Rothbury Persoonia								✓				
Key	✓ = Surveyed						= NDCCEEW Endorsed Survey Period					

4.4 Species Polygons

4.4.1 Confirmed Present

No SAII species were confirmed to be present within the Subject Land.

4.4.2 Assumed Present

For species who have mapped areas of "Important Habitat" that intersect the Subject Land, the species polygon must include the entire area mapped on the "Important Habitat" map that occurs within the Subject Land and intersects suitable habitat. The following species have areas of Important Habitat that occurs within the Subject Land and were assigned species polygons as per below:

- *Anthochaera phrygia* (Regent Honeyeater): The species polygon for this species has been assigned to all areas within the Subject Land that occurs on the "Important Habitat" map and intersects areas containing suitable habitat (**Figure 13**). Areas of Disturbed Grassland have been excluded.

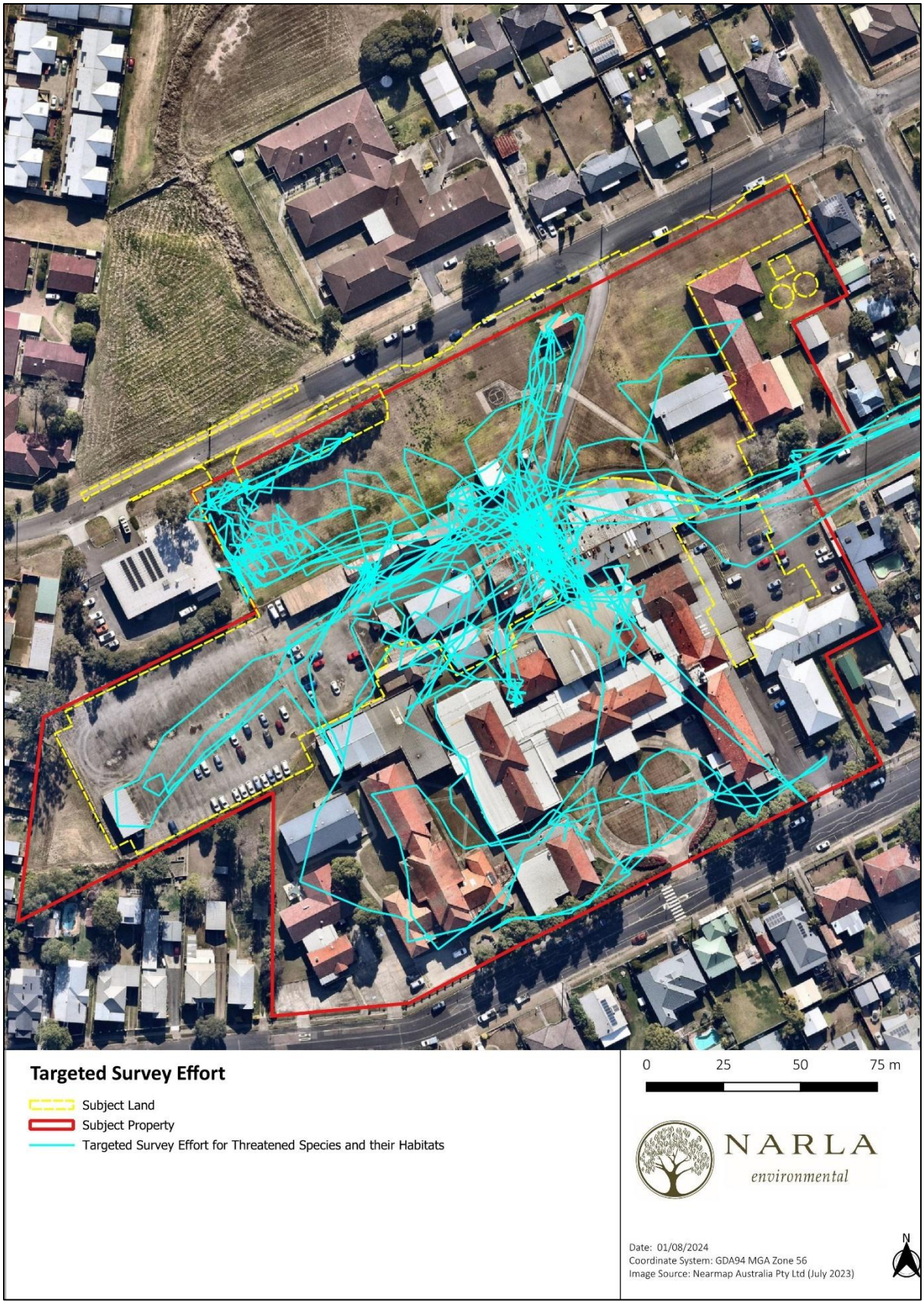

Figure 12. Targeted survey effort for species credit species and their habitats within the Subject Land.

Figure 13. Regent Honeyeater Species Polygon.

5. Prescribed Impacts

Certain projects may have impacts on biodiversity values in addition to, or instead of, impacts from clearing vegetation and/or loss of habitat. For many of these impacts, the biodiversity values may be difficult to quantify, replace or offset, making avoiding and minimising impacts critical. Prescribed biodiversity impacts require an assessment of the impacts of the development on the habitat of threatened species or ecological communities. This is discussed in **Table 13**.

Table 13. Prescribed and uncertain impacts associated with the proposed development.

Will there be impacts on any of the following?	Yes/No	If Yes, Address all of the assessment questions from section 6 of the BAM
Habitat of threatened entities including: ▪ karst, caves, crevices, cliffs, rocks and other geological features of significance, or ▪ human-made structures, or ▪ non-native vegetation	Yes	There are no karsts, caves, crevices, cliffs and other features of geological significance on or near the Subject Land. The Subject Land contains human-made structure that will be demolished as part of the development. The following threatened microbat species may utilise this human-made structures for roosting and breeding: ▪ *Falsistrellus tasmaniensis* (Eastern False Pipistrelle); ▪ *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat); ▪ *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat); and ▪ *Scoteanax rueppellii* (Greater Broad-nosed Bat). Two (2) other species may use such structures for roosting purposes, but not breeding purposes: ▪ *Miniopterus australis* (Little Bent-winged Bat); and ▪ *Miniopterus orianae oceanensis* (Large bent-winged Bat). A survey was undertaken for threatened microbats (**Section 4.3.1.1**) and no microbats, or evidence of microbats, were observed. However, as a precaution this prescribed impact is assessed further in **Section 7.2** Non-native vegetation within the Subject Land is not expected to provide habitat for threatened species, considering it mostly constituted of manicured gardens.

Will there be impacts on any of the following?	Yes/No	If Yes, Address all of the assessment questions from section 6 of the BAM
On areas connecting threatened species habitat, such as movement corridors	No	It is unlikely the proposed development will interrupt connectivity for any the vegetation to be impacted is already highly fragmented from other areas of habitat in the locality. Considering the tree planting proposed as part of the development, habitat connectivity is expected to be maintained if not improved post works.
That affect water quality, water bodies and hydrological processes that sustain threatened entities (including from subsidence or upsidence from underground mining)	No	It is not expected that the removal of vegetation within the Subject Land will impact upon any hydrological processes that sustain threatened entities.
On threatened and protected animals from turbine strikes from a wind farm	No	No wind farms are associated with the proposed development.
On threatened species or fauna that are part of a TEC from vehicle strikes.	No	A small increase in vehicular activity is expected as a result of the proposed development. However, due to the current use of the property, the urbanised nature of the area and the low speeds that would be required for access, this is considered unlikely to impact any potentially occurring threatened species.

6. Avoid, Minimisation and Mitigation of Impacts

6.1 Impact Mitigation and Minimisation Measures

This section details the measures to be implemented before, during and post construction to avoid and minimise the impacts of the project (**Table 14**).

Table 14. Table of measures to be implemented before, during and after construction to avoid and minimise the impacts of the project.

Action	Outcome	Timing	Responsibility
Project Location and Design (avoidance and minimisation)	Whilst vegetation removal is required to facilitate the proposed development, these impacts have largely been restricted to select native street trees and disturbed grassland vegetation. Consultation was had with Narla Environmental during the development stage, and the best quality vegetation (canopy trees) has been largely retained and will be protected following the development. Furthermore, a series of trees will be planted as part of the proposed landscape works for the project which will result in a net gain for biodiversity within the site.	Pre-construction phase	Proponent
Preparation of a Construction Environmental Management Plan (CEMP)	A CEMP may be required for the construction phase of the project, and will be prepared prior to issue of the Construction Certificate. The CEMP would include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures, including the procedures outlined below. The proposed mitigation measures would include environmental safeguards for protection of neighbouring properties and nearby waterways in accordance with relevant policy documentation and Government guidelines. In order to address the potential impacts of the proposal on biodiversity, the mitigation and management measures outlined within this table would be implemented as part of the CEMP for the site.	Pre-construction phase	Proponent Construction Contractor
Tree Protections	Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970) outlines that a Tree Protection Zone (TPZ) is the principal means of protecting trees on construction sites. It is an area isolated from construction disturbance so that the tree remains viable. Ideally, works should be avoided within the TPZ. A Minor Encroachment is less than 10% of the TPZ and is outside the SRZ. A Minor Encroachment is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ.	Pre-construction phase	Proponent Arborist

Action	Outcome	Timing	Responsibility
	A Major Encroachment is greater than 10% of the TPZ or inside the SRZ. Major Encroachments generally require root investigations undertaken by non-destructive methods or the use of tree sensitive construction methods. Tree protection measures (exclusion fencing) are to be placed around all trees proposed to be retained within the vicinity of the proposed works under the guidance of a qualified arborist, to avoid any accidental damage to retained vegetation.		
Assigning a Project Ecologist for vegetation clearing	Prior to construction, the applicant should commission the services of a qualified and experienced Ecologist Consultant with a minimum tertiary degree in Science, Conservation, Biology, Ecology, Natural Resource Management, Environmental Science or Environmental Management. The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific License issued under the BC Act. The Ecologist will be commissioned to: ▪ Undertake an extensive pre-clearing survey, identifying potential habitat trees as well as reinspecting roof cavities of buildings to be removed for potential microbat species.	Prior to and during vegetation clearance works	Proponent Project Ecologist
Erosion and Sedimentation	Appropriate erosion and sediment control must be erected and maintained at all times during construction in order to avoid the potential of incurring indirect impacts on biodiversity values. As a minimum, such measures should comply with the relevant industry guidelines such as 'the Blue Book' (Landcom 2004).	Construction phase	Proponent Construction Contractor
Erection of temporary fencing and bunting	Temporary fencing should be erected around retained native vegetation that may incur indirect impacts on biodiversity values due to the construction works.	Construction phase	Proponent Construction Contractor
Storage and Stockpiling (Soil and Materials)	Allocate all storage, stockpile and laydown sites away from any native vegetation that is planned to be retained. Avoid importing any soil from outside the site as this can introduce weeds and pathogens to the site in order to avoid the potential of incurring indirect impacts on biodiversity values.	Construction phase	Construction Contractors
Future Landscaping	Future landscaping plans for the site should incorporate native canopy species representative of the Lower Hunter Spotted Gum Ironbark Forest EEC.	Post-construction phase	Proponent Landscape Architect
Stormwater	Potential impacts relating to stormwater and runoff will be managed during construction and operation phases. The CEMP will guide stormwater management during the construction phase of development.	Post-construction phase	Proponent Construction Contractors/ Architect

7. Assessment of Impacts

7.1 Direct Impacts

7.1.1 Full Clearing

The complete clearing of the following vegetation has been assessed as part of the proposed development:

- 0.02ha of Vegetation Zone 1: PCT 3444 (Low Condition); and
- 0.87ha of Disturbed Grassland

7.1.2 Partial Clearing

No partial clearing is proposed as part of this development.

7.2 Prescribed Impacts

As there is potential for the Subject Land to contain habitat for several threatened microbat species in the form of human-made structures, an assessment of this prescribed impact must be undertaken in accordance with Section 8.3 of the BAM (DPIE 2020a). Although a survey was undertaken for threatened microbats (**Section 4.3.1.1**) and no microbats were observed, this prescribed impact is still assessed in **Table 15**.

Table 15. Prescribed and uncertain impacts associated with the proposed development.

Prescribed Impact	Nature, extent and duration	Threatened Species and their habitat likely to be impacted	Consequences of the impacts on threatened entities
Habitat of threatened entities (human-made structures)	There is the low potential that threatened microbat species use the human-made structures within the Subject Land for roosting as a survey was completed and no microbats were observed, however, this does not exclude these species using such spaces in the future. If such species utilise this potential habitat in the future, the demolition of this building is expected to temporarily displace individuals and therefore only have a low impact of short duration. These species are highly mobile and there is ample roosting/breeding habitat nearby. To manage these impacts, a pre-clearing survey for microbats of the building is recommended prior to demolition. If any individuals are found to be present, they are to be captured and relocated (following demolition works) into surrounding bushland after sunset.	▪ *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) ▪ *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat) ▪ *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat) ▪ *Scoteanax rueppellii* (Greater Broad-nosed Bat). ▪ *Miniopterus australis* (Little Bent-winged Bat) ▪ *Miniopterus orianae oceanensis* (Large bent-winged Bat)	While the demolition of potential roost/breeding sites may have a temporary displacement-impact to local populations of threatened microbats, these species are highly mobile and as such, any impacts would be considered minor and temporary. Habitat connectivity will continue to exist in the locality through streets trees and planted vegetation, which would provide alternative and potentially higher-quality roosting/breeding sites for these species.

7.3 Indirect Impacts

Indirect impacts occur when the proposal or activities relating to the construction or operation of the proposal affect native vegetation, threatened ecological communities and threatened species habitat beyond the Subject Land. Impacts may also result from changes to land-use patterns, such as an increase in vehicular access and human activity on native vegetation, threatened ecological communities and threatened species habitat. The indirect impacts of this proposed development are outlined in **Table 16.**

Table 16. Indirect impacts associated with the proposed development.

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(a) inadvertent impacts on adjacent habitat or vegetation	Vegetation and habitat directly adjacent to the Subject Land has the potential to experience ongoing indirect impacts as a result of the proposed development. The disturbance caused during construction and operation may increase weed infestations within adjacent vegetation, which in turn may decrease its habitat value.	One (1) PCT, Lower Hunter Spotted Gum-Ironbark Forest is located in the area surrounding the Subject Land. There is also the potential that threatened species occur in areas adjacent the Subject Land that may be impacted by a decrease in habitat condition.	While changes to vegetation condition may have a localised impact to threatened species and their habitats, this is not expected to impact on their bioregional persistence considering the mitigation measures proposed in **Table 14** will ensure no significant impacts occur to the PCT and potential habitat adjacent to the Subject Land.
(b) reduced viability of adjacent habitat due to edge effects	The proposed development and ongoing utilisation may lead to an increase in weed infiltration into adjacent habitat due to enhanced edge effects. However, surrounding vegetation is already experiencing edge effects as a result of surrounding land use therefore any impacts are expected to be restricted to a couple of metres into adjacent vegetation.	One (1) PCT, Lower Hunter Spotted Gum-Ironbark Forest is located in the area surrounding the Subject Land. There is also the potential that threatened species occur in areas adjacent the Subject Land that may be impacted by edge effects leading to a reduced viability in habitat.	While edge effects may have a localised impact to threatened species and their habitats, this is not expected to impact on their bioregional persistence considering the mitigation measures proposed in **Table 14** will ensure no significant impacts occur to the PCT and potential habitat adjacent to the Subject Land.

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(c) reduced viability of adjacent habitat due to noise, dust or light spill	An increase in noise is to be expected during and following construction. This may have an impact on any species roosting adjacent to the site during the day that are not adapted to such noises. It is not expected that construction would occur throughout the night, and as such would not impact on nocturnal species that may utilise adjacent habitat, or diurnal species that roost in adjacent habitat. The construction may increase dust in adjacent habitat. Dust can impact on a plant's ability to photosynthesise and may increase plant mortality in the adjacent vegetation. It is however not expected that this would have such an impact to decrease the viability of adjacent habitat. It is expected that the utilisation of the area following construction may result in a decrease in the viability of the adjacent habitat due to increases in noise and light associated with the works.	One (1) PCT, Lower Hunter Spotted Gum-Ironbark Forest is located in the area surrounding the Subject Land. There is also the potential that threatened species occur in areas adjacent the Subject Land that may be an increase in noise and dust spill into adjacent habitats.	While the development may have a localised impact to threatened species and their habitats, this is not expected to impact on their bioregional persistence considering the mitigation measures proposed in Table 14 will ensure no significant impacts occur to the PCT and potential habitat adjacent to the Subject Land.

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(d) transport of weeds and pathogens from the site to adjacent vegetation	As previously discussed, the proposed construction and utilisation may lead to an increase in weed infiltration into adjacent habitat due to enhanced edge effects as well as may lead to the introduction of pathogens. It is however not expected that weeds nor pathogens will be transported via human or vehicular traffic into surrounding areas during construction. Temporary fencing will be erected around retained native vegetation to avoid such indirect impacts occurring during construction.	One (1) PCT, Lower Hunter Spotted Gum-Ironbark Forest is located in the area surrounding the Subject Land. There is also the potential that threatened species occur in areas adjacent the Subject Land that may be impacted by weed and pathogen transportation leading to a reduced viability in habitat.	While weeds and pathogens may have a localised impact to the TEC and threatened species, this is not expected to impact on their bioregional persistence considering the mitigation measures proposed in **Table 14** will ensure no significant impacts occur to the PCT and potential habitat adjacent to the Subject Land.
(e) increased risk of starvation, exposure and loss of shade or shelter	It is highly unlikely that any threatened fauna would be exposed to increased risks from starvation, exposure, and loss of shade and shelter as a result of the development given the highly urbanised nature of the surrounding environment. Disturbances from noise during construction and utilisation may deem such habitats unsuitable for certain species in the locality. However, as previously mentioned owing to the highly urbanised nature of the locality these impacts are not expected to be significant. With food and shelter resources continuing to exist in their current state post development.	N/A	N/A

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(f) loss of breeding habitats	An increase in noise is to be expected during and post-construction. As such, there is potential for disturbance to breeding habitats directly adjacent to the Subject Land. However, owing to the highly urbanised nature of the locality surrounding the Subject Land, it is not expected for this to significantly impact on species inhabiting such areas.	There is the low potential that threatened fauna species use habitat adjacent to the Subject Land for breeding. Such species may be impacted by an increase in noise into adjacent habitats, which may in turn impact on their breeding habitat.	This impact is expected to be localised and will not have an overall impact on the bioregional persistence of threatened species.
(g) trampling of threatened flora species	No threatened flora species were identified within or surrounding the Subject Land. Furthermore, the lack of proximal records shows no threatened flora located within or adjacent to the Subject Land. Therefore, it is not expected that trampling of threatened species will be associated with this project.	N/A	N/A
(h) inhibition of nitrogen fixation and increased soil salinity	It is unlikely that the inhibition of nitrogen fixation will affect vegetation adjacent to the Subject Land. Clearing will be limited to the Subject Land and as such is not expected to affect vegetation directly adjacent to the Subject Land.	N/A	N/A
(i) fertiliser drift	This issue is not likely to affect the vegetation within or surrounding the Subject Land.	N/A	N/A

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(j) rubbish dumping	There is the possibility that rubbish dumping (including littering) in adjacent vegetation increases during and post construction. The dumping/littering of food resources may provide a food source for fauna, including threatened species. However, this may also encourage invasive species into such habitats. This impact can be mitigated by the appropriate disposal of rubbish.	There is potential that threatened fauna species use habitat adjacent to the Subject Land. Such species may be impacted by the dumping of rubbish, particularly food resources. This may result in both positive (food source) and negative impacts (increase in predators) to such species.	This impact is expected to be localised and will not have an overall impact on the bioregional persistence of the PCT or threatened species.
(k) wood collection	This issue is not likely to affect the vegetation surrounding the Subject Land during and post-construction.	N/A	N/A
(l) bush rock removal and disturbance	This issue is not likely to affect the vegetation surrounding the Subject Land. No bush rock was observed within or adjacent to the Subject Land.	N/A	N/A
(m) increase in predatory species populations	Predatory species, such as foxes and cats, likely already inhabit areas within and surrounding the Subject Land. There is the possibility that other indirect impacts, such as an increase in rubbish dumping, may encourage predatory species into the area.	There is potential that threatened fauna species use habitat adjacent to the Subject Land. Such species may be impacted by an increase in predatory species populations.	An increase in predatory species adjacent to the Subject Land may have widespread ramifications for any locally occurring threatened species. However, as predatory species already likely occur within the locality the proposed development is unlikely to increase their presence.

Indirect Impact	Nature, extent and duration	TEC's/PCTs and/or Threatened Species and their habitat likely to be impacted	Consequences of the impacts for the bioregional persistence of the threatened species, threatened ecological communities and their habitats.
(n) increase in pest animal populations	There is potential that pest animal populations likely already inhabit areas within and surrounding the Subject Land. There is the possibility that other indirect impacts, such as an increase in rubbish dumping, may encourage an increase in pest animal populations.	There is potential that threatened fauna species use habitat adjacent to the Subject Land. Such species may be impacted by an increase in pest animal populations.	An increase in pest species adjacent to the Subject Land may have widespread ramifications for any locally occurring threatened species. However, as pest species likely already occur within the locality the proposed development is unlikely to increase their presence.
(o) increased risk of fire	The removal of vegetation as a result of the proposed development is not expected to alter the bushfire risk of vegetation surrounding the Subject Land.	N/A	N/A
(p) disturbance to specialist breeding and foraging habitat, e.g., beach nesting for shorebirds.	Areas of Important Habitat are mapped within and surrounding the Subject Land for Regent Honeyeaters.	Regent Honeyeater	The proposed works will require the removal of approximately 0.02ha of areas mapped as important habitat for this species. This impact is expected to be localised and is not expected to have an overall impact on the bioregional persistence of this species owing to the area of vegetation to be retained unimpacted. as well as the trees proposed to be planted as a result of the project, which will result in a net gain of potential habitat.

8. Thresholds for Assessing and Offsetting

8.1 Impacts on Native Vegetation

The following native vegetation within the Subject Land is proposed to be impacted as a result of the proposed development:

- 0.02ha of Vegetation Zone 1: PCT 3444 (Low Condition).

No offset credits will be required for impacts vegetation within Vegetation Zone 1: PCT 3444 (Low Condition) owing to its low VI score. Furthermore, no offset credits are required for the area identified as Disturbed Grassland owing to its exotic and disturbed nature.

8.2 Impacts on Threatened Species

The following threatened species have been assumed present within the Subject Land and will therefore require the purchase and retirement of Biodiversity Offset Credits:

- *Anthochaera phrygia* (Regent Honeyeater; Important Habitat Map – Assumed Present).

8.3 Serious and Irreversible Impacts (SAII's)

One (1) assumed present threatened species within the Subject Land have been identified as an entity at risk of an SAII in the Threatened Biodiversity Data Collection (NDCCEEW 2024d):

- *Anthochaera phrygia* (Regent Honeyeater; Principles 1 and 2).

The SAII threshold for this species is Mapped Important Areas. As the Subject Land occurs within a NDCCEEW Mapped Important area, the SAII threshold has been met. Therefore, a determination of whether or not the proposed impacts are serious and irreversible have been undertaken in accordance with Section 9.1 of the BAM (DPIE 2020a). This is outlined in Table 17.

Figure 14. Impacts on vegetation and offset requirements.

Table 17. Additional impact assessment provisions for Regent Honeyeaters that are associated with a serious and irreversible impact.

Serious and Irreversible Impact (SAII) Impact assessment provisions for threatened species or populations: *Anthochaera phrygia* (Regent Honeyeater)	
BC Act Status: Critically Endangered	
The action and measures taken to avoid the direct and indirect impact on the potential entity for a SAII	As discussed in Table 14, owing to the requirement to provide access for the project, complete avoidance of impacts to native vegetation was not possible. However, these impacts have largely been restricted to select native street trees and disturbed grassland vegetation. Consultation was had with Narla Environmental during the development stage, and the best quality vegetation (canopy trees) has been largely retained and will be protected following the development. Furthermore, a series of trees will be planted as part of the proposed landscape works for the project which will result in a net gain for biodiversity within the site.
Evidence of rapid decline (Principle 1): Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)	Over the last decade, the Regent Honeyeater has undergone a population reduction and continuing decline, with the apparent loss of some of its minor breeding populations (e.g. Warrumbungle National Park, Pilliga forests), as well as declines at its two major breeding sites; Capertee Valley and Bundarra-Barraba. In 1997 the global population of Regent Honeyeaters was estimated as 1 500 mature birds, with 1 000 shared between the Capertee Valley and Bundarra-Barraba breeding sites; however, numbers have since declined. The Capertee Valley population declined from around 140 birds in spring 2005 to 40 birds in spring 2006 and in 2007, no breeding was. In autumn 2008, about 40 birds reappeared in the Capertee Valley and persisted until August (D. Geering pers. comm.). The apparent decline in the Capertee Valley, from hundreds in the mid-1990s to tens in 2008, represents a decline in index of abundance of more than 80% in three generations (15 years), although the influence of greater dispersal due to failed eucalypt flowering combined with variable survey effort may have contributed to this apparent decline. In the Bundarra-Barraba area, numbers have apparently declined from around 100 in the 1990s, to 50 birds in subsequent breeding seasons, and about 30 birds in recent years (Williams undated Bundarra-Barraba Ops Group data). In 2007 there was no eucalypt flowering and no Regent Honeyeaters could be found in the Bundarra-Barraba region and northwards to Inverell-Ashford (NSW Scientific Committee 2010).
Evidence of small population size (Principle 2): ▪ Current population size in NSW; ▪ Decline in specie's population size in 3 years or one generation; and ▪ Number or percentage of	▪ The population in NSW was estimated at maximum of 1000 birds in 1997, but there have been many fewer seen subsequently, with a maximum count of just 40 in 2009 (a decline of almost 95%) (DoE 2015). ▪ The apparent decline in the Capertee Valley, from hundreds in the mid 1990s to tens in 2008, represents a decline in index of abundance of more than 80% in three generations (15 years), although the influence of greater dispersal due to failed eucalypt flowering combined with variable survey effort may have contributed to this apparent decline. In the Bundarra-Barraba area, numbers have apparently declined from around 100 in the 1990s, to 50 birds in subsequent breeding seasons, and about 30 birds in recent years (Williams undated Bundarra-Barraba Ops Group data). In 2007 there was no eucalypt flowering and no Regent

Serious and Irreversible Impact (SAII) Impact assessment provisions for threatened species or populations: *Anthochaera phrygia* (Regent Honeyeater)	
BC Act Status: Critically Endangered	
mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations	Honeyeaters could be found in the Bundarra-Barraba region and northwards to Inverell-Ashford (NSW Scientific Committee 2010). ▪ The extent of occurrence is estimated at 600 000 km2 and the area of occupancy at 300 km2. Both are considered to be decreasing, and the number of mature individuals is continuing to decline. However, the population is not severely fragmented and the species occurs at >10 locations. No extreme fluctuations in the population, extent of occurrence or area of occupancy have been recorded (DoE 2015)
Number of individuals (mature and immature) present in the subpopulation on the Subject Land	No individuals have been historically recorded within the Subject Land (NDCCEEW 2024b). 91 records exist within 10km radius of the Subject Land, with the closest being approximately 2.7km away.
Number of individuals (mature and immature) present as a percentage of total NSW population (%)	No individuals have been historically recorded within the Subject Land (NDCCEEW 2024b). 91 records exist within 10km radius of the Subject Land, with the closest being approximately 2.7km away.
Number of individuals (mature and immature) to be impacted by the proposal	No individuals are expected to be impacted by the proposal. Approximately 0.02ha of mapped important habitat is proposed to be removed.
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)	No individuals are expected to be impacted by the proposal. Approximately 0.02ha of mapped important habitat is proposed to be removed.
Area of habitat to be impacted (ha) (for species measured by area only)	Approximately 0.02ha of vegetation identified on the important area map for this species will be impacted by the proposed development.
Area of the species' geographic range to be impacted by the proposal (ha)	Approximately 0.02ha of vegetation identified on the important area map for this species will be impacted by the proposed development.
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)	The Regent honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales (NSW) and the Australian Capital Territory (ACT), to central Victoria. Records are widely distributed across its range, but it is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas: three in NSW and one in Victoria (DoE 2015). The impact associated with the proposed development is expected to have a negligible impact on the geographic range of this species.
Individuals impacted	No individuals are expected to be impacted by the proposal. Approximately 0.02ha of mapped important habitat is proposed to be removed.

Serious and Irreversible Impact (SAII) Impact assessment provisions for threatened species or populations: *Anthochaera phrygia* (Regent Honeyeater)	
BC Act Status: Critically Endangered	
Viability of a fragmented population	No fragmentation of a population will occur as a result of the proposed development as this species is highly mobile. Habitat will remain within the Subject Property and will be enhanced by the revegetation proposed as part of the proposed landscaping plan resulting in a net gain of habitat for this species.

9. Biodiversity Offset Credit Requirements

9.1 Offset Requirement for Ecosystem Credits

No ecosystem credits are required to offset the biodiversity impacts of the proposed development (**Table 18**).

Table 18. Ecosystem credits required to offset the proposed development.

PCT	Vegetation Zone	BC Act Status	EPBC Act Status	Total Area (ha)	Ecosystem Credits Required
PCT 3444 - Lower Hunter Spotted Gum-Ironbark Forest	Zone 1: Low Condition	NA	NA	0.02	0
Total Ecosystem Credits					**0**

9.2 Offset Requirement for Species Credits

One (1) species credit will require offsetting through the retiring of biodiversity offset species credits under the BOS as a result of the proposed development (**Table 19**).

Table 19. Species credits required to be offset for the proposed development.

PCT	BC Act Status	Vegetation Zone	Total Area (ha)	Ecosystem Credits Required
Anthochaera phrygia (Regent Honeyeater)	Critically Endangered	Zone 1: Low Condition	0.02ha	1
Total Species Credits				**1**

10. Other Relevant Legislation and Planning Policies

10.1 State Environmental Planning Policy (Biodiversity and Conservation) 2021 – Chapter 4 Koala Habitat Protection 2021

This Policy aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. This chapter of the SEPP applies to LGAs that are listed in Schedule 2 'Local government areas' of the SEPP and that have an area of at least 1ha. As the Cessnock City LGA is included in Schedule 2 of the SEPP and the Subject Property has an area of >1ha, the development controls of this Chapter apply to the proposed development:

- Has an area of at least 1 hectare (including adjoining land within the same ownership); and
- Does not have an approved koala plan of management applying to the land.

Before a consent authority may grant consent to a development application for consent to carry out development on the land, the consent authority must assess whether the development is likely to have any impact on koalas or koala habitat. If the consent authority is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the consent authority may grant consent to the development application.

A site assessment was undertaken to determine whether the land contained core koala habitat, which is defined by the SEPP as:

a) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment of the land as highly suitable koala habitat, or

b) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.

Although the Subject Land contained suitable habitat (where 15% or greater of the total number of trees are the regionally relevant species of those listed in Schedule 3 of the SEPP), no signs of koala's or koala occupancy (scats, scratch marks) were observed within the Subject Land during the site assessment. Owing to the highly urbanised nature of the Subject Land and the immediate surrounds and there being only one historic record within 2.5km from the last 18 years, it is considered highly unlikely to constitute core koala habitat, and no further assessment under this chapter of the SEPP (i.e. Koala Assessment Report) should be required.

11. References

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Australian Bureau of Meteorology (BOM) (2024) Cessnock Airport New South Wales. Daily Weather Observations http://www.bom.gov.au/

Australian Standard 4970 (2009) Protection of Trees on Development Sites

Biodiversity Conservation Act (2016) https://legislation.nsw.gov.au/#/view/act/2016/63/full

Biodiversity Conservation Regulation (2017) https://www.legislation.nsw.gov.au/#/view/regulation/2017/432

Cessnock City Council (2010) Development Control Plan

Cessnock City Council (2011) Local Environmental Plan

Department of Environmental Conservation (DoEC) (2004) Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft), New South Wales Department of Environment and Conservation, Hurstville, NSW.

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Department of Planning, Industry and Environment (DPIE) (2020a) Biodiversity Assessment Method

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Department of Planning, Industry and Environment (DPIE) (2020c) NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method.

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Department of Planning and Environment (DPE) (2022) State Vegetation Type Map

Fitzpatrick and Partners (2024) Cessnock Hospital Redevelopment Site Plans

Kovac M. and Lawrie J.M., (1991), Soil Landscapes of the Singleton 1:250,000 Sheet map and report, Soil Conservation Service of NSW, Sydney.

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NSW Department of Climate Change, Energy, the Environment and Water (NDCCEEW) (2024b) NSW BioNet. The website of the Atlas of NSW Wildlife http://www.bionet.nsw.gov.au/

NSW Department of Climate Change, Energy, the Environment and Water (NDCCEEW) (2024c) NSW BioNet. Threatened Biodiversity Data Collection

NSW Department of Climate Change, Energy, the Environment and Water (NDCCEEW) (2024d) NSW BioNet. Vegetation Classification System

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NSW Department of Climate Change, Energy, the Environment and Water (NDCCEEW) (2024f) Biodiversity Assessment Method Calculator Version 1.4.0.00

NSW Government Spatial Services (2024) Six Maps Clip & Ship https://maps.six.nsw.gov.au/clipnship.html

NSW Scientific Committee (2010) Regent honeyeater (*Anthochaera phrygia*) - critically endangered species listing

NSW Threatened Species Scientific Committee (2019) Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions - endangered ecological community listing

12. Appendices

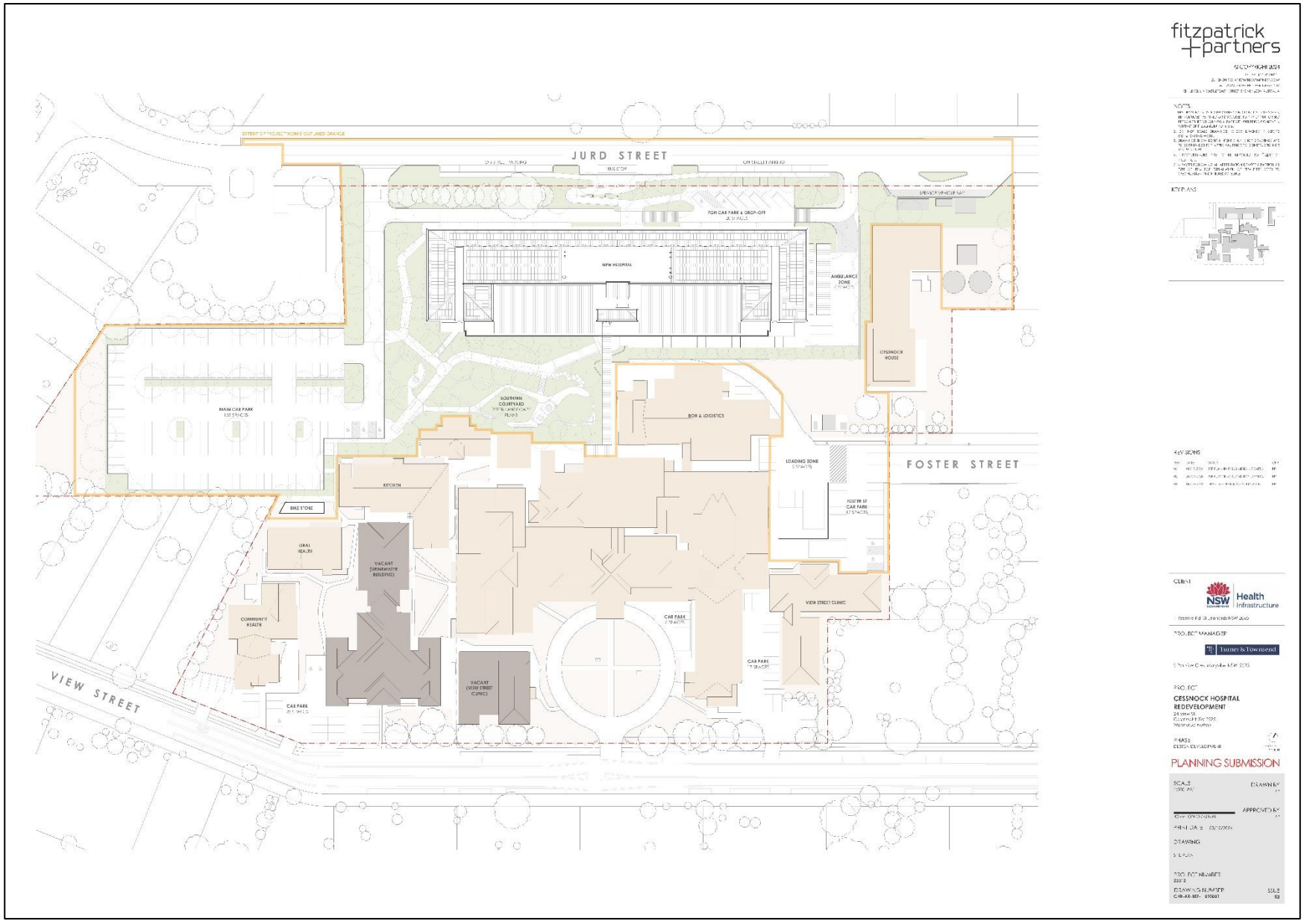
Appendix A. Site Plan (Fitzpatrick and Partners 2024).

Appendix B. BAM Site - Field Survey Forma (copied directly from Electronic Data Sheet).

Appendix C. BAMC Generated Biodiversity Credit Report.

Appendix D. Photos taken during Microbat survey of roof spaces of buildings proposed to be removed.

Appendix A. Site Plan (Fitzpatrick and Partners 2024).



Appendix B. BAM Site - Field Survey Forma (copied directly from Electronic Data Sheet).

BAM Site – Field Survey Form					
Date:	15/08/23	**Plot ID:**	Plot 1	**Photo #:**	0
Zone:	56h	**Plot Dimensions:**	20 x 50m	**Easting:**	345281.00 m E
Datum:	GDA 94	**Middle bearing from 0m:**	54	**Northing:**	6366662.80 m S
PCT:	Vegetation Zone 1: PCT 3444 - Low Condition				

Growth Form	Scientific Name	Cover	Abundance
Tree (TG)	*Syncarpia glomulifera*	5	2
Grass & grasslike (GG)	*Cynodon dactylon*	75	7500
Exotic	*Hypochaeris radicata*	1	50
Exotic	*Plantago lanceolata*	0.5	25
High Threat Exotic (HTE)	*Senecio madagascariensis*	0.1	2
High Threat Exotic (HTE)	*Ehrharta erecta*	0.1	10
High Threat Exotic (HTE)	*Cenchrus clandestinus*	0.1	10
Exotic	*Conyza bonariensis*	0.1	10
Tree (TG)	*Eucalyptus botryoides*	2	1
Tree (TG)	*Lophostemon confertus*	2	1
Exotic	*Richardia spp.*	0.2	25
Exotic	*Gamochaeta spp.*	0.1	5
Exotic	*Romulea rosea*	0.1	20
Forb (FG)	*Dianella revoluta*	0.1	2

DBH	# Tree Stems Count	# Hollow Bearing Trees
80+cm	Absent	0
50-79cm	Absent	
30-49cm	Present	
20-29cm	Present	
10-19cm	Absent	
5-9cm	Absent	
<5cm	Absent	

Length of Logs (m)	0

BAM Attribute (1x1m)	Litter Cover (%)
1 (5m)	10
2 (15m)	15
3 (25m)	5
4 (35m)	10
5 (45m)	20
Average	12

Growth Form	Composition Data (Count of Native Cover)	Structure Data (Sum of Cover)
Tree	3	9
Shrub	0	0
Grass	1	75
Forb	1	0.1
Fern	0	0
Other	0	0
High Threat Exotics	3	0.3

Appendix C. BAMC Generated Biodiversity Credit Report.

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id 00050218/BAAS21009/24/00050219	Proposal Name Cessnock Hospital Redevelopment	BAM data last updated * 28/10/2024
Assessor Name Christopher Moore	Assessor Number BAAS21009	BAM Data version * Current classification (live - default) (80)
Proponent Names	Report Created 04/11/2024	BAM Case Status Finalised
Assessment Revision 0	BOS entry trigger BOS Threshold: Biodiversity Values Map	Assessment Type Part 4 Developments (Small Area)
Date Finalised 04/11/2024	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Anthochaera phrygia / Regent Honeyeater		

Additional Information for Approval

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
3444-Lower Hunter Spotted Gum-Ironbark Forest	Not a TEC	0.0	0	0	0

BAM Biodiversity Credit Report (Like for like)

3444-Lower Hunter Spotted Gum-Ironbark Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3444_Low	No	0	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Anthochaera phrygia / Regent Honeyeater	**3444_Low**	0.0	1.00

Credit Retirement Options

Like-for-like credit retirement options

	Spp	IBRA subregion
Anthochaera phrygia / Regent Honeyeater	**Anthochaera phrygia** / Regent Honeyeater	Any in NSW

Appendix D. Photos taken during Microbat survey of roof spaces of buildings proposed to be removed.

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