Flora and Fauna Assessment Report

5 Barrabooka Street, Clontarf NSW 2093

Report prepared by Narla Environmental for

Meline Nazloomian and Andrew Batmanian

November 2024

Report:	Flora and Fauna Assessment Report – 5 Barrabooka Street, Clontarf NSW 2093
Prepared for:	Meline Nazloomian and Andrew Batmanian
Prepared by:	Narla Environmental Pty Ltd
Project No:	MENA1
Date:	November 2024
Version:	Final v1.0

Narla Environmental Pty Ltd
www.narla.com.au

Report Certification

Works for this report were undertaken by:

Staff Name	Position
Chris Moore *BBioCon*	Narla Environmental General Manager/Principal Ecologist
Kayla Spithoven *BSc/BLang*	Narla Environmental Ecologist

Document Control

Revision	Document Name	Issue Date	Internal Document Review
Draft v1.0	Flora and Fauna Assessment Report: 5 Barrabooka Street, Clontarf NSW 2093	September 2024	Chris Moore
Final v1.0	Flora and Fauna Assessment Report: 5 Barrabooka Street, Clontarf NSW 2093	November 2024	Chris Moore

Contents

Tables

Figures

Glossary

Acronym/Term	Definition
BAM	Biodiversity Assessment Methodology
BC Act	New South Wales Biodiversity Conservation Act 2016
CEEC	Critically Endangered Ecological Community
DA	Development Application
DAFF	Federal Department of Agriculture, Fisheries, and Forestry (formerly DAWE)
DAWE	Federal Department of Agriculture, Water, and the Environment (now DAFF)
DCCEEW	Federal Department of Climate Change, Energy, the Environment, and Water
Development	The use of land, and the subdivision of land, and the carrying out of a work, and the demolition of a building or work, and the erection of a building, and any other act, matter, or thing referred to in Section 26 that is controlled by an environmental planning instrument but does not include any development of a class or description prescribed by the regulations for the purposes of this definition (Environmental Planning and Assessment Act 1979)
DPE	Department of Planning and Environment (now NDCCEEW)
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry, and Environment (became DPE, now NDCCEEW)
EEC	Endangered Ecological Community
EP&A Act	Environmental Planning & Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
FFA	Flora and Fauna Assessment
ha	Hectares
km	Kilometre
LGA	Local Government Area
Locality	A 10km x 10km cell centered on the Subject Property
m	metres
MDCP	Manly Development Control Plan 2013
MLEP	Manly Local Environmental Plan 2013
mm	millimetres
Native Vegetation	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) and (d) plants occurring in a wetland.

Acronym/Term	Definition
NDCCEEW	NSW Department of Climate Change, Energy, the Environment, and Water (formerly DPE)
NSW	New South Wales
OEH	Office of Environment and Heritage (became DPE, now NDCCEEW)
SEPP	State Environmental Planning Policy
Subject Property	5 Barrabooka Street, Clontarf NSW 2093 (Lot 15/K/DP2610)
Subject Site	All areas associated with the proposed development.
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

1. Introduction

1.1 Project Background

Narla Environmental Pty Ltd (Narla) was engaged by Squillace Architecture on behalf of Meline Nazloomian and Andrew Batmanian ('the proponents') to undertake a Flora and Fauna Assessment (FFA) for the proposed development at 5 Barrabooka Street, Clontarf NSW 2093 (Lot 15/K/DP2610), hereafter referred to as the 'Subject Property', **Figure 1**). The proposed development involves alterations to an existing dwelling within the Subject Property. All areas associated with the proposed development are hereafter referred to the 'Subject Site' (**Figure 1**, **Appendix C**).

Narla have produced this report in order to assess any potential impacts associated with the proposed development on terrestrial ecology (biodiversity), particularly threatened species, populations, and ecological communities listed under the Biodiversity Conservation Act 2016 (BC Act) and Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). The report will also recommend appropriate measures to mitigate any potential impacts in line with all relevant State Environmental Planning Policies (SEPPs) and local government plans, namely the Manly Local Environmental Plan 2013 (MLEP) and Manly Development Control Plan 2013 (MDCP).

1.2 Site Description and Location

The Subject Property is located on Barrabooka Street in the suburb of Clontarf in the Northern Beaches Local Government Area (LGA) and covers an area of approximately 0.05ha. It currently contains an existing dwelling and associated landscaped garden vegetation. The property boundary has been defined by cadastral boundaries provided on the NSW Government Land & Property Information Spatial Information Exchange map viewer (SIX Maps 2024). The Subject Site is located largely across the existing dwelling and covers an area of approximately 0.03ha.

1.2.1 Topography, Geology, and Soil

The Subject Property is located on a west-facing slope with elevation ranging from approximately 47m above sea level (asl) in the eastern extent to 41m asl in the western extent (Google Earth 2024). The Subject Property is situated on the Lambert soil landscape as indicated on the Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman et al 2009).

The Lambert Soil Landscape is characterized by undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief ranges between 20 – 120 m, slopes are typically 20%. Rock outcrop is typically >50%. Topography comprises of broad ridges, gently to moderately inclined slopes, wide rock benches with low broken scarps, small hanging valleys, and areas of poor drainage. Vegetation is typically comprised of open and closed-heathland, scrub, and occasional low eucalypt open-woodland (Chapman et al 2009).

1.2.2 Hydrology

There are no mapped or unmapped watercourses within the Subject Property.

1.3 Scope of Assessment

The objectives of this flora and fauna assessment were to:

- Establish the likelihood of occurrence of migratory species, threatened species, endangered populations, and threatened ecological communities as listed under the New South Wales BC Act and/or the Commonwealth EPBC Act;
- Assess any potential impacts to species and/or communities listed under the BC Act and EPBC Act;
- Identify and map the distribution of vegetation communities in the Subject Property;
- Record presence and the extent of any known or potential fauna habitat features such as nests, drays, caves, crevices, culverts, pools, soaks, flowering trees, fruiting trees, and hollow-bearing trees and provide recommendations for on-going management of these habitat features and any fauna present;
- Record presence and the extent of any Priority Weeds or weed infestations and provide recommendations for on-going management; and
- Recommend any controls or additional actions to be taken to protect or improve environmental outcomes of the proposed development.

1.4 Study Limitations

This study was not intended to provide a complete inventory of all flora and fauna species with potential to occur on the Subject Property. The species list provided for the site in this report was restricted to what was observed during the site visit by the Narla Ecologist. The timing of the survey may not have coincided with emergence times of some species of flora and fauna, such as seasonally flowering herbs, seasonal migratory fauna, or nocturnal fauna.

To account for those species that could not be identified during the field surveys, detailed habitat assessments were combined with desktop research and local ecological knowledge to establish an accurate prediction of the potential for such species to occur on or adjacent to the Subject Property.

Figure 1. Components of the Subject Site.

1.5 Relevant Legislation and Policy

The legislation and policy that are addressed in this report are listed in **Table 1.**

Table 1. Relevant legislation and policy addressed.

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	All threatened species, populations, and ecological communities and their habitat that occur or are likely to occur within the Subject Property during all or part of their lifecycle.	Yes	This FFA and all subsequent recommendations relevant to the planning process under 'Part 4: Development Assessment and Consent'.
New South Wales Biodiversity Conservation Act 2016 (BC Act)	No BC Act listed threatened communities were observed within the Subject Property during the site assessment. No BC Act listed threatened species were identified within the Subject Property during the site assessment, however suitable habitat was identified.	Yes	This FFA, particularly the likelihood tables for threatened fauna and flora species occurring or potentially occurring within the Subject Property, as well as severity of potential direct and indirect impacts that may occur as a result of the proposed development.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth)	No EPBC Act listed threatened ecological communities were observed within the Subject Property during the site assessment. No EPBC Act listed threatened species were identified within the Subject Property during the site assessment, however suitable habitat was identified.	Yes	This FFA, particularly the likelihood tables for EPBC Act listed fauna and flora species occurring or potentially occurring within the Subject Property, as well as severity of potential direct and indirect impacts that may occur as a result of the proposed development.
Biosecurity Act 2015 (Bio Act)	Two (2) Priority Weeds for the Greater Sydney region were identified within the Subject Property: ▪ *Asparagus aethiopicus* (Ground Asparagus); and ▪ *Olea europaea subsp. cuspidata* (African Olive)	Yes	All Priority Weeds must be managed in accordance with the Biosecurity Act.

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
State Environmental Planning Policy (Biodiversity and Conservation) 2021 – Chapter 4 Koala Habitat Protection 2021	The Subject Property is located in an LGA listed in Schedule 2 of the SEPP, however it does not encompass an area greater than 1ha. Therefore, this chapter of the SEPP does not apply.	No	None.
State Environmental Planning Policy (Resilience and Hazards) 2021 – Chapter 2 Coastal Management	The Subject Property mapped as occurring within both 'Coastal Use Area' and 'Coastal Environment Area'; therefore, this chapter in the SEPP applies to the proposed development.	Yes	The proposed development has taken factors of surrounding coastal and built environment, and the bulk, scale, and size into account. Therefore, no further action should be required if factors outlined in Section 1.7 have been accounted for.
Fisheries Management Act 1994 (FM Act)	No areas within the Subject Property are listed as Key Fish Habitat under the FM Act.	No	None.
Water Management Act 2000	No mapped hydrolines occur within or in close proximity to the Subject Property.	No	None.

1.6 Biodiversity Assessment Pathway

The requirements of the BC Act and Biodiversity Conservation Regulation 2017 are mandatory for all development applications assessed pursuant to Part 4 of the EP&A Act submitted in the Northern Beaches LGA.

The Biodiversity Values (BV) Map (NDCCEEW 2024a) identifies land with high biodiversity values that are particularly sensitive to impacts from development and clearing. The map forms part of the Biodiversity Offsets Scheme Entry Threshold which is one of the triggers for determining whether the Biodiversity Offset Scheme (BOS) applies to a clearing or development proposal. The map has been prepared by the Department of Planning and Environment (DPE) under Part 7 of the Biodiversity Conservation Act 2016 (BC Act). The Subject Property does not contain areas identified on the Biodiversity Values Map at the time of preparing this report.

The BC Act and its regulations also stipulate clearing 'area threshold' values (**Table 2**) that determine whether a development is required to be assessed in accordance with the 'Biodiversity Offset Scheme' (BOS). Minimum entry thresholds for vegetation clearing depend on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

The minimum lot size prescribed to the Subject Property is 1150m². To avoid triggering the BOS the proponent must avoid the clearing/management of native vegetation in excess of 0.25ha (**Table 2**). The entire Subject Property only encompasses an area of approximately 0.05ha, therefore the clearing threshold cannot be reached.

Therefore, the Biodiversity Offset Scheme is not triggered and a Biodiversity Development Assessment Report (BDAR) is not required. As such, a standard Flora and Fauna Assessment Report (this report) has been produced to assess the impact of the proposed DA.

Table 2. Biodiversity Offset Scheme Entry Thresholds. Bold text indicates the clearing threshold applicable to the proposed development.

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	**0.25 ha or more**
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

1.7 State Environmental Planning Policy (Resilience and Hazards) 2021 – Chapter 2 Coastal Management

This chapter of the SEPP aims promote an integrated and coordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016. The Subject Property falls within the 'Coastal Use Area' and 'Coastal Environmental Area' mapping (**Figure 2**), therefore Division 4 of Chapter 2 is applied to the development.

Division 4 states development consent must not be granted to development on land that is within the coastal use area unless the consent authority—

- (a) has considered whether the proposed development is likely to cause an adverse impact on the following—
    - (i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
    - (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,
    - (iii) the visual amenity and scenic qualities of the coast, including coastal headlands,
    - (iv) Aboriginal cultural heritage, practices and places,
    - (v) cultural and built environment heritage, and
- (b) is satisfied that—
    - (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or
    - (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
    - (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and
- (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.

The proposed development has taken into account the surrounding coastal and built environment, and the bulk, scale, and size of the proposed development, therefore no further action should be required.

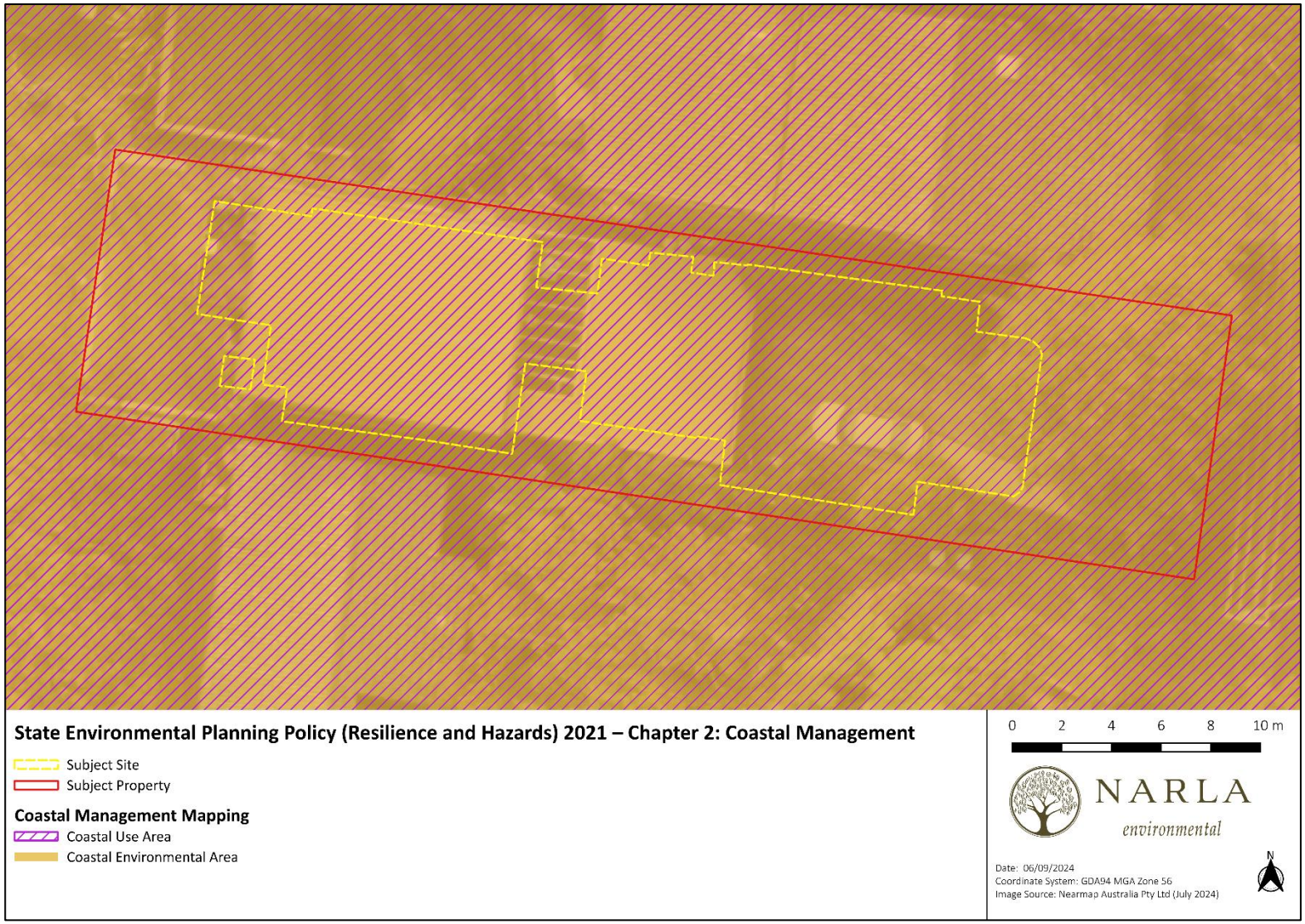


Figure 2. State Environmental Planning Policy (Resilience and Hazards) 2021 - Chapter 2: Coastal Management Mapping within and around the Subject Property.

1.8 Manly Local Environmental Plan 2013 (MLEP)

1.8.1 Zoning

The Subject Property is contained within land zoned as 'C3: Environmental Management'. The Manly LEP requires that the development satisfies this zone objectives which are as follows:

- To protect, manage, and restore areas with special ecological, scientific, cultural, or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.
- To protect tree canopies and provide for low impact residential uses that does not dominate the natural scenic qualities of the foreshore.
- To ensure that development does not negatively impact on nearby foreshores, significant geological features, and bushland, including loss of natural vegetation.
- To encourage revegetation and rehabilitation of the immediate foreshore, where appropriate, and minimise the impact of hard surfaces and associated pollutants in stormwater runoff on the ecological characteristics of the locality, including water quality.
- To ensure that the height and bulk of any proposed buildings or structures have regard to existing vegetation, topography, and surrounding land uses.

1.8.2 Terrestrial Biodiversity

The Subject Property contains land mapped as 'Terrestrial Biodiversity' under Clause 6.5 of the Manly LEP (**Figure 3**). Therefore, this clause applies to the proposed development.

The objective of this clause is to maintain terrestrial biodiversity by:

- protecting native fauna and flora, and
- protecting the ecological processes necessary for their continued existence, and
- encouraging the conservation and recovery of native fauna and flora and their habitats.

Before determining a development application for development on land to which this clause applies, the consent authority must consider:

- whether the development is likely to have:
    - any adverse impact on the condition, ecological value, and significance of the fauna and flora on the land, and
    - any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and
    - any potential to fragment, disturb, or diminish the biodiversity structure, function, and composition of the land, and
    - any adverse impact on the habitat elements providing connectivity on the land, and
- any appropriate measures proposed to avoid, minimise, or mitigate the impacts of the development.

Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

- the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
- if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited, and will be managed to minimise that impact, or
- if that impact cannot be minimised—the development will be managed to mitigate that impact.

The proposed development is unlikely to have significant adverse environmental impact. The proposed works are situated largely within the area covered by an existing dwelling and any impacts to vegetation will be restricted to exotic-dominated landscaped vegetation.

1.9 Manly Development Control Plan 2013 (MDCP)

1.9.1 Clause 3.3.2: Preservation of Trees or Bushland Vegetation

The objectives of this clause are as follows:

- To protect and enhance the urban forest of the Northern Beaches.
- To effectively manage the risks that come with an established urban forest through professional management of trees.
- To minimise soil erosion and to improve air quality, water quality, carbon sequestration, storm water retention, energy conservation, and noise reduction.
- To protect and enhance bushland that provides habitat for locally native plant and animal species, threatened species populations, and endangered ecological communities.
- To promote the retention and planting of trees which will help enable plant and animal communities to survive in the long term.
- To protect and enhance the scenic value and character that trees and/or bushland vegetation provide.

This development will not significantly impact any vegetation or potential foraging habitat within the Subject Property beyond the removal of small amounts of exotic-dominated landscaped vegetation.

1.9.2 Clause 5.4.2: Threatened Species and Critical Habitat Lands

Any development of land with known habitat for threatened species must consider the likely impacts of the development and whether further assessment needs to be undertaken by a Species Impact Statement. According to the Manly DCP, any DA on land identified in Schedule 1 - Map D, being land generally to the south-east of Ashburner Street, Manly and including North Head must be accompanied by an Assessment of Significance Report ('7 Part Test') under Section 5A Environmental Planning and Assessment Act 1979. Critical habitat for the Little Penguin (*Eudyptula minor*) and habitat for the Long-nosed Bandicoot (threatened species) is prescribed in the Threatened Species and Conservation Act 1995 (now Biodiversity Conservation Act 2016).

The Subject Property does not fall within the land covered by Schedule 1 – Map D, therefore no Assessment of Significance Report is required. It is considered unlikely that the proposed development will have significant impact on any locally-occurring populations of Little Penguins or Long-nosed Bandicoots. The development is largely concentrated on the site of the existing dwelling within the Subject Property and any impacts to vegetation will be restricted to small amounts of exotic-dominated landscaped species.

Figure 3. Terrestrial Biodiversity Mapping within and around the Subject Property.

2. Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Northern Beaches LGA was undertaken. Searches using NSW Wildlife Atlas (BioNet; NDCCEEW 2024b) and the Commonwealth Protected Matters Search Tool (DCCEEW 2024) were conducted to identify all current threatened flora and fauna, as well as migratory fauna records within a 10km x 10km cell search area centered on the Subject Property. These data were used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent to the Subject Property and helped inform our Ecologist on what to look for during the site assessment.

Soil landscape and geological mapping was examined to gain an understanding of the environment on the Subject Property and assist in determining whether any threatened flora or ecological communities may occur there (Chapman et al. 2009).

2.2 Ecological Site Assessment

2.2.1 General Survey

A site assessment was undertaken on Friday the 30th of August by Narla Ecologist Kayla Spithoven. During the site assessment, the following activities were undertaken:

- Identifying and recording the vegetation communities present on the Subject Property, with focus on identifying any threatened ecological communities (TEC);
- Recording a list of flora species encountered on the Subject Property, with a focus on threatened species, species diagnostic of threatened ecological communities, and Priority Weeds;
- Identifying the potential for Core Koala Habitat;
- Recording opportunistic sightings of any fauna species seen or heard on or within the immediate surrounds of the Subject Property;
- Targeted surveys for threatened flora;
- Identifying and recording the locations of notable fauna habitat such as important nesting, roosting, or foraging microhabitats;
- Targeting the habitat of any threatened and regionally significant fauna including:
    - Tree hollows (habitat for threatened large forest owls, parrots, cockatoos, and arboreal mammals);
    - Caves and crevices (habitat for threatened reptiles, small mammals, and microbats);
    - Termite mounds (habitat for threatened reptiles);
    - Soaks (habitat for threatened frogs);
    - Wetlands (habitat for threatened fish, frogs, and water birds);
    - Drainage lines (habitat for threatened fish and frogs);
    - Fruiting trees (food for threatened frugivorous birds and mammals);
    - Flowering trees (food for threatened nectivorous mammals and birds);
    - Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals); and
    - Any other habitat features that may support fauna (particularly threatened) species.
- Assessing the connectivity and quality of the vegetation within the Subject Property and surrounding area.

2.2.2 Weather Conditions

Weather conditions recorded at the nearest weather station, Sydney Harbour AWS (Station 066196), prior to and during the general flora and fauna survey period are provided in **Table 3** (BOM 2024). The data revealed warm temperatures but no rainfall in the lead up to the site assessment. These weather conditions may not have been conducive to the emergence of annual flora.

Table 3. Weather conditions for Sydney Harbour AWS (Station 066196) preceding and during the survey period (survey dates in bold).

Survey Date	Day	Minimum Temp. (°C)	Maximum Temp. (°C)	Rainfall (mm)
24/08/2024	Saturday	14.8	26.5	0.0
25/08/2024	Sunday	17.2	22.6	0.0
26/08/2024	Monday	17.7	21.3	0.0
27/08/2024	Tuesday	12.7	23.8	0.0
28/08/2024	Wednesday	15.0	28.1	0.0
29/08/2024	Thursday	15.9	22.9	0.0
30/08/2024	**Friday**	**16.4**	**30.4**	**0.0**

2.3 Mapping and Analysis of Vegetation Communities

Narla examined local satellite imagery, geological mapping, soil landscape mapping, and topographic mapping, in addition to existing vegetation mapping, to stratify the Subject Property and guide the site assessment survey efforts. The following documents were consulted during assessment to assist with the identification of vegetation communities present within the Subject Property:

- eSPADE v2.2 (NDCCEEW 2024d);
- Chapman G.A., Murphy C.L., Tille P.J., Atkinson G. and Morse R.J., 2009, Soil Landscapes of the Sydney 1:100,000 Sheet map, Ed. 4, Department of Environment, Climate Change and Water, Sydney; and
- Department of Planning and Environment (DPE) (2022) NSW State Vegetation Type Map.

2.4 Impact Assessment

Locally occurring threatened species were assessed for their potential to occur within the Subject Property (**Table 5; Table 7**). Owing to the small scale of development and/or the lack of suitable habitat within the Subject Property for these species, it was determined that no further impact assessment (Test of Significance; 5-part Test) was required.

3. Native Vegetation

3.1 Vegetation Communities

3.1.1 Historically Mapped Vegetation Communities

Vegetation mapping from the State Vegetation Type Map (DPE 2022) indicated the presence of two (2) vegetation communities within and surrounding the Subject Property (**Figure 4**):

- PCT 3594 - Sydney Coastal Sandstone Foreshores Forest
- Unmapped Vegetation

3.1.2 Field Validated Vegetation Communities

The field survey conducted by the Narla Ecologist identified one (1) vegetation community within the Subject Property:

- Exotic Landscaped Vegetation

The vegetation community found within the Subject Property is detailed in **Table 4** and displayed in **Figure 5**.

Figure 4. Historical Vegetation Mapping within and around the Subject Property.

Figure 5: Field-validated Mapping within the Subject Property.

Table 4. Description of Exotic Landscaped Vegetation identified within the Subject Property.

Exotic Landscaped Vegetation	
	
Extent within the Subject Property (approximate)	0.02ha
Description of the Vegetation within the Subject Property	
This vegetation community dominated the Subject Property and consisted of sporadic exotic trees above a largely degraded and exotic-dominated groundlayer. One exotic canopy tree was of the species *Sequoia sempervirens* (California Redwood). Midstorey species were almost entirely exotic and included *Cycas revoluta* (Sago Palm), *Agapanthus praecox* (Blue Lily), *Camellia oleifera* (Tea Oil Camellia), *Duranta erecta* (Golden Dewdrop), *Magnolia grandiflora* (Southern Magnolia), *Ageratina riparia* (Mistflower), *Cyathea spp.* (Tree Fern), and *Monstera deliciosa* (Split-leaf Philodendron). Groundlayer species were also exotic-dominated and included *Cenchrus clandestinus* (Kikuyu), *Hypochaeris glabra* (Smooth Catsear), *Nephrolepis cordifolia* (Fishbone Fern), *Mentha spicata* (Spearmint), *Taraxacum spp.* (Dandelion), *Euphorbia oblongata* (Oblong Spurge), *Stellaria media* (Chickweed), and *Briza minor* (Shivery Grass). The Priority Weeds *Asparagus asparagoides* (Ground Asparagus) and *Olea europaea subsp. cuspidata* (African Olive) were also found within this zone.	
Justification of Vegetation Community	This vegetation community lacked a native canopy and consisted of an exotic, largely planted shrub layer and groundcover layer. As the vegetation could not be assigned to a locally occurring vegetation community it has been classified as Exotic Landscaped Vegetation.
BC Act Status	Not Listed.
EPBC Act Status	Not Listed.

4. Threatened Species

4.1 Threatened Flora

Desktop analysis revealed a range of threatened flora as occurring or having the potential to occur on or within a 10km x 10km cell centered on the Subject Property. Thorough targeted surveys were undertaken throughout the Subject Property for potentially occurring threatened flora whose survey period coincided within the time of the site assessment (**Figure 6**). No threatened flora were identified at the time of the site assessment.

A comprehensive list of flora species identified during the site assessment is presented in **Appendix A**. The following locally occurring species were assessed for their potential to occur within the Subject Property (**Table 5**). Based on unsuitable habitat, geographic distribution, and/or the small scale of the development, it was determined that the proposed works are unlikely to significantly impact upon these species. Therefore, no further assessment of impacts pursuant the BC Act (e.g. Biodiversity Development Assessment Report [BDAR]) and/or EPBC Act Referral to Commonwealth will be required.

Table 5. Threatened Flora Likelihood of Occurrence within the Subject Property.

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
Acacia bynoeana (Bynoe's Wattle)	Endangered	Vulnerable	This species occurs in heath or dry sclerophyll forest on sandy soils. Associated overstorey species include *Corymbia gummifera*, *Eucalyptus haemastoma*, *Eucalyptus parramattensis*, *Banksia serrata* and *Angophora bakeri*.	**Absent.** No associated trees were present within the Subject Property, and the shrub and ground layers are highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Acacia terminalis subsp. Eastern Sydney (Sunshine Wattle)	Endangered	Endangered	Occurs in coastal scrub and dry sclerophyll woodland on sandy soils. Very limited distribution, mainly in near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay, with most records from the Port Jackson area and the eastern suburbs of Sydney.	**Low.** The Subject Property does not contain coastal scrub and dry sclerophyll woodland on sandy soils, and the shrub and ground layers are highly modified. The presence of this species is therefore unlikely.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
Asterolasia buxifolia	Critically Endangered	Critically Endangered	This species is only known from a single site associated with granite geology in the riparian zone of the Lett River.	**Low.** The Subject Property is not associated with granite geology and does not fall close to the known distribution of this species. Given the species' highly constrained range, its presence within the Subject Property is highly unlikely.	No
Asterolasia elegans	Endangered	Endangered	Occurs on Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest. The canopy at known sites includes *Syncarpia glomulifera subsp. glomulifera*, *Angophora costata*, *Eucalyptus piperita*, *Allocasuarina torulosa* and *Ceratopetalum gummiferum*.	**Low.** The Subject Property does not contain sheltered forest on Hawkesbury sandstone habitat and the shrub and ground layers are highly modified. The presence of this species is therefore unlikely.	No
Caladenia tessellata (Thick Lip Spider Orchid)	Vulnerable	Vulnerable	Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Grows in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	**Low.** The Subject Property does not contain grassy sclerophyll woodland habitat and the shrub and ground layers are highly modified. The presence of this species is therefore unlikely.	No
Callistemon linearifolius (Netted Bottle Brush)	Vulnerable	-	Grows in dry sclerophyll forest on the coast and adjacent ranges. There are currently only 5-6 populations remaining from the 22 populations historically recorded in the Sydney area. Three of the remaining populations are reserved in Ku-ring-gai Chase National Park, Lion Island Nature Reserve, and Spectacle Island Nature Reserve. The species has also been recorded from Yengo National Park.	**Low.** The Subject Property is does not contain dry sclerophyll forest habitat and does not fall close to the known distribution of this species. Given the species' highly constrained range, its presence within the Subject Property is highly unlikely.	No
Chamaesyce psammogeton (Sand Spurge)	Endangered	-	Grows on fore-dunes, pebbly strandlines, and exposed headlands, often with *Spinifex sericeus* and *Zoysia macrantha*.	**Absent.** The Subject Property does not contain fore-dunes, pebbly strandlines, or exposed headlands. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
Cryptostylis hunteriana (Leafless Tongue Orchid)	Vulnerable	Vulnerable	Typically occur in woodland dominated by *Eucalyptus sclerophylla*, *E. sieberi*, *Corymbia gummifera* and *Allocasuarina littoralis*; appears to prefer open areas in the understorey of this community and is often found in association with *C. subulata* and *C. erecta*.	**Low.** The Subject Property does not contain woodland habitat or any associated overstorey species, making the presence of this species unlikely.	No
Epacris purpurascens var. purpurascens	Vulnerable	-	Found in a range of habitat types, most of which have a strong shale soil influence. Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South.	**Low.** The Subject Property is not located on shale soil, making the presence of this species unlikely.	No
Eucalyptus camfieldii (Camfield's Stringybark)	Vulnerable	Vulnerable	Occurs mostly in small scattered stands near the boundary of tall coastal heaths and low open woodland of the slightly more fertile inland areas. Associated species frequently include stunted species of *Eucalyptus oblonga*, *E. capitellata,* and *E. haemastoma*.	**Absent.** No associated species were present within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Genoplesium baueri (Bauer's Midge Orchid)	Endangered	Endangered	Grows in dry sclerophyll forest and moss gardens over sandstone.	**Low.** The Subject Property does not contain dry sclerophyll forest or moss garden habitat and the shrub and ground layers are highly modified. The presence of this species is therefore unlikely.	No
Grammitis stenophylla (Narrow-leaf Finger Fern)	Endangered	-	Moist places, usually near streams, on rocks in rainforest and dry and moist eucalypt forest.	**Absent.** No suitable habitat was found within the Subject Property for this species. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Grevillea caleyi (Caley's Grevillea)	Critically Endangered	Critically Endangered	This species is restricted to an 8km square area around Terrey Hills. All sites occur on the ridgetop between elevations of 170 to 240m above sea level, in association with laterite soils and a vegetation community of open forest, generally dominated by *Eucalyptus sieberi* and *E.*	**Absent.** No suitable habitat was found within the Subject Property for this species. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
			gummifera. Commonly found in the endangered Duffys Forest ecological community.		
Hibbertia superans	Endangered	-	Occurs in Riparian Scrub - e.g. *Tristaniopsis laurina, Baeckea myrtifolia*; Woodland - e.g. *Eucalyptus haemastoma*; and Open Forest - e.g. *Angophora costata, Leptospermum trinervium, Banksia ericifolia.*	**Absent.** No suitable habitat was found within the Subject Property for this species. Furthermore, a targeted survey was conducted during the approved survey period for this species (July – December) and no individuals were identified.	No
Lasiopetalum joyceae	Vulnerable	Vulnerable	Grows in heath on sandstone. Has a restricted range occurring on lateritic to shaley ridgetops on the Hornsby Plateau south of the Hawkesbury River.	**Low.** The Subject Property does not contain heath on sandstone and does not fall within the known distribution of this species, making its presence highly unlikely.	No
Melaleuca biconvexa (Biconvex Paperbark)	Vulnerable	Vulnerable	Generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	**Absent.** No suitable habitat was found within the Subject Property for this species. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Melaleuca deanei (Deane's Paperbark)	Vulnerable	Vulnerable	The species occurs mostly in ridgetop woodland, with only 5% of sites in heath on sandstone. Flowers appear in summer but seed production appears to be small and consequently the species exhibits a limited capacity to regenerate.	**Absent.** No suitable habitat was found within the Subject Property for this species. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Microtis angusii (Angus's Onion Orchid)	Endangered	Endangered	All currently known records of the species are located within Northern Beaches LGA in disturbed areas, with most individuals recorded in road verges. Occurs on soils that have been modified but were originally those of the restricted ridgetop lateritic soils in the Duffys Forest - Terrey Hills - Ingleside and Belrose areas. These soils support a specific and distinct vegetation type, the Duffys	**Low.** The Subject Property does not occur on the restricted ridgetop lateritic soils required by this species or contain the vegetation type Duffys Forest. Given the limited distribution of this species, it is unlikely that this species would be present within the Subject Property.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
			Forest Vegetation Community, which ranges from open forest to low open forest and rarely woodland.		
Persoonia hirsuta (Hairy Geebung)	Endangered	Endangered	Found in clayey and sandy soils in dry sclerophyll open forest, woodland, and heath, primarily on the Mittagong Formation and on the upper Hawkesbury Sandstone. It is usually present as isolated individuals or very small populations.	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Pimelea curviflora var. curviflora	Vulnerable	Vulnerable	Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. Also recorded in Illawarra Lowland Grassy Woodland habitat at Albion Park on the Illawarra coastal plain.	**Low.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified, making the presence of this species unlikely.	No
Prasophyllum fuscum (Slaty Leek Orchid)	Critically Endangered	Vulnerable	This species grows in moist heath, often along seepage lines. The known population grows in moist sandy soil over sandstone amongst sedges and grasses in an area that appears to be regularly slashed by the local council. The original type specimen for this species is from moist meadows towards the Georges River, however the species is thought to be now extinct from this area.	**Low.** No moist heath habitat, moist meadows, or seepage lines are present within the Subject Property, making the presence of this species unlikely.	No
Prostanthera marifolia (Seaforth Mintbush)	Critically Endangered	Critically Endangered	This species is currently only known from the northern Sydney suburb of Seaforth and has a very highly restricted distribution within the Sydney Basin Bioregion. The single population is fragmented by urbanisation into three small sites. All known sites are within an area of 2x2 km. The sites are within the local government area of Northern Beaches Council. Occurs in localised patches in or in close proximity to the endangered Duffys Forest	**Absent.** The Subject Site does not fall within the known distribution area of this species and no associated vegetation or soil types are present. A targeted survey was conducted within the approved survey period for this species (Year-Round), and the species was not detected.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
			ecological community. Located on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses, a soil type which only occurs on ridge tops and has been extensively urbanised.		
Prostanthera densa (Villous Mint-bush)	Vulnerable	Vulnerable	Grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea.	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Rhodamnia rubescens (Scrub Turpentine)	Critically Endangered	Critically Endangered	Occurs in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Rhodomyrtus psidioides (Native Guava)	Critically Endangered	Critically Endangered	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW.	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Sarcochilus hartmannii	Vulnerable	Vulnerable	Favours cliff faces on steep narrow ridges supporting eucalypt forest and clefts in volcanic rock from 500 to 1,000 m in altitude. Also found occasionally at the bases of fibrous trunks of trees, including cycads and grass-trees. Found from the Richmond River in northern NSW to Gympie in south-east Queensland.	**Low.** No suitable habitat was found within the Subject Property for this species and the site falls far outside the species' known distribution, making its presence highly unlikely.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
Senecio spathulatus	Endangered	-	Typically grows on frontal dunes. Occurs in Nadgee Nature Reserve (Cape Howe) and between Kurnell in Sydney and Myall Lakes National Park (with a possible occurrence at Cudmirrah).	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No
Syzygium paniculatum (Magenta Lilly Pilly)	Endangered	Vulnerable	On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	**Low.** The Subject Property does not contain littoral rainforest habitat, making the presence of this species unlikely.	No
Tetratheca glandulosa	Vulnerable	-	Associated with shale-sandstone transition habitat where shale-cappings occur over sandstone. Topographically, the plant occupies ridgetops, upper-slopes, and to a lesser extent mid-slope sandstone benches. Vegetation structure varies from heaths and scrub to woodlands/open woodlands, and open forest.	**Absent.** No suitable habitat was found within the Subject Property for this species and the vegetation was highly modified. Furthermore, a targeted survey was conducted during the approved survey period for this species (August – November) and no individuals were identified.	No
Tetratheca juncea	Vulnerable	Vulnerable	Confined to the northern portion of the Sydney Basin bioregion and the southern portion of the North Coast bioregion in the local government areas of Wyong, Lake Macquarie, Newcastle, Port Stephens, Great Lakes and Cessnock. It is usually found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest. The majority of populations occur on low nutrient soils associated with the Awaba Soil Landscape.	**Low.** No associated vegetation types or soil landscape are present within the Subject Property for this species, and the property does not fall within any known LGAs for species distribution, making its presence highly unlikely.	No

Species	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence within the Subject Property	Further Impact Assessment Required?
Thesium australe (Austral Toadflax)	Vulnerable	Vulnerable	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands.	**Low.** The Subject Property does not contain grassland or grassy woodland habitat. Given the species' constrained distribution, its presence within the Subject Property is highly unlikely.	No
Triplarina imbricata (Creek Triplarina)	Endangered	Endangered	Occurs along watercourses in low open forest with Water Gum (*Tristaniopsis laurina*) or in montane bogs, often with *Baekea amissa*. Found only in a few locations in the escarpment ranges and near Tabulam in north-east NSW.	**Absent.** No watercourse or bog habitat is present within the Subject Property and no associated species are present. Furthermore, a targeted survey was conducted during the approved survey period for this species (Year-Round) and no individuals were identified.	No

4.2 Threatened Fauna Species

Details of the fauna habitat recorded within the Subject Property are included in Table 6. The likelihood of occurrence of threatened fauna species within the Subject Property is presented in Table 7.

Furthermore, based on unsuitable habitat, geographic distribution, and/or the disturbed nature of the Subject Property, it was determined that the proposed works are unlikely to significantly impact upon a local viable population or occurrence of any other threatened species. Therefore, no BDAR or EPBC Act Referral to the Commonwealth is required for the proposed development.

A small suite of fauna species were identified within and surrounding the Subject Property during the site assessment. All native fauna species encountered were listed as 'protected' under the BC Act. The list of fauna recorded during the site visit was produced opportunistically (Appendix B).

Table 6. Fauna habitat values identified within and surrounding the Subject Property.

Habitat Component	Site Values
Coarse woody debris	Absent.
Rock outcrops, bush rock, caves, crevices, and overhangs	Absent.
Culverts, bridges, mine shafts, or abandoned structures	Absent.
Nectar/lerp-bearing trees	Absent.
Nectar-bearing shrubs	Absent.
Large stick nests	Absent.
Sap and gum sources	Absent.
She-oak fruit (Glossy Black Cockatoo feed)	Absent.
Soft-fruit-bearing trees	Present. Exotic fruit-bearing trees occur within the Subject Property.
Dense shrubbery and leaf litter	Present. Leaf litter was present within the Subject Property.
Tree hollows	Absent.
Decorticating bark	Present.
Wetlands, soaks, and streams	Absent.
Open water bodies	Absent.
Estuarine, beach, mudflats, and rocky foreshores	Absent.

4.2.1 Migratory Fauna Species

Desktop analysis revealed the following EPBC Act listed migratory terrestrial fauna species as having the potential to utilize habitat within the Subject Property (e.g. foraging or passage) during part of their lifecycles:

- *Actitis hypoleucos* (Common Sandpiper);
- *Anous stolidus* (Common Noddy);
- *Apus pacificus* (Fork-tailed Swift);
- *Ardenna carneipes* (Flesh-footed Shearwater);
- *Ardenna grisea* (Sooty Shearwater);
- *Calidris acuminata* (Sharp-tailed Sandpiper);
- *Calidris canutus* (Red Knot);
- *Calidris ferruginea* (Curlew Sandpiper);
- *Calidris melanotos* (Pectoral Sandpiper);
- *Calonectris leucomelas* (Streaked Shearwater);
- *Charadrius leschenaultii* (Greater Sand Plover);
- *Cuculus optatus* (Oriental Cuckoo);
- *Diomedea antipodensis* (Antipodean Albatross);
- *Diomedea epomophora* (Southern Royal Albatross);
- *Diomedea exulans* (Wandering Albatross);
- *Diomedea sanfordi* (Northern Royal Albatross);
- *Fregata ariel* (Lesser Frigatebird);
- *Fregata minor* (Great Frigatebird);
- *Gallinago hardwickii* (Latham's Snipe);
- *Limosa lapponica* (Bar-tailed Godwit);
- *Macronectes giganteus* (Southern Giant Petrel);
- *Macronectes halli* (Northern Giant Petrel);
- *Monarcha melanopsis* (Black-faced Monarch);
- *Motacilla flava* (Yellow Wagtail);
- *Myiagra cyanoleuca* (Satin Flycatcher);
- *Phaethon lepturus* (White-tailed Tropicbird);
- *Rhipidura rufifrons* (Rufous Fantail);
- *Sternula albifrons* (Little Tern);
- *Symposiachrus trivirgatus* (Spectacled Monarch);
- *Symposiachrus trivirgatus* (Spectacled Monarch);
- *Thalassarche bulleri* (Buller's Albatross);
- *Thalassarche carteri* (Indian Yellow-nosed Albatross);
- *Thalassarche cauta* (Shy Albatross);
- *Thalassarche eremita* (Chatham Albatross);
- *Thalassarche impavida* (Campbell Albatross);
- *Thalassarche melanophrys* (Black-browed Albatross);
- *Thalassarche salvini* (Salvin's Albatross);
- *Thalassarche steadi* (White-capped Albatross); and
- *Tringa nebularia* (Common Greenshank).

It was determined that the proposed works are unlikely to have a significant impact on these species. Therefore, a Referral to Commonwealth pursuant to the EPBC Act is not required.

Table 7. Threatened Fauna Likelihood of Occurrence within the Subject Property.

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Anseranas semipalmata (Magpie Goose)	V	-	Low	Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Activities are centred on wetlands, mainly those on floodplains of rivers and large shallow wetlands formed by run-off. No suitable habitat was found within the Subject Property.	Breeding can occur in both summer and winter dominated rainfall areas and is strongly influenced by water level; most breeding now occurs in monsoonal areas; nests are formed in trees over deep water. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Anthochaera phrygia (Regent Honeyeater)	CE	CE	Low	A generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. For example, the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events. No suitable habitat was found within the Subject Property.	This species typically occupies woodlands that have a significantly large number of mature trees, high canopy cover and abundance of mistletoes. There are only four known breeding areas in NSW – Capertee Valley, Lower Hunter Valley, Mudgee/Wollar, and Bundarra-Barraba regions. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species. The Subject Property is not mapped on the Important Areas Map for this species.	No
Artamus cyanopterus (Dusky Woodswallow)	V	-	Low	Inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias, and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also	Nest is an open, cup-shape, made of twigs, grass, fibrous rootlets and occasionally casuarina needles, and may be lined with grass, rootlets or infrequently horsehair, occasionally unlined. Nest sites	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. No suitable habitat was found within the Subject Property.	vary greatly, but generally occur in shrubs or low trees, living or dead, horizontal or upright forks in branches, spouts, hollow stumps or logs, behind loose bark or in a hollow in the top of a wooden fence post. Nest sites may be exposed or well concealed by foliage. No nests were identified within the Subject Property.		
Botaurus poiciloptilus (Australasian Bittern)	E	E	Low	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha* spp.) and spikerushes (*Eleocharis* spp.). No suitable habitat was found within the Subject Property.	Nests are built in secluded places in densely-vegetated wetlands on a platform of reeds. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Burhinus grallarius (Bush Stone-curlew)	E	-	Low	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. No suitable habitat was found within the Subject Property.	Nest on the ground in a scrape or small bare patch. No nests were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Callocephalon fimbriatum (Gang-gang Cockatoo)	E	E	Low	Generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. Feeds mainly on seeds	Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 10cm in diameter or larger and at least 9m above the ground in eucalypts. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				of native and introduced trees and shrubs, with a preference for Eucalypts, Wattles and introduced Hawthorns. No suitable habitat was found within the Subject Property.			
Calyptorhynchus lathami (Glossy Black-Cockatoo)	V	V	Low	This species feeds almost exclusively on the seeds of several species of she-oak (Casuarina and Allocasuarina species). Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she-oak occur. No suitable habitat was found within the Subject Property.	Dependent on large hollow-bearing eucalypts for nest sites. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Cercartetus nanus (Eastern Pygmy-possum)	V	-	Low	Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. They may occupy small patches of vegetation in fragmented landscapes and although the species prefers habitat with a rich shrub understory, they are known to occur in grassy woodlands and the presence of Eucalypts alone is sufficient to support populations in low densities. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; soft fruits are eaten when flowers are	Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (Pseudocheirus peregrinus) dreys or thickets of vegetation, (e.g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development. No anticipated impact to potential breeding habitat.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				unavailable. Also feeds on insects throughout the year. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.			
Chalinolobus dwyeri (Large-eared Pied Bat)	E	E	Low	Found mainly in areas with extensive cliffs, caves and well-timbered areas containing gullies. Likely to hibernate through the coolest months. This species probably forages for small, flying insects below the forest canopy. No suitable habitat was found within the Subject Property.	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Climacteris picumnus victoriae (Brown Treecreeper (eastern subspecies))	V	V	Low	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (*Eucalyptus camaldulensis*) Forest bordering wetlands with an open	Hollows in standing dead or live trees and tree stumps are essential for nesting. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains. No suitable habitat was found within the Subject Property.			
Daphoenositta chrysoptera (Varied Sittella)	V	-	Low	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. No suitable habitat was found within the Subject Property.	This species builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years. No nests were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Dasyornis brachypterus (Eastern Bristlebird)	E	E	Low	Habitat for central and southern populations is characterised by dense, low vegetation including heath and open woodland with a heathy understorey. In northern NSW the habitat occurs in open forest with dense tussocky grass understorey and sparse mid-storey near rainforest ecotone; all of these vegetation types are fire prone. Feeds on a variety of insects, particularly ants. No suitable habitat was found within the Subject Property.	Nests are elliptical domes constructed on or near the ground amongst dense vegetation. No nests were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Dasyurus maculatus (Spotted-tailed Quoll)	V	E	Low	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Consumes a variety of prey, including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, reptiles and insects. Also eats carrion and takes domestic fowl. Potential prey items may occur within the Subject Property.	This species uses hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development. No anticipated impact to potential breeding habitat.	No
Erythrotriorchis radiatus (Red Goshawk)	E	E	Low	Inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred	Build stick nests in a tall tree (>20 m tall) within 1 km of a watercourse or wetland. No nests were identified within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalypt forest of coastal rivers. Potential prey items may occur within the Subject Property.		potential breeding habitat. Site assessment in August 2024 did not detect this species.	
Falco hypoleucos (Grey Falcon)	V	V	Low	Usually restricted to shrubland, grassland, and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Potential prey items may occur within the Subject Property.	Utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse. No nests were identified within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No
Falsistrellus tasmaniensis (Eastern False Pipistrelle)	V	-	Low	Prefers moist habitats, with trees taller than 20 m. Hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. No suitable habitat was found within the Subject Property.	Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Some potential habitat is present within the Subject Property in the form of existing buildings which will be retained throughout development (with minor alterations).	No anticipated impact to potential foraging habitat. Minor impact to potential breeding habitat due to the proposed works, however the habitat is of low quality, the scale of impact is very small, and large regions of superior habitat will remain in the broader locality.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Grantiella picta (Painted Honeyeater)	V	V	Low	Inhabits Boree/ Weeping Myall and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*. Insects and nectar from mistletoe or eucalypts are occasionally eaten. No suitable habitat was found within the Subject Property.	Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches. No nests were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Glossopsitta pusilla (Little Lorikeet)	V	-	Low	Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in Angophora, Melaleuca, and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.	Nests in proximity to feeding areas, if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3cm) and usually high above the ground (2–15m). No tree hollows were identified within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Haliaeetus leucogaster (White-bellied Sea-Eagle)	V	-	Low	Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Some potential habitat may be present within the Subject Property.	Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nests are large structures built from sticks and lined with leaves or grass. No nests were identified within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No
Heleioporus australiacus (Giant Burrowing Frog)	V	V	Low	Whilst in non-breeding habitat (within 300m of creeks), this species burrows below the soil surface or in the leaf litter near creeks. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. It has a generalist diet of invertebrates including ants, beetles, cockroaches, spiders, centipedes and scorpions. No suitable habitat was found within the Subject Property.	Breeding habitat of this species is generally soaks or pools within first or second-order streams. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Hieraaetus morphnoides (Little Eagle)	V	-	Low	Occupies open eucalypt forest, woodland or open woodland. She-oak or Acacia woodlands and riparian woodlands of interior NSW are also used. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion. Potential prey items may occur within the Subject Property.	Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. No nests were identified within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
						in August 2024 did not detect this species.	
Hoplocephalus bungaroides (Broad-headed Snake)	E	E	Low	Moves from the sandstone rocks to shelters in crevices or hollows in large trees within 500m of escarpments in summer. Feeds mostly on geckos and small skinks; will also eat frogs and small mammals occasionally. No suitable habitat was found within the Subject Property.	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Isoodon obesulus obesulus (Southern Brown Bandicoot (eastern))	E	E	Low	Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous (underground-fruiting) fungi. Their searches for food often create distinctive conical holes in the soil. No suitable habitat was found within the Subject Property.	Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under grass trees, blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Lathamus discolor (Swift Parrot)	E	CE	Low	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. No suitable habitat was found within the Subject Property.	N/A. This species breeds in Tasmania.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species. The Subject Property is not mapped	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
						on the Important Areas Map for this species.	
Litoria aurea (Green and Golden Bell Frog)	E	V	Low	This species inhabitats marshes, dams, and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.). Tadpoles feed on algae and other plant-matter; adults eat mainly insects, but also other frogs. No suitable habitat was found within the Subject Property.	This species breeds in marshes, dams, and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.). No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Lophoictinia isura (Square-tailed Kite)	V	-	Low	The species is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy. Potential prey items may occur within the Subject Property.	Nest sites generally located along or near watercourses, in a fork or on large horizontal limbs. No nests were identified within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No
Melanodryas cucullata cucullata (South-eastern Hooded Robin)	E	E	Low	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging	The nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1 m to 5 m above the ground. No nests were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				branches, using a perch-and-pounce method of hunting insect prey. No suitable habitat was found within the Subject Property.			
Meridolum maryae (Maroubra Woodland Snail)	E	E	Low	Found in the leaf litter of coastal vegetation communities, most commonly in heathland on foredunes also from areas of podsolised dunes/sand plains that support taller heath communities including Eastern Suburbs Banksia Scrub. No suitable habitat was found within the Subject Property.	Breeding habitat requirements are in line with foraging habitat requirements. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Miniopterus australis (Little Bent-winged Bat)	V	-	Low	Found in moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. At night, forage for small insects beneath the canopy of densely vegetated habitats. No suitable habitat was found within the Subject Property.	This species primarily breeds in caves but has been known to utilise tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings. Some potential habitat is present within the Subject Property in the form of existing buildings which will be retained throughout development (with minor alterations).	No anticipated impact to potential foraging habitat. Minor impact to potential breeding habitat due to the proposed works, however the habitat is of low quality, the scale of impact is very small, and large regions of superior habitat will remain in the broader locality.	No
Miniopterus orianae oceanensis (Large Bent-winged Bat)	Vulnerable	-	Low	Hunt in forested areas, catching moths and other flying insects above the tree tops. No suitable habitat was found within the Subject Property.	This species only breeds in caves. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Mixophyes balbus (Stuttering Frog)	E	V	Low	Found in rainforest and wet, tall open forest in the foothills and escarpment	Outside the breeding season adults live in deep leaf litter and	Negligible. No impact to potential foraging or	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				on the eastern side of the Great Dividing Range. Feed on insects and smaller frogs. No suitable habitat was found within the Subject Property.	thick understorey vegetation on the forest floor. Breed in streams during summer after heavy rain. No suitable habitat was found within the Subject Property.	breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	
Myotis macropus (Southern Myotis)	V	-	Low	This species forages over streams and pools catching insects and small fish by raking their feet across the water surface. No suitable habitat was found within the Subject Property.	Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Some potential habitat is present within the Subject Property in the form of existing buildings which will be retained throughout development (with minor alterations).	No anticipated impact to potential foraging habitat. Minor impact to potential breeding habitat due to the proposed works, however the habitat is of low quality, the scale of impact is very small, and large regions of superior habitat will remain in the broader locality.	No
Neophema chrysostoma (Blue-winged Parrot)	V	V	Low	Inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. The species can also be seen in altered environments such as airfields, golf-courses and paddocks. Pairs or small parties of blue-winged parrots forage mainly near or on the ground for	Forests and woodlands within the breeding range in Tasmania, coastal south-eastern South Australia and southern Victoria. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				seeds of a wide range of native and introduced grasses, herbs and shrubs. Some potential habitat was found within the Subject Property.			
Ninox connivens (Barking Owl)	V	-	Low	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums, but when loss of tree hollows decreases these prey populations the owl becomes more reliant on birds, invertebrates and terrestrial mammals such as rodents and rabbits. Potential prey items may occur within the Subject Property.	Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. During nesting season, the male perches in a nearby tree overlooking the hollow entrance. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat.	No
Ninox strenua (Powerful Owl)	V	-	Low	Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The main prey items are medium-sized arboreal marsupials, particularly the Greater Glider, Common Ringtail Possum and Sugar Glider. As most prey species require hollows and a shrub layer, these are important habitat components for the owl. No suitable habitat was found within the Subject Property.	Powerful Owls nest in large tree hollows (at least 0.5m deep), in large eucalypts (diameter at breast height of 80-240cm) that are at least 150 years old. No tree hollows were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Notamacropus parma (Parma Wallaby)	V	V	Low	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby	Typically shelter in dense cover. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				grassy areas, rainforest margins and occasionally drier eucalypt forest. Typically feed at night on grasses and herbs in more open eucalypt forest and the edges of nearby grassy areas. No suitable habitat was found within the Subject Property.		anticipated. Site assessment in August 2024 did not detect this species.	
Petauroides volans (Southern Greater Glider)	E	E	Low	Occurs in eastern Australia, in eucalypt forests and woodlands. Feeds exclusively on eucalypt leaves, buds, flowers, and mistletoe. No suitable habitat was found within the Subject Property.	Shelter during the day in tree hollows and will use up to 18 hollows in their home range. No tree hollows were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Petaurus australis (Yellow-bellied Glider)	V	V	Low	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.	Den, often in family groups, in hollows of large trees. No tree hollows were found within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat.	No
Petaurus norfolcensis (Squirrel Glider)	V	-	Low	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Diet varies seasonally and consists of	Require abundant tree hollows for refuge and nest sites. No tree hollows were found within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development and the mobility of the species. No anticipated	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
				Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.		impact to potential breeding habitat.	
Petroica boodang (Scarlet Robin)	V	-	Low	Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Forage from low perches, fence-posts or on the ground, from where they pounce on small insects and other invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.	Nest is an open cup made of plant fibres and cobwebs and is built in the fork of tree usually more than 2 metres above the ground; nests are often found in a dead branch in a live tree, or in a dead tree or shrub. No nests were found within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No
Phascolarctos cinereus (Koala)	E	E	Low	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. No suitable habitat was found within the Subject Property.	Spend most of their time in trees, but will descend and traverse open ground to move between trees. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No
Potorous tridactylus	V	V	Low	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense	Often digs small holes in the ground in a similar way to	Negligible. No impact to potential foraging or	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
(Long-nosed Potoroo)				understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature. The fruit-bodies of hypogeous (underground-fruiting) fungi are a large component of the diet of the Long-nosed Potoroo. They also eat roots, tubers, insects and their larvae and other soft-bodied animals in the soil. No suitable habitat was found within the Subject Property.	bandicoots. No suitable habitat was found within the Subject Property.	breeding habitat is anticipated.	
Pseudomys novaehollandiae (New Holland Mouse)	-	V	Low	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. No suitable habitat was found within the Subject Property.	Lives predominantly in burrows shared with other individuals. No burrows were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Pseudophryne australis (Red-crowned Toadlet)	V	-	Low	Disperses outside the breeding period where they are found under rocks and logs on sandstone ridges and forage amongst leaf-litter. Some foraging habitat may be present within the Subject Property, however it is considered of low quality due to the lack of fallen timber.	Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential suboptimal foraging habitat due to the small scale of development. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Pteropus poliocephalus (Grey-headed Flying-fox)	V	V	Low	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. No suitable habitat was found within the Subject Property.	No breeding camps were identified within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Ptilinopus regina (Rose-crowned Fruit-Dove)	V	-	Low	Rose-crowned Fruit-doves occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful. They feed entirely on fruit from vines, shrubs, large trees and palms, and are thought to be locally nomadic as they follow the ripening of fruits. Some foraging habitat was found within the Subject Property.	Nest is a flimsy platform of twigs and tendrils in a fork in a rainforest mid-storey shrub, sapling or vine. No nests were found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No
Ptilinopus superbus (Superb Fruit-dove)	V	-	Low	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Some foraging habitat was found within the Subject Property.	Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs, giving a stronger structure than its flimsy appearance would suggest, and is usually 5-30m up in rainforest and rainforest edge tree and shrub species. No nests were found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Saccolaimus flaviventris (Yellow-bellied Sheathtail-bat)	V	-	Low	Forages for insects in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Some potential habitat is present within the Subject Property in the form of existing buildings which will be retained throughout development (with minor alterations).	No anticipated impact to potential foraging habitat. Minor impact to potential breeding habitat due to the proposed works, however the habitat is of low quality, the scale of impact is very small, and large regions of superior habitat will remain in the broader locality.	No
Scoteanax rueppellii (Greater Broad-nosed Bat)	V	-	Low	Forages after sunset, flying slowly and directly along creek and river corridors. No suitable habitat was found within the Subject Property.	This species usually roosts in tree hollows. No tree hollows were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Stagonopleura guttata (Diamond Firetail)	V	V	Low	Found in grassy eucalypt woodlands, including Box-Gum Woodlands, Snow Gum Woodlands, riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Some foraging habitat may be present within the Subject Property, however it is considered suboptimal due to the degraded and modified quality of the vegetation.	Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. No nests were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated. Site assessment in August 2024 did not detect this species.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Tyto novaehollandiae (Masked Owl)	V	-	Low	Lives in dry eucalypt forests and woodlands from sea level to 1100m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Potential prey items may occur within the Subject Property.	Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. No suitable habitat was found within the Subject Property.	Minimal anticipated impact to potential foraging habitat due to the small scale of development and the mobility of the species. No anticipated impact to potential breeding habitat.	No
Tyto tenebricosa (Sooty Owl)	V	-	Low	Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. No suitable habitat was found within the Subject Property.	Nests in very large tree-hollows. No tree hollows were found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No
Varanus rosenbergi (Rosenberg's Goanna)	V	-	Low	Found in heath, open forest and woodland. Individuals require large areas of habitat. Feeds on carrion, birds, eggs, reptiles and small mammals. No suitable habitat was found within the Subject Property.	Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens. Lays up to 14 eggs in a termite mound; the hatchlings dig themselves out of the mounds. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No

Species	BC Act	EPBC Act	Likelihood of Occurrence	Foraging Habitat Present Within the Subject Land	Breeding Habitat Present Within the Subject Land	Anticipated Impact	Further Impact Assessment Required?
Vespadelus troughtoni (Eastern Cave Bat)	V	-	Low	Found along cliff-lines in wet eucalypt forest and rainforest. No suitable habitat was found within the Subject Property.	Cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. No suitable habitat was found within the Subject Property.	Negligible. No impact to potential foraging or breeding habitat is anticipated.	No

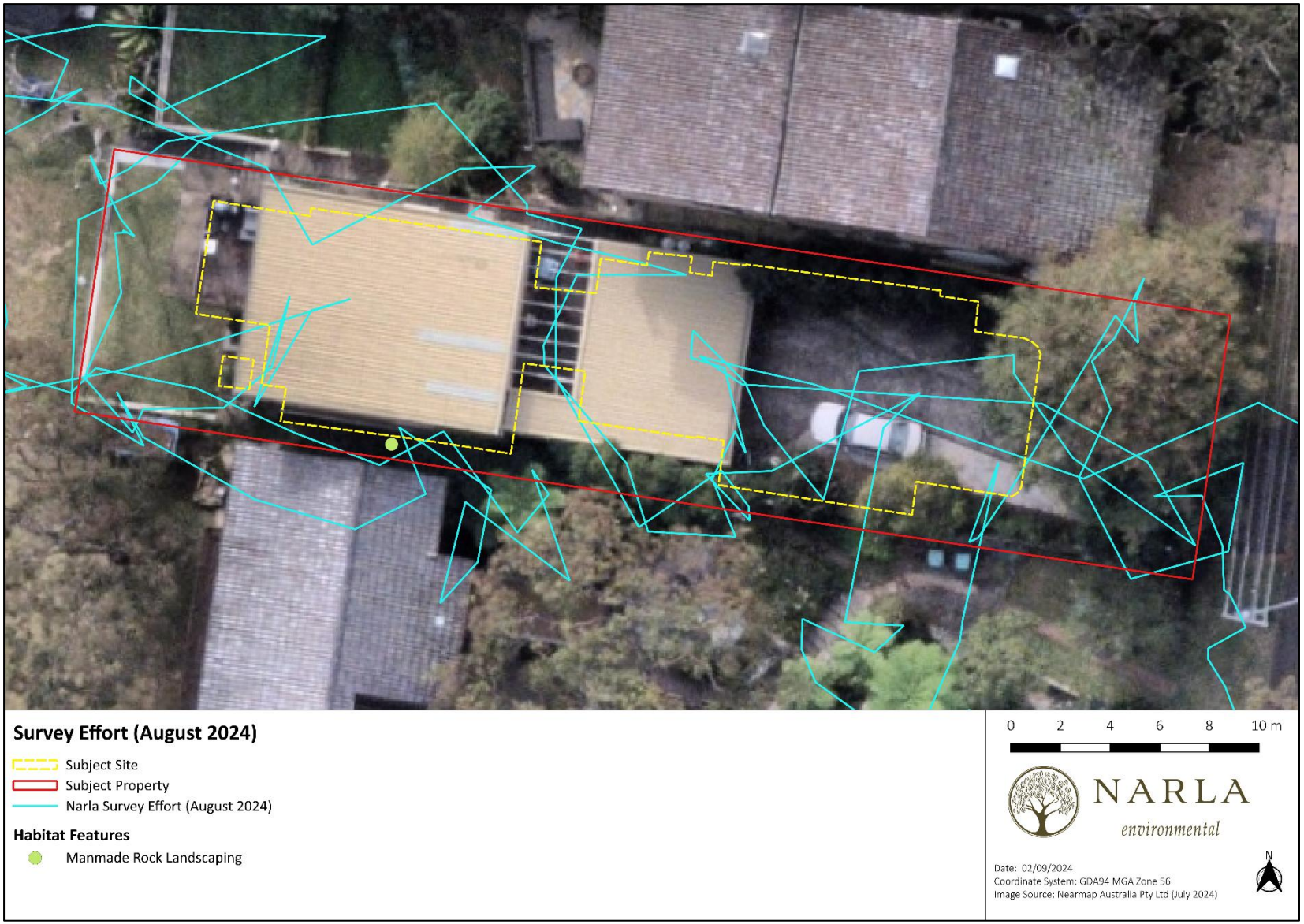


Figure 6. Narla Survey Effort within the Subject Property (August 2024).

5. Impact Summary

5.1 Vegetation

5.1.1 Vegetation Loss

The proposed development occurs largely across the site of the existing dwelling within the Subject Property. Any vegetation to be impacted by the development works will be <0.01ha in size (approximately 50m²) and given that no native vegetation communities were mapped within the Subject Property, impacts will be restricted to exotic-dominated landscaped vegetation.

5.2 Threatened Species

The Subject Property offers very minimal habitat for any threatened fauna beyond small amounts of sub-optimal foraging habitat (owing to its largely exotic and managed nature). It was deemed that the proposed works will not result in a significant impact such that a local viable population or occurrence of any of the threatened species with the potential to occur within the Subject Property will be placed at risk of extinction. Therefore, no BDAR or EPBC Act Referral to Commonwealth should be required for the proposed development.

6. Recommendations

6.1 Impact Mitigation and Minimisation Recommendations

This section of the report details recommended efforts to avoid and minimise impact on biodiversity values associated with the proposed development. Measures to be implemented before, during, and after construction to avoid and minimise the impacts of the project are detailed in **Table 8.**

Table 8. 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, Design, and Planning	The proposed development is situated predominately within the site of the existing dwelling. Impacts to vegetation will be restricted to small areas of exotic landscaped vegetation.	Pre-construction phase	Proponent
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 Structural Root Zone (SRZ). A Minor Encroachment is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. 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. Trees proposed for retention should be delineated by temporary fencing by the Project Arborist. Temporary fencing should be erected at a minimum distance of the structural root zone of each tree proposed for retention.	Pre-construction phase	Proponent Arborist
Landscaping	Where possible, future landscaping efforts within the Subject Property should incorporate locally ingenious species representative of the locally-occurring PCT 3594: Sydney Coastal Sandstone Foreshores Forest that occurs in the surrounding locality.	Post-construction phase	Proponent

Action	Outcome	Timing	Responsibility
Erosion and Sedimentation	An erosion and sediment control plan should be prepared for the proposed development. The applicant must ensure that adequate erosion and sediment measures are in place at all times during construction activity. Always follow best practice guidelines (Landcom 2004).	Construction phase	Proponent Construction Contractor
Storage and Stockpiling (Soil and Materials)	Allocate all storage, stockpile, and laydown sites away from any 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

7. Conclusion

This assessment indicates that the relevant provisions of the BC Act 2016 and the EPBC Act 1979 have been satisfied and that the proposed development has been appropriately located within the area identified as having the least ecological impact.

In total, the area of proposed works covers approximately 0.03ha, of which <0.01ha will include impacts to exotic-dominated landscaped vegetation.

The proposed development is considered unlikely to result in any significant impacts to adjoining land or to any threatened species within the Subject Property. It is anticipated that any direct or indirect impacts to threatened fauna will be minimal.

If the appropriate recommendations in this report are followed the proposed development should have minimal ecological impact.

8. References

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

Bureau of Meteorology (BOM) (2024) Sydney Harbour, New South Wales, August 2024, Daily Weather Observations.

C&A Surveyors (2024) Detail/Ident Survey: 5 Barrabooka Street, Clontarf

Chapman GA, Murphy CL, Tille PJ, Atkinson G and Morse RJ (2009) Ed. 4, Soil Landscapes of the Sydney 1:100,000 Sheet map, Department of Environment, Climate Change and Water, Sydney.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024) Protected Matters Search Tool, http://www.environment.gov.au/epbc/pmst/

Department of Planning and Environment (DPE) (2022) NSW State Vegetation Type Map – Sharing and Enabling Environmental Data in NSW

Department of Planning and Environment (DPE) State Environmental Planning Policy – Koala Habitat Protection (2021)

Department of Planning, Industry and Environment (DPIE) (2020) Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method.

Department of Primary Industries (DPI) (2023) Priority Weeds for the Greater Sydney Region NSW Weeds Wise http://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=3

Landcom (2004) Managing Urban Stormwater: Soils and Construction 'The Blue Book', Volume 1, Fourth Edition, New South Wales Government, ISBN 0-9752030-3-7

Northern Beaches Council (2013) Manly Development Control Plan.

Northern Beaches Council (2013) Manly Local Environmental Plan.

Northern Beaches Council (2024) Pre-lodgement Meeting Notes: 5 Barrabooka Street, Clontarf

NSW Department of Climate Change, Energy, the Environment, and Water (NDCCEEW) (2024a) Biodiversity Values Map and Threshold Tool.

NSW Department of Climate Change, Energy, the Environment, and Water (NDCCEEW) (2024b) BioNet: Vegetation Information System

NSW Department of Climate Change, Energy, the Environment, and Water (NDCCEEW) (2024c) 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) (2024d) eSPADE v2.2 https://www.environment.nsw.gov.au/eSpade2Webapp#

NSW Government Spatial Services (SIX Maps) (2024) NSW Government Land & Property Information Spatial Information Exchange map viewer, https://six.nsw.gov.au/

PlantNET (2024) The NSW Plant Information Network System, Royal Botanic Gardens and Domain Trust, Sydney. http://plantnet.rbgsyd.nsw.gov.au

Robinson, L. (2003) 'Field Guide to the Native Plants of Sydney', Third Edition, Kangaroo Press

Squillace Architects (2024) Development Plans: 5 Barrabooka Street, Clontarf

9. Appendices

Appendix A. Flora species identified within and surrounding the Subject Property.
Appendix B. Fauna species identified within and surrounding the Subject Property.
Appendix C. Development Plans: 5 Barrabooka Street (Squillace Architects 2024).

Appendix A. Flora species identified within and surrounding the Subject Property.

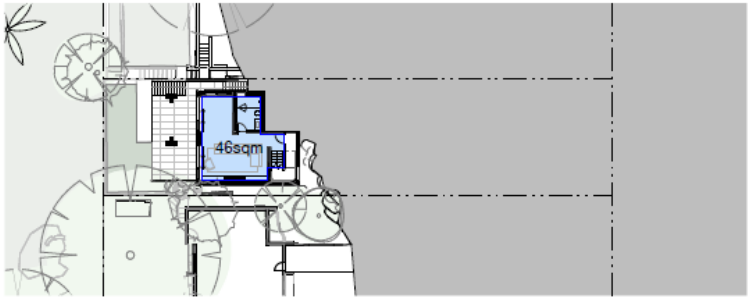
Scientific Name	Canopy	Mid-storey	Groundcover
*Agapanthus praecox**		X	
*Ageratina riparia**		X	
Angophora costata	X		
*Asparagus asparagoides***			X
Banksia integrifolia		X	
*Briza minor**			X
*Camellia oleifera**		X	
*Carex muskingumensis**			X
*Cenchrus clandestinus**			X
*Chlorophytum capense**			X
*Crassula multicava**			X
*Cyathea spp.**		X	
*Cycas revoluta**		X	
*Dracaena reflexa**		X	
*Duranta erecta**		X	
*Ehrharta erecta**			X
*Erigeron karvinskianus**			X
*Euphorbia oblongata**			X
*Ficus spp.**			X
Glochidion ferdinandi		X	
*Hedera nepalensis**			X
*Hypochaeris glabra**			X
*Ipomoea cairica**			X
*Magnolia grandiflora**		X	
*Mentha spicata**			X
*Monstera deliciosa**		X	
*Nephrolepis cordifolia**			X
*Olea europaea subsp. cuspidata***			X
Oxalis exilis			X
*Persicaria capitata**			X
*Petroselinum crispum**			X
*Ruellia humilis**			X
*Salvia rosmarinus**			X
*Senna pendula**		X	
*Sequoia sempervirens**	X		
*Stellaria media**			X
Syzygium australe		X	
*Taraxacum spp.**			X
*Trachelospermum spp.**		X	

** Denotes exotic species, ** Denotes Priority Weed.*

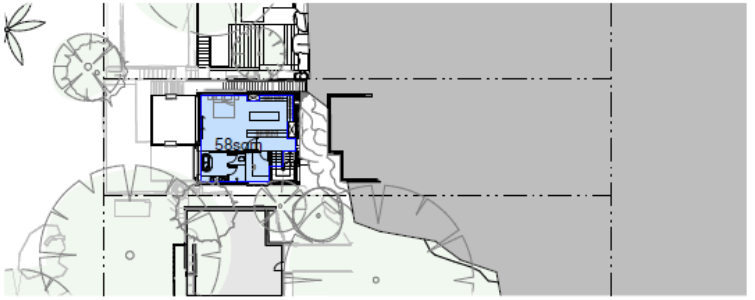
Appendix B. Fauna species identified within and surrounding the Subject Property.

Class	Scientific Name	Common Name	Status
Aves	*Acridotheres tristis*	Common Myna	Exotic
	Alectura lathami	Australian Brush-turkey	Protected
	Dacelo novaeguineae	Laughing Kookaburra	
	Gymnorhina tibicen	Australian Magpie	
	Malurus cyaneus	Superb Fairy Wren	
	Manorina melanocephala	Noisy Miner	
	Psophodes olivaceus	Eastern Whipbird	
	Strepera graculina	Pied Currawong	
	Trichoglossus moluccanus	Rainbow Lorikeet	
Reptilia	*Lampropholis guichenoti*	Common Garden Skink	

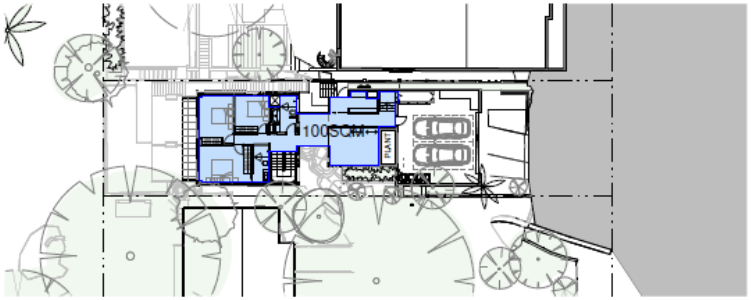
Appendix C. Development Plans: 5 Barrabooka Street (Squillace Architects 2024).



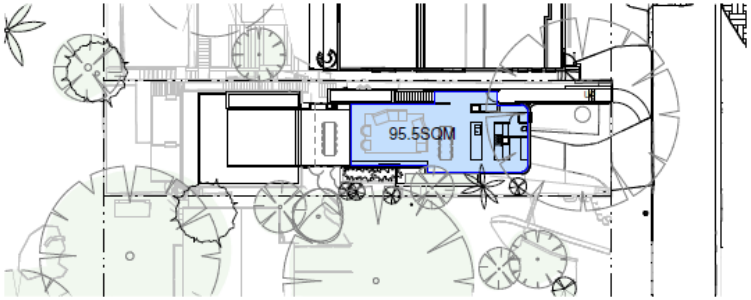
1 BASEMENT LEVEL - PROPOSED
1 : 200 @ A1



2 LOWER GROUND FLOOR - PROPOSED
1 : 200 @ A1



3 UPPER GROUND FLOOR - PROPOSED
1 : 200 @ A1



4 LEVEL 1 - PROPOSED
1 : 200 @ A1

SITE AREA	**467.9 sqm**	**EXISITING GFA**			**PROPOSED GFA**	
		BASEMENT	49.5	sqm	BASEMENT	46 sqm
LEP FSR	0.4 : 1	LOWER GROUND	56.5	sqm	LOWER GROUND	58 sqm
LEP GFA	187.16 sqm	UPPER GROUND	58.5	sqm	UPPER GROUND	100 sqm
					LEVEL 1	95.5 sqm
		TOTAL GFA	**164.5 sqm = 0.35 : 1**		**TOTAL GFA**	**299.5 sqm = 0.64 : 1 or 0:4 as measured against 750sqm lot**

Member Australian Institute of Architects

STATUS
DEVELOPMENT APPLICATION

Do not scale drawing. Verify all dimensions on site. Report any discrepancies in documentation to architect. This drawing is for the purposes of council approval and as such, is not suitable for construction.

ISS DATE PURPOSE OF ISSUE

GRAPHIC SCALE
1:200 @ A3 0 2000 5000
1:100 @ A1

DRAWING NOTES
AREAS INCLUDED IN FSR CALCULATION

PROJECT
BARRABOOKA
5 BARRABOOKA STREET, CLONTARF

CLIENT
ANDREW BATMANIAN & MELINE NAZLOOMIAN

squillace
ARCHITECTURE / INTERIORS
www.squillace.com.au

SYDNEY
s1/80 Alison Street, Sure Hills, Sydney NSW 2010
Ph: +61 2 8354 1300
ABN: 24 122 554 753

NOMINATED ARCHITECT
Vince Squillace Reg No. 6468 (NSW), 17210 (ACT), 3677 (QLD), AR11173 (NT)

DRAWING NO. DA-501
ISSUE
JOB NO. BAT-2309
DRAWN BY CHECKED BY
SCALE As Indicated@ A1
DATE
DRAWING TITLE PROPOSED GFA CALCULATIONS

NARLA

environmental

Eastern Sydney Office
Unit 2.01, 4-10 Bridge Street
Pymble
NSW 2073

Western Sydney Office
7 Twenty-Fifth Avenue
West Hoxton
NSW 2171

Hunter Valley Office
10/103 Glenwood Drive
Thornton
NSW 2322

Ph: 02 9986 1295
www.narla.com.au