Flora and Fauna Assessment

61 Dolphin Cresent, Avalon NSW 2107

Prepared by Ecological Consultants Australia Pty Ltd TA Kingfisher Urban Ecology and Wetlands

April 2025

About this document

Limitations Statement

Information presented in this report is based on an objective study undertaken in response to the brief provided by the client. Any opinions expressed in this report are the professional, objective opinions of the authors and are not intended to advocate any proposal or pre-determined position.

Document Control

Version	Date	Document author(s)	Details
1	March 2025	Geraldene Dalby-Ball	Flora and Fauna Assessment set up and review proposal, field work
2	April 2025	Geraldene Dalby-Ball	Report data and field work.

Summary

1. The owners of 61 Dolphin Cresent engaged Ecological Consultants Australia Pty Ltd (ECA) to prepare a Flora and Fauna Assessment (FFA) to accompany a development application 61 Dolphon Cresent Avalon, NSW 2107 (the site), situated in the Northern Beaches Council Local Government Area (LGA).
2. The site is currently occupied by a single-storey dwelling, a concrete driveway and path, and front and rear gardens with native canopy trees and mixed exotic planted mid-story and buffalo lawn. Native vines are persisting in the front garden and rear fence.
3. The proposed development is for alterations and additions to the existing dwelling and the construction of an additional story (partial).
4. The alterations and additions will occur at the rear and top of the existing house. There are no changes proposed to the front of the property.
5. The rear of the site is on the BV map. No native vegetation is being removed from areas on the BV map. Works are under 2500m2 in areas in or out of the BV map. No threatened species will be impacted. The proposal does not trigger entry into the Biodiversity Offsets Scheme (BOS).
6. The rear of the site is on the Pittwater Biodiversity Map and subject to Clause 7.6 (Biodiversity) of the Pittwater Local Environmental Plan 2014 (PLEP).
7. The site contains native canopy trees of the Pittwater Spotted Gum Forest (PSGF) Endangered Ecological Community (EEC) and subject to Control B4.7 Pittwater Spotted Gum Forest – Endangered Ecological Community of the Pittwater Development Control Plan 2014 (PDCP).
8. The site was inspected in March 2025 by Senior Ecologist Geraldene Dalby-Ball (Elaway).
9. The site currently contains weedy front and rear garden beds, areas of buffalo lawn, and native canopy trees (Spotted gums and a Forest Oak).
10. The proposal will not impact significant habitat features such as tree hollows, nests, roosting trees, dead trees, large woody debris, logs, rocks, etc. These features are absent from the site and were not seen in neighbouring properties.
11. No threatened species have been observed or previously recorded within the site according to the NSW BioNet Atlas.
12. The Arborist Report confirms no impact to native trees from the proposed works. All native trees will be retained. Tree Protection Zone (TPZ) fencing will be installed prior to commencement of all works in accordance with the Arborist report.
13. Pittwater Spotted Gum Endangered Ecological Community will be enhanced through removal of weedy exotics (Fish Bone, Asparagus Fern, Privits (large and small leaf), Buffalo Grass at rear and the planting of native species (Appendix has outline for planting in Pittwater Spotted Gum area).
14. The test of significance was undertaken for PSGF and concluded that the proposal will not significantly impact the EEC.
15. A landscape plan will be provided at the construction certificate stage. The approved landscape plan will ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or listed in Pittwater Spotted Gum Endangered Ecological Community).

Contents

About this document i

Summary ii

1 Introduction 1

1.1 Background 1

The owners of 61 Dolphin Cresent engaged Ecological Consultants Australia Pty Ltd (ECA) to prepare a Flora and Fauna Assessment (FFA) to accompany a development application 61 Dolphon Cresent Avalon, NSW 2107 (the site), situated in the Northern Beaches Council Local Government Area (LGA). 1

1.2 Subject site 1

1.3 Proposed development 2

1.4 Legislative and planning requirements 4

1.4.1 Environment Protection and Biodiversity Conservation Act 1999 4

1.4.2 Environmental Planning and Assessment Act 1979 4

1.4.3 Biodiversity Conservation Act 2016 4

1.4.4 Biosecurity Act 2015 6

1.4.5 Pittwater Local Environmental Plan 2014 6

1.4.6 Pittwater Development Control Plan 2014 7

1.5 Information sources 8

1.5.1 Web sites and documents 8

1.5.2 DA documentation 8

2 Methods 9

2.1 Preliminary investigations 9

2.2 Vegetation surveys 9

2.3 Fauna surveys 9

2.4 Habitat assessment 9

2.5 Limitations 10

3 Results 11

3.1 Plant Community Types (PCTs) 11

3.2 Threatened Ecological Communities (TECs) 12

3.3 Hollow-bearing trees 12

3.4 Threatened species 12

3.5 Current condition 12

3.6 Site photos 12

4 Impact assessment 15

4.1 Direct impacts 15

4.1.1 Native Vegetation 15

4.1.2 Removal of habitat features such as hollows, caves and rock outcrops 15

4.1.3 BC Act Threatened species 'Tests of Significance' 15

4.1.4 EPBC Act Threatened Species 'Significant Impact Assessment' 15

4.2 Indirect impacts 15

4.2.1 Transport of weeds and pathogens 15

4.2.2 Changes to flora and fauna dispersal routes 16

4.2.3 Soil disturbance, runoff and sedimentation 16
4.2.4 Increased noise, vibration, lighting and traffic in natural areas 16
4.2.5 Demolition or modification of human-made structures utilised by wildlife (such as bats) 16
4.2.6 Fragmentation or isolation of habitat 16

5 Avoid, minimise, mitigate 20
5.1 Avoiding Impact 20
5.2 Tree protection 20
5.1 Nest boxes (optional) 20
5.2 Landscaping – Assisted Regeneration of the Spotted Gum Community 20
5.3 Weed management 20
5.4 Pathogen prevention 20

6 Conclusion 20

7 Appendices 21
7.1 Appendix I – Weed Removal Methods 21
7.2 Appendix II – Bushland Hygiene Protocols 24
7.3 Appendix III – Threatened species likelihood of occurrence 26
7.4 Appendix IV – Pittwater Spotted Gum Forest Species List 39
7.5 Appendix V – Test of Significance 40
7.5.1 Pittwater and Wagstaffe Spotted Gum Forest 40
7.5.2 Threatened microbats 41
7.6 Appendix VI – BioNet extracts 42

List of figures

Figure 1.1. Subject site. 1
Figure 1.2. First Storey Proposed. 2
Figure 1.3. Second Storey Proposed. 3
Figure 1.4. Third Storey Proposed. 3
Figure 1.5. Biodiversity Values Map. 5
Figure 1.6. Biodiversity Values Map – close up. 6
Figure 3.1. PCT 3234 Hunter Coast Lowland Spotted Gum Moist Forest. 11
Figure 3.2. PCT is a patch isolated from others 11
Figure 4.1. Excerpt of the Site Plan with Tree details overlayed 15
Figure 4.2 Local connection of canopy. 17
Figure 4.3. Habitat connectivity. 18

List of tables

Table 1.1. Compliance with Control B4.7 Pittwater Spotted Gum Forest – Endangered Ecological Community. 7
Table 1.2. Information sources. 8
Table 7.1. Threatened flora likelihood of occurrence. 26
Table 8.2. Threatened fauna likelihood of occurrence. 28

1 Introduction

1.1 Background

The owners of 61 Dolphin Cresent engaged Ecological Consultants Australia Pty Ltd (ECA) to prepare a Flora and Fauna Assessment (FFA) to accompany a development application 61 Dolphon Cresent Avalon, NSW 2107 (the site), situated in the Northern Beaches Council Local Government Area (LGA).

1.2 Subject site

The site is legally identified as Lot 22 in DP 28663, 61 Dolphin Cresent, Avalon Beach NSW 2107 (the site), situated in the Northern Beaches Council Local Government Area (LGA).

The site is approximately 693.6 m² in size.

The site is zoned C4 Environmental Living under the Pittwater Local Environmental Plan 2014 (PLEP).

The site is currently occupied by a single-storey dwelling, a concrete driveway and path, and front and rear gardens with native canopy trees and buffalo lawn.

The Arboricultural Impact Assessment report identifies native *Corymbia maculata* (Spotted Gum) and a Forest She Oak at the rear of the site. None will be impacted by the proposed works.

The site is shown in Figure 1.1 below.

Figure 1.1. Subject site.

1.3 Proposed development

The proposed development is for alterations and additions to the existing dwelling including the construction of an additional story (partial) at the rear (see Figure 1.2).

The alterations and additions will occur at the rear and top of the existing house. There are no changes proposed to the front of the property.

The rear of the site is on the BV map. No native vegetation is being removed from areas on the BV map. Works are under 2500m^2 in areas in or out of the BV map. No threatened species will be impacted. The proposal does not trigger entry into the Biodiversity Offsets Scheme (BOS).

The rear of the site is on the Pittwater Biodiversity Map and subject to Clause 7.6 (Biodiversity) of the Pittwater Local Environmental Plan 2014 (PLEP).

Various alternate options were investigated by the client and engaged consultants and works were modified as far as possible to retain all trees within the property.

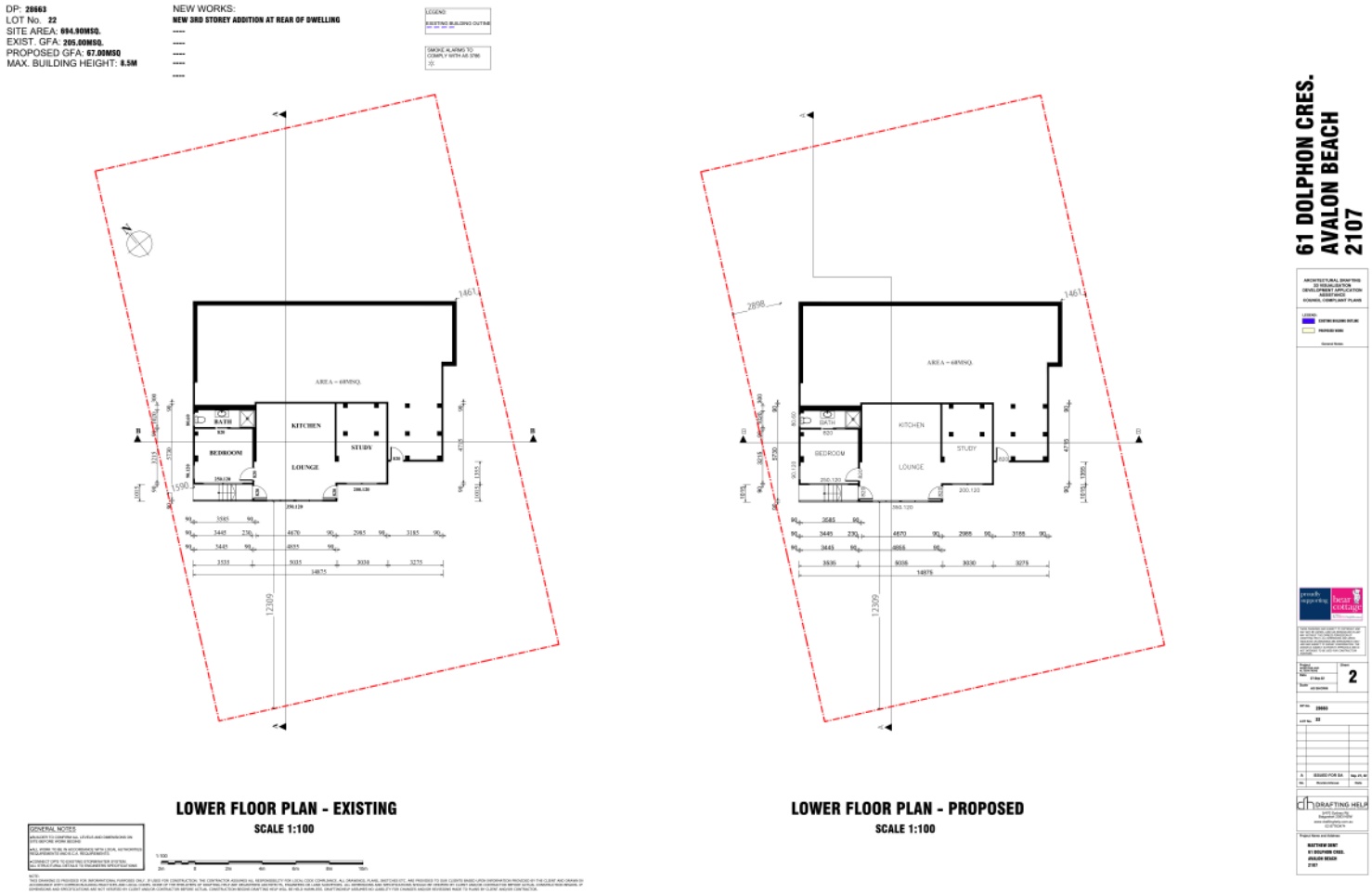


Figure 1.2. First Storey Proposed. Source: Drafting Help, 2022.

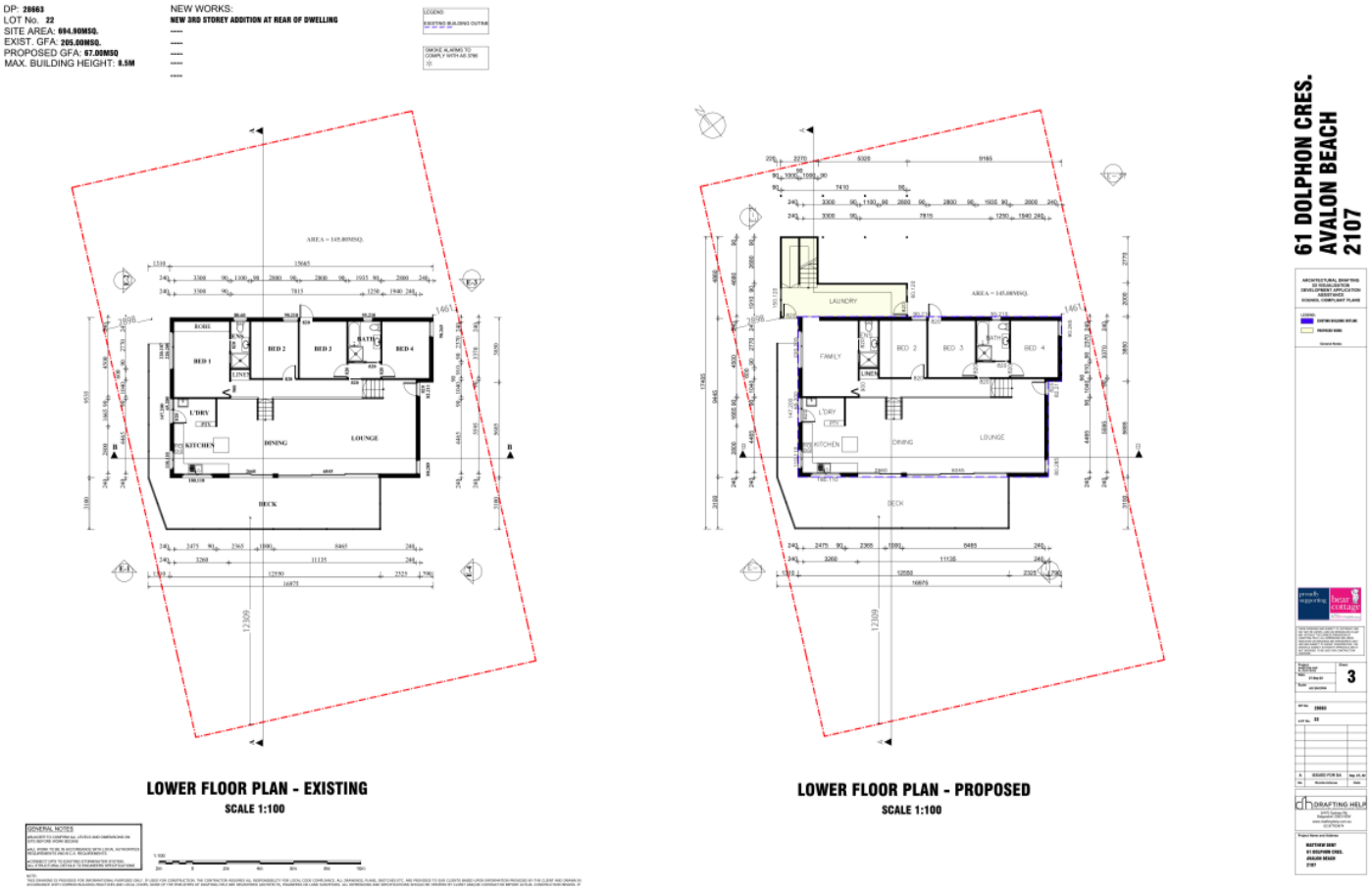


Figure 1.3. Second Storey Proposed. Source: Drafting Help, 2022.

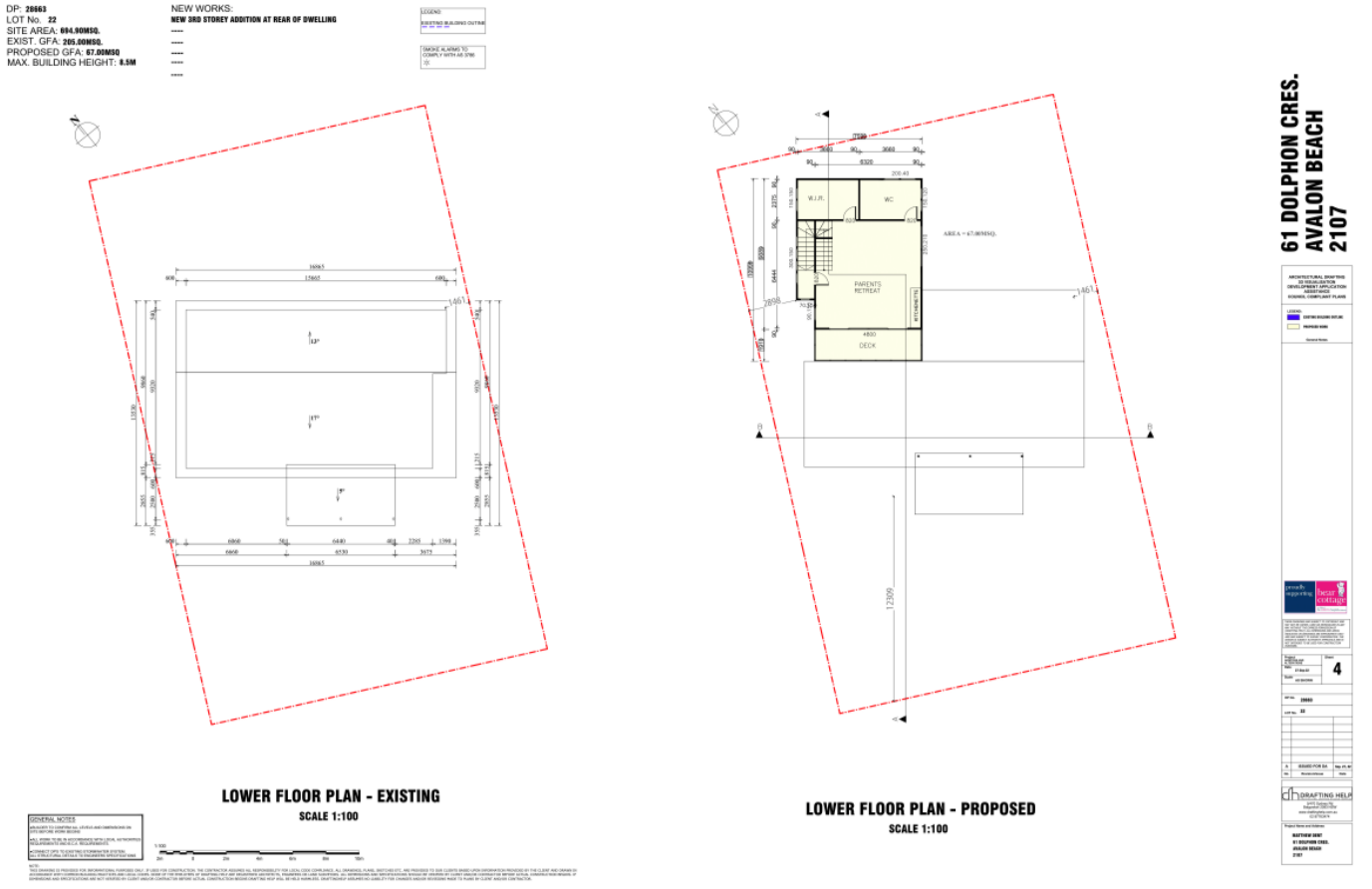


Figure 1.4. Third Storey Proposed. Source: Drafting Help, 2022.

1.4 Legislative and planning requirements

1.4.1 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is Australia's primary national environmental legislation. It provides for the protection and management of nationally and internationally significant plants, animals, habitats and places. The Act refers to the living things (including plants and animals), habitats and places that require protection as "matters of national environmental significance."

Matters of national environmental significance include:

- World Heritage Properties
- National Heritage Places
- Wetlands of International Importance (listed under the Ramsar Convention)
- Great Barrier Reef Marine Park
- Commonwealth Marine Areas
- Listed threatened species and ecological communities
- Listed migratory species (protected under international agreements)

Under the EPBC Act, an action requires approval from the Minister if it has, will have, or is likely to have a significant impact on any of the above-listed matters of national environmental significance.

The site would not impact any matters of national environmental significance. Therefore, referral under the EPBC Act is not required.

1.4.2 Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) establish and outline a framework for environmental planning and assessment in NSW. Part 4 of the EP&A Act addresses development applications on private land and state significant development.

The proposal is being assessed under Part 4 of the EP&A Act, with Northern Beaches Council (Council) acting as the consent authority.

1.4.3 Biodiversity Conservation Act 2016

The *NSW Biodiversity Conservation Act 2016* (BC Act) is the key legislation for the conservation of biodiversity in NSW. The BC Act supports the assessment and ongoing protection of flora and fauna, including threatened species and ecological communities. Under the Act, the the assessment and offsetting requirements for activities that may impact threatened species, ecological communities, or involve the clearing of native vegetation are primarily governed by the Biodiversity Offsets Scheme (BOS).

The *Biodiversity Conservation Regulation 2017* (BC Regulation) specifies the threshold criteria for triggering the BOS. The threshold has two components:

1. **Area clearing threshold** – Whether the amount of native vegetation to be cleared exceeds an area threshold.

The proposal does not trigger the area clearing threshold, as the area of native vegetation to be impacted is below the threshold of 0.25 ha or more.

Biodiversity Values Map (BV Map) – Whether the impacts occur on land identified on the BV Map, published by the Environment Agency Head.

The BV Map identifies areas of high biodiversity value as defined in clause 7.3(3) of the BC Regulation. The BOS applies to the clearing of native vegetation and other biodiversity impacts prescribed by clause 6.1 of the BC Regulation on land identified on the BV Map. The rear of the property is identified on the BV Map as shown in Figure 1.4 and 1.5.

The proposal does not require the clearing of native vegetation or other biodiversity impacts within the BV mapped area. All trees within the backyard will be retained. No other native vegetation would be impacted. The proposed pool has been located within an existing cleared area covered by turf.

The BOS does not apply to this proposal.

Figure 1.5. Biodiversity Values Map. Source: Biodiversity Values Map and Threshold Tool, 2025.

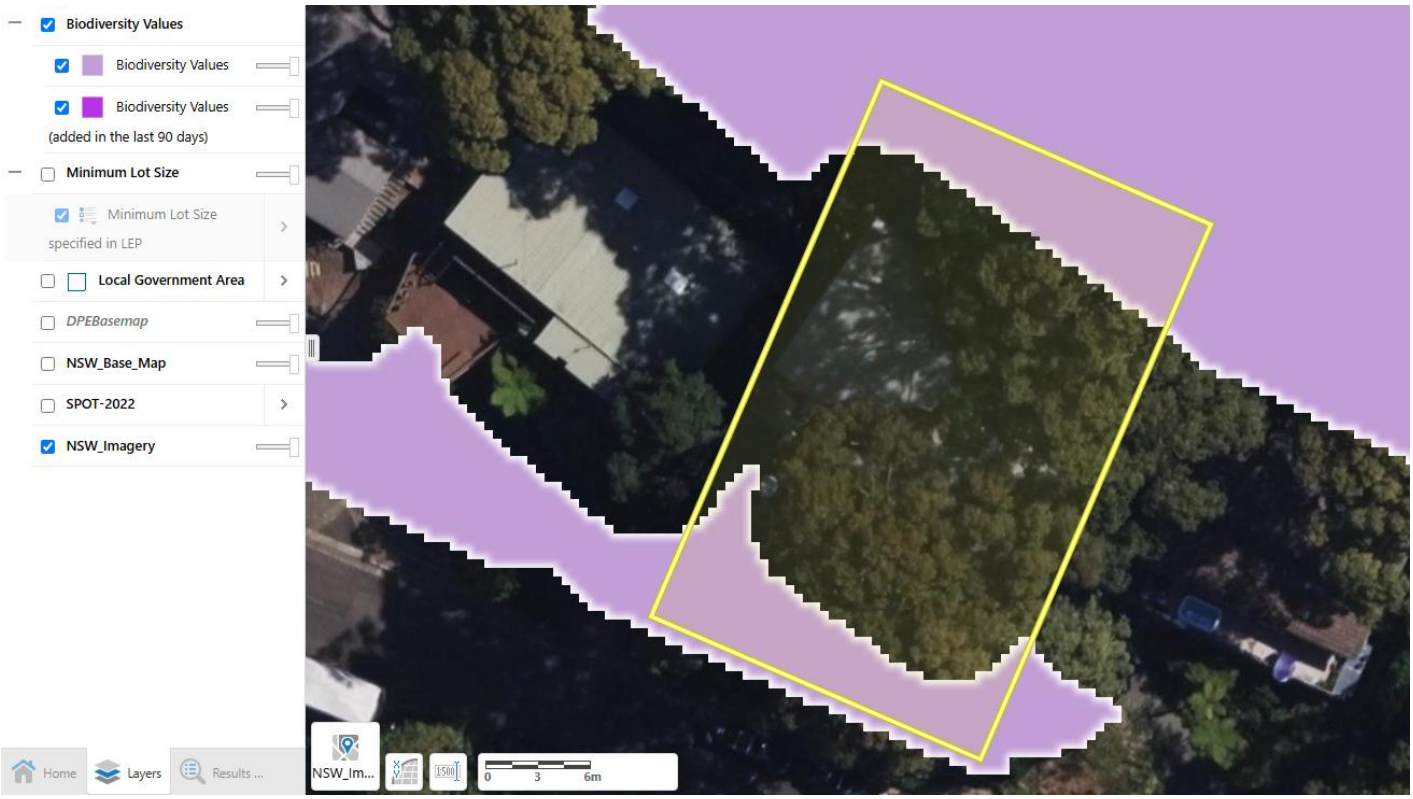


Figure 1.6. Biodiversity Values Map – close up. Source: Biodiversity Values Map and Threshold Tool, 2025.

1.4.4 Biosecurity Act 2015

The *Biosecurity Act 2015* repealed and replaced the *Noxious Weeds Act 1993*. The Act introduces the premise that biosecurity is a shared community responsibility and introduces the legally enforceable concept of a 'General Biosecurity Duty'. All landowners have a general biosecurity duty to control invasive weeds on their property and prevent them from spreading to other properties or native bushland. The objectives of the Act are to manage and eradicate weeds that cause a high level of environmental, economic or social harm.

With the removal of and management of weeds on the property the proposal will be compliant with the objectives of the Act.

1.4.5 Pittwater Local Environmental Plan 2014

The site is identified as "Biodiversity" on Council's Biodiversity Map as shown in Figure 1.6. As such, Clause 7.6 (Biodiversity) applies to the site.

The objective of Clause 7.6 (Biodiversity) is to maintain terrestrial, riparian and aquatic biodiversity by–

(a) protecting native fauna and flora, and
(b) protecting the ecological processes necessary for their continued existence, and
(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

Development consent must not be granted unless the consent authority (Council) is satisfied that–

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
(b) 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
(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

The proposal has undergone several iterations to avoid any significant impacts on the environment within the site. Refer to Section 5 for details.

All trees and native vegetation within the rear of the property will be retained. Trees 1 and 2 will be removed from the front of the property and replaced at a ratio of 1:1 within the site to ensure no net loss of canopy.

The proposal will not impact good quality areas of natural bushland. The site's vegetation is already significantly modified with native midstorey and ground layer vegetation mostly absent. The proposal would not fragment or isolate areas of habitat.

1.4.6 Pittwater Development Control Plan 2014

The site has been identified as containing Pittwater Spotted Gum Forest (refer to Section 3). As such, Control B4.7 Pittwater Spotted Gum Forest – Endangered Ecological Community under the Pittwater Development Control Plan 2014 (PDCP) applies to the site.

Table 1.1. Compliance with Control B4.7 Pittwater Spotted Gum Forest – Endangered Ecological Community.

Controls	Compliance
Development shall not have an adverse impact on Pittwater Spotted Gum Endangered Ecological Community.	The development is not expected to have a significant adverse impact on the Pittwater Spotted Gum Forest Endangered Ecological Community. Refer to Section 4.
Development shall restore and/or regenerate Pittwater Spotted Gum Endangered Ecological Community and provide links between remnants.	The development will involve weed removal, in particular Fishbone and Asparagus Fern and the expansion of PSG Community native understory.
Development shall be in accordance with any Pittwater Spotted Gum Forest Recovery Plan.	There is currently no recovery plan for the Pittwater Spotted Gum Forest.
Development shall result in no significant onsite loss of canopy cover or a net loss in native canopy trees.	No native tree loss will occur.
Development shall retain and enhance habitat and wildlife corridors for locally native species, threatened species and endangered populations.	The development will enhance habitat within the site with the installation of a single nest box designed for a microbat.
Caretakers of domestic animals shall prevent them from entering wildlife habitat.	Noted.
Fencing shall allow the safe passage of native wildlife.	Not applicable. No fencing is proposed.
Development shall ensure that at least 80% of any new planting incorporates native vegetation (as per species found on the site or listed in Pittwater Spotted Gum Endangered Ecological Community).	A landscape plan will be provided at the construction certificate stage. Refer to Section 6.5.
Development shall ensure any landscaping works are outside areas of existing Pittwater Spotted Gum Endangered Ecological Community and do not include Environmental Weeds.	A landscape plan is not expected to be needed due to the very small size of the area and the existing landscaping. A 'replant' with native species will occur and a concept plan for planting in PSG has been included.

1.5 Information sources

Information sources used to inform this report have been provided in the following sections.

1.5.1 Web sites and documents

Table 1.2. Information sources.

Title	Web link
BioNet Threatened Biodiversity Data Collection (TBDC)	https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet
NSW BioNet Atlas	https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet
Biodiversity Values Map and Threshold tool	https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap
Protected Matters Search Tool	https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool
SEED Data Portal	https://www.seed.nsw.gov.au/
PlantNET	https://plantnet.rbgsyd.nsw.gov.au/search/simple.htm
Surveying threatened plants and their habitats NSW survey guide for the Biodiversity Assessment Method	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/surveying-threatened-plants-and-habitats-nsw-survey-guide-biodiversity-assessment-method-200146.pdf

1.5.2 DA documentation

Plans and reports used for the assessment:

- Arboricultural Impact Assessment - Peake Arboriculture, 2025.
- Drawing 24081 - Altitude Surveys, 2024.
- Full set Architectural Plans – Drawing Help, 2022.
- Geotechnical Assessment – AscentGeo, 2024.

2 Methods

2.1 Preliminary investigations

The most suitable PCT was determined based on the floristic attributes and descriptions in the BioNet Vegetation Classification database, along with species composition data collected during the field survey.

A search of the NSW BioNet Atlas was undertaken, generating a list of threatened flora and fauna species with the potential to occur within a 10 km radius of the site. Additionally, threatened species and ecological communities listed under the EPBC Act were identified through the Protected Matters Search Tool (PMST) within the same 10 km radius.

The likelihood of these species, populations, ecological communities, and their habitats occurring on-site was assessed based on habitat descriptions published by the Australian Government Department of the Environment and the NSW Government Office of Environment and Heritage, as detailed in Appendix III. Aerial imagery, soil mapping, topography, and vegetation maps were also reviewed to identify potential habitat constraints for threatened species.

2.2 Vegetation surveys

Vegetation surveys were conducted during daylight hours in March 2025 by Senior Ecologist Geraldene Dalby-Ball (Elaway). The weather was fine and followed light rain. This survey effort included the identification of native and exotic species in the proposed development area and observations of vegetation adjoining the area. The surveys were conducted as a random meander across the study area.

Targeted flora surveys were conducted as walked transects and included searches for threatened species as applicable at the time of the assessment in accordance with Department of Planning Industry and Environment's *Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method 2020*.

Scrub Turpentine was the key species looked for – not present.

2.3 Fauna surveys

Targeted fauna surveys were not undertaken. The likelihood of species being present or utilising the site has been determined through interrogation of published observations, research and assessment of habitat features during field survey, along with the authors 30 years in the Avalon area including 3 years in Dolphin Crescent and very high familiarity with the Fauna in the area.

2.4 Habitat assessment

Habitat assessment was conducted in conjunction with walked transects. Preliminary assessment of threatened species likely to occur in the site provided details of required habitat.

Habitat identification and assessment targeted:

- Hollow bearing trees
- Loose bark
- Roosting trees
- Dead trees
- Large woody debris and logs
- Rocks
- Exposed bedrock
- Scats
- Tree scratching
- Nesting trees
- Fruiting and flowering plants
- Bare branches
- Scrapes or diggings
- Hair
- Burrows
- Waterbodies
- Aquatic vegetation
- Long grass and leaf litter

2.5 Limitations

Limitations of the study may arise where certain cryptic species of plants may occur as soil-stored seed or as subterranean vegetation structures. Some species are identifiable above ground only after environmental circumstances related to factors such as periodic fire frequency, intensity or seasonality, soil moisture regime, biological life-cycle patterns as in the case of small plants such as species of orchids, etc.

Surveys, even throughout one year, cannot be expected to detect the presence of all species occurring, or likely to occur, in the study area. This is because some species may (a) occur seasonally, (b) utilise different areas periodically (as a component of a more extensive home range), or (c) become dormant during specific periods of the year.

Considering the site and habitat availability, ECA are confident that this survey is representative of the likely species and vegetation community and that future studies at other times would not change the conclusions in this report.

3 Results

3.1 Plant Community Types (PCTs)

The NSW State Vegetation Type Map (2024) identified plant community type (PCT) 3234 Hunter Coast Lowland Spotted Gum Moist Forest within the rear of the property as shown in Figure 3.1.

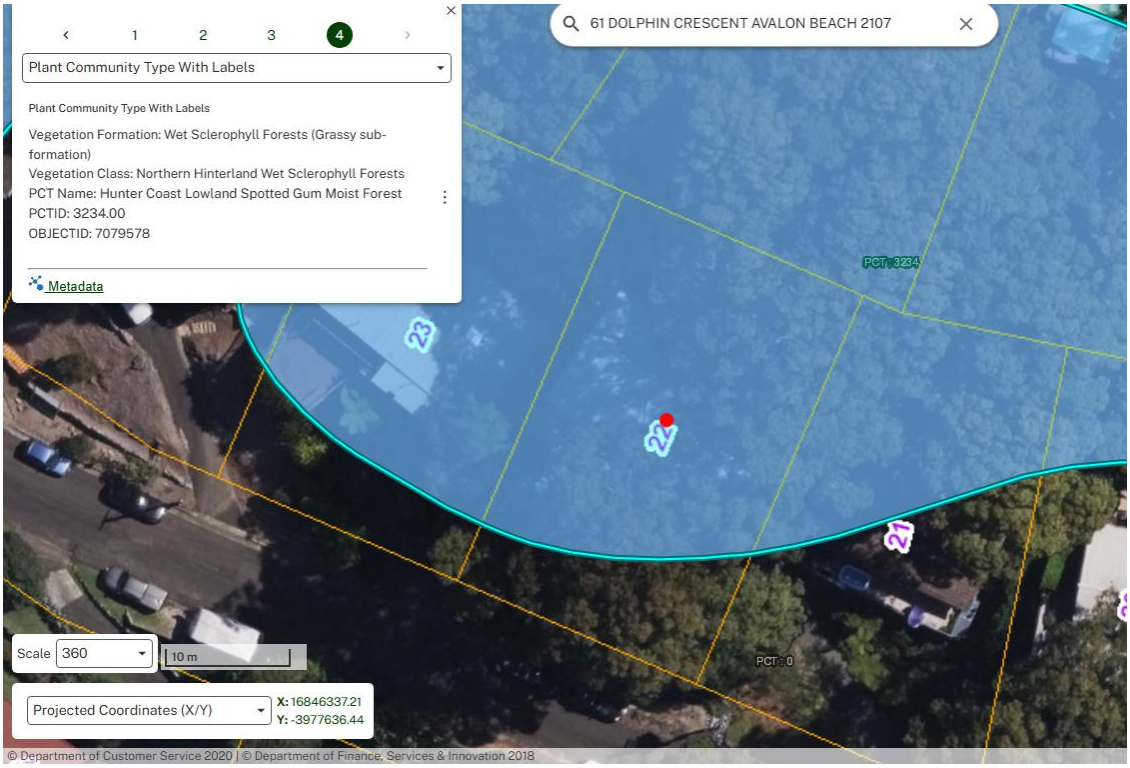


Figure 3.1. PCT 3234 Hunter Coast Lowland Spotted Gum Moist Forest.

Figure 3.2. PCT is a patch isolated from others.

3.2 Threatened Ecological Communities (TECs)

PCT 3234 is associated within the endangered ecological community (EEC) Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion listed under the BC Act.

The community is not listed as threatened under the EPBC Act.

3.3 Hollow-bearing trees

The site does not contain any hollow-bearing trees. Nor were any seen on the neighbouring sites.

3.4 Threatened species

No threatened species were observed during the site inspection or previously recorded on the site according to the NSW BioNet Atlas.

A threatened species 'likelihood of occurrence' assessment has been conducted and is included in Appendix III.

3.5 Current condition

The site is currently occupied by a single-storey dwelling, a concrete driveway and weedy front and rear garden beds, turf and native canopy trees as see in site photos.

The mid-storey and ground layer vegetation within the front garden beds is primarily non-native ornamental plantings and weeds while the rear of the property is dominated by exotic buffalo lawn Pittwater Spotted Gum Forest – CANOPY. Native vines on the fence line and heavily weed dominated ground area. See Photos.

3.6 Site photos

Photo 1. Back garden development area

Photo 2. Back garden development area

Photo 3. Ground cover development area

Photo 4.

Photo 5. Buffalo Lawn

Photo 6. Buffalo, Fishbone, Asparagus Fern, Native Grape

Photo 7. Garden dominated by exotic fishbone and asparagus fern, native vines on back fence retained.

Photo 8. Fishbone fern, Strelitzia, Buffalo grass

Photo 9. Front weed removal only

Photo 10. Driveway weed removal only

Photo 11. Driveway weed removal only

Photo 12. Front weed removal only

Photo 13. Front weed removal only

Photo 14. Kikuyu, Spotted Gum, Privet

Photo 15. New build over existing roof & exotic grass

Photo 16. Front weed removal only

4 Impact assessment

4.1 Direct impacts

4.1.1 Native Vegetation

The proposal retains all native trees. These are mainly *Corymbia maculata* (Spotted Gum) and the rear also has a Forest Oak *Allocasuarina torulosa*. See Arborist report 2025 for details.

No native vegetation is required to be cleared for the development.

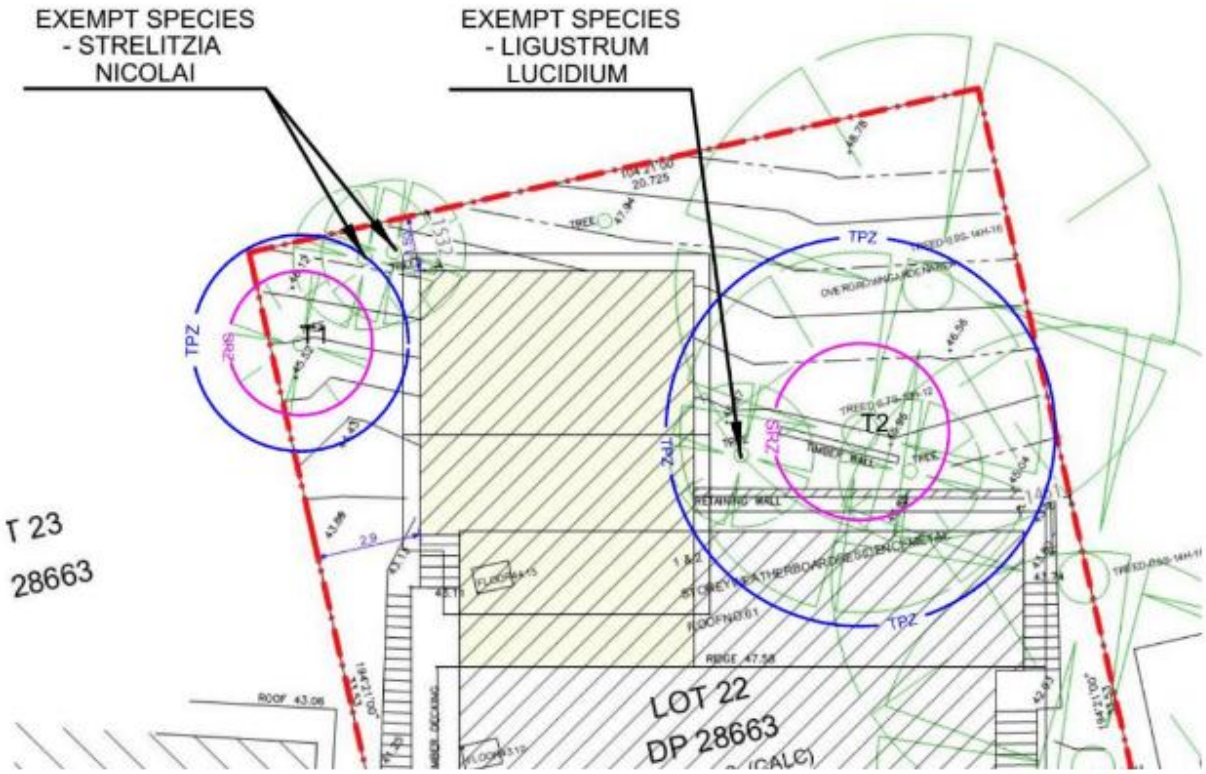


Figure 4.1. Excerpt of the Site Plan with Tree details overlayed. Source: Peak Arboriculture, 2025.

4.1.2 Removal of habitat features such as hollows, caves and rock outcrops

The site does not contain any hollows, caves or rock outcrops.

4.1.3 BC Act Threatened species 'Tests of Significance'

Threatened species 'Tests of Significance' are provided in Appendix V.

4.1.4 EPBC Act Threatened Species 'Significant Impact Assessment'

The proposal would not impact any matters of national environmental significance as per Appendix VI. Therefore, referral under the EPBC Act is not required.

4.2 Indirect impacts

4.2.1 Transport of weeds and pathogens

Construction activities involve the movement of soil, machinery, and materials, which can unintentionally introduce invasive weed species and harmful pathogens to the site. Weeds compete with native vegetation

for resources such as light, water, and nutrients, which can result in the loss of native vegetation cover over time. Pathogens, such as *Phytophthora* or myrtle rust, can infect canopy trees, leading to disease, dieback, or even tree death. Implementing effective biosecurity measures during construction will be critical to mitigating these risks. Refer to Appendix II – Bushland Hygiene Protocols.

4.2.2 Changes to flora and fauna dispersal routes

The proposal will not impact any significant flora and fauna dispersal routes.

4.2.3 Soil disturbance, runoff and sedimentation

Vegetation clearing and earthworks can expose soils and subsoils which following rainfall may erode and mobilise soils in runoff. Runoff can smother ground layer vegetation (affecting health through decreased photosynthesis). Assuming an appropriate, and Council approved, erosion and sediment control plan is implemented during works, the likelihood of sedimentation occurring beyond the development footprint is expected to be low.

4.2.4 Increased noise, vibration, lighting and traffic in natural areas

The proposal is not expected to increase noise, vibration, lighting or traffic within existing natural areas above that which already exists with the site and locality.

4.2.5 Demolition or modification of human-made structures utilised by wildlife (such as bats)

The proposal would involve alterations and additions to the existing dwelling The existing dwelling was assessed for potential microbat habitat during the site inspection, and none was found. The proposal is not anticipated to impact any human-made structures utilised by wildlife

4.2.6 Fragmentation or isolation of habitat

The proposal is not expected to fragment or isolate areas of habitat such as the Pittwater Spotted Gum Forest. Figure 4.1a shows the connection between canopy at the rear of the sites and around into Dolphin Reserve and over the road to Careel Bay. To the North East over the road to the headland vegetation. Connectivity on the site is via native canopy trees along the rear. All native canopy trees will be retained.

Figure 4.2 local connection of canopy.

The site is located within an urbanised setting that is already fragmented, by development and roads, from areas of intact bushland such as Careel Bay Wetlands and Stapleton Reserve as shown in Figure 4.2b below.

Figure 4.3. Habitat connectivity.

It is noted the Spotted Gums from the front of the dwellings nearby have occurred over the past 10 years.


112
110
108
51
53
55
57
59
61
63
65
38
40
Dolphin Cres
Vertical
Tue Feb 4 2025

2025


112
110
51
53
55
49
57
59
61
63
38
40
Dolphin Cres
Nearmap
Vertical
Sun Dec 6 2015

2016

5 Avoid, minimise, mitigate

5.1 Avoiding Impact

The design has been modified through the design process such that it avoids the native canopy trees. The understory is exotic in the proposed build area and so not requiring adjustments to avoid that.

Native vines are on the rear fence and will be retained. The front garden has areas including natives: Basket Grass, Snake Vine, Commelina and Native Grape. All trees will be retained, exotics removed from the rear of the site and native species from the PSG community planted.

5.2 Tree protection

Tree Protection Zone (TPZ) fencing will be installed prior to commencement of all works in accordance with the Arborist report.

5.1 Nest boxes (optional)

Although no hollow-bearing trees are proposed for removal, the proponent may wish to install a single nest box within the site to cater for native species known to occur within the Northern Beaches LGA, such as ring-tailed possum dreys, microbat or forest owl nest boxes. Nest box to be installed at least three metres above the ground.

5.2 Landscaping – Assisted Regeneration of the Spotted Gum Community

A landscape plan is not expected to be needed however the development area is to have at least 80% of any new planting being native vegetation (as per species found on the site or listed in Pittwater Spotted Gum Endangered Ecological Community) and ensure any landscaping works are outside areas of existing Pittwater Spotted Gum Endangered Ecological Community and do not include Environmental Weeds, and included in the Appendices.

5.3 Weed management

Weeds are present throughout the site. These are garden exotics that are invasive and out compete the native diversity of the PSG ground layer species. The full removal of Fishbone Fern, Asparagus Fern and Buffalo Grass can occur from the rear of the site post works and pre OC.

All bush regeneration activities requiring the use of chemicals must be performed in accordance with the NSW *Pesticides Act* 1999. Herbicides must not be applied whilst exotic plants are setting seed.

Weed removal methods are included in Appendix I.

5.4 Pathogen prevention

To prevent the introduction of pathogens, Bushland Hygiene Protocols outlined in Appendix II should be followed closely.

6 Conclusion

The proposal will remove two spotted gum trees located within the front yard given the unavoidable to impacts from the proposed excavation for the vehicle turning area.

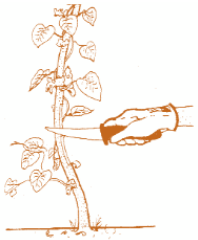
Trees will be replaced with a minimum of two 40cm pot sized spotted gums, sourced from within local provenance. Tree replacement will ensure no net loss in canopy.

The proposal is not expected to significantly impact any threatened species or ecological communities listed under the BC or EPBC Acts.

7 Appendices

7.1 Appendix I – Weed Removal Methods

Technique	Method	Equipment
Hand Removal 	**Fishbone Fern** Seedlings and smaller weed species where appropriate will be pulled out by hand, without risk of injury to workers. The size that this can occur varies throughout the treatment area. Generally, it ranges from post seed to approximately 300mm in height. Rolling and raking is suitable for larger infestations of Wandering Jew. The weed can be raked and stems and plants parts rolled. The clump of weed material can then be bagged and removed from site.	Tools: Gloves, Rakes, Knife and Weed Bags
Crowning 	**Asparagus Fern** Plants that possess rhizomes or bulbs might not respond to various removal techniques and may need to be treated with crowning. A knife, mattock or trowel is to be driven into the soil surrounding the bulb or rhizome at an angle of approximately 45 degrees with surrounding soil, so as to cut any roots that may be running off. This is to occur in 360 degrees around the bulb/rhizome. The rhizome or bulb is to be bagged and removed from the site and disposed of at an appropriate waste recycling facility Soil disturbance is to be kept to a minimum when using this technique.	Tools: Knife, mattock, trowel, impervious gloves, and all other required P.P.E.
Cut and Poison Stems 	**Privet** Weed species deemed unsuitable for hand removal shall be cut. Those that have persistent vigorous growth will be cut and painted with Roundup® Biactive Herbicide or equivalent. Juvenile and smaller weed species will be cut with secateurs at base of plant, and herbicide applied via applicator bottle. Stem to be cut horizontally as close to the ground as possible, using secateurs, loppers	Tools: loppers, secateurs, pruning saw, herbicide applicator/sprayer, impervious gloves, Roundup® Biactive

	or a pruning saw. Horizontal cuts to be made on top of the stem to prevent the herbicide running off the stump. Apply herbicide to the cut stem immediately, within 10-20 seconds, before the plant cells close and the translocation of the herbicide is limited. Herbicide is not to reach sediment or surrounding non-targeting plants.	Herbicide and all other required P.P.E.
Scrape and Poison 	Green Cestrum (one on site) Weed species will be scraped with a knife or chisel up the length of the trunk, and herbicide applied via applicator bottle. Scrape the trunk from as close to the ground as possible to approximately ¾ of the plant height. Where trunk diameters exceed approximately 5 cm a second scrape shall be made on the other side of the trunk. Apply undiluted herbicide to the cut trunk immediately, within 10-20 seconds, before the plant cells close and the translocation of the herbicide is limited. All care must be taken by the contractor not to spill herbicide onto sediment or surrounding non-targeting plants. Follow up treatment may be required. If plants resprout, scrape and paint the shoots using the same method after sufficient regrowth has occurred.	Tools: knife, chisel, protective clothing, safety glasses herbicide applicator/sprayer, impervious gloves, Roundup® Biactive Herbicide, and all other required P.P.E.
Cut with a Chainsaw and Poison 	Large Privet Larger size weed species, too large for cutting with hand tools, shall be cut with a chainsaw and painted with undiluted Roundup® Biactive Herbicide. Works to be carried out by a contractor with a current chainsaw and herbicide license. Larger weed species will be cut with a chainsaw at base of plant, and herbicide applied via applicator bottle. Cut the stem horizontally as close to the ground as possible, using the chainsaw. Remove upper branches to reduce bulk of plant. If cutting at the base is impractical, cut higher to get rid of the bulk of the weed, then cut again at the base and apply herbicide. Make cuts horizontal to prevent the herbicide running off the stump. Apply undiluted herbicide to the cut trunk immediately, within 10-20 seconds, before the plant cells close and the translocation of the herbicide is limited. Ensure there is no runoff of poison. All care must be taken by the contractor not to spill herbicide into water, onto sediment, or surrounding non-targeting plants. Follow-up treatment will be required. If plants resprout, cut and paint the shoots using the same method.	Tools: chainsaw, earmuffs, protective clothing, safety glasses herbicide applicator/sprayer, impervious gloves, Roundup® Biactive Herbicide, and all other required P.P.E.

Spot Spraying NB not deemed necessary on this site.	NB not deemed necessary on this site. Spot spraying involves spraying non-seeding annuals and grasses, and for regrowth of weeds once an area has been cleared or brush cut. Works to be carried out by a contractor with a current herbicide license. Herbicide will be mixed up according to the manufacturer's directions for the particular weed species being targeted. Mixed herbicide shall be applied to the targeted weed species with a backpack sprayer. All care must be taken by the contractor not to spill herbicide onto sediment or surrounding non-targeting plants.	Tools: protective clothing, safety glasses, herbicide sprayer, impervious gloves, Herbicide, and all other required P.P.E.

7.2 Appendix II – Bushland Hygiene Protocols

- Always assume that the area you are about to work in is free of the disease and therefore needs to be protected against infection.
- Always assume that the activity you are about to undertake has the potential to introduce the disease.
- Arrive at site with clean shoes, i.e.: no dirt encrusted on them.
- If you arrive with shoes that are encrusted with dirt, they will have to be completely soaked in metho or disinfectant and allow a few minutes to completely soak in. NEVER scrape untreated dirt off your shoes onto the ground.
- Before you move onto the site spray the bottom of your shoes with 70 % metho. Bleach solution (1% strength) or household/commercial disinfectant (as per label) are also suitable.
- Check all tools and equipment that comes in contact with soil are clean before entering the area (they should have been cleaned on site at the end of the previous work session). If there is any dirt on them, spray them with 70% metho.
- Clean all tools at the end of each work session while still on site ensuring this is done away from drainage lines and adjacent work areas. Knock or brush off encrusted dirt and completely spray with 70 % metho. Replace in storage/transport containers.
- Preferably compost all weed material on site.
- Never drag vegetation with exposed roots and soil through bushland.
- When removing weeds from site, remove as much soil as possible from them in the immediate work area and carefully place vegetative material into plastic bags.
- Try not to get the bag itself dirty; don't put it on/in a muddy area.
- Always work from the lower part of a slope to the upper part.
- Always work in areas known to be free of the pathogen before working in infected areas.
- Minimise activities wherever possible when the soil is very wet.
- Vehicles should not be driven off track or into reserves (unless vehicle decontamination is carried out before and after entering a single work site)
- Only accredited supplies of plants/mulch to be used.

Kit should contain: 1 bucket, 1 scrubbing brush, 1 spray bottle (metho 70% solution), 1 bottle tap water, 1 bottle methylated spirits.

Facts about Phytophthora

Phytophthora cinnamomi (Phytophthora) is a microscopic, soil borne, water-mould that has been implicated in the death of remnant trees and other plants in Australian bushland. Phytophthora is not native to Australia. It is believed to have been introduced sometime after European settlement. Phytophthora is a national problem and is listed as a key threatening process under the Commonwealth's Environmental Protection and Biodiversity Conservation Act 1999.

Symptoms including Dieback

"Dieback" simply means dying or dead plants. There are many causes of dieback; Phytophthora is just one of them. Often dieback is the result of a combination of factors such as changed drainage patterns and nutrient loads (e.g.: increased stormwater run-off) or changed soil conditions (e.g.: dumped fill or excavation of/near root zone). Plants that are stressed are more vulnerable to Phytophthora.

Initial symptoms of Phytophthora include wilting, yellowing and retention of dried foliage, loss of canopy and dieback. Infected roots blacken and rot and are therefore unable to take-up water and nutrients. Severely infected plants will eventually die. Symptoms can be more obvious in summer when plants may be stressed by drought. If you suspect that Phytophthora is on your site, please contact the Bushcare team to collect a soil sample to be lab tested. This is usually done in the warmer months where conditions are optimum for the disease.

Infection

There is no way of visually telling if Phytophthora is present in the soil as its structures and spores are microscopic (invisible to the naked eye). Phytophthora requires moist soil conditions and warm temperatures for infection, growth, and reproduction. Spores travel through moist soil and attach to plant roots. Once Phytophthora has infected a host plant it can grow inside plant root tissue independent of external soil moisture conditions. After infection, Phytophthora grows through the root destroying the tissue which is then unable to absorb water and nutrients.

7.3 Appendix III – Threatened species likelihood of occurrence

Table 7.1. Threatened flora likelihood of occurrence.

Family	Scientific Name	Common Name	NSW status	Comm. status	Records	Likelihood of occurrence
Elaeocarpaceae	*Tetratheca glandulosa*		V		14	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Euphorbiaceae	*Chamaesyce psammogeton*	Sand Spurge	E		11	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Myrtaceae	*Callistemon linearifolius*	Netted Bottle Brush	V		6	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Myrtaceae	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	3	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Myrtaceae	*Kunzea rupestris*		V	V	1	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Myrtaceae	*Rhodamnia rubescens*	Scrub Turpentine	CE	CE	32	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Myrtaceae	*Syzygium paniculatum*	Magenta Lilly Pilly	E	V	19	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Orchidaceae	*Cryptostylis hunteriana*	Leafless Tongue Orchid	V	V	1	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.

Family	Scientific Name	Common Name	NSW status	Comm. status	Records	Likelihood of occurrence
Orchidaceae	*Genoplesium baueri*	Bauer's Midge Orchid	E	E	1	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Orchidaceae	*Microtis angusii*	Angus's Onion Orchid	E	E	14	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Proteaceae	*Macadamia integrifolia*	Macadamia Nut		V	8	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Proteaceae	*Persoonia hirsuta*	Hairy Geebung	E	E	5	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Rutaceae	*Boronia umbellata*	Orara Boronia	V	V	1	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Thymelaeaceae	*Pimelea curviflora var. curviflora*		V	V	1	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Elaeocarpaceae	*Tetratheca glandulosa*		V		14	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.
Euphorbiaceae	*Chamaesyce psammogeton*	Sand Spurge	E		11	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.

Family	Scientific Name	Common Name	NSW status	Comm. status	Records	Likelihood of occurrence
Myrtaceae	*Callistemon linearifolius*	Netted Bottle Brush	V		6	The species was not observed during the site inspections or previously recorded within the site according to the NSW BioNet Atlas.

Table 7.2. Threatened fauna likelihood of occurrence.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
Amphibia	*Pseudophryne australis*	Red-crowned Toadlet	V		30	Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters. Eggs are laid in moist leaf litter, from where they are washed by heavy rain; a large proportion of the development of the tadpoles takes place in the egg. Disperses outside the breeding period, when they are found under rocks and logs on sandstone ridges and forage amongst leaf-litter.	Unlikely. The site does not contain habitat for this species.
Amphibia	*Heleioporus australiacus*	Giant Burrowing Frog	V	V	5	Sites must have native vegetation. The species has not been found on cleared land. Occurs in hanging swamps on sandstone shelves and along perennial creeks. The species is not restricted to watercourses.	Unlikely. The site does not contain habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
Reptilia	*Caretta caretta*	Loggerhead Turtle	E	E	6	Marine species.	The site does not contain habitat for this species.
Reptilia	*Chelonia mydas*	Green Turtle	V	V	14	Marine species.	The site does not contain habitat for this species.
Reptilia	*Eretmochelys imbricata*	Hawksbill Turtle		V	9	Marine species.	The site does not contain habitat for this species.
Reptilia	*Dermochelys coriacea*	Leatherback Turtle	E	E	4	Marine species.	The site does not contain habitat for this species.
Reptilia	*Varanus rosenbergi*	Rosenberg's Goanna	V		10	Found in heath, open forest and woodland. Termite mounds are a critical habitat component.	The site does not contain habitat for this species.
Aves	*Ptilinopus regina*	Rose-crowned Fruit-Dove	V		4	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.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Ptilinopus superbus*	Superb Fruit-Dove	V		4	The species is found in rainforests, rainforest margins, mangroves, wooded stream-margins, and even isolated figs, lilly pilies and pittosporums. The Superb Fruit-Dove may migrate to New Guinea in winter, but little is known of its movements, or the reasons for its sometimes southerly flights as far as	Low likelihood of occurrence. The site does not contain optimal habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
						Tasmania. Feeds almost exclusively on fruit, mainly in large trees.	
Aves	*Ixobrychus flavicollis*	Black Bittern	V		1	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves. Feeds on frogs, reptiles, fish and invertebrates, including snails, dragonflies, shrimps and crayfish, with most feeding done at dusk and at night. During the day, roosts in trees or on the ground amongst dense reeds.	Low likelihood of occurrence. The site does not contain habitat for this species.
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V		51	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 seashore, 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. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Hieraaetus morphnoides*	Little Eagle	V		4	Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where	Low likelihood of occurrence. The site does not contain habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
						pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	
Aves	*Lophoictinia isura*	Square-tailed Kite	V		5	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses.	The site does not contain habitat for this species.
Aves	*Pandion cristatus*	Eastern Osprey	V		19	Inhabits coastal areas, especially the mouths of large rivers, lagoons and lakes. Feeds on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.	The site does not contain habitat for this species.
Aves	*Burhinus grallarius*	Bush Stone-curlew	E		52	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Esacus magnirostris*	Beach Stone-curlew	CE		1	Found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves.	The site does not contain habitat for this species.
Aves	*Haematopus fuliginosus*	Sooty Oystercatcher	V		4	Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	The site does not contain habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
Aves	*Numenius madagascariensis*	Eastern Curlew	CE	CE	8	It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts.	The site does not contain habitat for this species.
Aves	*Onychoprion fuscata*	Sooty Tern	V		1	Large flocks can be seen soaring, skimming and dipping but seldom plunging in off shore waters.	The site does not contain habitat for this species.
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	E	E	1	Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 metres or more above the ground.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V	V	64	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Glossopsitta pusilla*	Little Lorikeet	V		4	Prefers open Eucalypt forest and woodlands. Primarily feeds within the canopy of *Eucalyptus*, *Angophora* and *Melaleuca* trees. Prefers riparian areas but may visit isolated trees in open or cleared land.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Lathamus discolor*	Swift Parrot	E	CE	5	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.	The site is not located on the impact habitat map for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
Aves	*Neophema pulchella*	Turquoise Parrot	V		1	Occurs on edges of eucalypt woodlands, ridges through forests and creeks. Prefers shading for ground foraging.	The site does not contain habitat for this species. The likelihood of occurrence is unlikely.
Aves	*Ninox connivens*	Barking Owl	V		21	Requires large tree-hollows.	The site does not contain roosting or breeding habitat. The likelihood of occurrence is low.
Aves	*Ninox strenua*	Powerful Owl	V		493	Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old.	The site does not contain roosting or breeding habitat. The likelihood of occurrence is low.
Aves	*Tyto novaehollandiae*	Masked Owl	V		4	Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	The site does not contain roosting or breeding habitat. The likelihood of occurrence is low.
Aves	*Tyto tenebricosa*	Sooty Owl	V		2	Nests in very large tree-hollows.	The site does not contain roosting or breeding habitat. The likelihood of occurrence is low.
Aves	*Dasyornis brachypterus*	Eastern Bristlebird	E	E	1	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.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
Aves	*Anthochaera phrygia*	Regent Honeyeater	CE	CE	3	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. This species has been seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests.	The site is not located within mapped areas of important habitat.
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V		2	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and groundcover of grasses or sedges and fallen woody debris. It has also 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.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Aves	*Petroica boodang*	Scarlet Robin	V		1	Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat.	Low likelihood of occurrence. The site does not contain optimal habitat for this species.
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V	E	6	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland	The site does not contain habitat for this species.

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
						riparian forest, from the sub-alpine zone to the coastline. Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites.	
Mammalia	*Isoodon obesulus obesulus*	Southern Brown Bandicoot (eastern)	E	E	26	They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils.	The site does not contain habitat for this species.
Mammalia	*Phascolarctos cinereus*	Koala	E	E	76	Inhabits eucalypt woodlands and forests. Feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.	The site is located within a significantly fragmented landscape. The likelihood of a koala inhabiting the site is highly unlikely.
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V		97	Found in rainforests communities to sclerophyll (including Box-Ironbark) forests, woodland and heath. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes, soft fruits are eaten when flowers are unavailable and insects.	The site does not contain habitat for this species.
Mammalia	*Petaurus norfolcensis*	Squirrel Glider	V		5	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. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites.	The site does not contain habitat for this species.
Mammalia	*Petauroides volans*	Southern Greater Glider	E	E	1	Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the	Low likelihood of occurrence. The site does

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
						day in tree hollows and will use up to 18 hollows in their home range. Recorded using hollows with a minimum diameter of 8 cm.	not contain optimal habitat for this species.
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V	V	161	Occurs within tall sclerophyll forests and woodlands, heath, swamp subtropical and temperate rainforests, and urban areas. Occurs within 20km of a significant food source. May be found close to gullies and water within vegetation with a dense canopy.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V		1	Roosts in tree hollows and buildings. Forages for insects, flies high and fast over the forest canopy.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat	V		6	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Chalinolobus dwyeri*	Large-eared Pied Bat	E	E	10	Roost in caves, crevices in cliffs, old mine workings and in the disused mud nests of the Fairy Martin. Forages for invertebrates above or just below the tree canopy.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
							been undertaken. Refer to Appendix V.
Mammalia	*Myotis macropus*	Southern Myotis	V		13	Roosts in caves, mine shafts, tree hollows, storm water drains, buildings, bridges, and dense foliage. Forages over waterbodies catching insects and small fish.	The site does not contain habitat for this species.
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V		6	Roosts in tree hollows but may be found in buildings. Occurs in a range of habitats including woodlands to moist or dry eucalypt forest, rainforest with greatest preference for tall wet forests. Forages along creeks and river corridors.	The site does not contain habitat for this species.
Mammalia	*Vespadelus troughtoni*	Eastern Cave Bat	V		1	Roosts in caves and mine shafts. Generally found in dry open forest and woodlands. Prefers areas near cliffs and rocky overhangs.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Miniopterus australis*	Little Bent-winged Bat	V		34	Roost in caves, tunnels and sometimes tree hollows during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats.	The site contains potential foraging habitat for this species in the form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V		40	Primarily roosts in caves but will utilise mine shafts, storm-water tunnels, buildings and other man-made structures. Forms	The site contains potential foraging habitat for this species in the

Class	Scientific Name	Common Name	NSW status	Comm. status	Records	Habitat constraints	Likelihood of occurrence
						colonies within a maternity cave and disperse within a 300km range. Forage in forested areas in the tree canopy.	form of tree canopy. A test of significance has been undertaken. Refer to Appendix V.
Mammalia	*Pseudomys novaehollandiae*	New Holland Mouse		V	7	Known to inhabit open heathlands, open woodlands with a heathland understorey and vegetated sand dunes.	The site does not contain habitat for this species.
Mammalia	*Dugong dugon*	Dugong	E		2	Marine species.	The site does not contain habitat for this species.
Mammalia	*Arctocephalus forsteri*	New Zealand Fur-seal	V		16	Marine species.	The site does not contain habitat for this species.
Mammalia	*Arctocephalus pusillus doriferus*	Australian Fur-seal	V		4	Marine species.	The site does not contain habitat for this species.
Mammalia	*Eubalaena australis*	Southern Right Whale	E	E	3	Marine species.	The site does not contain habitat for this species.
Mammalia	*Physeter macrocephalus*	Sperm Whale	V		3	Marine species.	The site does not contain habitat for this species.
Gastropoda	*Meridolum maryae*	Maroubra Woodland Snail	E	E	1	The species is 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.	The site does not contain habitat for this species.

7.4 Appendix IV – Pittwater Spotted Gum Forest Species List

Northern Beaches Council Pittwater Spotted Gum Forest tree species list:

Pittwater Spotted Gum Forest

Black She-oak	*Allocasuarina littoralis*
Forest She-oak	*Allocasuarina torulosa*
Red Ash	*Alphitonia excelsa*
Sydney Red Gum	*Angophora costata*
Bloodwood	*Corymbia gummifera*
Spotted Gum	*Corymbia maculata*
Bangalay	*Eucalyptus botryoides*
Grey Ironbark	*Eucalyptus paniculata*
Grey Gum	*Eucalyptus punctata*
Broad-leaved White Mahogany	*Eucalyptus umbra*
Cabbage Tree Palm	*Livistona australis*
Common Lilly Pilly	*Syzygium smithii*

7.5 Appendix V – Test of Significance

7.5.1 Pittwater and Wagstaffe Spotted Gum Forest

a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable.

b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The proposal will not directly impact the community (represented as a small highly disturbed patches of the PSGF EEC) listed under the BC Act.

The extent of this impact is – none directly.

The proposal will not substantially or adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The composition of the PSGF EEC to be impacted is already heavily impacted by edge effects and past disturbance which has substantially modified the condition, structure and function of the community and no further impact is expected from the proposal.

c) In relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The proposal does not involve breaking apart large high-quality blocks of PSGF EEC, so no further fragmentation or isolation is expected. Young trees (Seedlings) need to be facilitated to grow naturally or supplementally plating of seedlings for the long-term survival of the PSGF EEC.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

There will be no impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposal has no clearing native vegetation and no Key Threatening Process under the BC Act will occur.

Conclusion

No direct impact on PSGF EEC. Weed removal and planting will see an improvement in the EEC.

7.5.2 Threatened microbats

The following eight species are considered moderately likely to occur within the site based on the presence of suitable foraging habitat and nearby records:

- *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat)
- *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat)
- *Chalinolobus dwyeri* (Large-eared Pied Bat)
- *Myotis macropus* (Southern Myotis)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)
- *Vespadelus troughtoni* (Eastern Cave Bat)
- *Miniopterus australis* (Little Bent-winged Bat)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)

These threatened microbats are likely to forage occasionally around the trees within the site.

The factors to be considered when determining whether an action, development or activity is likely to significantly affect threatened species or their habitats are outlined below.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

No known threatened microbat breeding sites are in close proximity to the site and the proposal would not impact on likely breeding habitat as no hollows were observed. No direct clearing or damage to street or garden trees will occur during the construction phase or after.

Foraging habitat mainly comprises insects associated with tree canopy. No impact to foraging habitat within the locality, the project is not expected to significantly affect the life cycle of the species.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The potential habitat of the threatened microbats within the site is limited to foraging habitat and includes all trees and associated air spaces. The extent of habitat for the threatened microbats will not be reduced.

Importantly, the proposal will not result in fragmentation of habitat for the threatened microbats.

Importantly, the proposal would not impact on the most important habitats for threatened microbats within

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

There will be no impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposal does not include clearing of native vegetation - no Key Threatening Process under the BC Act – will occur.

Conclusion

Threatened microbats would have no reduction in suitable foraging habitat from the proposal. No likely breeding sites or other important habitat would be impacted. The proposal is unlikely to reduce the population size of the threatened microbats or decrease the reproductive success of these species. The proposal would not interfere with the recovery of the threatened microbats and would not contribute to the key threats to these species. After consideration of the factors above, an overall conclusion has been made that the proposal is unlikely to result in a significant effect on the threatened microbats.

7.6 Appendix VI – BioNet extracts

Over 20yrs old record for koala


PALM BEACH
WHALE BEACH
AVALON BEACH
Scale 4000
100 m
Projected Coordinates (X/Y)
X: 16846493.95
Y: -3977768.67