



REVISED ECOLOGICAL ASSESSMENT

Elysian Residential Development Project

A Report Prepared for Greenland Development Pty Ltd

NOVEMBER 2024

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ABBREVIATIONS

Abbreviation	Description
AHD	Australian Height Datum
BC Act	NSW Biodiversity Conservation Act 2016
BCR	Biodiversity Conservation Regulation 2017
CM Act	Coastal Management Act
DBH	Diameter at Breast Height
DCP	Development Control Plan
DoPE	NSW Department of Planning and Environment
EA	Ecological Assessment
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP&A Act	Environmental Planning and Assessment Act 1979
Ha	Hectare
Hrs	Hours
HMP	Habitat Management Plan
JWA	JWA Pty Ltd
Km	Kilometre
LGA	Local Government Area
m	Metres
MNES	Matters of National Environmental Significance
NSW	New South Wales
NVR Map	Native Vegetation Regulatory Map
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
PKFT	Preferred Koala Food Tree
РКН	Preferred Koala Habitat
PMST	Protected Matters Search Tool
QLD	Queensland
SEPP	State Environmental Protection Policy
SEQ	South East Queensland
TCCKPoM	Tweed Coast Comprehensive Koala Plan of Management
TEC	Threatened Ecological Community
TSC	Tweed Shire Council
TLEP	Tweed Local Environmental Plan
~	Approximately

1 INTRODUCTION

1.1 Background

JWA Pty Ltd (JWA) have been engaged by Greenland Development Pty Ltd ('the applicant') to prepare a Revised Ecological Assessment (EA) for consideration by the Department of Planning, Housing and Infrastructure (DPHI) to modify the Major Project ('Concept Plan') Approval No. 08_0234 for Elysian, formerly known as the 'Rise', located at Marana Street, Bilambil Heights NSW 2486. The subject site is formally described as Lot 32//DP1085109, Lot 33//DP1085109, Lot 31//DP850230, Lot 2//DP867486, Lot 4//DP822786, Lot 1//DP1033807, Lot 1//DP595529 and Lot 1//DP1033810, Lot 2//DP1156202, Lot 1//DP1033811 (FIGURE 1).

The proposal seeks approval to modify the Major Project consent pursuant to clause 3BA(5) of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (Transitional Regulation).

The modification seeks changes to the land uses of the approved project and the conditions of the consent. It is proposed to modify the approval by consolidating and simplifying land uses, omitting inappropriate uses and removal of the detailed layout to allow for flexibility at the detailed design stage.

A summary of the proposed changes include:

- Consolidation and updating of land uses and precincts
- Change of residential product type and density
- Increase in residential areas with an overall reduction in the yield of the development
- Deletion of precincts for a private school and nursing home
- Increase in open space overall, including additional land for conservation
- Reduced village centre precinct area
- Reduction in the number of precincts allocate for retirement living
- Realignment of major spine road and internal roads
- Relocation and consolidation of the reservoirs
- Change in tenure from Community title scheme/ Body corporate to Freehold

The Major Project Approval No. 08_0234 was originally approved on 29th June 2010, with two subsequent modifications approved on 4th April 2018 (Mod 1) and 31st October 2022 (Mod 2). It is proposed to change the approval description as follows:

• Concept plan for the development of a mixed residential development including 1,300 residential dwellings, 2,400 m² gross floor area of retail space, 4,250 m² gross floor area of commercial space, and associated infrastructure and landscaping.

It is considered that the proposed changes are substantially the same development for which the consent was originally granted.



1.2 Assessment Approach

This EA involved a two-stage approach. Firstly, a desktop review was undertaken to identify updated Commonwealth, State and Local environmental constraints that may apply. These include (but may not be limited to), the presence of significant vegetation communities, potential habitat for threatened flora or fauna, and/or ecologically sensitive areas.

Secondly, as guided by the desktop review, several past and recent field assessment have been interrogated to confirm the presence or likely presence of flora, fauna, and habitat.

This EA has involved the following:

- determining the suite of Commonwealth and State listed threatened and regionally or locally significant flora and fauna species that occur in the locality from literature and database records;
- assessing the likelihood of occurrence of threatened flora and fauna species;
- assessing habitat provided and the context of the surrounding area;
- assessing the corridor values at a local and regional scale;
- assessing the potential impacts of the proposed development and determining appropriate mitigation measures;
- addressing statutory requirements regarding impacts to flora and fauna;
- addressing relevant development assessment codes and policies; and
- assessment of the proposed development against the relevant TSC planning and development controls.

1.3 The Subject Site

The subject site consists of the disused Terranora Golf Resort and associated grazing land and covers a total area of ~189.16 ha (**FIGURE 1**) and is located to the west of the Bilambil Heights residential area and ~9 km west from the coastline. The Terranora and Cobaki Broadwater's are ~2.5 km to the east and ~4.5 km to the northeast, respectively.

The subject site undulates from 3 m Australian Height Datum (AHD) in the low-lying northern portion to 216 m AHD in the central and southern portions and includes steeply sloping land.

While much of the subject site is cleared (92.11 ha; grasslands) or has been substantially modified (10.55 ha; i.e. scattered mature trees lining disused golf fairways), patches of vegetation varying in quality occur across ~86.51 ha, including a large area of subtropical rainforest in the southern portions of the subject site. Most of the native vegetation on the subject site is heavily infested with exotic species, namely Camphor laurel (*Cinnamomum camphora*). An aerial photograph of the subject site is shown in **FIGURE 2**.



LEGEND

Stage 1 Boundary Site Boundary

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5] 500m
FIGURE 2	TITLE
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	PHOTOGRAPH

1.4 Planning Context

The subject site is largely <u>excluded</u> from the Tweed LEP Land Application Map, and the State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) applies. Under the Major Development SEPP Rise Bilambil Heights land zoning map (**FIGURE 3A**), the subject site is zoned as the following:

- R1 General Residential.
- R5 Large Lot Residential.
- RU2 Rural Landscape.

- DM Deferred Matter.
- W2 Recreational Waterways.
- C2 Environmental Conservation.

• B4 Mixed Use.

A portion of the proposed new neighbourhood collector that links Precincts 6 and 7 bisects an area zoned as DM Deferred Matter - 7(d) Environmental Protection (Scenic / Escarpment) under the Tweed Planning Scheme 2000 (FIGURE 3B).

1.5 Relevant Legislation

It is important to note that the transitional and savings provision of various NSW legislation is applicable to the proposed development. In this regard, the following repealed legislation is relevant to this assessment:

- Threatened Species Conservation Act 1995 (TSC Act) the version in force immediately before its repeal (which is saved under the transitional provisions of the Biodiversity Conservation Act [BC Act]);
- State Environmental Planning Policy No. 14 (SEPP 14) the version in force immediately before its repeal (which was saved under the transitional provisions of the Coastal Management SEPP, which are in turn saved by virtue of provisions in the *Interpretation Act 1987* despite the repeal of the Coastal Management SEPP by the Resilience and Hazards SEPP;
- State Environmental Planning Policy No. 26 (SEPP 26) the version in force immediately before its repeal (which is saved for the same reasons as SEPP 14);
- State Environmental Planning Policy No. 71 (SEPP 71) the version in force immediately before its repeal (which is saved for the same reasons as SEPP 14); and
- State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP) in particular the current version of Chapter 3.

Other relevant legislation addressed in this assessment include:

• Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);

<u>Note</u>: As per Part 26, Division 1 (5) of the Major Development SEPP "the only environmental planning instruments that apply, according to their terms, to land within the Rise Bilambil Heights site are this Policy and all other State environmental planning policies, other than State Environmental Planning Policy No 1–Development Standards". Given the above legislative standings, the Tweed LEPs and Development Control Plans (DCPs) do not apply.



Stage 1 Boundary

R1 - General Residential

R2 - Low Density Residential

R5 - Large Lot Residential

RU2 - Rural Landscape

RE1 - Public Recreation

C2 - Environmental Conservation

W2 - Recreational Waterways

DM - Deferred Matter

R1 - General Residential

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5	_ 500m
FIGURE 3A	TITLE
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	PLAN



LEGEND Impact Area

Stage 1 Boundary Site Boundary Zoning Plan - Tweed Planning Scheme 2000 1(c) - Rural Living 7(d) - Environmental Protection (Scenic / Escarpment)

 Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5	_J 600m
FIGURE 3B	TITLE ZONING PLAN
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	- DEFERRED MATTERS

1.6 The Proposed Development

The proposed development is split into seven (7) precincts, and includes (among other things):

- A mixed residential development with 1,300 residential dwellings;
- 2,400 m² gross floor area of retail space;
- 4,250 m² gross floor area of commercial space;
- Associated infrastructure and landscaping;
- Open space and parks; and
- Environmental conservation areas

A concept layout of the proposed development is provided in **FIGURE 4**.

1.7 Previous Surveys / Studies

The following reports / field assessments (**TABLE** 1) have been undertaken by JWA and others on, or adjacent to the subject site. These have been discussed where relevant throughout this EA.

Report	Flora	Survey year(s)	Fauna	Survey year(s)
WBM Oceanics (1996). <i>Terranora Golf Project - Flora and Fauna Report</i> . A report prepared for Weathered Howe Pty Ltd.	~	1996	~	1996
JWA (2004). Flora and Fauna Assessment. A Report to Masterbuilt Building Lifestyles.	~	2004	~	2004
JWA (2005). Flora and Fauna Assessment - Marana Street, Terranora lakes project, Bilambil. A Report to Terranora Group Management Pty Ltd.	~	2005	~	2005
JWA (2007). Flora and Fauna Assessment - Pacific Highlands Estate, Bilambil Heights. A Report to Terranora Group Management Pty Ltd.		2005 2006 2007		2006 2007
JWA (2009a). Rise Estate, Bilambil Heights West Tweed - Volume 1 - Ecological Assessment. A Report to Terranora Group Management Pty Ltd. JWA (2009b). Rise Estate, Bilambil Heights West Tweed				
Report to Terranora Group Management Pty Ltd.	~	2009*	~	2009*
Volume 3 - Site Rehabilitation and Pest Management Plan. A Report to Terranora Group Management Pty Ltd.				
JWA (2010). <i>Revised Ecological Assessment</i> . A Report to Terranora Group Management Pty Ltd.				

 TABLE 1

 ASSESSMENTS COMPLETED ON OR ADJOINING THE SUBJECT SITE

Report	Flora	Survey year(s)	Fauna	Survey year(s)
Biolink (2011). <i>Tweed Coast Koala Habitat Study</i> . Report to Tweed Shire Council.			~	2010
JWA (2020). Draft Ecological Assessment - Rise Estate, Bilambil Heights (MP 08-0234). A Report to Terranora Group Management Pty Ltd.	~	2020	~	2020
JWA 2023 [#]	~	2023	~	2023
*JWA (2009) incorporates data collected for, and discussed within, JWA (2007). #includes targeted threatened flora and fauna field survey data only (no reporting).				



LEGEND Stage Site Bou Proposed Develo Precinc Precinct Precinc Precinct Precinc Precinct

L 0

Boundary		
undary		
opment Layout		
et A - Village Centre		
t B - Retirement Living		
et C - Low Density Housing		
t D - Hilltop Village		
et E - Reserve		
et F - Open Space		

Precinct G - Conservation

Precinct H - Structured Open Space

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5] 500m
FIGURE 4	TITLE PROPOSED CONCEPT
PREPARED: BW DATE: 18 November 2024 FILE: N01057_EA_20241025.dwg	PLAN

2 DESKTOP ASSESSMENT

2.1 Introduction

A desktop assessment was completed to highlight any potential conservation significant vegetation communities, habitat for threatened flora and fauna, and ecologically sensitive areas in the focal area. The desktop assessment included a review of:

- State and commonwealth databases;
- Commonwealth legislation;
- NSW plans, policies and legislation;
- TSC plans and policies; and
- Scientific journal articles and botanical literature to assist with habitat suitability assessments.

2.2 Methods

2.2.1 Commonwealth Database Searches

The Protected Matters Search Tool (PMST) was used to generate a list of the following Matters of National Environmental Significance (MNES) protected under the Commonwealth *Environment Protection Biodiversity and Conservation Act 1999* (EPBC Act) that may occur within 10 km of the focal area:

- world heritage and national heritage areas;
- wetlands of international significance (Ramsar Wetlands);
- Commonwealth marine areas;
- threatened ecological communities;
- threatened species; and
- migratory species.

The PMST database incorporates information from a range of sources, including government agencies, research, and community organisations. It should be noted that there are limitations on the accuracy of some matters reported by the PMST. Database records of threatened and migratory species are based on their current known distribution and do not necessarily correlate to an actual observation. As a result, these records are an indicator of potential presence only and do not consider if suitable vegetation, geology, soil, climate, or habitat types are present to support the occurrence of a species or community.

2.2.2 State Database Searches

The NSW Department of Planning and Environment (DoPE) BioNet online database is based on collated biodiversity data acquired by the NSW Government through a range of sources including specimen collections, research and monitoring programs, and community wildlife groups. As previously discussed, the repealed TSC Act continues to apply however, under the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, the following provision applies:

<u>31 New threatened species listings to apply to continued application of former</u> planning provisions

For the purposes of the application of the former planning provisions in accordance with this Part, any change under the new Act to the listings of threatened species and ecological communities is taken to be a corresponding change to the listings under the Threatened Species Conservation Act 1995 referred to in the former planning provisions.

With the above considered, a BioNet database search was used to generate a list of threatened flora and fauna species listed under the 'current' NSW BC Act that may occur within 10 km of the subject site. This search allows inclusion of any new threatened species listed since the TSC Act.

2.2.3 State Government Legislation and Mapping

2.2.3.1 Background

As previously discussed, the below 'repealed' environmental legislation applies to the subject site and therefore were reviewed as part of the desktop assessment:

- State Environmental Planning Policy no. 14 Coastal Wetlands (Coastal Wetlands SEPP);
- State Environmental Planning Policy no. 26 Littoral Rainforest (Littoral Rainforest SEPP); and
- State Environmental Planning Policy no. 71 Coastal Protection (Coastal Protection SEPP).

In addition, the current Chapter 3 of the Biodiversity and Conservation SEPP applies and was assessed as part of this EA.

Further discussion of the relevant legislation is provided in SECTIONS 8.4 - 8.7.

2.2.4 Local Government Plans and Mapping

The TSC Development Control Plan (2008) (DCP) contains detailed guidelines that show the controls that apply to a particular type of development or in a particular area. The TSC DCP was reviewed as part of the desktop assessment for areas of the subject site where it applies (SECTION 1.4 & 1.5 refer).

The two (2) sections of the DCP that warrant investigation in this case include the following:

- Section A16 Preservation of Trees or Vegetation (DCP A16), which aims to protect, insofar as it is reasonably possible, the biodiversity, amenity and cultural values of the Tweed Shire through the preservation of trees and vegetation; and

 Section A19 Biodiversity and Habitat Management (DCP A19), which aims to ensure the planning and design of new developments maintain or improve ecological values within Tweed Shire.

Other environmental features mapped across the TSC LGA includes flying-fox camps, osprey (*Pandion cristatus*) nests, vegetation communities, drainage lines, and fauna corridors.

The Tweed Coast Comprehensive Koala Plan of Management (TCCKPoM) was adopted by TSC in February 2015 on the back of a Tweed Coast Koala Habitat Study prepared in 2011 (Phillips & Hopkins 2011). On 17 March 2021, the TCCKPoM was approved by the DoPE. In accordance with the objectives of the Koala SEPP 2021 (now Biodiversity and Conservation SEPP) and the approved NSW Koala Recovery Plan, the overarching vision of this Plan is that the Tweed Coast koala population will be recovered to more sustainable levels over the next two decades. The TCCKPoM was reviewed as part of the desktop assessment.

2.3 Results

2.3.1 Database Searches

2.3.1.1 <u>Threatened Ecological Communities (TECs)</u>

Database searches using the Commonwealth PMST revealed that eight (8) TECs may occur within 10 km of the subject site:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of NSW and South East Queensland (SEQ) ecological community Endangered;
- Coastal Swamp Sclerophyll Forest of NSW and SEQ Endangered;
- Dunn's white gum (*Eucalyptus dunnii*) moist forest in north-east NSW and SEQ Endangered;
- Frey box-grey gum wet forest of sub-tropical eastern Australia Endangered;
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia Critically Endangered;
- Lowland Rainforest of Subtropical Australia Critically Endangered;
- Subtropical and Temperate Coastal Saltmarsh Vulnerable; and
- Subtropical eucalypt floodplain forest and woodland of the NSW north coast and SEQ bioregions Endangered.

2.3.1.2 Threatened Flora Species

Threatened flora species identified in the database searches are listed in **TABLE 2**. The conservation status of each species is shown in accordance with the EPBC Act and BC Act.

TABLE 2 DATABASE RECORDS OF THREATENED FLORA SPECIES WITHIN 10 KM OF THE SUBJECT SITE

Scientific Name		BC	EPBC
	common Name		Act
Acacia bakeri	Marblewood	V	
Acalypha eremorum	Acalypha	Е	
Acronychia littoralis	Scented acronychia	E	E
Archidendron hendersonii	White lace flower	V	
Arthraxon hispidus	Hairy-joint grass	V	V
Baloghia marmorata	Jointed baloghia	V	V
Bosistoa transversa	Yellow satinheart	V	V
Bulbophyllum globuliforme	Miniature moss-orchid	V	V
Cassia marksiana	Brush cassia	E	
Coatesia paniculata	Axe-breaker	E	
Corokia whiteana	Corokia	E	E
Cryptocarya foetida	Stinking cryptocarya	V	V
Cryptostylis hunteriana	Leafless tongue-orchid	V	V
Cynanchum elegans	White-flowered wax plant		E
Cupaniopsis serrata	Smooth tuckeroo	Е	
Davidsonia jerseyana	Davidson's plum	Е	Е
Davidsonia johnsonii	Smooth davidsonia	E	E
Diospyros mabacea	Red-fruited ebony	E	E
Diospyros yandina	Shiny-leaved ebony	E	
Diploglottis campbellii	Small-leaved tamarind	E	Е
Dipteracanthus australasicus subsp.		-	
corynothecus		E	
Drynaria rigidula	Basket fern	E	
Endiandra floydii	Floyd's walnut	E	Е
Endiandra hayesii	Rusty rose walnut	V	V
Endiandra muelleri subsp. bracteata	Green-leaved rose walnut	E	
Floydia praealta	Ball nut	V	V
Fontainea australis	Southern fontainea	V	V
Geodorum densiflorum	Pink nodding orchid	Е	
Gossia fragrantissima	Sweet myrtle	Е	Е
Grevillea hilliana	White yiel yiel	E	
Harneiria hygropholoides	Native justica	E	
Hicksbeachia pinnatifolia	Red bopple nut	V	V
Isoglossa eranthemoides	Isoglossa	E	
Leichhardtia longiloba		F	v
(listed as Marsdenia longiloba)	Clear milkvine	E	v
Lepiderema pulchella	Fine-leaved tuckeroo	V	
Lepidium peregrinum	Wandering pepper-cress	Е	Е
Lindsaea brachypoda	Short-footed screw fern	Е	
Lindsaea fraseri	Fraser's screw fern	E	
Macadamia integrifolia	Macadamia nut		V
Macadamia tetraphylla	Rough-shelled bush nut	V	V
Niemeyera whitei	Rusty plum	V	
Ochrosia moorei	Southern ochrosia	E	E
Owenia cepiodora	Onionwood	V	V

Scientific Name	Common Name		EPBC
Scientific Name	Common Name	Act	Act
Peristeranthus hillii	Brown fairy-chain orchid	V	
Phaius australis	Lesser swamp-orchid	Е	E
Plectranthus nitidus	Nightcap plectranthus	Е	E
Randia moorei	Spiny gardenia	Е	E
Rhodamnia maideniana	Smooth scrub turpentine	CE	CE
Rhodamnia rubescens	Scrub turpentine	CE	CE
Rhodomyrtus psidioides	Native guava	CE	CE
Samadera bidwillii	Quassia		V
Sarcochilus fitzgeraldii	Ravine orchid	V	V
Selaginella andrewsii	Tallebudgera spikemoss		V
Sophora fraseri	Brush sophora	V	V
Symplocos baeuerlenii	Small-leaved hazelwood	V	V
Syzygium hodgkinsoniae	Red lilly pilly	V	V
Syzygium moorei	Durobby	V	V
Thesium australe	Austral toadflax	V	V
Tinospora tinosporoides	Arrow-head vine	V	
Vincetoxicum woolsii		F	F
(listed as Tylophora woollsii)		E	E
Westringia rupicola			V
BC Act - New South Wales Biodiversity Conservation Act 2016			

EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999

Conservation status: CE - Critically endangered; E - Endangered; V - Vulnerable; NT - Near threatened

2.3.1.3 <u>Threatened Fauna Species</u>

Threatened fauna species identified in the database searches are listed in **TABLE 3**. The conservation status of each species is shown in accordance with the EPBC Act and BC Act. Species that will clearly not occur on the subject site have been omitted (i.e. whales, dolphins, sharks, marine turtles, water mouse, and bird species that rely heavily on coastal / marine / natural wetland environments).

Scientific Name	Common Namo	BC	EPBC
	Common Name		Act
Amphibians	· · · · · · · · · · · · · · · · · · ·		
Assa darlingtoni	Pouched frog	V	V
Crinia tinnula	Wallum froglet	V	
Litoria olongburensis	Wallum sedge frog	V	V
Mixophyes balbus	Stuttering frog	E	V
Mixophyes fleayi	Fleay's frog	E	E
Mixophyes iteratus	Giant barred frog	E	V
Birds			
Anthochaera phrygia	Regent honeyeater	CE	CE
Burhinus grallarius	Bush stone-curlew	E	
Calyptorhynchus lathami	Glossy-black cockatoo	V	V
Carterornis leucotis	White-eared monarch	V	

TABLE 3 DATABASE RECORDS OF THREATENED FAUNA SPECIES WITHIN 10 KM OF THE SUBJECT SITE

Scientific Name Common Name		BC	EPBC
		Act	Act
Climacteris picumnus victoriae	Brown treecreeper	V	V
Coracina lineata	Barred cuckoo-shrike	V	
Cyclopsitta diophthalma coxeni	Coxen's fig-parrot	CE	E
Daphoenositta chrysoptera	Varied sittella	V	
Erythrotriorchis radiatus	Red goshawk	CE	V
Falco hypoleucos	Grey falcon	E	V
Falco subniger	Black falcon	V	
Geophaps scripta scripta	Squatter pigeon		V
Glossopsitta pusilla	Little lorikeet	V	
Haliaeetus leucogaster	White-bellied sea-eagle	V	
Hieraaetus morphnoides	Little eagle	V	
Hirundapus caudacutus	White-throated needletail		V
Lathamus discolor	Swift parrot	E	CE
Lophoictinia isura	Square-tailed kite	V	
Ninox connivens	Barking owl	V	
Ninox strenua	Powerful owl	V	
Pandion cristatus	Eastern osprey	V	
Petroica boodang	Scarlet robin	V	
Ptilinopus magnificus	Wompoo fruit-dove	V	
Ptilinopus regina	Rose-crowned fruit-dove	V	
Ptilinopus superbus	Superb fruit-dove	V	
Stagonopleura guttata	Diamond firetail		V
Turnix melanogaster	Black-breasted button quail	CE	V
Tyto longimembris	Eastern grass owl	V	
Tyto novaehollandiae	Masked owl	V	
Tyto tenebricosa	Sooty owl	V	
Invertebrates		· ·	
Argynnis hyperbius inconstans	Australian fritillary		CE
Phyllodes imperialis smithersi	Pink underwing moth	E	E
Thersites mitchellae	Mitchell's rainforest snail	E	CE
Mammals			
Chalinolobus dwyeri	Large-eared pied bat		V
Chalinolobus nigrogriseus	Hoary wattled bat	V	
Dasvurus maculatus	Spotted-tailed guoll	V	E
Micronomus norfolkensis	Eastern freetail-bat	V	
Miniopterus australis	Little bentwing bat	V	
Miniopterus orianae oceanensis	Large bentwing bat	V	
Myotis macropus	Southern myotis	v	
Nyctimene robinsoni	Fastern tube-nosed bat	v	
Nyctophilus bifax	Fastern long-eared bat	v	
Notamacropus parma	Parma wallaby	•	V
Azimons lumsdenge	Northern free-tailed bat	V	•
Petauroides volans	Greater glider	F	F
Petaurus australis	Yellow-bellied glider	V	V
Petaurus porfolcensis	Squirrel glider	V	v
Petrogale penicillata	Brush-tailed rock-wallaby	v	v
Phascolarctos cipereus	Koala	F	* F
Planigale maculata			
Potorous tridactulus	Long-posed potoroo	v V	v
i ocorous criaactylas	Long-nosed poloioo	v	v

Colombific Nome	Common Name	BC	EPBC
		Act	Act
Pseudomys novaehollandiae	New Holland mouse		V
Pteropus poliocephalus	Grey-headed flying fox	V	V
Saccolaimus flaviventris	Yellow-bellied sheathtail-bat	V	
Syconycteris australis	conycteris australis Common blossom-bat V		
Reptiles			
Coeranoscincus reticulatus	Three-toed snake-tooth skink	V	V
Delma torquata	Collared delma		V
Furina dunmalliDunmall's snakeV			V
BC Act - New South Wales Biodiversity Conservation Act 2016 EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999			
CE - Critically Endangered, E - Endangered, V - Vulnerable			

2.3.1.4 Migratory Species

Migratory species identified in database searches are listed in **TABLE 4**. Species that will clearly not rely on habitat available on the subject site have been omitted (e.g., cetaceans, sea turtles, and marine/shore/oceanic birds). Species that will clearly not occur on the subject site have been omitted (i.e. whales, dolphins, sharks, marine turtles, and bird species that rely heavily on coastal / marine / natural wetland environments).

TABLE 4 DATABASE RECORDS OF COMMONWEALTH LISTED MIGRATORY SPECIES WITHIN 10 KM OF THE SUBJECT SITE

Scientific Name	Common Name	EPBC Act	
Cuculus optatus	Oriental cuckoo	Μ	
Hirundapus caudacutus	White-throated needletail	M, V	
Monarcha melanopsis	Black-faced monarch	Μ	
Motacilla flava	Yellow wagtail	Μ	
Myiagra cyanoleuca	Satin flycatcher	Μ	
Pandion haliaetus	Osprey	Μ	
Rhipidura rufifrons	Rufous fantail	Μ	
Symposiachrus trivirgatus	Spectacled monarch	Μ	
EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999			

CE - Critically Endangered, E - Endangered, V - Vulnerable, M - Migratory

2.3.2 State Government Legislation and Mapping

2.3.2.1 Coastal Wetlands SEPP

The subject site is not mapped as containing coastal values under the Coastal Wetland SEPP (No. 14).

2.3.2.2 Littoral Rainforest SEPP

The subject site is not mapped as containing SEPP 26 Littoral Rainforest.

2.3.2.3 Biodiversity and Conservation SEPP

The subject site is greater than 1 ha in size and located within the Tweed LGA. As a result, the Biodiversity and Conservation SEPP applies. This is further discussed in **SECTION 8.7**.

2.3.3 Local government mapping

2.3.3.1 <u>Tweed Environmental mapping</u>

An active Flying-fox roost and known Osprey nest are located ~3.5 km to the east and ~1. 3 km to the south-south-east of the subject site, respectively.

The following TSC environmental layers are mapped on the subject site:

- Vegetation Communities (FIGURE 5):
 - \circ Sub-tropical / warm temperate rainforest on bedrock substrates;
 - Camphor laurel dominated closed to open forest;
 - Substantially cleared of native vegetation; and
 - Areas that are 'not assessed'.
- Drainage lines (FIGURE 5);
- Regional and sub-regional fauna corridors (FIGURE 6).

2.3.3.2 <u>Tweed koala mapping</u>

The subject site is in the Tweed Heads Koala Management Area (Tweed Heads KMA); but is not mapped as part of a Koala Activity Precinct (KAP) or Koala Linkage Precinct (KLP). Preferred Koala Habitat (PKH) is not mapped on the subject site.



1 100
Boundary
undary
Incil - Vegetation Communities 2009
Box Open Forest
or Laurel Dominant Closed to Open Forest
nforest
egrowth Rainforest
d Gum Open Forest
d Rainforest on Floodplain
Plantation
sessed
Vater
ntially Cleared of Native Vegetation
vood Open Forest

Scale 1 : 10 000	
100m 200m 300m 400m 5	00m
FIGURE 5	TSC VEGETATION
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	COMMUNITIES & DRAINAGE LINES



Stage 1 Boundary Site Boundary

Regional corridor Subregional corridor



3 FLORA ASSESSMENT

3.1 Introduction

Flora assessments since 1996 (WBM Oceanics 1996) have been undertaken on the subject site. Since that time, JWA have completed multiple field assessments with one or more of the following objectives:

- 1. To ground truth (and amend as necessary) vegetation mapping;
- 2. To expand the previous vegetation mapping to include the balance of the subject site and adjoining areas as necessary;
- 3. To complete targeted surveys for threatened flora species (listed within schedules of the EPBC Act and/or BC Act) in accordance with relevant current survey guidelines); and
- 4. To collect detailed data from the vegetation proposed to be removed to allow an assessment of its ecological value.

The following sections outline the methods and results from previous field surveys on the subject site.

3.2 Methods

3.2.1 Previous Vegetation Mapping and Threatened Flora Surveys

Prior to the original Concept Plan approval, a broadscale vegetation survey was completed by two (2) scientists on the 22nd, 23rd and 24th of November 2005, and by one (1) scientist on the 29th of November 2005 over a total period of approximately 60 hrs.

A further 38 hrs assessment was undertaken by two (2) scientists on February 27th and 28th 2006 to investigate 7(d) zoned land in the south of the subject site, and land occurring immediately adjacent, both on and off the subject site. This assessment was to determine the diversity and numbers of threatened flora within this Vegetation Community (VC), as it represents the best quality vegetation on the subject site.

Verification of VCs boundaries was completed during subsequent field surveys during May and June 2007, and March 2009. The effects of the Camphor laurel eradication program on community structure and diversity were documented during these survey periods.

VCs were assessed to ascertain their ecological value and levels of disturbance (such as the presence of Camphor laurel), and the presence of threatened flora. All threatened flora species were surveyed by GPS. Due to the large number of threatened flora on the subject site, each individual tree was not given its own GPS point. Rather, any trees within radius of up to 10 m of a point were grouped together, with records noted of the species and number of trees and approximate height.

3.2.2 Recent Vegetation Mapping and Threatened Flora Surveys

To ensure contemporary assessment of vegetation communities and threatened flora species on the subject site as part of the proposed modification application, previous vegetation mapping over the site (JWA 2004, 2005, 2007, 2009) was ground-truthed and additional and comprehensive targeted threatened flora surveys were completed. Vegetation surveys were completed by two (2) to three (3) experienced botanists over a total of 260 person hours as follows:

- two (2) experienced botanists for a total of 120 hours between the 24th February and 6th March 2020; and
- two (2) experienced botanists for a total of 140 hours between the 25th October and 3rd November 2023.

The random meander technique (Cropper 1993) was employed in the field to traverse vegetated areas of the subject site and identify changes in landform and VC boundaries and confirm, or amend where necessary, previous vegetation mapping. The floral characteristics of each VC that was evident from detailed aerial photographs or past mapping were examined by 'on foot' inspections. VCs were mapped and refined (where necessary) using the technique contained in Walker and Hopkins (1998).

Mapped VCs were subsequently assigned to a Plant Community Type (PCT) with consideration of detailed descriptions and relevant geographic distributions within the BioNet Vegetation Classification. PCT's were then assessed against detailed descriptions of TECs within the Commonwealth Species Profile and Threats Database (SPRAT), the NSW OEH website and in the relevant NSW Scientific Committee Determinations.

Additionally, targeted searches for threatened flora species were undertaken in accordance with the NSW Guide to Surveying Threatened Plants (DPIE 2020) to verify known locations and update the extent of each species. The surveys utilised the parallel field-traverse survey technique which involved searching along a grid of parallel traverses within potentially suitable habitat, whereby the surveyors walked while making a visual sweep either side of the traverse.

3.3 Results

3.3.1 Flora species

A total of 427 flora species have been recorded from the subject site (**APPENDIX 1**) including a total of 23 threatened flora species listed within schedules of the EPBC Act and/or BC Act.

TABLE 5 lists the threatened species listed within schedules of the EPBC Act or BC Act that have been recorded on the subject site during one or more of the previous field surveys. Locations of known plants are provided in **FIGURES 7A-7E**. Details of threatened flora records are provided in **APPENDIX 2**.



Area
1 Boundary
oundary
a Records
ened Flora to be Retained
ened Flora to be Removed

Scale 1 : 10 000 I I I I 100m 200m 300m 400m] 500m
FIGURE 7A	TITLE
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	FLORA RECORDS







Stage 1 Boundary Threatened Flora to be Retained Threatened Flora to be Removed





Scientific Name	Common Namo	BC	EPBC
	Common Name	Act	Act
Acacia bakeri	Marblewood	V	
Archidendron hendersonii	White lace flower	V	
Bosistoa transversa	Yellow satinheart	۷	V
Coatesia paniculata	Axe-breaker	Е	
Cryptocarya foetida	Stinking cryptocarya	۷	V
Diospyros yandina	Shiny-leaved ebony	Е	
Diploglottis campbellii	Small-leaved tamarind	Е	Е
Drynaria rigidula	Basket fern	Е	
Endiandra hayesii	Rusty rose walnut	V	V
Endiandra muelleri subsp. bracteata	Green-leaved rose walnut	Е	
Floydia praealta	Ball nut	V	V
Gossia fragrantissima	Sweet myrtle	Е	Е
Grevillea hilliana	White yiel yiel	Е	
Hicksbeachia pinnatifolia	Red bopple nut	۷	V
Lepiderema pulchella	Fine-leaved tuckeroo	۷	
Macadamia tetraphylla	Rough-shelled bush nut	V	V
Ochrosia moorei	Southern ochrosia	Е	Е
Peristeranthus hillii	Brown fairy-chain orchid	V	
Phyllanthus microcladus	Brush sauropus	Е	
Randia moorei	Spiny gardenia	Е	Е
Rhodamnia maideniana	Smooth scrub turpentine	CE	CE
Syzygium hodgkinsoniae	Red lilly pilly	V	V
Syzygium moorei	Durobby	V	V

TABLE 5THREATENED FLORA SPECIES RECORDED ON THE SUBJECT SITE

BC Act - New South Wales Biodiversity Conservation Act 2016

EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999

Conservation status: CE - Critically endangered; E - Endangered; V - Vulnerable; NT - Near threatened

3.3.2 Vegetation Communities

3.3.2.1 Introduction

Based on past assessments and the further interrogation in 2020 and 2023, a total of five (5) VCs (plus sub-VCs) have been identified and refined on the subject site based on different broad condition states (FIGURE 8). TABLE 6 below identifies which of the VCs are representative of a TEC listed within schedules of the EPBC Act and/or the BC Act.



Scale 1 : 10 000	1
100m 200m 300m 400m 5	00m
FIGURE 8	VEGETATION
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	COMMUNITIES

- VC3A Mid-high to tall closed forest (*Cinnamomum camphora* +/- mixed species) (PCT 3011 derived) VC3B - Low to mid-high closed regrowth (*Cinnamomum camphora* +/- mixed species) (PCT 3011 - derived)
- VC4A Mid-high to tall closed forest (*Cinnamomum camphora*)
- VC4B Low to mid-high regrowth (*Cinnamomum camphora*)
- VC5 Planted trees / landscaping
- Grassland and Disturbed Areas

Vegetation		Representative PCT	Representative TEC		
Community (VC)	Brief Description		EPBC Act	BC Act	
VC1A	Tall subtropical rainforest	3011 - Far North Lowland Subtropical Rainforest	Lowland Rainforest of Subtropical Australia	Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC1B	Mid-high to tall subtropical rainforest	3011 - Far North Lowland Subtropical Rainforest	Lowland Rainforest of Subtropical Australia	Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC2A	Tall closed sclerophyll forest (Lophostemon confertus)	3148 - Far North Brush Box- Walnut Wet Forest	Lowland Rainforest of Subtropical Australia	Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC2B	Tall open sclerophyll forest (Lophostemon confertus / Cinnamomum camphora)	3148 (derived) - Far North Brush Box-Walnut Wet Forest	Lowland Rainforest of Subtropical Australia	Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC3A	Mid-high to tall closed forest (<i>Cinnamomum camphora</i> +/- mixed species)	3011 (derived) - Far North Lowland Subtropical Rainforest		Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC3B	Low to mid-high closed regrowth (<i>Cinnamomum camphora</i> +/- mixed species)	3011 (derived) - Far North Lowland Subtropical Rainforest		Lowland Rainforest in the NSW North Coast and Sydney Bioregions	
VC4A	Mid-high to tall closed forest (Cinnamomum camphora)	n/a	n/a	n/a	
VC4B	Low to mid-high closed regrowth (Cinnamomum camphor)	n/a	n/a	n/a	
VC5	Planted trees / landscaping	n/a	n/a	n/a	
	Grassland and disturbed areas	n/a	n/a	n/a	

TABLE 6VEGETATION COMMUNITIES PRESENT ON THE SUBJECT SITE

3.3.2.2 <u>Vegetation Community 1A - Tall subtropical rainforest</u>

Location

This VC comprises the highest quality vegetation on the subject site and occurs over ~15.08 ha in the southern extent (FIGURE 8).

Description

Mature trees occur at heights of up to 30 m, and include Giant stinging tree (*Dendrocnide excelsa*), Giant water gum (*Syzygium francisii*), Celerywood (*Polyscias elegans*), White fig (*Ficus virens*), Cudgerie (*Flindersia schottiana*), Broad-leaved apple (*Acmena hemilampra*) and the threatened Small-leaved tamarind (*Diploglottis campbellii*).

The portion of this VC in the south-west of the subject site is representative of dry rainforest with common midstorey species including Yellow tulip (*Drypetes deplanchei* subsp. *Deplanchei*), Python tree (*Gossia bidwillii*), Whalebone (*Streblus brunonianus*), Native holly (*Alchornea ilicifolia*), Prickly alyxia (*Alyxia ruscifolia*), Small-leaved acalypha (*Acalypha capillipes*) and Rough-leaved elm (*Aphananthe philippinensis*). The threatened Spiny gardenia (*Randia moorei*) and Sweet myrtle (*Gossia fragrantissima*) occur sporadically. The ground layer is generally sparse, although the exotic species Coral berry (*Rivina humilis*) is scattered throughout.

From the middle of the VC to the east, the vegetation shifts to species more representative of subtropical rainforest, with a dense midstorey tangled with Lawyer vine (*Calamus muelleri*) and Whip vine (*Flagellaria indica*), along with numerous shrubs and small trees such as Glossy laurel (*Cryptocarya laevigata*), Bleeding heart (*Omalanthus populifolius*), Smooth wilkiea (*Wilkiea austroqueenslandica*), Brown pearwood (*Niemeyera antiloga*), Brush bloodwood (*Baloghia inophylla*) and Actephila (*Actephila lindleyi*). Several steep drainage lines run south from this part of the VC, and there are several large gaps in the vegetation from tree fall where Lantana (*Lantana camara*) has colonised, but due to the shady conditions, does not extend into the rainforest.

Where this VC occurs at its eastern extent, species composition becomes lower, and there is evidence of previous disturbance (large Lantana gaps, informal tracks) until it intergrades with disturbed Camphor laurel (*Cinnamomum camphora*) forest. It appears that much of the eastern portion of this VC was cleared to some extent, and the current vegetation consists of regrowth, although several mature figs species remain. The subtropical rainforest extends onto adjacent land to the south, where threatened flora have also been recorded.

Seventeen (17) threatened species were recorded in this VC and include:

- Axe-breaker (*Coatesia paniculata*)
- Brown fairy-chain orchid (*Peristeranthus hillii*)
- Brush Sauropus (*Phyllanthus microcladus*)
- Durroby (Syzygium moorei)
- Fine-leaved tuckeroo (*Lepiderema pulchella*)
- Green-leaved rose walnut (Endiandra muelleri subsp. bracteata)
- Marblewood (Acacia bakeri)
- Red lilly pilly (Syzygium hodgkinsoniae)
- Rough-shelled bush nut (Macadamia tetraphylla)
- Rusty rose walnut (Endiandra hayesii)
- Shiny-leaved ebony (*Diospyros yandina*)
- Small-leaved tamarind (*Diploglottis campbellii*)
- Southern ochrosia (Ochrosia moorei)
- Spiny gardenia (*Randia moorei*)
- Sweet myrtle (Gossia fragrantissima)
- Yellow satinheart (Bosistoa transversa)
- White yiel yiel (*Grevillia hilliana*)

Conservation value

VC1A is best represented by PCT 3011 - Far North Lowland Subtropical Rainforest. This PCT is representative of the Lowland Rainforest of Subtropical Australia TEC and Lowland Rainforest in the NSW North Coast and Sydney Bioregions EEC.

This VC is considered to have an extremely high conservation value on the subject site due to its relatively undisturbed nature, alliance with TECs, and the presence of numerous threatened flora. Of note in the VC were ten (10) mature Small-leaved tamarind that were fruiting heavily at the time of the February 2006 survey, which is likely to constitute a significant local population of this species. In addition, the occurrence the Axe breaker, which is the sole record across the Tweed LGA.

3.3.2.3 <u>Vegetation Community 1B - Mid-high to tall subtropical rainforest</u>

Location

This VC is in several areas across the subject site and covers ~9.97 ha (**FIGURE 8**). In the south, this VC is located along the northern fringe of VC1A; however, fragmented patches occur further north that are typically in association with VC3A, VC3B and/or VC4A.

Description

VC2B comprises a diversity of species but lacks the maturity of the vegetation within VC1A in the south of the subject site. Typical canopy species include Guioa (*Guioa semiglauca*) and Red kamala (*Mallotus philippensis*), although occasional emergent species include Giant water gum and the threatened Smooth scrub turpentine (*Rhodamnia maideniana*) and Yiel yiel. Midstorey species are like those found within VC1A, although there is a lack of vines and scramblers.

Conservation value

VC1B is best represented by PCT 3011 - Far North Lowland Subtropical Rainforest. This PCT is representative of the Lowland Rainforest of Subtropical Australia TEC and Lowland Rainforest in the NSW North Coast and Sydney Bioregions EEC.

This VC is considered to have a high conservation value on the subject site.

3.3.2.4 <u>Vegetation Community 2A - Tall closed sclerophyll forest (Lophostemon confertus)</u>

Location

This VC occurs in one small patch (0.57 ha) immediately below the water reservoir (**FIGURE** 8).

Description

VC2A comprises and features a canopy of Brushbox (*Lophostemon confertus*) to a height of approximately 20-25 m. The midstorey is generally sparse and appears to have been cleared at some stage.

Common species include those from the neighbouring rainforest community (VC1A) such as Palm lily (*Cordyline spp.*), Guioa, Lilly pilly (*Acmena smithii*), Three-veined laurel (*Cryptocarya triplinervis* var *Pubens*), and Veiny lace flower (*Archidendron muellerianum*). Lantana and Prickly smilax (*Smilax australis*) commonly occur. The ground layer is primarily comprised of the exotic species Mistflower (*Ageratina riparia**).

Conservation value

VC2A is best represented by 3148 - Far North Brush Box-Walnut Wet Forest, which is also representative of the Lowland Rainforest of Subtropical Australia TEC.

This community is considered to have a moderate-high conservation value due to its small size and historically disturbed nature.

3.3.2.5 <u>Vegetation Community 2B - Tall open sclerophyll forest (Lophostemon confertus /</u> <u>Cinnamomum camphora)</u>

Location

This VC comprises two (2) small and isolated patches (totalling 1.03 ha) in the northern portion of the subject site surrounded on all sides by grassland and disturbed areas (FIGURE 8).

Description

VC2B is comprised of several scattered sub-mature to mature Brushbox amongst dense regenerating Camphor laurel.

Conservation value

VC2B is considered to be a highly disturbed/derived version of PCT 3011 - Far North Lowland Subtropical Rainforest. This PCT is representative of the Lowland Rainforest of Subtropical Australia TEC.

This VC is considered to have a low-moderate conservation value on the subject site due to its size, isolation and disturbed nature.

3.3.2.6 <u>Vegetation Community 3A - Mid-high to tall closed forest (Cinnamomum camphora</u> +/- mixed species)

Location

This VC occurs throughout the central and northern portions of the subject site and accounts for ~12.72 ha. In most cases this VC forms part of larger patches containing VC4A, which is more notably dominated by Camphor laurel (FIGURE 8).

Description

Vegetation within this VC has been degraded to varying degrees from invasion by Camphor laurel (*Cinnamomum camphora*) (50-70%) and (to a lesser degree) Large-leaved privet (*Ligustrum lucidum*). Vegetation also consists of regrowth subtropical rainforest; however, these areas have undergone substantial modification from clearing for grazing and other land-uses, and as noted by WBM Oceanics (1996), a 1961 aerial photograph of the subject site indicates that areas supporting most of this VC were extensively cleared.

Typical native canopy species present include Guioa, Red kamala and Rough-leaved elm. Occasional mature trees (20-30 m in height) occur, but are generally scarce, with examples including Red apple (*Acmena ingens*), Guioa, Cudgerie and Teak (*Flindersia australis*). Several very large mature figs also occur, with the White fig particularly common.

Common midstorey species include Steelwood (*Sarcopteryx stipata*), Pepperberry (*Cryptocarya obovata*), Whalebone and Glossy laurel, along with Cockspur (*Maclura cochinchinensis*) and Lantana. The ground layer is generally sparse. Numerous other species are present and occur to varying degrees within each remnant.

The threatened species Rough-shelled bush nut and Fine-leaved tuckeroo occur occasionally throughout this VC. Other threatened flora species occur sporadically, often in localised areas.

Conservation value

VC3A is considered to be a highly disturbed/derived version of PCT 3011 - Far North Lowland Subtropical Rainforest. This PCT is representative of the Lowland Rainforest of Subtropical Australia TEC and Lowland Rainforest in the NSW North Coast and Sydney Bioregions EEC.

3.3.2.7 <u>Vegetation Community 3B - Low to mid-high closed regrowth (Cinnamomum camphora +/- mixed species)</u>

Location

This VC covers ~6.18 ha across several areas on the subject site (**FIGURE 8**). In the south, this VC is located along the northern fringe of VC1A; however, fragmented patches occur further north that are typically in association with VC3A and/or VC4A.

Description

VC3B is comprised of regrowth vegetation and is generally dominated by Camphor laurel with a mixture of pioneer rainforest species also present including Guioa (*Guioa semiglauca*) and Red kamala (*Mallotus philippensis*).

Conservation value

VC3B is considered to be a regrowth and highly disturbed/derived version of PCT 3011 - Far North Lowland Subtropical Rainforest. This PCT is representative of the Lowland Rainforest of Subtropical Australia TEC and Lowland Rainforest in the NSW North Coast and Sydney Bioregions EEC.

3.3.2.8 <u>Vegetation Community 4A - Mid-high to tall closed forest (Cinnamomum camphora)</u>

Location

This VC is located across several areas on the subject site totalling ~32.04 ha, and in most cases forms part of a larger patch of vegetation with varying degrees of disturbance (FIGURE 8).

Description

This VC has a more simplified species structure than VC3A, generally dominated by Camphor laurel (70-90%), and with only secondary occurrences of native species such as Macaranga, Guioa, Red kamala and Three-veined laurel also occur. This VC includes large areas colonised by dense infestations of Lantana, Crofton weed and Wild tobacco.

Threatened species have been recorded in this VC, including the occasional Rough-shelled bush nut and Fine-leaved tuckeroo. Notwithstanding this, due to the high density of Lantana and steep topography in some areas, access was difficult. As such, there are likely to be further occurrences of threatened flora species, mostly within the most southerly portion of this community.

Conservation value

VC4A is not considered to be representative of any PCTs described within the BioNet Vegetation Classification or representative of any TECs listed within schedules of the EPBC Act or BC Act.

3.3.2.9 <u>Vegetation Community 4B - Low to mid-high tall closed regrowth (Cinnamomum camphora)</u>

Location

This VC is in several areas across the subject site (**FIGURE 8**). In the south, this VC is located along the northern fringe of VC1A; however, fragmented patches occur further north that are typically in association with VC3A, VC3B and/or VC4A.

Description

VC4B is almost completely comprised of dense regrowth Camphor laurel, almost to the exclusion of any other species.

Conservation value

VC4A is not considered to be representative of any PCTs described within the BioNet Vegetation Classification or representative of any TECs listed within schedules of the EPBC Act or BC Act.

3.3.2.10 Vegetation Community 5 - Planted trees / landscaping

Location

Landscape plantings (~10.55 ha) are primarily associated with the eastern portion of the subject site which constitutes the disused Terranora golf course.

Description

Plantings include a variety of both native and exotic trees and shrubs, the most common of which are Swamp mahogany (*Eucalyptus robusta*), Spotted gum (*Corymbia citriodora*), Cadagi (*C. torelliana**), Crimson bottlebrush (*Callistemon citrinus*), Grevillea (*Grevillea sp.*), Tea tree (*Leptospermum parvifolium*) and Tibouchina (*Tibouchina sp.*). Other species include Jacaranda (*Jacaranda mimosifolia**), Blackbutt (*E. pilularis*), Grey gum (*E. propinqua*), Grey box (*E. moluccana*), Forest red gum (*E. tereticornis*), Poinciana (*Delonix regia*), Figs (*Ficus spp.*) and Broad-leaved paperbark (*Melaleuca quinquenervia*). A small area of planted Swamp mahogany (with an understorey of regrowth Camphor laurel) occurs in the north-western portion of the golf course close to the water reservoir.

Threatened flora occurring include a single mature Small-leaved tamarind (*Diploglottis campbellii*) which occurs along the eastern boundary of this portion of the subject site. A single mature Rough-shelled bush nut (*Macadamia tetraphylla*) also occurs in remnant regrowth vegetation adjacent to the northern fairway. Four (4) planted Durroby (*Syzygium moorei*) and two (2) Small-leaved tamarind also occur. The provenance of these trees is not known.

Conservation value

VC5 is not considered to be representative of any PCTs described within the BioNet Vegetation Classification. This VC has a relatively low conservation value, although individual trees such as mature figs and Eucalypts have value as a resource for fauna (including the Koala), and threatened species have individual conservation value.

3.3.2.11 Grasslands and disturbed areas

Location

Large portions of the subject site (~92.11 ha) comprise highly disturbed grasslands typically associated with agricultural land (central and northern portions), the disused golf course (eastern portion) and parts of an area historically used as a shooting range (south-eastern portion) (**FIGURE 8**).

Description

These areas have been significantly disturbed and are highly degraded with little native vegetation occurring. Occasional scattered trees occur, including Camphor laurel and native species such as mature Teak (*Flindersia australis*) and Figs (*Ficus* sp.).

Exotic species (as prevalent examples) include Molasses grass (*Melinis minutiflora**), Paspalum (*Paspalum dilatatum**), Pigeon grass (*Setaria sphacelata**), regrowth Camphor laurel, Wild tobacco (*Solanum mauritianum**), Lantana, White passionflower (*Passiflora subpeltata**), Chinese burr (*Triumfetta rhomboidea**), Crofton weed (*Ageratina adenophora**) and Singapore daisy (*Wedelia trilobata**). Molasses grass and Singapore daisy occurring in dense blankets. Other annual weed species present include Blue billygoat weed (*Ageratum houstonianum**), Cobbler's pegs (*Bidens pilosa**) and Fleabane (*Conyza albida**).

One (1) Threatened flora species occurs, a single mature Durroby (*Syzygium moorei*) adjacent to the treatment pond in the vicinity of the shooting range.

Conservation value

These areas have been significantly degraded by past land-use activities and are therefore considered to have a low conservation value on the subject site.

3.3.3 Threatened Ecological Communities (EPBC Act)

3.3.3.1 Introduction

When making a determination as to whether a nationally listed ecological community is present at a particular site, the 'Description' (including the 'General Features' and 'Key Diagnostic Characteristics') and 'Condition Thresholds' of the listed ecological community as outlined in the Conservation Advice for the TEC must be used as the primary factor for determination rather than any other classification system.

3.3.3.2 Lowland Rainforest of Subtropical Australia - Critically Endangered

As outlined in the Commonwealth Listing Advice on the Lowland Rainforest of Subtropical Australia (TSSC 2011a & b), <u>key diagnostic characteristics</u> and <u>condition thresholds</u> provide guidance as to whether a patch of a TEC retains sufficient conservation values to be considered as a MNES.

The most likely representatives of this CEEC on the subject site are identified in **TABLE 6**. A detailed description and location/extent of each VC surveyed is provided in **SECTION 3.3.2** and **FIGURE 8**, respectively.

An assessment of the relevant VCs against the description and condition thresholds included within the Commonwealth Listing Advice for the Lowland Rainforest of Subtropical Australia TEC has been completed below.

Key Diagnostic Characteristics

Based on interrogation of Section 5 of the Commonwealth Listing Advice (TSSC 2011a & b; **TABLE 7**), and as a matter of caution for some patches, all patches of VC1A, VC1B, VC2A, and VC2B VCs satisfy all the diagnostic characteristics (i.e. structural layers and key species richness) to warrant further investigation into their classification as the CEEC.

TABLE 7
COMPLIANCE OF PATCHES WITH KEY DIAGNOSTIC CHARACTERISTICS

Kou Disgratia Characteristic		Compliance										
Rey Diagnostic Characteristic	Α	В	С	D	Ε	F	G	Η	I	J	K	L
Distribution of the ecological community is primarily in the NSW North Coast and South Eastern Queensland bioregions	>	>	>	>	~	>	>	>	>	>	~	<
The ecological community occurs on: soils derived from basalt or alluvium; or enriched rhyolitic soils; or basaltically enriched metasediments.	~	~	~	*	<	~	~	*	~	<	<	<
The ecological community generally occurs at an altitude less than 300 m above sea level.	~	~	~	~	~	~	~	~	~	~	~	~
The ecological community typically occurs in areas with high annual rainfall (>1300 mm).	~	~	~	~	~	~	~	~	~	~	~	~
The ecological community is typically more than 2 km inland from the coast.	~	~	~	~	~	~	~	~	~	~	~	~
The structure of the ecological community is typically a tall (20 m - 30 m) closed forest, often with multiple canopy layers.	~	~	~	~	<	~	~	~	~	<	<	<
Patches of the ecological community typically have high species richness (at least 30 woody species from Appendix A).	~	~	~	~	~	~	~	~	~	~	~	~

Condition Thresholds

The listed Lowland Rainforest of Subtropical Australia ecological community comprises those patches that meet the key diagnostic characteristics (TABLE 7) and the below condition thresholds (TABLE 8).

Patch Type	Α	В	C		
(evidence of remnant	Natural remnant evident by the	Some residual trees from Appendix	A non-remnant patch that has recovered		
vegetation & regeneration	persistence of mature residual trees	B are present plus evidence of	through		
status)	from Appendix B.	either;	a) natural regeneration*1		
	AND	natural regeneration*1	AND/OR		
		AND/OR	b) supplementary planting that has stature		
		regeneration with active	and quality that is reflective of the		
		management* ²	"Description" * ³		
		AND	AND		
Patch Size	≥ 0.1 ha	≥ 1 ha	≥ 2 ha		
(excludes buffer zone)	AND	AND	AND		
Canopy Cover	E	Emergent/canopy/subcanopy ^{*4} cover is \geq 70%			
(over entire patch)*4		AND			
Species Richness	contains \ge 40 native woody species ^{*5}	contains > 30 nativo w	adv species* ⁵ from Appendix A		
(over entire patch)	from Appendix A				
	AND	AND			
Percent of total vegetation					
cover that is native *6	≥70% of vegetation *6 is native	≥50% of vegetation *6 is native			
(use sample plot)					

TABLE 8 CONDITION THRESHOLDS FOR POTENTIAL LOWLAND RAINFOREST PATCHES

Notes:

*1 Evidence of natural regeneration is shown by the presence of seedlings of a range of native species that did not originate through deliberate plantings.

*2 A patch that is actively managed has regular (e.g. every 1-2 years) on the ground human regenerative activity such as weed control or supplementary plantings.

*3 Closed canopy, 20-30 m tall, of representative species (e.g. white booyong, hoop pine, figs, brush box, yellow carabeen, red cedar, rosewood, white beech)

*4 Canopy cover (projective foliage cover) is estimated over the entire patch. When assessing the ecological community, the canopy includes the emergents and subcanopy (everything above 10 m tall). Canopy/sub-canopy includes all trees and vines (native and non-native).

*5 Woody species are trees, shrubs or vines that contain wood or wood fibers that consist mainly of hard lignified tissues. Excluded from woody species are graminoids, other herbs and non-woody vines.

*6 Total vegetation cover includes emergents/canopy/subcanopy and understorey and ground layers.

3.3.3.3 <u>Summary</u>

With the above assessment considered, five (5) distinct patches on the subject site meet the relevant key diagnostic characteristics <u>and</u> condition thresholds of the **Lowland Rainforest of Subtropical Australia CEEC** to be subject to the referral, assessment, and compliance provisions of the EPBC Act (TABLE 9; FIGURE 9).

TABLE 9
SUMMARY OF THE EPBC CRITICALLY ENDANGERED LOWLAND RAINFOREST PATCHES
ON THE SUBJECT SITE

Patch	Description	Patch Type	CEEC
А	VC1A - Tall Subtropical rainforest - PCT 3011	А	Yes Remnant
В	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	No - Does not satisfy patch size
С	VC2A - Tall closed sclerophyll forest (<i>Lophostemon confertus</i>) - PCT 3148	А	Yes - Remnant
D	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	Yes - Advanced Regrowth
E	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	С	No - Does not satisfy patch size
F	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	No - Does not satisfy patch size
G	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	No - Does not satisfy patch size
Н	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	С	No - Does not satisfy patch size
I	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	Yes - Advanced Regrowth
J	VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	В	Yes - Advanced Regrowth
к	VC2B - Tall closed sclerophyll forest (Lophostemon confertus / Cinnamomum camphora) - PCT 3148	С	No - Does not satisfy patch size
L	VC2B - Tall closed sclerophyll forest (Lophostemon confertus / Cinnamomum camphora) - PCT 3148	С	No - Does not satisfy patch size



 Impact Area

 Stage 1 Boundary

 Site Boundary

 Confirmed EPBC Act Critically Endangered Ecological Communities (CEEC)

 Lowland Rainforest of Subtropical Australia CEEC - Type A

 Lowland Rainforest of Subtropical Australia CEEC - Type B

 Potential EPBC Act Critically Endangered Ecological Communities (CEEC)

 VC1A - Tall subtropical rainforest (PCT 3011)

VC1B - Mid-high to tall subtropical rainforest (PCT 3011)

VC2A - Tall closed sclerophyll forest (Lophostemon confertus) (PCT 3148)

VC2B - Tall open sclerophyll forest (Lophostemon confertus / Cinnamomum camphora) (PCT 3148 - derived)

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5	_J 00m
FIGURE 9	TITLE EPBC ACT CRITICALLY ENDANGERED
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	ECOLOGICAL COMMUNITIES

3.3.4 Threatened Ecological Communities (BC Act)

3.3.4.1 Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions

The most likely representatives of this EEC on the subject site are identified in TABLE 6. A detailed description and location/extent of each VC surveyed is provided in SECTION 3.3.1 and FIGURE 10, respectively.

As per the NSW Scientific Committee - Final Determination (TSSC 2021), and in addition to a suite of characteristic species, Lowland Rainforest encompass stands which fall principally within the following alliances and sub alliances of Floyd (1990):

Argyrodendron trifoliolatum alliance

- 1. Argyrodendron trifoliolatum suballiance
- 5. Castanospermum australe Dysoxylum muelleri suballiance
- 6. Archontophoenix Livistona suballiance

Dendrocnide excelsa - Ficus spp. Alliance

14. Doryphora sassafras - Daphnandra micranthus - Dendrocnide excelsa Ficus-spp. - Toona suballiance

15. Ficus spp. - Dysoxylum fraserianum - Toona - Dendrocnide suballiance

Drypetes australasica - Araucaria cunninghamii alliance

- 21. Araucaria cunninghamii suballiance
- 22. Flindersia spp. Araucaria suballiance

3.3.4.2 <u>Summary</u>

Based of the above alliances and sub alliances, and with consideration of previous recommendations by the NSW Office of Environment and Heritage (OEH) for other Camphor laurel dominated communities on additional projects in the Tweed LGA, VC1, VC2 and VC3 represent the Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions EEC (TABLE 10).

A 'Test of Significance" has been completed in accordance with the requirements of Section 5 of the EP&A Act to undertake a qualitative analysis of the likely impacts on this EEC (APPENDIX 3).



Impact Area Site Boundary

L 0



Stage 1 Boundary BC Act Endangered Ecological Communities (EEC)

Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion EEC Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion EEC - highly degraded

Scale 1 : 10 000 I I I I 100m 200m 300m 400m {	 500m
FIGURE 10	BC ACT ENDANGERED
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	ECOLOGICAL COMMUNITIES

TABLE 10 SUMMARY OF THE BC ACT ENDANGERED LOWLAND RAINFOREST ON THE SUBJECT SITE

Description	EEC
VC1A - Tall Subtropical rainforest - PCT 3011	Yes - Remnant
VC1B - Mid-high to tall Subtropical rainforest - PCT 3011	Yes - Advanced Regrowth
VC2A - Tall closed sclerophyll forest (<i>Lophostemon confertus</i>) - PCT 3148	Yes - Remnant
VC2B - Tall closed sclerophyll forest (<i>Lophostemon confertus</i>) - PCT 3148	Conservative - Highly Degraded
VC3a Mid-high to tall closed forest (Cinnamomum camphora +/- mixed species) - PCT 3011 (derived)	Conservative - Highly Degraded
VC3b Low to mid-high closed regrowth (Cinnamomum camphora +/- mixed species) - PCT 3011 (derived)	Conservative - Highly Degraded

4 FAUNA ASSESSMENT

4.1 Introduction

Targeted and/or general fauna assessments since 1996 (WBM Oceanics 1996) have been undertaken on the subject site. Since that time, JWA have completed multiple field assessments to target threatened fauna species (listed within schedules of the EPBC Act and/or BC Act) at the appropriate time of year and in accordance with current survey guidelines where relevant including:

- Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft) (DEC 2004);
- 'Species credit' threatened bats and their habitats. NSW survey guide for the Biodiversity Assessment Method (OEH 2018);
- Threatened reptiles. Biodiversity Assessment Method survey guide (DPE 2022);
- Survey guidelines for Australia's threatened reptiles: Guidelines for detecting reptiles listed as threatened under the EPBC Act (DSEWPC 2011);
- Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act (DEWHA 2010);
- Survey guidelines for Australia's threatened mammals (DSEWPC 2011);
- Species Credit Threatened bats and their habitat NSW Survey Guide for the Biodiversity Assessment Method (OEH 2018); and
- Koala (*Phascolarctos cinereus*): Biodiversity Assessment Method Survey Guide (DPE 2022)
- Koala Likelihood Mapping Baseline Koala Survey Analysis and Reporting (Phillips and Wallis 2016).

Techniques utilised during fauna surveys are described in the following sections.

4.2 Methods

4.2.1 Survey Periods

Fauna surveys employing a variety of techniques have been completed by two (2) - three (3) ecologists on the following dates:

- 2nd 6th October 2006;
- 18th 22nd of June 2007; and
- 13th 17th November 2023.

Fauna survey techniques that were implemented during the above survey dates are discussed further below.

4.2.2 Elliot 'Type A' Trapping

Four (4) lines of Type 'A' Elliot traps with 25 traps in each site were set for a period of four (4) nights during 2006 and 2007 for a total of 800 trap nights (**FIGURE 11A**). Elliot traps were baited with a mixture of rolled oats, honey, peanut butter and pistachio essence.

Elliot trapping was not required for targeted surveys in 2023.

4.2.3 Cage Trapping

Eight (8) cage traps were deployed at each trapping location for a total of sixty-four (64) trap nights across both survey periods (FIGURE 11A). Cage traps were alternately baited with fruit and chicken necks to target both herbivorous and carnivorous species.

4.2.4 Pitfall trapping

Four (4) pitfall traplines were set for a period of four (4) nights during the 2023 survey period. Each pitfall trapline utilised 5×20 L buckets positioned at 3 - 5 m intervals with a drift fence comprised of 30 cm tall dampcourse intersecting the centre of each bucket. A total of 80 trap nights was achieved. Pitfall trap locations are shown in **FIGURE 11B**.

The Common planigale (*Planigale maculata*) and Three-toed snake-tooth skink (*Coeranoscincus reticulatus*) were the primary species targeted using pitfall trapping.

4.2.5 Hair Tubes

Four (4) lines of 10 hair tubes each deployed in each trapping site during the 2006 and 2007 survey periods. Each hair tube was baited with rolled oats, honey, peanut butter and pistachio essence and then set for a period of 14 nights. A total of 1,120 trap nights were completed. Hair tube records were analysed by Barbara Triggs.

Hair tubes were not required for targeted surveys in 2023.

4.2.6 Spotlighting

Spotlighting was undertaken by two (2) ecologists for approximately 2 hours on four (4) consecutive nights during each survey periods, resulting in a total of 48 person hours spotlighting.

During the above spotlighting surveys the site was traversed in a vehicle and on foot with a large spotlight used to detect 'eye-shine' from nocturnal fauna. During foot surveys the observer walked at approximately 1 km/h, allowing intensive listening as an adjunct to visual detection.

Spotlighting surveys were used as a primary method of detection for the following threatened species:

- Greater glider (*Petauroides volans*);
- Grey-headed flying-fox (*Pteropus poliocephalus*);



Stage 1 Boundary

Scale 1 : 10 000	_] .00m
FIGURE 11A	TITLE FAUNA SURVEY
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	2007



Stage 1 Boundary

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5] 500m
FIGURE 11B	TITLE FAUNA SURVEY
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	2023

- Koala (*Phascolarctos cinereus*);
- Squirrel glider (*Petaurus norfolcensis*); and
- Yellow-bellied glider (*Petaurus australis*).

During the 2023 surveys, spotlighting surveys targeting potentially suitable koala habitat were completed along transects in accordance with the requirements of the Koala (Phascolarctos cinereus): Biodiversity Assessment Method Survey Guide (DPE 2022).

4.2.7 Call Playback

Call playback was carried out over four (4) nights at three (3) locations during both the Spring 2006 and Winter 2007 survey periods (FIGURE 11A), for a total of eight (8) hours call playback.

Call-playback was completed by an avian specialist (Dr. Stephen Debus) at one site starting at dusk on the 21st June 2007.

In 2023, call playback was carried out over four (4) nights at seven (7) locations (**FIGURE B**), for a total of sixteen (16) hours Call playback.

Nocturnal call playback sessions were completed where potentially suitable habitat for target species was encountered. Calls or relevant target species were broadcast through a megaphone at locations containing suitable habitat or in elevated areas to enhance the call area. Calls were played for five-minutes, followed by a five-minute listening period.

Targeted call-playback was used as a primary method of detection for the following threatened species:

- Barking owl (*Ninox connivens*);
- Eastern grass owl (Tyto longimembris);
- Fleay's frog (Mixophyes fleayi);
- Giant barred frog (*Mixophyes iteratus*);
- Masked owl (Tyto novaehollandiae);
- Pouched frog (Ass darlingtonia);
- Powerful owl (*Ninox strenua*);
- Sooty owl (Tyto tenebricosa);
- Stuttering frog (*Mixophyes balbus*);
- Wallum froglet (*Crinia tinnula*); and
- Wallum sedge frog (*Litoria olongburensis*).

4.2.8 Infrared Motion Detector Cameras

A total of 22 infrared motion detector cameras were positioned across the subject site (FIGURE 11B) for a period of four nights during the 2023 survey period (= 88 trap nights).

Baits were positioned to draw animals into the range of the camera, and alternately included a mixture of peanut butter, honey, oats and walnut oil (targeting the Long-nosed potoroo *Potorous tridactylus*) or tuna (targeting the Spotted-tailed quoll *Dasyurus maculatus*).

4.2.9 Targeted Koala Assessments

Given the limited extent of potential koala habitat on the subject site (i.e. almost entirely confined to planted trees in VC5), the Rapid-SAT (Phillips and Wallis 2016) technique was employed to determine presence / absence. The Rapid-SAT technique is a faecal pellet based, habitat sampling tool under-pinned by the Spot Assessment Technique (SAT) protocols (Phillips and Callaghan 2011); however, focuses on known Preferred Koala Food Trees (PKFTs) only. Koalas are known to use a wide variety of tree species; however, none of these tree species are utilised as frequently as PKFTs, and hence the probability of finding koala faecal pellets beneath them is much higher (Phillips 1999; Phillips *et al.* 2000; Phillips and Callaghan 2000; Phillips and Callaghan 2011). As such, all PKFTs on the subject site were searched for faecal pellets.

PKFTs on the subject site include Forest red gum (*Eucalyptus tereticornis*), Grey box (*E. moluccana*), Grey gum (*E. propinqua*), and Swamp mahogany (*E. robusta*).

4.2.10 Microchiropteran Bat Detection

Two (2) harp traps were set in potential flyways over four (4) nights during the 2006 and 2007 survey periods (**FIGURE 11A**). Flyways were chosen on the basis of adequate cover on both sides of the trap, and screening was incorporated to enhance capture success. An overall total of sixteen (16) trap nights was achieved.

Anabat detectors were used across all three (3) survey periods to record the ultrasonic calls of Microchiropteran bats. Recording was undertaken by positioning Anabat detectors facing across possible bat flyways. Units were used to record calls between the hours of dusk (1800h) and dawn (0600h).

- In 2006 and 2007, an Anabat II sonar detector (Titley Electronics) were placed at four (4) separate locations on the subject site for four (4) consecutive nights (FIGURE 11A).
- In 2023, Anabat Express Passive Bat Detectors (Titley Scientific) were placed at four (4) separate locations on the subject site for four (4) consecutive nights (FIGURE 11B).

The data from these recordings were analysed by an expert in echolocation call identification (Dr. Greg Ford).

4.2.11 Targeted Bird Surveys

Targeted bird surveys completed during each survey period are discussed below:

- Diurnal birds were surveyed visually and aurally for an hour before dusk and an hour after dawn from 2nd 6th October 2006, for a total of 8 hours.
- A census of bird occurrence was carried out avian specialist (Dr. Stephen Debus) to sample diurnal birds between the 21st and 22nd June 2007. Visual and aural surveys were undertaken across most of the subject site from 16:30 - 17:30 h on 21st, and from 06:15 - 09:45 h on the 22nd, for a total of 4.5 hrs.
- Targeted bird surveys were completed by two (2) ecologists at dawn and dusk during the 2023 survey period. Surveys were completed using a combination of the area search method and the species-time curve approach, where the observer walked through the site and the survey session ceased when no additional species were identified within a 5-minute period.

4.2.12 Active Searching

Active searches were completed during all survey periods. Any logs, sheets of tin, cardboard, bark and leaves were overturned in search of reptiles and amphibians while traversing the site. Searches were undertaken for diggings, scats, and bones. Active observation of bird and amphibian activity, both aurally and visually, was undertaken during all field assessment tasks.

4.2.13 Opportunistic Sightings

All incidental records of fauna on the subject site were recorded during each survey period.

4.3 Results

4.3.1 Amphibians

Ten (10) native amphibian species and one (1) exotic species have been recorded during site surveys (TABLE 11). No threatened amphibian species were recorded.

AMPRIDIAN SPECIES RECORDED ON THE SUBJECT SITE DURING FIELD SURVETS							
Common Name	Species Name	Detection Method					
Adelotus brevis	Tusked frog	Call identification					
Bufo marinus	Cane toad*	Observed, Call identification					
Crinia signifera	Common eastern froglet	Call identification					
Limnodynastes peronii	Brown-striped frog	Call identification					
Limnodynastes tasmaniensis	Spotted Grass frog	Call identification					
Litoria caerulea	Green tree frog	Observed, Call identification					
Litoria dentata	Bleating Tree Frog	Call identification					
Litoria fallax	Eastern dwarf tree frog	Call identification					
Litoria gracilenta	Dainty green tree frog	Call identification					
Litoria nasuta	Rocket frog	Observed, Call identification					
Litoria tyleri	Tyler's tree frog	Call identification					

TABLE 11 AMPHIBIAN SPECIES RECORDED ON THE SUBJECT SITE DURING FIELD SURVEYS

4.3.2 Birds

Ninety (90) bird species have been recorded over the course of the field surveys (**TABLE** 12), including the following four (4) threatened species (**FIGURES 12A & 12B**):

- Little lorikeet (*Glossopsitta pusilla*);
- Rose-crowned fruit-dove (*Ptilinopus regina*);
- White-bellied sea-eagle (*Haliaetus leucogaster*); and
- White-eared monarch (Monarcha leucotis).

Two (2) migratory species as listed within schedules of the EPBC Act have also been recorded:

- Rufous fantail (*Rhipidura rufifrons*); and
- Spectacled monarch (Monarcha trivirgatus).

Species Name	Common Name
Acanthiza pusilla	Brown thornbill
Acanthorhynchus tenuirostris	Eastern spinebill
Accipiter fasciatus	Brown goshawk
Alectura lathami	Australian brush-turkey
Anas superciliosa	Pacific black duck
Anthus novaeseelandiae	Australian pipit
Aquila audax	Wedge-tailed eagle
Ardea ibis	Cattle egret
Calyptorhynchus funereus	Yellow-tailed black-cockatoo
Centropus phasianinus	Pheasant coucal
Chalcites lucidus	Shining bronze cuckoo
Chalcophaps indica	Emerald dove
Cisticola exilis	Golden-headed cisticola
Colluricincla harmonica	Grey shrike-thrush
Columba leucomela	White-headed pigeon
Colluricincla megarhyncha	Little shrike-thrush
Coracina novaehollandiae	Black-faced cuckoo-shrike
Coturnix chinensis	King quail
Coturnix ypsilophora	Brown quail
Cormobates leucophaeus	White-throated treecreeper
Corvus orru	Torresian crow
Coturnix ypsilophora	Brown quail
Cracticus nigrogularis	Pied butcherbird
Dacelo novaeguineae	Laughing kookaburra
Dicaeum hirundinaceum	Mistletoe bird
Dicrurus bracteatus	Spangled drongo
Egretta novaehollandiae	White-faced heron
Entomyzon cyanotis	Blue-faced honeyeater
Eolophus roseicapillus	Galah
Eopsaltria australis	Eastern yellow robin

TABLE 12BIRD SPECIES RECORDED ON THE SUBJECT SITE DURING FIELD SURVEYS



Scale 1 : 10 000	
100m 200m 300m 400m	500m
FIGURE 12A	TITLE THREATENED FAUNA RECORDS
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	2007

 Impact Area

 Stage 1 Boundary

 Site Boundary

 Threatened Fauna Records - 2007

 Grey-headed flying fox (Pteropus poliocephalus)

 Rose-crowned fruit-dove (Ptilinopus regina)

 White-eared monarch (Carterornis leucotis)



 Impact Area

 Stage 1 Boundary

 Site Boundary

 Threatened Fauna Records - 2023

 Little lorikeet (Glossopsitta pusilla)

 Threatened Fauna Records - 2020

 Pink underwing moth (Phyllodes imperialis smithersi)

 Rose-crowned fruit-dove (Ptilinopus regina)

 White-eared monarch (Carterornis leucotis)

Scale 1 : 10 000 I I I I 100m 200m 300m 400m 5] 500m
FIGURE 12B	TITLE THREATENED FAUNA RECORDS
PREPARED: BW DATE: 1 November 2024 FILE: N01057_EA_20241025.dwg	2020 & 2023

Species Name	Common Name	
Falco berigora	Brown falcon	
Falco cenchroides	Nankeen kestrel	
Geopelia humeralis	Bar-shouldered dove	
Glossopsitta pusilla	Little lorikeet	
Grallina cyanoleuca	Magpie-lark	
Gymnorhina tibicen	Magpie	
Haliastur indus	Brahminy kite	
Haliaetus leucogaster	White-bellied sea-eagle	
Haliastur sphenurus	Whistling kite	
Hirundo neoxena	Welcome swallow	
Hirundo nigricans	Tree martin	
Lalage leucomela	Varied triller	
Leucosarcia melanoleuca	Wonga pigeon	
Lichenostomus chrysops	Yellow-faced honeyeater	
Lichmera indistincta	Brown honeyeater	
Lonchura castaneothorax	Chestnut-breasted manikin	
Lopholaimus antarcticus	Topknot pigeon	
Macropygia amboinensis	Brown cuckoo-dove	
Malurus cyaneus	Superb fairy-wren	
Malurus lamberti	Variegated fairy-wren	
Malurus melanocephalus	Red-backed fairy-wren	
Manorina melanocephala	Noisy miner	
Megalurus timoriensis	Tawny grassbird	
Meliphaga lewinii	Lewin's honeyeater	
Merops ornatus	Rainbow bee-eater	
Monarcha leucotis	White-eared monarch	
Monarcha trivirgatus	Spectacled monarch*	
Myzomela sanguinolenta	Scarlet honeyeater	
Neochmia temporalis	Red-browed finch	
Ocyphaps lophotes	Crested pigeon	
Oriolus sagittatus	Olive-backed oriole	
Pachycephala pectoralis	Golden whistler	
Pachycephala rufiventris	Rufous whistler	
Pardalotus striatus	Striated pardalote	
Petrochelidon ariel	Fairy martin	
Petroica rosea	Rose robin	
Philemon corniculatus	Noisy friarbird	
Platycercus eximius	Eastern rosella	
Podargus strigoides	Tawny frogmouth	
Psophodes olivaceus	Eastern whipbird	
Ptilinopus regina	Rose-crowned fruit-dove	
Ptilonorhynchus violaceus	Satin bowerbird	
Rhipidura fuliginosa	Grey fantail	
Rhipidura leucophrys	Willie wagtail	
Rhipidura rufifrons	Rufous fantail*	
Sericornis frontalis	White-browed scrubwren	
Sericornis magnirostris	Large-billed scrubwren	
Sericulus chrysocephalus	Regent bowerbird	
Sphecotheres viridis	Figbird	

Species Name	Common Name
Streptopelia chinensis	Spotted turtle-dove
Taeniopygia bichenovii	Double-barred finch
Strepera graculina	Pied currawong
Threskiornis molucca	White ibis
Threskiornis spinicollis	Straw-necked ibis
Todiramphus macleayii	Forest kingfisher
Trichoglossus chlorolepidotus	Scaly-breasted lorikeet
Trichoglossus haematodus	Rainbow lorikeet
Tyto alba	Barn owl
Zosterops lateralis	Silvereye
Threatened species are shown in bold *Identifies migratory species	

4.3.3 Invertebrates

The endangered Pink underwing moth (*Phyllodes imperialis smithersi*) has been confirmed on the subject site by way of eggs and caterpillars in five (5) locations (**FIGURE 12B**).

4.3.4 Mammals

Twenty (20) native mammal species and five (5) exotic species have been recorded over the course of the field surveys (TABLE 13), including the following four (4) threatened species (FIGURE 12A):

- Eastern bent-wing bat (Miniopterus schreibersii oceanensis);
- Eastern free-tail bat (Mormopterus norfolkensis);
- Little bent-wing bat (Miniopterus australis); and
- Grey-headed flying-fox (Pteropus poliocephalus).

Species Name	Common Name	Detection Method
Antechinus flavipes	Yellow-footed antechinus	Camera
Bos taurus	Cow*	Observed
Canis familiaris	Dog*	Observed, Tracks
Chalinolobus morio	Chocolate wattled bat	Capture (Harp trap)
Isoodon macrourus	Northern brown bandicoot	Capture, Camera
Macropus giganteus	Eastern grey kangaroo	Observed
Melomys cervinipes	Grassland melomys	Capture
Miniopterus australis	Little bent-wing bat	Anabat
Miniopterus orianae oceanensis	Large bent-wing bat	Anabat
Mormopterus norfolkensis	Eastern free-tail bat	Anabat
Mus musculus	House mouse*	Capture, Camera
Notamacropus rufogriseus	Red-necked wallaby	Camera
Perameles nasuta	Long-nosed bandicoot	Capture, Camera

TABLE 13MAMMAL SPECIES RECORDED ON THE SUBJECT SITE DURING FIELD SURVEYS

Species Name	Common Name	Detection Method
Pseudocheirus peregrinus	Ringtail possum	Spotlighting
Pteropus alecto	Black flying-fox	Observed
Pteropus poliocephalus	Grey-headed flying-fox	Observed
Rattus rattus	Black rat*	Capture, Camera
Rattus fuscipes	Bush rat	Capture, Camera
Rhinolophus megaphyllus	Eastern horse-shoe bat	Anabat
Tachyglossus aculeatus	Echidna	Observed
Trichosurus vulpecula	Common brushtail possum	Capture, Spotlighting
Vespadelus darlingtoni	Large forest bat	Anabat
Vespadelus pumilus	Eastern forest bat	Anabat
Vulpes vulpes	Fox*	Spotlighting
Wallabia bicolor	Swamp wallaby	Observed, Tracks

4.3.5 Reptiles

Fifteen (15) reptile species have been recorded during field surveys (**TABLE 14**). No threatened reptile species were recorded.

Species Name	Common Name	Detection Method
Carlia vivax	Tussock rainbow-skink	Capture (Active)
Cryptoblepharus virgatus	Wall skink	Capture
Cyclodomorphus gerrardii	Pink-tongued Lizard	Capture
Dendrelaphis punctulatus	Common tree snake	Observed (Spotlighting)
Intellagama lesueurii	Eastern water dragon	Observed
Lampropholis amicula	Friendly sun skink	Capture
Lampropholis delicata	Dark-flecked garden sunskink	Capture
Lampropholis guichenoti	Pale-flecked garden sunskink	Capture
Morelia spilota	Carpet python	Observed
Ophioscincus truncatus	Short-limbed snake-skink	Capture
Pogona barbata	Bearded dragon	Observed
Pseudechis porphyriacus	Red-bellied black snake	Observed (Spotlighting)
Saiphos equalis	Three-toed skink	Capture
Tiliqua scincoides	Blue-tongued lizard	Observed
Varanus varius	Lace monitor	Observed

TABLE 14REPTILE SPECIES RECORDED ON THE SUBJECT SITE DURING FIELD SURVEYS

5 HABITAT SUITABILITY ASSESSMENT

5.1 Background

The suitability of the habitats on site for listed threatened and migratory species identified in database searches (**SECTION 2**) was assessed to determine which of those species could potentially occur on the site. Assessments were based on the following:

- Desktop research of scientific journal articles and literature;
- Consultations with specialist academic staff; and
- Field surveys within the subject site.

The impacts associated with current land uses, vegetation clearing, land and waterway erosion/degradation, weed and feral invasion and previous fire regimes were all considered when completing habitat suitability assessments. Furthermore, the assessment determined whether it was likely for habitat features that typically support threatened species to be present on the subject site. Particular attention was paid to habitat features such as:

- The presence of mature trees with hollows, fissures and/or other suitable roosting/nesting places;
- The presence of koala food trees;
- The presence of characteristic signs of foraging (e.g. chewed cones or glider feeding scars);
- Condition, flow and water quality of drainage lines and bodies of water;
- Areas of dense vegetation;
- Presence of hollow logs/debris and areas of dense leaf litter;
- Presence of fruiting flora species;
- Presence of blossoming flora species, particularly winter-flowering species;
- Vegetation connectivity and proximity to neighbouring areas of intact vegetation; and
- Presence of caves and man-made structures suitable as microchiropteran bat roost sites.

Each threatened and migratory species were assigned a category to indicate their likelihood of occurrence within the subject site (TABLE 15) based on the results of the habitat suitability assessment (APPENDIX 4).

TABLE 15

LIKELIHOOD OF OCCURRENCE CATEGORIES FOR THREATENED OR PRIORITY FLORA AND FAUNA THAT HAVE THE POTENTIAL TO OCCUR WITHIN THE SUBJECT SITE

Category	Description
Unlikely	Species occurrence can be confidently ruled out due to a complete absence of suitable habitat and habitat features.
Possible	A limited amount of suitable habitat is potentially available; however, key habitat features are either absent or limited (e.g. hollow-bearing trees). Although considered largely unlikely, it cannot be conclusively ruled out that species may be patchily distributed across the subject site.
Likely	Suitable habitat and abundant key habitat features are available across the site. Species were therefore given a high likelihood of occurring within the site, either permanently or on an intermittent or seasonal basis. As examples, (i) abundant forage resources for highly mobile nectarivores such as the Greyheaded flying-fox (<i>Pteropus poliocephalus</i>), or (ii) seasonal resource availability for the Little flying-fox (<i>Pteropus scapulatus</i>).
Confirmed	Recorded during recent or past field surveys.

5.2 Applicability to the Subject Site

5.2.1 Flora

Several threatened flora species have been recorded across the subject site during past field surveys (**TABLE 5** refers). Given the high quality of some VCs on the subject site (namely VC1A), it is still considered possible that suitable habitat is present to support one or more additional threatened flora species listed in **TABLE 2**.

Notwithstanding, the comprehensive nature of flora surveys across the subject site indicates that these species (if present) are almost certainly located in subtropical rainforest or tall closed forests that are being retained for conservation purposes. It is unlikely that additional species would be present in the highly disturbed vegetation communities assigned for the proposed development.

5.2.2 Amphibians

Amphibians occurring in the region are poikilothermic, predominantly insectivorous and generally require free water for reproduction, with the exception of two highland genera (*Assa darlingtoni* and *Philoria* spp.) The habitat requirements of most species are unlikely to be determined by forest cover or floristics, but are more strongly influenced by factors such as climate, distance to water bodies, riparian vegetation, hydrological and morphological characteristics of water bodies and the availability of suitable micro-habitat for aestivation and shelter.

Most species that occur within the region lay eggs in or near temporary or permanent water bodies and rely on free water for larval development and metamorphosis. Of these species, only a few are dependent on forested habitats beyond the riparian zone or beyond areas of temporary inundation. These species include the Red-eyed tree frog (*Litoria chloris*), Leseuer's frog (*Litoria leseueri*), Fletcher's frog (*Lechriodus fletcheri*) and the Barred frogs of the *Mixophyes* genus.

Grasslands provide suitable habitat for a range of Amphibian species, particularly along drainage depressions and soaks. Species commonly encountered in grassland communities include the Common eastern froglet, Eastern sign bearing froglet, Striped marsh frog, Spotted grass frog, Eastern dwarf tree frog, Rocket frog, Whistling tree frog and Cane toad.

A range of common frog species are likely to utilise the subject site, from species associated with rural lands and dams to rainforest dwelling species. Although intermittent, drainage lines on the subject site provide rocky areas and areas of moderately deep leaf litter for shelter, threatened species such as the Giant barred frog (*Mixophyes iteratus*) typically occur in undisturbed low elevation rainforest and permanent streams, and is therefore unlikely to occur at the study site. The remaining threatened frog species listed in **TABLE 3** are unlikely to be present due to a complete absence of suitable habitat (see **APPENDIX 4** for habitat suitability assessments).

5.2.3 Birds

The significance of near coastal environments of the NSW Far North Coast and South-East Queensland as over-wintering habitat for migratory birds has been established by many observers and bird banders including Keast (1968), Robertson (1973), Gravatt (1974), Porter (1982) and Robertson and Woodall (1983). These patterns may be attributable to the relatively high winter temperatures and long growing season of this region compared with the rest of south-eastern Australia (Fitzpatrick and Nix 1973; Edwards 1979; Nix 1982).

Many insectivorous birds from higher latitudes and elevation over-winter in the locality. These include species such as the Fantail cuckoo (*Cacomantis flabelliformis*), Sacred kingfisher (*Todiramphus sanctus*), Rainbow bee-eater (*Merops ornatus*), Noisy pitta (*Pitta versicolor*), Tree martin (*Petrochelidon nigricans*), Black-faced cuckoo-shrike (*Coracina novaehollandiae*), Cicada bird (*Coracina tenuirostris*), Golden whistler (*Pachycephala pectoralis*), Rufous whistler (*Pachycephala rufiventris*), Rose robin (*Petroica rosea*), Grey fantail (*Rhipidura albiscapa*), White-throated gerygone (*Gerygone olivacea*), Silvereye (*Zosterops lateralis*), Olive-backed oriole (*Oriolus sagittatus*) and Spangled drongo (*Dicrurus bracteatus*).

Birds such as honeyeaters and lorikeets are Blossom nomads (*ibid*.). These birds move locally in response to variation in the availability of nectar and or pollen, important components in their diet. Porter (1982) highlights the importance of Forest red gum, Broad-leaved paperbark, and Coast banksia for Scaly-breasted (*Trichoglossus chlorolepidotus*) and Rainbow (*Trichoglossus moluccanus*) lorikeets as these species flower during the lorikeet's winter breeding period. A sequence of important nectar bearing plants in the genera Eucalyptus, Banksia, Melaleuca and Callistemon provide a continuity of food for nectarivorous birds.

Studies of bird usage in rainforest remnants by Holmes (1987) and Lott & Duigan (1993) indicate that the diversity and abundance of birds is related to the size of the rainforest patches and their degree of isolation from major areas of native forest. Lott & Duigan (1993) and Howe *et al* (1981) also note that sites with a higher diversity of vegetation and those which are closer to water generally support a greater diversity of birds. Locally nomadic and migratory rainforest species such as the Wompoo (*Ptilinopus magnificus*), Rose-crowned (*Ptilinopus regina*) and Superb fruit-doves (*Ptilinopus superbus*), Common koel (*Eudynamys orientalis*) and Black-faced cuckoo-shrike are known to use scattered areas of habitat as "stepping-stones" between more intact areas of forest (Date *et al* 1992; Lott & Duigan 1993).

The subject site comprises good quality habitat for a range of bird species, including numerous mature Figs (*Ficus spp.*), which are likely to be of particular importance as a forage resource for frugivorous birds within the locality. Conversely, there is a lack of hollow-bearing trees that would be suitable for hollow-nesting birds; however, the subject site may still represent important forage habitat for hollow-dependent species breeding in the locality.

Given the proximity of the Tweed River and estuaries and coastal fringe, the following species are wide-ranging and may aerially traverse the area from time-to-time, but are unlikely to rely on resources available on the subject site:

- Fork-tailed swift (Apus pacificus);
- Little eagle (*Hieraaetus morphnoides*);
- Square-tailed kite (Lophoictinia isura);
- White-throated needletail (Hirundapus caudacutus); and
- Osprey (Pandion haliaetus).

Based on field surveys, habitat suitability assessments and interrogation of historical records, the following threatened and/or migratory species are either known to occur on the subject site based of past field surveys, or are considered possibly or likely to occur (See **APPENDIX 3** for detailed habitat suitability assessments):

KNOWN

- Little lorikeet
- Rose-crowned fruit-dove
- Rufous fantail

POSSIBLE or LIKELY

- Barking owl
- Barred cuckoo-shrike
- Black-breasted button quail

- Spectacled monarch
- White-bellied sea-eagle
- White-eared monarch
- Black-faced monarch
- Bush stone-curlew
- Coxen's fig parrot

- Masked owl
- Oriental cuckoo
- Powerful owl
- Scarlet robin

- Sooty owl
- Superb fruit-dove
- Wompoo fruit-dove

5.2.4 Invertebrates

The Pink underwing moth has been recorded on the subject site by way of eggs and caterpillars in five (5) individual locations (**FIGURE 12B**). It is expected that this species is likely to persist in most areas on the subject site that contain suitable subtropical rainforest habitat, and in particular throughout the southern portion of the subject site.

The Mitchell's rainforest snail (*Thersites mitchellae*) has not been recorded on the subject site or within 10 km based on historical records. Notwithstanding this, given the presence of subtropical rainforest and large mature Figs, it cannot be conclusively ruled out that this species occurs on the subject site. More so, in the high-quality subtropical rainforest in the southern portion of the subject site, the presence of this species could be considered likely.

The subject site does not contain suitable open, swampy, coastal areas to support the Australian fritillary (*Argynnis hyperbius inconstans*) or its required larval food plant, *Viola betonicifolia*. See **APPENDIX 4** for detailed habitat suitability assessments.

5.2.5 Mammals

Small terrestrial mammals generally occur in highest densities in association with complex vegetation structures. A dense understorey layer, which provides shelter from predators and provides nesting opportunities, is particularly important. In general, medium-large terrestrial mammals such as macropods select habitats which provide a dense cover for shelter and refuge and open areas for feeding. The larger species tend to occupy drier more open habitats: the smaller species, moister and more densely vegetated habitats.

Arboreal mammals that occur in the region (apart from the koala) utilise tree hollows for nesting and shelter (although the common ringtail possum *Pseudocheirus peregrinus* is not dependent on hollows). Smith and Lindenmeyer (1988) consider that shortage of nest hollows is likely to limit arboreal mammal populations where density of hollow bearing trees is less than 2 to 8 trees per ha.

Arboreal folivores are widespread and abundant but exhibit local variation in response to such factors as tree species composition, foliage protein and fibre levels, leaf toughness, toxins, forest structure and the availability of shelter sites. Arboreal folivores are expected to be most abundant in areas of high productivity, high soil fertility and moderate climate, in conjunction with adequate shelter and suitable foraging substrate.

Arboreal nectarivore/insectivores feed on a wide variety of plant and insect exudates including the nectar of flowering eucalypts, and shrubs such as Banksia and Acacia sp.

These species also feed extensively on insects, particularly under the shedding bark of eucalypts. The distribution of nectarivore/insectivores is considered to be related to the abundance of nectar and pollen producing plants, the abundance of bark shedding eucalypts which harbour insect prey, and the occurrence of sap and gum exudate producing trees and shrubs (*e.g.* Acacia sp.). Arboreal nectarivores and insectivores are generally hollow dependent species.

The subject site provides relatively poor habitat for arboreal mammals due to the general lack of hollow-bearing trees, although rainforest fruits provide forage resources for species such as the Common brushtail (*Trichosurus vulpecula*) and Ringtail (*Pseudocheirus peregrinus*) possums. A range of small native ground-dwelling mammals may occur and introduced species such as the House mouse (*Mus Musculus*) and Black rat (*Rattus rattus*) are also likely to be prevalent. Commonly occurring medium and large terrestrial mammal such as Bandicoots and Wallabies are also likely to occupy habitats across the subject site to varying degrees.

Insectivorous bats like insectivorous birds overlap considerably in diet and broad vegetation preferences (Hall 1981) but specialise in foraging in specific layers or substrates within the forest (Crome and Richards 1988). The subject site is likely to provide forage habitat for a relatively high diversity and abundance of insectivorous bats, due to the combination of open, forested and denser areas of vegetation. The subject site is also considered to be good quality habitat for a range of frugivorous bats due to the high diversity of fruiting trees, including numerous mature Figs.

Based on field surveys, habitat suitability assessments and interrogation of historical records, the following species are either known to occur on the subject site based of past field surveys, or are considered possibly or likely to occur (See **APPENDIX 4** for detailed habitat suitability assessments):

<u>KNOWN</u>

- Eastern free-tail bat
- Grey-headed flying-fox

POSSIBLE or LIKELY

- Common planigale
- Eastern long-eared bat
- Koala

- Large bent-winged bat
- Little bent-winged bat
- Northern free-tailed bat
- Spotted-tail quoll
- Yellow-bellied sheathtail bat

5.2.6 Reptiles

The quality of habitat for reptiles is strongly influenced by the structural characteristics of vegetation (e.g. complexity of vegetation density and vertical strata) and ground cover (e.g. woody debris and rocky outcrops) which influence microclimate, solar irradiance and the availability of suitable basking and shelter sites (Garden et al. 2007).

Because only a few Australian reptile species are frugivorous, omnivorous or herbivorous (Dubas and Bull 1991), the nutritional composition of vegetation and vegetation species are less important than the structural features (e.g. basking sites, hollows, leaf litter) that a vegetation community can provide (Garden et al 2007).

In a survey of the moist forest herpetofauna of North-eastern NSW, Smith *et al* (1989) found that few species discriminated between rainforest and wet sclerophyll forest, however, most species exhibited a response to differences in elevation and the availability of microhabitat components and other substrates.

The availability of microhabitats, of varying thermal properties is particularly important for most reptile species, as behavioural thermoregulation (regulation of body heat) is important in controlling critical body functions such as digestion, foraging activity and reproduction.

Reptile diversity and abundance is often (but not always) significantly higher in drier habitat types, particularly those with a wide variety of ground substrate microhabitats. This contrasts markedly with the distribution patterns of birds, and most mammals.

The single limiting factor in terms of species diversity in coastal vegetation is the lack of shelter sites (e.g. logs, tree hollows and decorticating bark). Such habitat components characterise eucalypt forests and woodlands, where species diversity may be much higher, depending on disturbance factors.

A range of reptile species are likely to occur across the subject site considering the diversity of environments and the presence of fallen timber and rocky areas. Of these, the threatened Three-toed snake-tooth skink (*Coeranoscincus reticulatus*) is considered a possibly occupant due to suitable rainforest habitat being available in the southern portion of the subject site.

It is unlikely that the subject site supports any of the other threatened reptile species listed in TABLE 3 (see APPENDIX 4 for habitat suitability assessments).

6 CORRIDORS AND CONNECTIVITY

6.1 Background

The term 'connectivity' is used to describe the degree to which the landscape facilitates or impedes the movement of species among habitat areas (Bélisle 2005). The level of connectivity between habitat areas in the landscape can be described along a (high - medium - low - isolated) continuum.

Landscapes with high levels of connectivity form an unbroken expanse of habitat through which a wide range of the fauna species can easily move to or between high quality areas. Landscapes with low levels of connectivity are characterised by habitat areas that are bisected by wide gaps, and where the quality and quantity of remaining habitat is reduced (habitat fragmentation). Habitat fragmentation impedes the movement of species among remaining suitable habitat areas (Andrén 1994; Fahrig 2003) and generally restricts movement and increases threats to all but the most mobile of species.

At a broad landscape scale, maintaining habitat connectivity is necessary to maintain the long-term viability of species populations (Beier and Noss 1998). In fragmented landscapes, corridors of native vegetation (ecological corridors) can enhance landscape connectivity by providing habitat for a range of species and facilitating safe movement between larger, more suitable habitat areas.

Three (3) broad types of corridors can be distinguished. These are:

- <u>Linear corridors</u> long, uninterrupted strips of vegetation, such as hedges, strips of forest, and the vegetation growing on banks of rivers and streams;
- <u>Steppingstone corridors</u> a series of small, non-connected habitats that are used to find shelter, food, or to rest; and
- <u>Landscape corridors</u> diverse, uninterrupted landscape elements that provide sufficient cover for safe movement from one core area to another.

6.2 Applicability to the Subject Site

The subject site is mapped as being part of regional and subregional corridors under the Tweed LEP (FIGURE 6), which can be split into the following three (3) general areas:

- <u>East-west regional corridor</u> across central portions of the subject site; however, much of this area is cleared and areas to the north are more viable by way of habitat extent and connectivity.
- <u>North-south sub-regional corridor</u> in the far eastern extent of the subject site, which contains a paucity of natural features (i.e. intact vegetation) and fringing residential dwellings and roads. These factors eliminate the viability and functionality of this corridor.
- <u>Northwest-southeast corridor</u> in the southern extent of the subject site. This corridor incorporates the large area of lowland subtropical rainforest on the subject site and is considered to provide important attributes for connectivity.

Vegetated areas associated with this corridor will be retained and enhanced by the proposed development.

Given the above considerations, the areas being retained for environmental purposes across the subject site provide the highest quality value for connectivity in the context of the immediate and broader landscape. The proposed development is therefore not considered likely to impact existing vegetation to the point where terrestrial fauna dispersal will be impeded.

7 IMPACTS AND AMELIORATION

7.1 Introduction

The following sections examine the likely direct and indirect impacts of the proposed development and recommends amelioration measures to minimise and mitigate impacts on the biodiversity and habitat values.

7.2 Potential Impacts

7.2.1 Vegetation Clearing

The extent of vegetation clearing for the proposed development is 88.35 ha. Of this, 71.34 ha (~80%) is strategically placed across grasslands, disturbed areas, or planted trees/landscaping associated with the disused golf course. An additional 14.25 ha of vegetation to be cleared is in highly degraded Camphor laurel dominated forest and regrowth (i.e. VC4A & VC4B). With this considered, approximately 2.13 ha (~2.5%) of vegetation to be cleared is considered of moderate to high quality (i.e. VCs 1-3).

The impacts of clearing on VCs are provided in TABLE 16 and shown in FIGURE 8.

Impacts that may occur because of the removal of vegetation are summarised as follows:

- Disturbance may create opportunities for weeds to colonise both the subject site and adjacent vegetation. Weeds may potentially be introduced to adjacent vegetation in construction materials or by vehicles.
- Future use of the subject site may create opportunities for ornamental and landscape garden plant species to disperse into adjacent areas of retained vegetation.
- The removal of vegetation from the subject site will result in a slight decrease in organic material and biomass on the site.
- Edge effects may be experienced in areas of conserved vegetation adjacent to development zones. In these circumstances, there may be a change in the composition of flora communities and subsequent impacts on fauna species.
- Occupation of the site may increase the risk of fire release into areas of native vegetation on the subject site leading to a disturbance in the natural fire regime of the locality and impacts on fire-sensitive flora species and/or those that require specific fire regimes.
- The removal of vegetation may disturb the soil structure and integrity which can reduce the health and longevity of remaining vegetation and result in increased soil erosion which may cause sedimentation of watercourses.
- Clearing may result in injury, displacement and death to fauna.
- Clearing physically removes food sources, shelter and other habitat attributes that fauna use.
| TABLE 16 |
|---|
| ESTIMATED IMPACTS OF CLEARING ON VEGETATION COMMUNITIES |

Name	Existing Area (ha)	Area to be Impacted (ha)	Area to be Retained (ha)
VC1a - Tall Subtropical rainforest - PCT 3011	15.08	0.07 (0.5%)	15.01 (>99%)
VC1b - Mid-high to tall Subtropical rainforest - PCT 3011	9.97	0.08 (0.8%)	9.89 (.99%)
VC2a - Tall closed sclerophyll forest (Lophostemon confertus) - PCT 3148	0.57	0.05 (9%)	0.52 (91%)
VC2b - Tall open sclerophyll forest (Lophostemon confertus/Cinnamomum camphora) - PCT 3148 (derived)	1.03	0.10 (10%)	0.92 (90%)
VC3a - Mid-high to tall closed forest (Cinnamomum camphora +/- mixed species) - PCT 3011 (derived)	12.72	0.18 (1%)	12.54 (99%)
VC3b - Low to mid-high closed regrowth (Cinnamomum camphora +/- mixed species) - PCT 3011 (derived)	6.18	1.65 (27%)	4.52 (73%)
VC4a - Mid-high to tall closed forest (Cinnamomum camphora)	32.04	6.87 (21%)	25.17 (79%)
VC4b - Low to mid-high regrowth (Cinnamomum camphora)	8.94	7.38 (83%)	1.56 (17%)
VC5 - Planted trees/Landscaping	10.55	10.44 (99%)	0.11 (1%)
Grassland	92.11	60.91 (66%)	31.20 (34%)
Unmapped Areas		0.62	
TOTAL	189.16	88.35 (47%)	100.82 (53%)

- The proposed development will result in an increase in traffic on and to the subject site. This increases the likelihood of animals being killed or injured by vehicles.
- The establishment of infrastructure with people, noise and lighting can have important implications for the behaviour of fauna within retained vegetation particularly nocturnal fauna and may cause reclusive species to move away from habitat edges and act as a deterrent on the movement of animals through the site.

7.2.2 Threatened Ecological Communities (TECs)

The proposed development will result in very minor impacts to areas that represent TECs under the schedules of the EPBC Act and BC Act (**TABLE 17**; **FIGURES 9 & 10**). This includes impacts to:

- 0.12 ha (~1%) of Lowland Rainforest of Subtropical Australia CEEC within schedules of the EPBC Act; and
- 2.13 ha (~5%) of Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - EEC within schedules of the BC Act.

Of the latter, 1.94 ha of these impacts will occur in areas that are considered to be highly degraded.

7.2.3 Threatened flora

Threatened flora species with potential to be lost under the proposed development layout are shown in **FIGURES 7A - 7E** and summarised in **TABLE 18**. Details of Threatened flora to be retained and removed are provided in **APPENDIX 2**. Due to the large number of Threatened flora on the site, each individual tree was not given its own GPS point. Rather, any trees within radius of up to 10 metres of a point were grouped together, with records noted of the species and number of trees and approximate height.

7.2.4 Threatened flora and fauna habitat

The proposed development has been strategically placed in areas that provide the lowest value habitat for threatened flora and fauna. Notwithstanding this, impacts to marginal habitat (e.g. forage for fauna) will still occur and have been summarised in **TABLES 19** and **20**.

7.2.5 Corridor values

The placement of the proposed development ensures the highest corridor values are maintained within habitat across the broader landscape. The proposed development will not impact existing vegetation to the point where terrestrial fauna dispersal will be impeded (FIGURE 6).

 TABLE 17

 ESTIMATED IMPACTS OF CLEARING ON THREATENED ECOLOGICAL COMMUNITIES

Name	Existing Area (ha)	Area to be Impacted (ha)	Area to be Retained (ha)
Endangered Ecological Community (EEC) - BC Act	•		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion (EEC)	25.61	0.19 (1%)	25.42 (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion (EEC) - highly degraded	19.92	1.94 (10%)	17.99 (90%)
Total	45.53	2.13 (5%)	43.40 (95%)
Critically Endangered Ecological Community (CEEC) - EPBC Act	•		
Lowland Rainforest of Subtropical Australia (CEEC) - Type A	15.64	0.12 (1%)	15.53 (99%)
Lowland Rainforest of Subtropical Australia (CEEC) - Type B	7.47	0.00 (0%)	7.47 (100%)
Total	23.11	0.12 (1%)	23.00 (99%)

TABLE 18THREATENED FLORA TO BE DIRECTLY IMPACTED

Scientific Name	Common Name	BC Act	FPBC Act	Total Number	Number to be
	Common Name	DC ACC	LI DE ACC	Recorded	Impacted
Acacia bakeri	Marblewood	V		42	0
Archidendron hendersonii	White lace flower	V		6	0
Bosistoa transversa	Yellow satinheart	V	V	332	0
Coatesia paniculata	Axe-breaker	E		72	0
Cryptocarya foetida	Stinking cryptocarya	V	V	162	1 (<1%)
Diospyros yandina	Shiny-leaved ebony	E		327	0
Diploglottis campbellii	Small-leaved tamarind	E	E	176	1 (<1%)
Drynaria rigidula	Basket fern	E		1	0
Endiandra hayesii	Rusty rose walnut	V	V	6	0
Endiandra muelleri subsp. bracteata	Green-leaved rose walnut	E		40	0
Floydia praealta	Ball nut	V	V	1	0
Gossia fragrantissima	Sweet myrtle	E	E	144	4 (3%)
Grevillea hilliana	White yiel yiel	E		111	2 (2%)
Hicksbeachia pinnatifolia	Red bopple nut	V	V	42	0
Lepiderema pulchella	Fine-leaved tuckeroo	V		2,220	311 (14%)
Macadamia tetraphylla	Rough-shelled bush nut	V	V	1,010	113 (11%)
Ochrosia moorei	Southern ochrosia	E	E	49	0
Peristeranthus hillii	Brown fairy-chain orchid	V		9	0
Phyllanthus microcladus	Brush sauropus	E		20	0
Randia moorei	Spiny gardenia	E	E	90	12 (13%)
Rhodamnia maideniana	Smooth scrub turpentine	CE	CE	44	2 (5%)
Syzygium hodgkinsoniae	Red lilly pilly	V	V	23	0
Syzygium moorei	Durobby	V	V	15	8 (53%)
			TOTAL	4,942	454 (9%)
BC Act - New South Wales Biodiversity Conservat	ion Act 2016				
EPBC Act - Commonwealth Environment Protecti	on Biodiversity and Conservation Act 1999				

Conservation status: CE - Critically endangered; E - Endangered; V - Vulnerable; NT - Near threatened

Species	Vegetation Community (Habitat)	Existing Area (ha)	Area to be Impacted (ha / %)	Area to be Retained (ha / %)
Axe breaker (Coatesia paniculata)	1A	15.08	0.07 (<1%)	15.01 (>99%)
Ball nut (<i>Floydia praealta</i>)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Basket fern (Drynaria rigidula)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Red bopple nut (Hicksbeachia pinnatifolia)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Brown fairy-chain orchid (Peristeranthus hillii)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Brush Sauropus (Phyllanthus microcladus)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Durobby (Syzygium moorei)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Fine-leaved tuckeroo (Lepiderema pulchella)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Green-leaved rose walnut (Endiandra muelleri subsp. bracteata)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Marblewood (Acacia bakeri)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Red lilly pilly (Syzygium hodgkinsoniae)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Rough-shelled bush nut (Macadamia tetraphylla)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Rusty rose walnut (Endiandra hayesii)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Shiny-leaved ebony (Diospyros yandina)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Small-leaved tamarind (Diploglottis campbellii)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Smooth scrub turpentine (Rhodamnia maideniana)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Southern Ochrosia (Ochrosia moorei)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Spiny gardenia (<i>Randia moorei</i>)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Stinking laurel (Cryptocarya foetida)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Sweet myrtle (Gossia fragrantissima)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
White lace flower (Archidendron hendersonii)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
White yiel (Grevillea hilliana)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Yellow satinheart (Bosistoa transversa)	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)

 TABLE 19

 ESTIMATED IMPACTS OF CLEARING ON SUITABLE HABITAT FOR THREATENED FLORA SPECIES

TABLE 20
ESTIMATED IMPACTS OF CLEARING ON SUITABLE HABITAT FOR THREATENED FAUNA SPECIES

Species	Vegetation Community (Suitable Habitat)	Existing Area (ha)	Area to be Impacted (ha / %)	Area to be Retained (ha / %)
Barking owl (Ninox connivens)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Bush stone-curlew (Burhinus grallarius)	5	10.55	10.44 (99%)	0.11 (1%)
Barred cuckoo-shrike (Coracina lineata)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Black-breasted button quail (Turnix melanogaster)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Black-faced monarch (Monarcha melanopsis)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Common planigale (<i>Planigale maculata</i>)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Coxen's fig parrot (Cyclopsitta diophthalma coxeni)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Eastern free-tail bat (Mormopterus norfolkensis)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Eastern long-eared bat (Nyctophilus bifax)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Grey-headed flying fox (Pteropus poliocephalus)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Koala (Phascolarctos cinereus)	5	10.55	10.44 (99%)	0.11 (1%)
Large bent-wing bat (Miniopterus orianae oceanensis)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Little bent-wing bat (Miniopterus australis)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Little lorikeet (Glossopsitta pusilla)	2A, 2B, 5	12.14	10.59 (87%)	1.55 (13%)
Masked owl (Tyto novaehollandiae)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Mitchell's rainforest snail (Thersites mitchellae)	1A, 1B, 3A, 3B, 4A	75.98	8.85 (12%)	67.13 (88%)
Northern free-tailed bat (Ozimops lumsdenae)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Oriental cuckoo (Cuculus optatus	1A, 1B, 2A, 3A	38.33	0.37 (1%)	37.96 (99%)
Pink underwing moth (Phyllodes imperialis smithersi)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Powerful owl (Ninox strenua)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Rose-crowned fruit-dove (Ptilinopus regina)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Rufous fantail (Rhipidura rufifrons)	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	86.51	16.38 (19%)	70.13 (81%)
Scarlet robin (Petroica boodang)	2A, 2B, 5	12.14	10.59 (87%)	1.55 (13%)

Species	Vegetation Community (Suitable Habitat)	Existing Area (ha)	Area to be Impacted (ha / %)	Area to be Retained (ha / %)
Sooty owl (Tyto tenebricosa)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Spectacled monarch (Symposiachrus trivirgatus)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Spotted-tail quoll (Dasyurus maculatus)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Superb fruit-dove (Ptilinopus superbus)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Three-toed snake-tooth skink (Coeranoscincus reticulatus	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
White-bellied sea-eagle (Haliaetus leucogaster)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
White-eared monarch (Carterornis leucotis)	1A, 1B, 2A, 3A, 3B, 4A	86.51	16.38 (19%)	70.13 (81%)
White-throated needletail (Hirundapus caudacutus)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)
Wompoo fruit-dove (Ptilinopus magnificus)	1A, 1B, 2A, 3A, 3B, 4A	76.54	8.90 (12%)	67.64 (88%)
Yellow-bellied sheathtail bat (Saccolaimus flaviventris)	All VCs (excluding grassland)	97.05	26.82 (28%)	70.24 (72%)

7.3 Amelioration

7.3.1 Habitat Loss / Vegetation Clearing

The proposed development will result, largely, in the loss of cleared grassland and previously cleared acacia regrowth. The following amelioration measures are recommended to accommodate for the loss of native vegetation:

- Any landscape plantings should utilise locally endemic native plant species.
- Weeds should be controlled during construction through vehicle, tool and plant hygiene measures.
- Weeds should be controlled in landscaped areas and known environmental weeds e.g. Umbrella tree should be avoided in landscape plantings.
- The use of appropriate fencing to allow fauna movement between vegetated areas and exclude fauna from hazardous areas should be incorporated into the detailed design.
- Appropriate disposal of rubbish and food scraps reduces opportunities for non-native predators and disturbance adapted competitors.
- The effects of light on adjoining vegetation could be managed by the capping of night lights to reduce glare into the sky and the careful positioning of lighting and use of screening vegetation.
- Native vegetation should be retained and incorporated into any future development where feasible.
- Any hollows to be removed will be offset at a minimum of 1:1 offset ratio through the provision of nest boxes (see SECTION 7.3.3).
- Appropriate flora and fauna management strategies including the use of a spottercatcher and tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts on flora and fauna. Details should be set out in a Vegetation and Fauna Management Plan (VFMP) prepared and approved by Council as a condition of consent prior to commencement of vegetation clearing works.
- Vegetation removed should be mulched for use on the site except for hollow-bearing trees. This will prevent the introduction of weeds from seeds in mulch brought in from elsewhere and will retain biomass that would otherwise be removed from the system.

Rehabilitation works are proposed to be completed as part of the proposed development. Details of proposed rehabilitation works are set out in the **Revised Site Rehabilitation & Pest Management Plan (SRPMP)** (JWA 2024).

Approximately 38.28 ha of revegetation / regeneration will be completed within the conservation areas to offset any loss of vegetation/habitat (FIGURE 13). These works will offset the loss of degraded areas of EEC vegetation and habitat for threatened flora and fauna species and will involve the following:



Impact Area Stage 1 Boundary Site Boundary Rehabilitation Areas Rehabilitation Area Boundary Restoration and embellishment of existing mature TEC (19.73ha) Assisted regeneration of existing regenerating TEC (1.02ha) Regeneration of disturbed land/depauperate rainforest to create additional TEC (13.71ha)

Revegetation of cleared land to create additional TEC (3.81ha)

Scale 1 : 10 000	_ 500m
FIGURE 13	TITLE REHABILITATION
PREPARED: BW DATE: 18 November 2024 FILE: N01057_EA_20241025.dwg	AREAS

- Restoration and embellishment of approximately 19.73 ha of existing mature TEC (52% of rehabilitation area);
- Assisted regeneration of approximately 1.02 ha of existing regenerating TEC (3% of rehabilitation area);
- Regeneration of approximately 13.71 ha of disturbed land/depauperate rainforest to create additional TEC (36% of rehabilitation area); and
- Revegetation of approximately 3.81 ha cleared land to create additional TEC (10% of rehabilitation area).

Retained patches of EEC will be buffered from the proposed development and embellished to increase the overall extent of isolated patches and reduce existing anthropogenic impacts in accordance with the SRPMP.

7.3.2 Offsets for Threatened flora

Any Threatened flora species removed during the development will be offset at a minimum rate of 5:1 (i.e. 5 replacement plants for every 1 removed) within the rehabilitation areas (JWA 2024). The number of replacement plantings for each species is provided in **TABLE 21**.

Scientific Name	Common Name	BC Act	EPBC Act	Number to be Removed	Number to be Planted
Acacia bakeri	Marblewood	V		0	-
Archidendron hendersonii	White lace flower	V		0	-
Bosistoa transversa	Yellow satinheart	V	V	0	-
Coatesia paniculata	Axe-breaker	E		0	-
Cryptocarya foetida	Stinking cryptocarya	V	V	1	5
Diospyros yandina	Shiny-leaved ebony	E		0	-
Diploglottis campbellii	Small-leaved tamarind	E	E	1	5
Drynaria rigidula	Basket fern	E		0	-
Endiandra hayesii	Rusty rose walnut	V	V	0	-
Endiandra muelleri subsp. bracteata	Green-leaved rose walnut	E		0	-
Floydia praealta	Ball nut	V	V	0	-
Gossia fragrantissima	Sweet myrtle	E	E	4	20
Grevillea hilliana	White yiel yiel	E		2	10
Hicksbeachia pinnatifolia	Red bopple nut	V	V	0	-
Lepiderema pulchella	Fine-leaved tuckeroo	V		311	1,555
Macadamia tetraphylla	Rough-shelled bush nut	V	V	113	565
Ochrosia moorei	Southern ochrosia	E	E	0	-
Peristeranthus hillii	Brown fairy-chain orchid	V		0	-
Phyllanthus microcladus	Brush sauropus	E		0	-
Randia moorei	Spiny gardenia	E	E	12	60
Rhodamnia maideniana	Smooth scrub turpentine	CE	CE	2	10

 TABLE 21

 THREATENED FLORA SPECIES TO BE IMPACTED & REQUIRED OFFSET PLANTINGS

Scientific Name	Common Name	BC Act	EPBC Act	Number to be Removed	Number to be Planted
Syzygium hodgkinsoniae	Red lilly pilly	V	V	0	-
Syzygium moorei	Durobby	V	V	8	40
TOTAL 454 2,295					
BC Act - NSW Biodiversity Conservation Act 2016 EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999					

EPBC Act - Commonwealth Environment Protection Biodiversity and Conservation Act 1999

Conservation status: CE - Critically endangered; E - Endangered; V - Vulnerable; NT - Near threatened

7.3.3 Tree Protection

Areas of retained vegetation and individual trees to be retained will be identified and demarcated prior to the commencement of site preparation works. Tree protection fences shall be installed in accordance with the Australian Standard AS 4970-2009. All trees likely to be impacted by construction works will be managed in accordance with a VFMP to be approved by Council prior to commencement of site works.

7.3.4 Habitat Trees

Appropriate flora and fauna management strategies including the use of a spotter-catcher and tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts on flora and fauna. Where possible, habitat trees removed during construction should be kept whole or in large but manageable sections. These trees should be relocated to an area of retained vegetation adjacent to their original position to preserve their value as fauna habitat.

Any hollows that are removed will be offset at a minimum of 1:1 offset ratio through the provision of nest boxes. For each hollow or pipe identified in the removed trees, compensation in the form of suitable sized nesting boxes will be installed in the adjacent vegetated area.

The exact number of nest boxes will be determined post clearing by the fauna spotter catcher / ecologist who is required to accurately document the number of hollows removed. Note is to be made of the sizes and types of hollows removed so to ensure that adequate numbers and types of nest boxes have been provided. The exact type, location and orientation of the nest box is to be determined and the installation by a suitably qualified Ecologist.

It is recommended that the CYPLAS range of nest boxes manufactured by Hollow Log Homes (https://www.hollowloghomes.com/cyplas-range) are utilised on site. CYPLAS boxes are made from 100% recycled, high density polyethylene and QLD Cypress. All boxes come with the Habisure SystemTM ready to be installed, are termite and rot proof, and have a lifespan of 30+ years. The 30+ year lifespan of the CYPLAS range makes these boxes preferable to the Birch Plywood Boxes that only offer a lifespan of 5-10 years.

7.3.5 Protection in Perpetuity

All retained areas and any compensatory rehabilitation areas should be protected in perpetuity via a suitable protection mechanism. The proponent will be responsible for the rehabilitation areas until such time as the land is dedicated to Council.

7.4 Summary of Impacts, Mitigation and Offsets

A summary of impacts on threatened species and their habitats and EECs is provided in **TABLE 22** below. Also addressed are the mitigation and offset measures proposed to ensure minimal impacts on ecologically significant areas and species.

SUMMARY OF IMPACTS, MITIGATION AND OFFSETS				
	Potential impacts	Mitigation measures	Proposed offset	Net loss/gain
Threatened flora				
Axe breaker (Coatesia paniculata)	None of the seventy-two (72) stems of Axe breaker recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	• Approximately 70.13 ha (81%) of suitable habitat for Threatened flora species will be retained.	 In total, approximately 38.28 ha of revegetation / regeneration of rainforest communities will be completed within the 	 Revegetation works on the subject site will result in a long- term net gain of approximately
Ball nut (Floydia praealta)	The single stem of Ball nut recorded on the site does not occur within the proposed development footprint (FIGURES 7A-E).	• Any Threatened flora species removed during the development will be offset at a minimum	conservation areas to offset the loss of threatened flora habitat and to ensure protection for retained Threatened flora	17.52 ha of suitable habitat for Threatened flora species.
Basket fern (Drynaria rigidula)	The single Basket fern recorded on the site does not occur within the proposed development footprint (FIGURES 7A-E).	1 removed) within the rehabilitation areas (JWA 2024).	species (FIGURE 13). These works will involve the following:	The local populations of Threatened flora species will be bolstered through propagation
Brown fairy-chain orchid (Peristeranthus hillii)	None of the nine (9) Brown fairy-chain orchids recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	• Amelioration for the removal of potential Threatened flora habitat will be provided through rehabilitation works on the subject	 Restoration and embellishment of approximately 19.73 ha of existing mature TEC (52% of rehabilitation area); 	and replanting works resulting in a net gain of 1,841 Threatened flora specimens on the site. This
Brush Sauropus (Phyllanthus microcladus)	None of the twenty (20) stems of Brush Sauropus recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	site. Approximately 38.28 ha of revegetation / regeneration will be completed within the	 Assisted regeneration of approximately 1.02 ha of existing regenerating TEC (3% of rehabilitation area); 	will include the planting of a minimum of:
Durobby (Syzygium moorei)	The proposed development will potentially remove four (4) planted and four (4) naturally occurring stems (53%) of Durobby recorded on the site (FIGURES 7A-E).	Threatened flora habitat (FIGURE 13). Details of proposed rehabilitation works are set out in the Revised Site Rehabilitation & Pest Management Plan (JWA 2024).	 Regeneration of approximately 13.71 ha of disturbed land/depauperate rainforest to create additional TEC (36% of robabilitation area); and 	 o Thirty-two (32) stells of Durobby. o 1,244 stems of Fine-leaved tuckeroo.
Fine-leaved tuckeroo (Lepiderema pulchella)	The proposed development will potentially remove three hundred and eleven (311) stems (14%) of Fine-leaved tuckeroo recorded on the site (FIGURES 7A-E).	 Retained patches of Threatened flora habitat will be buffered from the proposed development and embellished to increase the 	 Revegetation of approximately 3.81 ha cleared land to create additional TEC (10% of rehabilitation area). 	 Four-hundred and fifty-two (452) stems of Rough-shelled bush nut.
Green-leaved rose walnut (Endiandra muelleri subsp. bracteata)	None of the forty (40) stems of Green-leaved rose walnut recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	overall extent of isolated patches and reduce existing anthropogenic impacts in accordance with the SRPMP.	 Any Threatened flora species removed during the development will be offset at a minimum rate of Et1 (i.e. 5 replacement plants for even 	 Four (4) stems of Small- leaved tamarind. Eight (8) stems of Smooth
Marblewood (Acacia bakeri)	None of the forty-two (42) stems of Marblewood recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	• The Site Rehabilitation & Pest Management Plan includes specific performance criteria as well as a detailed maintenance and monitoring	1 removed) within the rehabilitation areas (JWA 2024). A minimum of 2,295 Threatened	 scrub turpentine. Forty-eight (48) stems of Spiny gardenia.
Red bopple nut (Hicksbeachia pinnatifolia)	None of the forty-two (42) stems of Red bopple nut recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	program to ensure the persistence of this Threatened flora specimens and habitat in the long-term.	four-hundred and fifty-four (454) Threatened flora stems to be removed. This will include the planting of a minimum of:	 Four (4) stems of Stinking Cryptocarya.
Red lilly pilly (Syzygium hodgkinsoniae)	None of the twenty-three (23) stems of Red lilly pilly recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	Appropriate flora and fauna management strategies including the use of tree protection fancing should be implemented during site	 Forty (40) stems of Durobby to offset the loss of eight (8) stems. 	 Sixteen (16) stems of Sweet myrtle.
Rough-shelled bush nut (Macadamia tetraphylla)	The proposed development will potentially remove one hundred and thirteen (113) stems (11%) of Rough-shelled bush nuts recorded on the site (FIGURES 7A-E).	clearing operations to minimise potential adverse impacts. Details should be set out in a Vegetation and Fauna Management Plan	 1,555 stems of Fine-leaved tuckeroo to offset the three-hundred and eleven (311) stems. 	• Eight (8) stems of fiel yiel.
Rusty rose walnut (Endiandra hayesii)	None of the six (6) stems of Rusty rose walnut recorded on the site occur within the proposed development footprint (FIGURES 7A-E).	condition of consent prior to commencement of vegetation clearing works.	 Five-hundred and sixty-five (565) stems of Rough-shelled bush nut to offset the loss of one-hundred and thirteen (113) stems. 	
Shiny-leaved ebony (Diospyros yandina)	None of the three-hundred and twenty-seven (327) stems of Shiny-leaved ebony recorded on the site occur within the proposed development footprint (FIGURES 7A-E).		 Five (5) stems of Small-leaved tamarind to offset the loss of one (1) stem. 	

 TABLE 22

 SUMMARY OF IMPACTS, MITIGATION AND OFFSETS

	Potential impacts	Mitigation measures	Proposed offset	Net loss/gain
Small loaved tamarind	The proposed development will potentially remove		Ten (10) stems of Smooth scrub turpenting	-
(Diploglottic campballii)	one (1) stem (<1%) of Small-leaved tamarind		to offset the loss of two (2) stems	
	recorded on the site (FIGURES 7A-E).			
Smooth scrub turponting	The proposed development will potentially remove		 Sixty (60) stems of Spiny gardenia to offset 	
(Phodamnia maideniana)	two (2) stems (5%) of Smooth scrub turpentine		the loss of twelve (12) stems.	
(Khodanina maldeniana)	recorded on the site (FIGURES 7A-E).		• Five (5) stems of Stinking Cryptocarya to	
Southern Ochrosia	None of the forty-nine (49) stems of Southern		offset the loss of one (1) stem.	
(Ochrosia moorei)	ochrosia recorded on the site occur within the		T	
	proposed development footprint (FIGURES 7A-E).		• I wenty (20) stems of Sweet myrtle to	
Spiny gardenia	The proposed development will potentially remove		offset the loss of four (4) stems.	
(Randia moorei)	twelve (12) stems (13%) of Spiny gardenia recorded		• Ten (10) stems of Yiel yiel to offset the loss	
	on the site (FIGURES 7A-E).		of two (2) stems.	
Stinking Jaurel	The proposed development will potentially remove			
(Cryptocarya foetida)	one (1) stem (<1%) of Stinking laurels recorded on			
(cryptocarya joethaa)	the site (FIGURES 7A-E).			
Sweet murtle	The proposed development will potentially remove			
(Gossia fragrantissima)	four (4) stems (3%) of Sweet myrtle recorded on			
	the site (FIGURES 7A-E).			
White lace flower	None of the six (6) stems of White lace flower			
(Archidendron bendersonii)	recorded on the site occur within the proposed			
	development footprint (FIGURES 7A-E).			
	None of the three-hundred and thirty-two (332)			
Yellow satinheart	stems of Yellow satinheart recorded on the site			
(Bosistoa transversa)	occur within the proposed development footprint			
	(FIGURES 7A-E).			
White viel viel	The proposed development will potentially			
(Grevillea hilliana)	remove two (2) stems (2%) of Yiel yiel recorded on			
	the site (FIGURES 7A-E).			
Endangered Ecological Communit	ties		In total annualizately 29,29 has of reversetation (Devezetation works on the subject
• Lowland Rainforest of	• Approximately 0.12 ha (~1%) of Lowland	• Amelioration for the removal of Lowland	In total, approximately 38.28 ha of revegetation /	Revegetation works on the subject
Subtropical Australia - CEEC	Rainforest of Subtropical Australia CEEC within	rainforest will be provided through	regeneration will be completed within the	site will result in a long-term net
within schedules of the EPBC	schedules of the EPBC Act will be lost (FIGURE	rehabilitation works on the subject site.	(EICLIPE 12) These works will involve the	gain of approximately 17.52 ha of
Act	9)	Approximately 38.28 ha of revegetation /	(FIGURE 13). These works will involve the	Lowiand rainforest.
a Lowland Painforest in NSW	• Approximately 0.10 by (1°) of lowland	regeneration will be completed within the	Tottowing.	
Lowidilu Rainforest III NSW North Coast and Sydney Basin	 Approximately 0.19 IIa (1%) of Lowiand Painforest in NSW North Coast and Sydney 	conservation areas to offset any loss of TEC	Restoration and embellishment of	
Biorogion - FEC within	Basin Bioregion EEC within schedules of the BC	(FIGURE 13). Details of proposed rehabilitation	approximately 19.73 ha of existing mature	
schodulos of the BC Act	Act will be lost (FIGURE 10)	works are set out in the Revised Site	TEC (52% of rehabilitation area);	
schedules of the bc Act.	Act will be lost (FIGURE TO).	Rehabilitation & Pest Management Plan (JWA	 Assisted regeneration of approximately 	
	• Approximately 1.94 ha (10%) of highly	2024).	1 02 ba of existing regenerating TEC (3% of	
	degraded Lowland Rainforest in NSW North	Retained natches of FEC will be buffered from	rehabilitation area):	
	Coast and Sydney Basin Bioregion EEC within	the proposed development and embellished to		
	schedules of the BC Act will be lost (FIGURE	increase the overall extent of isolated patches	Regeneration of approximately 13.71 ha of	
	10).	and reduce existing anthropogenic impacts in accordance with the SRPMP.	disturbed land/depauperate rainforest to	
	Disturbance may create opportunities for		create additional TEC (36% of rehabilitation area); and	
	weeds to colonise both the subject site and			
	adjacent vegetation.	• The Site Rehabilitation & Pest Management	Revegetation of approximately 3.81 ha	
		Plan includes specific performance criteria as	cleared land to create additional TFC (10%	
	• Future use of the subject site may create	well as a detailed maintenance and monitoring	of rehabilitation area).	
	opportunities for ornamental and landscape			

		Potential impacts	Mitigation measures	Proposed offset
		garden plant species to disperse into adjacent areas of retained vegetation.	program to ensure the persistence of this EEC in the long-term.	
		 The removal of vegetation from the subject site will result in a slight decrease in organic material and biomass on the site. Edge effects may be experienced in areas of conserved vegetation adjacent to development zones and may cause a change in the composition of flora communities. 	• Appropriate flora and fauna management strategies including the use of tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts. Details should be set out in a Vegetation and Fauna Management Plan prepared and approved by Council as a condition of consent prior to commencement	
		 Occupation of the site may increase the risk of fire release into areas of native vegetation on the subject site leading to a disturbance in the natural fire regime of the locality and impacts on fire-sensitive flora species and/or those that require specific fire regimes. 	of vegetation clearing works.	
		 The removal of vegetation may disturb the soil structure and integrity which can reduce the health and longevity of remaining vegetation and result in increased soil erosion which may cause sedimentation of watercourses. 		
Th	reatened fauna			
•	Barking connivens)owl (NinoxBarred coracina lineata)cuckoo-shrike (Coracina lineata)Eastern (Mormopterus norfolkensis)bat (Mormopterus norfolkensis)Eastern (Nyctophilus bifax)bat fox (Nyctophilus bifax)Grey-headed (Pteropus poliocephalus)flying orianae orianae oceanensis)Little (Miniopterus australis)bat (Tyto novaehollandiae)	 The proposed development will potentially remove approximately 26.82 ha (28%) of potential forage habitat however, it is considered that these species will continue to forage over the retained vegetation on the subject site. Suitable roosting habitat will be retained in the southern portion of the subject site. Given the high mobility of these species, the loss of known and potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for these species. 	 Approximately 100.82 ha (53%) of suitable habitat for Threatened fauna species will be retained. Amelioration for the removal of potential Threatened fauna habitat will be provided through rehabilitation works on the subject site. Approximately 38.28 ha of revegetation / regeneration will be completed within the conservation areas to offset any loss of Threatened fauna habitat (FIGURE 13). Details of proposed rehabilitation works are set out in the Revised Site Rehabilitation & Pest Management Plan (JWA 2024). Retained patches of Threatened fauna habitat will be buffered from the proposed development and embellished to increase the overall extent of isolated patches and reduce existing anthropogenic impacts in accordance with the SRPMP. The Site Rehabilitation ft Pest Management 	 In total, approximately 38.28 ha of reveget regeneration of rainforest communities of completed within the conservation areas to the loss of threatened fauna habitat (FIGUE These works will involve the following: Restoration and embellishmer approximately 19.73 ha of existing TEC (52% of rehabilitation area); Assisted regeneration of approximately 10.2 ha of existing regenerating TEC rehabilitation area); Regeneration of approximately 13.7 disturbed land/depauperate rainfor create additional TEC (36 rehabilitation area); and Revegetation of approximately 3 cleared land to create additional TE of rehabilitation area).
•	Northern free-tailed bat (<i>Ozimops lumsdenae</i>) Powerful owl (<i>Ninox strenua</i>)		 The Site Rehabilitation & Pest Management Plan includes specific performance criteria as well as a detailed maintenance and monitoring 	

	Net loss/gain
egetation / es will be as to offset GURE 13).	Revegetation works on the subject site will result in a long-term net gain of approximately 17.52 ha of suitable habitat for Threatened fauna species.
ment of ing mature ;	
roximately TEC (3% of	
13.71 ha of inforest to (36% of	
y 3.81 ha al TEC (10%	

	Potential impacts	Mit	tigation measures	Proposed offset	Net loss/gain
 Rufous fantail (Rhipidura rufifrons) White-bellied sea-eagle (Haliaetus leucogaster) White-throated needletail (Hirundapus caudacutus) 		•	program to ensure the persistence of this Threatened fauna habitat in the long-term. Appropriate flora and fauna management strategies including the use of a spotter- catcher and tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts. Details		
• Yellow-bellied sheathtail bat (Saccolaimus flaviventris)	The proposed development will potentially	illy	Minimise potential adverse impacts. Details should be set out in a Vegetation and Fauna Management Plan prepared and approved by Council as a condition of consent prior to commencement of vegetation clearing works.		
 Bush stone-curlew (Burhinus grallarius) Koala (Phascolarctos cinereus) 	 remove approximately 10.44 ha (99%) of potential forage habitat. Given the high mobility of these species, the loss of known and potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for these species. 	•	Where possible, habitat trees removed during construction should be kept whole or in large but manageable sections. These trees should be relocated to an area of retained vegetation adjacent to their original position to preserve their value as fauna habitat.		
 Black-breasted button quail (<i>Turnix melanogaster</i>) Common planigale (<i>Planigale maculata</i>) Pink underwing moth (<i>Phyllodes imperialis smithersi</i>) Sooty owl (<i>Tyto tenebricosa</i>) Spectacled monarch (<i>Symposiachrus trivirgatus</i>) Spotted-tail quoll (<i>Dasyurus maculatus</i>) Superb fruit-dove (<i>Ptilinopus superbus</i>) Three-toed snake-tooth skink (<i>Coeranoscincus reticulatus</i>) 	 The proposed development will potentially remove approximately 8.90 ha (12%) of potential forage habitat however, it is considered that these species will continue to forage over the retained vegetation on the subject site. The loss of potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for this species. 	•	Any hollows that are removed will be offset at a minimum of 1:1 offset ratio through the provision of nest boxes. For each hollow or pipe identified in the removed trees, compensation in the form of suitable sized nesting boxes will be installed in the adjacent retained vegetation. The exact number of nest boxes will be determined post clearing by the fauna spotter catcher / ecologist who is required to accurately document the number of hollows removed. Note is to be made of the sizes and types of hollows removed so to ensure that adequate numbers and types of nest boxes have been provided. The exact type, location and orientation of the nest box is to be determined and the installation by a suitably qualified Ecologist. The effects of light on adjoining vegetation could be managed by the capping of night lights to reduce glare into the sky and the careful positioning of lighting and use of screening vegetation.		
 Wompoo fruit-dove (Ptilinopus magnificus) Black-faced monarch (Monarcha melanopsis) Coxen's fig parrot (Cyclopsitta diophthalma coxeni) 	 The proposed development will potentially remove approximately 16.38 ha (19%) of potential forage habitat however, it is considered that these species will continue to forage over the retained vegetation on the subject site. 	•	The use of appropriate fencing to allow fauna movement between vegetated areas and exclude fauna from hazardous areas should be incorporated into the detailed design. Pest animals occurring on site will be managed and controlled in accordance with the Pest Animal Control Strategy outlined in the SRPMP (JWA 2024).		

	Potential impacts	Mitigation measures	Proposed offset	Net loss/gain
 Rose-crowned fruit-dove (<i>Ptilinopus regina</i>) White-eared monarch (<i>Carterornis leucotis</i>) 	• Given the high mobility of these species, the loss of known and potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for these species.			
 Little lorikeet (Glossopsitta pusilla) Scarlet robin (Petroica boodang) 	 The proposed development will potentially remove approximately 10.59 ha (87%) of potential forage habitat however, it is considered that this species will continue to forage over the retained vegetation on the subject site. Given the high mobility of this species, the loss of known and potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for this species. 			
Mitchell's rainforest snail (Thersites mitchellae)	• 8.85 (12%)			
Oriental cuckoo (Cuculus optatus)	 The proposed development will potentially remove approximately 0.37 ha (1%) of potential forage habitat however, it is considered that this species will continue to forage over the retained vegetation on the subject site. Given the high mobility of this species, the loss of known and potential foraging habitat is not considered significant in relation to the regional distribution of potential foraging habitat for this species. 			

8 CONSIDERATION OF STATUTORY REQUIREMENTS

8.1 Introduction

This section includes an assessment of the likely impacts of the proposed development with regard relevant commonwealth, state, and local legislation. Amelioration measures recommended to minimise and mitigate these impacts on the biodiversity and habitat values of the subject site and/or adjacent areas have also been detailed where applicable. Detailed assessment of compliance with relevant legislative requirements is provided in the following sections.

8.2 EPBC Act (Commonwealth)

8.2.1 Background

The EPBC Act provides a mechanism for assessing the environmental impact of activities and development on MNES. A person must not, without an approval under the Act, take an action that has or will have, or is likely to have, a significant impact on any of the following MNES:

- world heritage properties or national heritage places;
- declared Ramsar wetlands;
- listed threatened species or ecological community;
- listed migratory species; and
- Commonwealth marine area or commonwealth land.

The Act also prohibits the taking, without an approval under the Act, of:

- a nuclear action; and
- an action in a commonwealth marine area or on commonwealth land that has or will have, or is likely to have, a significant impact on the environment.

MNES in NSW include:

- declared World Heritage areas;
- declared Ramsar wetlands;
- listed threatened species (Schedule 1 and 2 of the *Commonwealth Endangered Species Protection Act* 1992);
- listed ecological communities; and
- listed migratory species (JAMBA and CAMBA).

An action includes a project, development, undertaking or an activity or series of activities. An action does not require approval if it is a lawful continuation of a use of land, sea or seabed that was occurring before the commencement of the Act. An enlargement, expansion or intensification of a use is not a continuation of a use. The EPBC Act does not require commonwealth approval for the rezoning of land; however, it does suggest that when rezoning land, planning authorities should consider whether to allow actions that could significantly affect MNES or environment of Commonwealth land.

A commonwealth assessment will be required for proposed activities on the subject site if they affect a MNES. The Commonwealth Department of the Environment has prepared EPBC Act Policy Statements, including the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (DotE 2013), which provides a self-assessment process to assist in determining whether an action should be referred to the commonwealth for a decision on whether assessment and approval is required.

Where a project or action is believed to potentially cause a significant impact on a MNES, it is to be referred to the Australian Government Department of Agriculture, Water and the Environment (DAWE) for assessment as to whether the action is a 'controlled action' requiring commonwealth approval for the proposed action. The proposed development has been considered against the Principal Significant Impact Guidelines for each of the MNES identified on the subject site. This assessment is provided in the following sections.

8.2.2 Declared World Heritage Areas

There are no declared World Heritage areas located on or near the subject site.

8.2.3 Declared Ramsar Wetlands

There are no declared Ramsar wetlands located on or near the subject site.

8.2.4 Threatened Ecological Communities (TECs)

The subject site contains patches of varying quality that indicate the presence of the Critically Endangered Lowland Rainforest of Subtropical Australia Ecological Community (CEEC) as listed within schedules of the EPBC Act (FIGURE 9).

As discussed in **SECTION 3.3.3**, five (5) distinct patches on the subject site meet the relevant key diagnostic characteristics <u>and</u> condition thresholds to be considered representative of the **Lowland Rainforest of Subtropical Australia CEEC (FIGURE 9)**.

Based on strategic placement of the proposed development layout, all patches of CEEC that retain the most intact structure and likely ecological function to have the highest chance of persisting in the long-term, will be retained, protected, and buffered.

8.2.5 Commonwealth Listed Threatened Flora and Fauna Species

8.2.5.1 Significant Impact Criteria

An action is likely to have a significant impact on a critically endangered, endangered, or vulnerable species if it results in the following:

• A long-term decrease in the size of a population;

- Reduction in the area of occupancy of the species;
- Fragments an existing population into two or more populations;
- Adversely affect habitat critical to the survival of a species;
- Disrupts the breeding cycle of a population;
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- Invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- Introduces disease that may cause the species to decline; or
- Interferes with the recovery of the species.

A 'population of a species' is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to a geographically distinct regional population, or collection of local populations, or a population, or collection of local populations that occur within a particular bioregion.

An 'invasive species' is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

8.2.5.2 Applicability to the Subject Site

TABLE 18 outlines the threatened flora species listed under the EPBC Act have been recorded on the subject site, and the impacts on known individuals and suitable habitat for each species.

- Red bopple nut
- Durobby
- Red lilly pilly
- Rough-shelled Bush Nut
- Rusty Rose Walnut
- Small-leaved Tamarind

- Smooth scrub turpentine
- Southern Ochrosia
- Spiny gardenia
- Stinking Laurel
- Sweet myrtle
- Yellow satinheart

The following two (2) threatened fauna species listed within schedules of the EPBC Act have been recorded on the subject site:

- Grey-headed flying-fox; and
- Pink underwing moth.

As discussed in **SECTION 4**, the subject site is considered to provide potentially suitable habitat for the following additional threatened fauna species listed within schedules of the EPBC Act:

- Black-breasted button-quail;
- Coxen's fig-parrot;
- Koala;
- Mitchell's rainforest snail;
- Spotted-tailed quoll; and
- Three-toed snake-tooth skink

Except for the Koala, the highest quality habitat for most of the above species is associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and marginally tall, closed Camphor laurel dominated forests (VC3). With this considered, the proposed development will retain and enhance most of this habitat (SECTION 7.3.1 refers), and the continued use of the subject site and broader landscape by these threatened species will not be impeded by the proposed development.

The highest quality habitat for Koalas on the subject site is associated with planted trees alongside the disused golf course fairways (i.e. VC5; **FIGURE 8**). This area is surrounded largely by cleared land or unsuitable rainforest habitat. As supported by the records over time, this area may possibly be utilised by transitory Koalas moving across the broader landscape. Notwithstanding, the removal of this habitat in unlikely to impact the viability or connectivity of any local population of Koalas in excess to what that existed prior to the planting of this vegetation.

8.2.6 Listed Migratory Species

8.2.6.1 Significant Impact Criteria

An action will require approval if the action has, will have, or is likely to have a significant impact on a listed migratory species. Note that some migratory species are also listed as threatened species. The significant impact criteria below are relevant to migratory species that are not threatened.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles); or
- Alter hydrological cycles, destroy, or isolate an area of important habitat for a migratory species; or
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or

• Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

An area of 'important habitat' for a migratory species is:

- Habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species; and/or
- Habitat that is of critical importance to the species at life-cycle stages; and/or
- Habitat utilized by a migratory species which is at the limit of the species range; and/or
- Habitat within an area where the species is declining.

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, the definition of what an 'ecologically significant proportion' of the population is varies with the species (each circumstance needs to be evaluated). Some factors that should be considered include the species' population status, genetic distinctiveness, and species-specific behavioural patterns (for example, site fidelity and dispersal rates).

The term 'population' in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one (1) or more national jurisdictional boundaries including Australia.

8.2.6.2 Applicability to the Subject Site

The following migratory species listed within schedules of the EPBC Act have historically been recorded across the subject site:

- Rufous fantail (*Rhipidura rufifrons*);
- Spectacled monarch (*Monarcha trivirgatus*); and
- White-bellied sea eagle (*Haliaeetus leucogaster*).

As discussed in **SECTION 4**, the subject site is also considered to provide potentially suitable habitat for the Black-faced monarch (*Monarcha melanopsis*) and Oriental cuckoo (*Cuculus optatus*).

Apart from the White-bellied sea-eagle that is likely to traverse the subject site aerially rather than rely of resources available, suitable habitat for other known or potential migratory species is associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and marginally tall, closed Camphor laurel dominated forests (VC3). With this considered, the proposed development will retain and enhance most of this habitat (**SECTION 7.3.1** refers), and the continued use of the subject site and broader landscape by these migratory species will not be impeded by the proposed development.

8.2.7 Requirement for Commonwealth Referral

Based on the assessment above, as well as habitat suitability assessments in **SECTION 4** and **APPENDIX 4**, it is not considered likely that there will be a significant impact on any ecological communities or species listed within schedules of the EPBC Act. Furthermore, rehabilitation works in accordance with the SRPMP (JWA 2024) will enhance existing TEC areas on site and additional areas of TEC will be planted. Furthermore, offsets for any threatened flora species removed during the development will be provided at a minimum rate of 5:1 (i.e. 5 replacement plants for every 1 removed).

However, given the large areas of TEC present, and the significant populations of some threatened flora species recorded on the site, a referral under the EPBC Act is **recommended** as a precautionary approach.

8.3 Assessment of Significance (Seven-Part Test)

8.3.1 Background

An Assessment of Significance (7-part test equivalence) has been undertaken for all listed species/EECs recorded on the subject site, including threatened fauna predicted to occur over time (SECTION 4). Potential impacts on threatened species, populations or ecological communities, or their habitats were assessed using the *Threatened Species Assessment Guidelines: The Assessment of Significance* (DECC 2007).

The Assessment of Significance should not be considered a "pass or fail" test as such, but a system allowing proponents to undertake a qualitative analysis of the likely impacts and ultimately whether further assessment needs to be undertaken via a Species Impact Statement. All factors must be considered, and an overall conclusion must be drawn from all factors in combination. Where there is any doubt regarding the likely impacts, or where detailed information is not available, a Species Impact Statement should be prepared.

Mitigating, ameliorative or compensatory measures proposed as part of the action, development or activity should not be considered in determining the degree of the effect on threatened species, populations or ecological communities, unless the measure has been proven successful for that species in a similar situation. In many cases where complex mitigating, ameliorative or compensatory measures are required, such as translocation, bush restoration, purchase of land, further assessment through the Species Impact Statement process is likely to be required.

In determining the nature and magnitude of an impact, it is important to consider matters such as:

- Pre-construction, construction and occupation/maintenance phases;
- All on-site and offsite impacts, including location, installation, operation and maintenance of auxiliary infrastructure and fire management zones;
- All direct and indirect impacts;
- The frequency and duration of each known or likely impact/action;

- The total impact which can be attributed to that action over the entire geographic area affected, and over time;
- The sensitivity of the receiving environment; and
- The degree of confidence with which the impacts of the action are known and understood.

Recovery and threat abatement plans, priorities action statements and threatened species profiles may provide further guidance on whether an action/activity is likely to be significant.

Application of the precautionary principle requires that a lack of scientific certainty about the potential impacts of an action does not itself justify a decision that the action is not likely to have a significant impact. If information is not available to conclusively determine that there will not be a significant impact on a threatened species, population or ecological community, or its habitat, then it should be assumed that a significant impact is likely.

8.3.2 Endangered Ecological Communities (EECs)

The subject site contains patches of varying quality that indicate the presence of the Endangered Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion Ecological Community as listed within schedules of the BC Act.

A 'Test of Significance" has been completed in accordance with the requirements of Section 5 of the EP&A Act to undertake a qualitative analysis of the likely impacts on this 'potential' EEC (APPENDIX 3).

8.3.3 Flora

The following threatened flora species listed under the BC Act (formally TSC Act) have been historically recorded on the subject site during past field surveys:

- Axe breaker
- Ball nut
- Basket fern
- Red bopple nut
- Durobby
- Red lilly pilly
- Rough-shelled Bush Nut

- Small-leaved Tamarind
- Smooth scrub turpentine
- Southern Ochrosia
- Spiny gardenia
- Stinking Laurel
- Sweet myrtle
- Yellow satinheart

• Rusty Rose Walnut

In accordance with the requirements of Section 5 of the EP&A Act a 'Test of Significance" has been completed for all threatened flora species that were confirmed on the subject site (APPENDIX 3).

8.3.4 Fauna

The following threatened fauna species listed within schedules of the BC Act (formally TSC Act) have been recorded on the subject site:

- Eastern free-tail bat;
- Grey-headed flying-fox;
- Little bent-winged bat;
- Little lorikeet

- Rose-crowned fruit-dove;
- Rufous fantail;
- White-bellied sea-eagle; and

Northern free-tailed bat

Oriental cuckoo

Spotted-tail quoll

Superb fruit-dove

Wompoo fruit-dove

White-throated needletail

Yellow-bellied sheathtail bat

Powerful owl

Scarlet robin

Sooty owl

• White-eared monarch.

As discussed in **SECTION 4**, the subject site is considered to provide potentially suitable habitat for the following additional threatened fauna species listed within schedules of the BC Act (formally TSC Act):

- Barking owl
- Barred cuckoo-shrike
- Black-breasted button quail
- Bush stone-curlew
- Common planigale
- Coxen's fig parrot
- Eastern long-eared bat
- Koala;
- Large bent-winged bat
- Masked owl
- Mitchell's rainforest snail;
- In accordance with the requirements of Section 5 of the EP&A Act a 'Test of Significance" has been completed for all threatened fauna species that were confirmed on the subject site or considered possible or likely occurrences (APPENDIX 3).

8.3.5 Summary

A '7-Part Test of Significance' (Section 5A of the EP&A Act) has been completed for one (1) TEC, 15 threatened flora species, and eight (8) threatened fauna species that have been confirmed on the subject site, to determine whether the proposal may have the potential to significantly impact these communities, species or their habitat. In addition, A '7-Part Test of Significance' has been completed for the threatened fauna species considered a possible or likely occurrence based on the presence of suitable habitat.

The assessment concluded that the impacts of the proposed development are unlikely to threaten the viability of any local populations of the nominated species/communities and

the proposal was not likely to result in a significant impact. A Species Impact Statement is therefore not required.

8.4 Coastal Wetlands SEPP (No. 14)

8.4.1 Background

For the proposed development the repealed Coastal Wetlands SEPP (No. 14) applies. The Coastal Wetlands SEPP was saved under the transitional provisions of the Coastal Management SEPP, which are in turn saved by virtue of provisions in the Interpretation Act 1987 despite the repeal of the Coastal Management SEPP by the Resilience and Hazards SEPP.

The Coastal Wetlands SEPP aimed to preserve and protect coastal wetlands in the environmental and economic interest of the State. It did this by defining any development that involves clearing, draining, or filling wetlands, or constructing levees on wetlands to be designated development (EDO 2007).

8.4.2 Applicability to the Subject Site

The proposed development does not impact on a mapped SEPP wetland.

8.5 Littoral Rainforest SEPP (No. 26)

8.5.1 Background

For the proposed development the repealed Littoral Rainforest SEPP (No. 26) applies (i.e., saved for the same reasons as SEPP 14).

The primary purpose of the Littoral Rainforest SEPP was to provide a mechanism for the consideration of applications for development that is likely to damage or destroy littoral rainforest areas with a view to the preservation of those areas in their natural state.

8.5.2 Applicability to the Subject Site

The subject site is not mapped as containing Littoral Rainforest under SEPP 26.

8.6 Biodiversity and Conservation SEPP

8.6.1 Background

At the time the DA was lodged, State Environmental Planning Policy No 44–Koala Habitat Protection (SEPP 44) applied. SEPP 44 was repealed and replaced by the State Environmental Planning Policy (Koala Habitat Protection) 2019 (Koala SEPP 2019) on 1 March 2020.

Clause 15 of Koala SEPP 2019 provided:

A development application made, but not finally determined, before the commencement of this Policy in relation to land to which this Policy applies must be determined as if this Policy had not commenced.

Accordingly, SEPP 44 continued to apply to the DA by reference to clause 15 of Koala SEPP 2019.

The Koala SEPP 2019 was repealed and replaced with the State Environmental Planning Policy (Koala Habitat Protection) 2020 (Koala SEPP 2020) on 30 November 2020. Koala SEPP 2020 did not contain any savings provisions with respect to Koala SEPP 2019 and therefore Koala SEPP 2020 applied to the DA.

While section 5(6) and section 30(2)(d) of the *Interpretation Act 1987* operate to save the transitional provision in Koala SEPP 2019 (i.e., clause 15), the transitional provision is limited to Koala SEPP 2019. That is, it does not apply to later instruments, which must be construed on their own terms. Accordingly, SEPP 44, which was previously saved by clause 15 of Koala SEPP 2019, ceased to be saved upon the repeal of Koala SEPP 2019 and the commencement of Koala SEPP 2020.

On commencement, Koala SEPP 2020 applied to all land located within the Richmond Valley LGA. However, when the State Environmental Planning Policy (Koala Habitat Protection) 2021 (Koala SEPP 2021) commenced on 17 March 2021, a consequential amendment was made to Koala SEPP 2020, which restricted its application to zones RU1, RU2 and RU3.

Notwithstanding the amendment to Koala SEPP 2020, clause 18 of Koala SEPP 2021 provided:

A development application made in relation to land, but not finally determined before this Policy applied to the land, must be determined as if this Policy had not commenced in its application to the land.

Accordingly, the DA is to be determined as if Koala SEPP 2021 had not commenced. That is, the version of Koala SEPP 2020 which applies is that immediately prior to the introduction of Koala SEPP 2021 on 17 March 2021.

Koala SEPP 2020 and Koala SEPP 2021 were both transferred to the State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP) on 1 March 2022. The SEPPs were incorporated into Chapters 3 and 4 of the Biodiversity and Conservation SEPP, respectively.

The savings provision from clause 18 of the Koala SEPP 2021 was transferred into section 4.16 of the Biodiversity and Conservation SEPP. The continuation of clause 18 enables regard to be had to the version of Koala SEPP 2020 as in force before the commencement of Koala SEPP 2021, which confirms the application of Chapter 3 of the Biodiversity and Conservation SEPP to the subject site.

8.6.2 Applicability to the Subject Site

Several criteria are to be addressed to determine levels of assessment and to govern management considerations. The steps are as follows:

• <u>Step 1 - does the policy apply?</u>

Yes. The land is greater than 1 ha in area and located within the Tweed LGA which is listed in Schedule 1 of the Koala Habitat Protection SEPP. However, the policy only applies to northern areas of the subject site zoned RU2 Rural Landscape (FIGURE 3A refers).

• <u>Step 2 - is the land potential koala habitat (PKH)?</u>

The Biodiversity and Conservation SEPP defines PKH as 'areas of native vegetation where the trees of the types listed in Schedule 1 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.' The trees within Schedule 1 include:

- Forest red gum (*Eucalyptus tereticornis*);
- Tallowwood (E. microcorys);
- Grey Gum (*E. punctata*);
- Ribbon or manna gum (*E. viminalis*);
- River red gum (*E. camaldulensis*);
- Broad leaved scribbly gum (E. haemastoma);
- Scribbly gum (*E. signata*);
- White box (*E. albens*);
- Bimble box or poplar box (*E. populnea*); and
- Swamp mahogany (E. robusta).

With consideration of the areas zoned RU2, the subject site does <u>not</u> contain PKH.

Eucalypt plantings associated with the disused golf course fairways (i.e. VC5) constitute the only area of the subject site that contains at least 15% of the total number of trees in the upper or lower strata of the tree component. Notwithstanding, this area is zoned R1 General Residential, and therefore is not considered further.

8.7 Tweed Coast Comprehensive Koala Plan of Management (TCCKPoM)

8.7.1 Background

The Tweed Coast Comprehensive Koala Plan of Management (TCCKPoM) was prepared by the TSC in January 2015 in accordance with the SEPP 44 (now Biodiversity and Conservation SEPP) and the approved NSW Koala Recovery Plan. The overarching vision of the TCCKPoM

is that the Tweed Coast koala population will be recovered to more sustainable levels over the next two decades.

The adoption of the TCCKPoM replaces the requirement under SEPP 44 for developments in the LGA to address koala issues individually (although this option remains subject to Council and State approval) provided the proposal is consistent with the requirements of the TCCKPoM. The adoption of the TCCKPoM does not negate the responsibility of TSC or a proponent considering undertaking a development requiring TSC consent to fully consider whether such an activity is likely to result in a significant effect on a threatened species, population or ecological community or their habitat.

8.7.2 Applicability to the subject site

Koalas are known to occupy the surrounding landscape; however, habitat on the subject site is limited to planted trees associated with the disused golf course (VC5; **FIGURE 8**). Given suitable habitat is available, it cannot be conclusively ruled out that the Koala occurs on the subject site from time-to-time.

Notwithstanding the above, suitable habitat of the subject site is surrounded by nonpreferred habitat (i.e. rainforest, camphor dominated forest, disturbed grasslands) and resident development. With this considered, use of the subject site is almost certainly restricted to individuals traversing the landscape and is not likely to constitute an important area for long-term Koala persistence across the broader landscape.

It is acknowledged that the proposed development will increase vehicle frequency and domestic dog presence in the landscape. However, habitat remaining on the subject site will be largely unsuitable to support and/or attract Koalas to the extent where it would be reasonable to assume that there would be an increase in vehicle strike or dog attack other than what already exists.

With consideration of all relevant data, the following key points have been considered for assessment against the TCCKPoM:

- The Atlas of Living Australia contains no records of koalas from within the subject site.
- The NSW BioNet database has 140 records of koalas from within 10 km of the subject site over the past three (3) generations (18 years). No records are from within the subject site.
- No evidence of koala habitat use has been recorded from the subject site or surrounding landscape during all prior fauna surveys¹. No evidence has been recorded during recent faecal pellet searches of PKFTs.
- PKFTs on the subject site were original planted as part of the now disused golf course.

¹ This statement excludes reference to 'old scratches' recorded in 2004. Scratches are not a reliable indicator to confirm koala presence.

- The Tweed Shire Koala Habitat Study (Biolink 2011) identified that the subject site is not located within an area of generational persistence and of the 26 field sites surveyed east of the Pacific Highway and north of the Tweed River, two (2) sites had evidence of koala activity by way of diagnostic faecal pellets. This includes:
 - Active sites were located approximately 5 km and 3 km to the northeast and south of the subject site, respectively.
 - Approximately nine (9) inactive field sites were located closer to the subject site than the active sites. Of these, five (5) field sites were located less than 1.5 km from the subject site.

As per the Development Assessment Pathway of the TCCKPoM, the proposed development can be considered large-scale in the future urban footprint. As such, the following applies.

Part 5.11 Development in the future urban footprint

i) For the purposes of this Plan, the Future Urban Footprint includes the following areas:

- a) any area of land identified for future urban purposes in a State or Council adopted plan or strategy (e.g. North Coast Regional Plan 2036, Tweed Urban and Land Release Strategy 2009)
- b) any Urban Zoned Land with a total area greater than or equal to twenty-five (25) times the minimum lot size for that zone
- c) any R5 Large Lot Residential zoned land with a total area greater than or equal to five (5) times the minimum lot size for that zone.
- *ii)* Despite (*i*) above the Future Urban Footprint does not include:
 - a) Urban Zoned Land with a total area less than twenty-five (25) times the minimum lot size for that zone
 - b) R5 Large Lot Residential zoned land with a total area less than five (5) times the minimum lot size for that zone.

The definition in (i) and (ii) above seeks to define those undeveloped areas that have been identified for future urban growth. This includes areas that have not yet been appropriately zoned (subclause (i)(a)), areas that have been zoned but remain undeveloped (subclauses (i)(b) and (c)) but does not include areas that have already been developed (clause (ii)).

The subject site is part of the approved concept plan under the Major Development SEPP, it is reasonable to assign the subject site as a future urban footprint area.

Part 5.11 applies to Development Proposals within the Future Urban Footprint referred to in (i) and (ii) above that is:

- a) within a Koala Activity Precinct
- b) within a Koala Linkage Precinct

c) elsewhere on the Tweed Coast where koalas are present.

The subject site is not located within a Koala Activity Precinct or Koala Linkage Precinct. Based on the guidelines in the TCCKPoM, (c) applies if the subject site contains 'core koala habitat' (Section 3.4). Assessment of the subject site against the definitions of core koala habitat is provided in **TABLE 23**.

Requirement	Assessment of the subject site
Preferred Koala Habitat within a Koala Activity Precinct	The subject site is not within a Koala Activity Precinct
Preferred Koala Habitat within a Koala Linkage Precinct	The subject site is not within a Koala Linkage Precinct
Preferred Koala Habitat where koalas have been observed in the previous 18 years	There are no confirmed recorded of koalas on the subject site within the past 18 years and there are no records from the subject site in the Atlas of Living Australia or BioNet databases. As per the Tweed Shire Koala Habitat Study (Biolink 2011), the subject site was not located within an area of generational persistence.
Any other area where koalas are present	No evidence of koala habitat use has been recorded from the subject site or surrounding landscape during all prior fauna surveys. No evidence was recorded during recent faecal pellet searches of PKFTs.

TABLE 23 ASSESSMENT AGAINST REQUIREMETNS OF THE TCCKPOM

Based on historical records, prior and recent field assessments, and legislative definitions; there is no evidence to suggest that the subject site provides habitat critical for the conservation of koalas on the tweed coast. Data also indicates that assessment against the TCCKPoM is not required in this case.

9 SUMMARY AND RECOMMENDATIONS

JWA have been engaged by Greenland Development Pty Ltd to prepare a Revised Ecological Assessment (EA) for consideration by DPHI to modify the Major Project ('Concept Plan') Approval No. 08_0234 for Elysian, formerly known as the 'Rise', located at Marana Street, Bilambil Heights NSW 2486. The proposal seeks approval to modify the Major Project consent pursuant to clause 3BA(5) of Schedule 2 of the Transitional Regulation.

The modification seeks changes to the land uses of the approved project and the conditions of the consent. It is proposed to modify the approval by consolidating and simplifying land uses, omitting inappropriate uses and removal of the detailed layout to allow for flexibility at the detailed design stage.

Numerous flora assessments across the site since 1996 have recorded a total of 427 flora species including 23 species listed within schedules of the EPBC Act and/or BC Act. Five (5) Vegetation Communities have been identified including five (5) distinct patches of vegetation that meet the relevant key diagnostic characteristics and condition thresholds of the Lowland Rainforest of Subtropical Australia Ecologically Community that is listed as Critically Endangered within schedules of the EPBC Act. Furthermore, three (3) vegetation communities present on the site are considered to be representative of the Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions Ecologically Community which is listed as Endangered within schedules of the BC Act.

Numerous fauna surveys have been completed across the site since 1996. More recently JWA have completed multiple field assessments to target threatened fauna species (listed within schedules of the EPBC Act and/or BC Act) at the appropriate time of year and in accordance with current survey guidelines. Surveys have recorded ten (10) native amphibian species and one (1) exotic species, ninety (90) bird species, twenty (20) native mammal species and five (5) exotic species and fifteen (15) reptile species. A total of nine (9) threatened species and two (2) migratory species listed within schedules of the EPBC Act and/or BC Act have been recorded. Based on an assessment of available habitat an additional nineteen (19) threatened or migratory species are considered a possible occurrence over time.

The extent of vegetation clearing for the proposed development amount to 88.35 ha. Of this, 71.34 ha (~80%) is strategically placed across grasslands, disturbed areas, or planted trees/landscaping associated with the disused golf course. An additional 14.25 ha of vegetation to be cleared is in highly degraded Camphor laurel dominated forest and regrowth. With this considered, approximately 2.13 ha (~2.5%) of vegetation to be cleared is considered of moderate to high quality.

The proposed development will result in very minor impacts to areas that represent Threatened Ecological Communities under the schedules of the EPBC Act and/or BC Act. This includes impacts to:

• 0.12 ha (~1%) of Lowland Rainforest of Subtropical Australia - CEEC within schedules of the EPBC Act; and

• 2.13 ha (~5%) of Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - EEC within schedules of the BC Act.

Of the latter, 1.94 ha of these impacts will occur in areas that are considered to be highly degraded.

A number of amelioration measures are recommended to accommodate for the loss of native vegetation and include:

- Any landscape plantings should utilise locally endemic native plant species.
- Weeds should be controlled during construction through vehicle, tool and plant hygiene measures.
- Weeds should be controlled in landscaped areas and known environmental weeds e.g. Umbrella tree should be avoided in landscape plantings.
- The use of appropriate fencing to allow fauna movement between vegetated areas and exclude fauna from hazardous areas should be incorporated into the detailed design.
- Appropriate disposal of rubbish and food scraps reduces opportunities for non-native predators and disturbance adapted competitors.
- The effects of light on adjoining vegetation could be managed by the capping of night lights to reduce glare into the sky and the careful positioning of lighting and use of screening vegetation.
- Native vegetation should be retained and incorporated into any future development where feasible.
- Any hollows to be removed will be offset at a minimum of 1:1 offset ratio through the provision of nest boxes (see SECTION 7.3.3).
- Appropriate flora and fauna management strategies including the use of a spottercatcher and tree protection fencing should be implemented during site clearing operations to minimise potential adverse impacts on flora and fauna. Details should be set out in a Vegetation and Fauna Management Plan (VFMP) prepared and approved by Council as a condition of consent prior to commencement of vegetation clearing works.
- Vegetation removed should be mulched for use on the site except for hollow-bearing trees. This will prevent the introduction of weeds from seeds in mulch brought in from elsewhere and will retain biomass that would otherwise be removed from the system.

Furthermore, significant rehabilitation works are proposed to be completed as part of the proposed development as detailed in the Revised Site Rehabilitation & Pest Management Plan (SRPMP) (JWA 2024). Approximately 38.28 ha of revegetation / regeneration will be completed within the conservation areas to offset any loss of vegetation/habitat. These works will offset the loss of degraded areas of EEC vegetation and habitat for threatened flora and fauna species and will involve the following:

- Restoration and embellishment of approximately 19.73 ha of existing mature TEC (52% of rehabilitation area);
- Assisted regeneration of approximately 1.02 ha of existing regenerating TEC (3% of rehabilitation area);
- Regeneration of approximately 13.71 ha of disturbed land/depauperate rainforest to create additional TEC (36% of rehabilitation area); and
- Revegetation of approximately 3.81 ha cleared land to create additional TEC (10% of rehabilitation area).

Retained patches of EEC will be buffered from the proposed development and embellished to increase the overall extent of isolated patches and reduce existing anthropogenic impacts in accordance with the SRPMP. Any Threatened flora species removed during the development will be offset at a minimum rate of 5:1 (i.e. 5 replacement plants for every 1 removed) within the rehabilitation areas (JWA 2024). All retained areas and any compensatory rehabilitation areas should be protected in perpetuity via a suitable protection mechanism. The proponent will be responsible for the rehabilitation areas until such time as the land is dedicated to Council.

The proposed development has been assessed against the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1.* It is not considered likely that there will be a significant impact on any ecological communities or species listed within schedules of the EPBC Act. Furthermore, rehabilitation works in accordance with the SRPMP (JWA 2024) will enhance existing TEC areas on site and additional areas of TEC will be planted. Furthermore, offsets for any threatened flora species removed during the development will be provided at a minimum rate of 5:1 (i.e. 5 replacement plants for every 1 removed). However, given the large areas of TEC present, and the significant populations of some threatened flora species recorded on the site, a referral under the EPBC Act is **recommended** as a precautionary approach.

A '7-Part Test of Significance' (Section 5A of the EP&A Act) has been completed for one (1) Threatened Ecological Community, fifteen (15) threatened flora species, and eight (8) threatened fauna species listed within schedules of the BC Act that have been confirmed on the subject site, to determine whether the proposal may have the potential to significantly impact these communities, species or their habitat. In addition, A '7-Part Test of Significance' has been completed for the threatened fauna species considered a possible or likely occurrence based on the presence of suitable habitat. The assessment concluded that the impacts of the proposed development are unlikely to threaten the viability of any local populations of the nominated species/communities and the proposal was not likely to result in a significant impact. A Species Impact Statement is therefore not required.

REFERENCES

Andrén, H. (1994). Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat - a review. **OIKOS** 71:355-366.

Beier, P. and R.F. Noss (1998). Do habitat corridors provide connectivity? **Conservation Biology** 12: 1241-1252.

Bélisle, M. (2005). Measuring landscape connectivity: The challenge of behavioral landscape ecology. **Ecology** 86: 1988-1995.

Cropper, S.C. (1993). <u>Management of Endangered Plants</u>. CSIRO, East Melbourne, Victoria.

DCCEEW (2023). Species profile and threats database. Department of Climate Change, Energy, the Environment and Water (DCCEEW). Australian Government, Canberra. Available at http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

DoE (2017). *Protected Matters Search Tool (Online Database)*. Australian Government: Department of the Environment (DoE). Available at <u>https://www.environment.gov.au/</u><u>epbc/protected-matters-search-tool</u>.

DoPE (2023). *Threatened species profile search (Online Database)*. NSW Government. Department of Planning and Environment (DoPE). Available at <u>http://www.environment.nsw.gov.au/threatenedSpeciesApp/</u>.

DotE (2013) Significant Impact Guidelines 1.1 - Matters of National Environmental Significance. Department of the Environment (DotE), Australian Government, Canberra.

Edwards, K. (1979). *Rainfall in NSW with special reference to soil conservation*. Soil Conservation Service Sydney. Tech. Handbook No. 3.

Fahrig, L. (2003) Effects of habitat fragmentation on biodiversity. Annual Review of Ecology Evolution and Systematics 34: 487-515.

Fitzpatrick, E.A. and Nix, H.A. (1973). <u>The Climatic Factor in Australian Grassland Ecology</u>. In R.M. Moore (Ed.) Australian Grasslands A.N.U. Press, Canberra.

Garden, J. G., Mcalpine, C. A., Possingham, H. P., and Jones, D. N. (2007). Habitat structure is more important than vegetation composition for local-level management of native terrestrial reptile and small mammal species living in urban remnants: A case study from Brisbane, Australia. Austral Ecology 32 (6) 669-685.

Gravatt, D. (1974). Birds that eat plant products in coastal south Queensland. Inst. For Aust. Seventh Triennial conference. Caloundra, Qld. Vol. 1. Working Papers pp. 339-348.

Holmes, G. (1987). *Avifauna of the Big Scrub Region*. Australasian and New South Wales National Parks & Wildlife Service.

Howe, R.W, Howe, T.D and Ford, H.A (1981). Bird Distribution on Small Rainforest Remnants in New South Wales. Australian Wildlife Research (8).

JWA (2024) Revised Site Rehabilitation and Pest Management Plan (SRPMP) Elysian Residential Development Project. A Report Prepared for Greenland Development Pty Ltd.

Keast (1968). Seasonal movements of the Australian Honeyeaters (Meliphagidae), and their ecological significance. **EMU** 89: 140-154.

Lott and Duigan (1993). Conservation Significance and Long-term Viability of Sub-tropical Rainforest Remnants of the Big Scrub - North Eastern NSW. Department of Ecosystem Management, University of New England.

Nix, H. S. (1982). <u>Environmental determinants of biogeography and evolution in Terra</u> <u>Australis</u>. In 'Evolution of the Flora and Fauna of Arid Australia' (eds) Barker, W.R. and Greenslade, P.J.M. pp. 47-66 Peacock Pubs. Frewvill, S. Aust.

OEH (2022). Lowland Rainforest in the NSW North Coast and Sydney Basin - profile. Office of Environment and Heritage (OEH). NSW Government. Available at: https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20073.

Phillips, S. (1999). Habitat Use by Koalas (Phascolarctos cinereus: Goldfuss), Unpub. PhD Thesis, Southern Cross University, Lismore NSW.

Phillips, S. and Callaghan, J. (2000). Tree species preferences of koalas (Phascolarctos cinereus) in the Campbelltown area south-west of Sydney, New South Wales Wildlife Research, 27, 509 - 516.

Phillips, S. and Callaghan, J. (2011) The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas *Phascolarctos cinereus*. *Australian Zoologist* **35(3)**:774-780.

Phillips, S., Callaghan, J. and Thompson, V. (2000) The tree species preferences of Koalas (*Phascolarctos cinereus*) inhabiting forest and woodland communities on Quaternary deposits in the Port Stephens area, New South Wales. *Wildlife Research* **27**:1-10.

Phillips, S., Hopkins, M. and Shelton, M. (2011). *Tweed Coast Koala Habitat Study*. *Unpublished report to Tweed Shire Council*. Biolink Ecological Consultants, Uki.

Phillips, S. and Wallis, K. (2016). Baseline Koala Survey, Analysis and Reporting. Report to NSW Environmental Protection Authority. Biolink Ecological Consultants, Uki, NSW.

Porter, J.W. (1982). *Terrestrial birds of the coastal lowlands of south east Queensland*. Dept. of Forestry Queensland Tech. Pap. No. 30.

Robertson, J.S. and Woodall, P.F. (1983) The status and movements of Honeyeaters at Wellington Point, south-east Queensland. **Sunbird** 13(1): 1-4
Robertson, J.S. (1973) Winter Area Behaviour of Drongos and Forest Kingfishers. Australian Bird Bander 11(1): 3-4.

Smith, A.P & Lindenmeyer, D. (1988) Tree hollow requirements of Leadbeater's possums and gliders in timber production ash forests of the Victorian central highlands. Australian Wildlife Research 15: 347-362.

TSC (2020). Tweed Coast Comprehensive Koala Plan of Management 2020. Tweed Shire Council (TSC), Murwillumbah NSW.

TSSC (2011a). Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia. Threatened Species Scientific Committee (TSSC), Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT

TSSC (2011b). Appendices to Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia. Threatened Species Scientific Committee (TSSC), Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT

TSSC (2021). Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions -Determination to make a minor amendment to Part 3 of Schedule 1 of the Threatened Species Conservation Act. Threatened Species Scientific Committee (TSSC), Department of Planning and Environment. NSW.

APPENDIX 1 - FLORA SPECIES LIST

Family	Scientific Name	Common Name
Adiantiaceae	Pellaea falcata	Sickle fern
Akaniaceae	Akania lucens	Turnipwood
Amaranthaceae	Deeringia arborescens	
Amaranthaceae	Nyssanthes diffusa	Barbwire weed
Anacardiaceae	Euroschinus falcata	Ribbonwood
Anacardiaceae	Mangifera indica*	Mango
Annonaceae	Meiogyne stenopetala	
Annonaceae	Melodorum leichhardtii	Zig-zag vine
Apocynaceae	Alvxia ruscifolia	Prickly alyxia
Apocynaceae	Carissa ovata	Currant bush
Apocynaceae	Nerium oleander*	Oleander
Apocynaceae	Ochrosia moorei	Southern ochrosia
Apocynaceae	Parsonsia straminea	Common silkpod
Apocynaceae	Parsonsia ventricosa	Acuminate silkpod
Apocynaceae	Plumeria acutifolia*	Frangipani
Apocynaceae	Tabernaemontana pandacagui	Banana bush
Araceae	Alocasia brisbanensis	Cunjevoi
Araceae	Gymnostachys anceps	Settler's twine
Araceae	Monstera deliciosa*	Fruit salad plant
Araceae	Pothos longipes	Pothos vine
Araliaceae	Polyscias elegans	Celerywood
Araliaceae	Schefflera actinophylla*	Umbrella tree
Araucariaceae	Araucaria bidwillii	Bunya pine
Araucariaceae	Araucaria cunninghamii	Hoop pine
Araucariaceae	Araucaria robusta	Kauri Pine
Arecaceae	Archontophoenix cunninghamiana	Bangalow palm
Arecaceae	Calamus muelleri	Lawyer vine
Arecaceae	Linospadix monostachya	Walking stick palm
Arecaceae	Syagrus romanzoffiana*	Cocos palm
Aristolochiaceae	Aristolochia praevenosa	Richmond Birdwing butterfly vine
Asclepiadaceae	Gomphocarpus physocarpus*	Balloon cotton bush
Asparagaceae	Asparagus densiflorus*	Ground asparagus
Asparagaceae	Asparagus plumosus*	Climbing asparagus fern
Aspleniaceae	Asplenium australascium	Bird's nest fern
Asteliaceae	Cordyline petiolaris	Broad-leaved palm lily
Asteliaceae	Cordyline rubra	Red fruited palm lily
Asteliaceae	Cordyline stricta	Narrow-leaved palm lily
Asteraceae	Ageratina adenophora*	Crofton weed
Asteraceae	Ageratina riparia*	Mistflower
Asteraceae	Ageratum houstonianum*	Blue billygoat weed
Asteraceae	Ambrosia artemisiifolia*	Annual ragweed
Asteraceae	Baccharis halimifolia*	Groundsel bush
Asteraceae	Bidens pilosa*	Cobblers pegs
Asteraceae	Carduus sp.*	Milk thistle
Asteraceae	Conyza albida*	Fleabane
Asteraceae	Crassocephalum crepidioides*	Thickhead
Asteraceae	Hypochoeris radicata*	Flatweed
Asteraceae	Onopordium acanthum*	Scotch Thistle
Asteraceae	Senecio madagascariensis*	Fireweed
Asteraceae	Sigesbeckia orientalis	Indian weed
Asteraceae	Sphagneticola trilobata*	Singapore daisy
Asteraceae	lagetes minuta*	Stinking roger

Family	Scientific Name	Common Name
Asteraceae	Taraxacum officinale*	Dandelion
Balsaminaceae	Impatiens walleriana*	Busy lizzie
Basellaceae	Anredera cordifolia*	Madeira vine
Bignoniaceae	Dolichadra ungus-cati*	Cat's claw creeper
Bignoniaceae	Jacaranda mimosifolia*	Jacaranda
Bignoniaceae	Pandorea pandorana	Wonga wonga vine
Blechnaceae	Blechnum indicum	Swamp water fern
Blechnaceae	Doodia aspera	Prickly rasp fern
Boraginaceae	Ehretia acuminate	Koda
Boraginaceae	Ehretia membranifolia*	Peach Bush
Caesalpiniaceae	Caesalpinia decapetala*	Thorny Poinciana
Caesalpiniaceae	Caesalpinia frerrea*	Leopard tree
Caesalpiniaceae	Caesalpinia subtropica	Corky prickle vine
Caesalpiniaceae	Senna pendula var. glabrata*	Winter senna
Caesalpiniaceae	Senna X floribunda*	Smooth senna
	Capparis arborea	Brush caper berry
Caprifoliaceae	Lonicera iaponica*	Japanese honevsuckle
Caricaceae	Carica papaya*	Paw paw
Carvophyllaceae	Stellaria media*	Chick weed
Casuarinaceae	Casuarina glauca	Swamp oak
Celastraceae	Cassine australis	Red-fruited olive plum
Celastraceae	Celastrus subspicatus	Large-leaved Staff Vine
Celastraceae	Hedraianthera porphyropetala	Hedrajanthera
Celastraceae	Hippocratea barbata	Knot vine
Celastraceae	Maytenus bilocularis	Orangebark
Celastraceae	Maytenus disperma	Orangebush
Celastraceae	Siphonodon australis	Ivorywood
Commelinaceae	Commelina benghalensis*	Hairy wandering jew
Commelinaceae	Commelina cvanea	Native wandering jew
Commelinaceae	Pollia crispata	Pollia
Convolvulaceae	Ipomoea cairica*	Coastal morning glory
Cornaceae	Alangium villosum	Muskwood
Cunoniaceae	Ceratopetalum gummiferum	Christmas bush
Cunoniaceae	Pseudoweinmannia lachnocarpa	Rose marara
Cupressaceae	Callitris sp.	Cypress pine
Cyatheaceae	Culcita dubia	Soft bracken
Cyatheaceae	Cvathea australis	Rough treefern
Cyperaceae	Cyperus rotundus	Nutgrass
	Schoenus brevifolius	
Davalliaceae	Arthronteris tenella	
Davalliaceae	Davallia solida var. pyxidata	Hare's foot fern
Davalliaceae	Nenhrolenis cordifolia*	Fishbone fern
Dennstaedtjaceae	Hypolenis muelleri	Harsh ground fern
Dennstaedtiaceae	Pteridium esculentum	Bracken fern
Dicksoniaceae	Calochlaena dubia	Bainbow fern
Dicksoniaceae	Dicksonia sp	Tree fern
Dilleniaceae	Hibbertia scandens	Climbing guinea flower
Dioscoreaceae	Dioscorea transversa	Native vam
Dryopteridaceae	Lastreopsis marginans	Bordered shield fern
Fhenaceae	Diospyros australis	Black nlum
Fhenaceae	Diospyros fasciculosa	Grev ebony
Fhenaceae	Diospyros pentamera	Myrtle ebony
Ebenaceae	Diospyros vandina	Shiny-leaved abony
Flagocarpaceae	Elapocarpus graphis	Blue guandong
Flagocarpaceag	Elapocarpus kirtonii	Silver Quandong
Lideocal pacede	Liveocul pus kil colli	

Family	Scientific Name	Common Name
Elaeocarpaceae	Elaeocarpus obovatus	Hard guandong
Elaeocarpaceae	Elaeocarpus reticulatus	Blueberry ash
Elaeocarpaceae	Sloanea australis	Maiden's blush
Elaeocarpaceae	Sloanea woollsii	Yellow carabeen
Escalloniaceae	Polvosma cunninghamii	Featherwood
Escalloniaceae	Quintinia verdonii	Grev Possumwood
Fuphorbiaceae	Acalypha canillines	Small-leaved acalypha
Fuphorbiaceae	Actenhila lindlevi	Actenhila
Fuphorbiaceae	Alchorneg ilicifolia	Native holly
Fuphorbiaceae	Baloghia inonbylla	Brush bloodwood
Fuphorbiaceae	Brevnia oblongifolia	Coffee bush
Fuphorbiaceae	Bridelia evaltata	Brush ironbark
Euphorbiaceae	Cleistanthus cunninghamii	Cleistanthus
Euphorbiaceae	Croton acronychiodes	Thick-leaved croton
Euphorbiaceae	Croton verrauxii	Native carscarilla
Euphorbiaceae	Drupatas daplanchai subsp	Vollow tulip
Luphorbiaceae	Deplanchei	
Euphorbiaceae	Euphorbia peplus*	Petty spurge
Euphorbiaceae	Excoecaria dallachyana	Brush poison tree
Euphorbiaceae	Glochidion ferdinandi var. ferdinandi	Cheese tree
Euphorbiaceae	Homalanthus populifolius	Native Bleeding heart
Euphorbiaceae	Macaranga tanarius	Macaranga
Euphorbiaceae	Mallotus discolor	Yellow kamala
Euphorbiaceae	Mallotus philippensis	Red kamala
Euphorbiaceae	Ricinus communis*	Castor oil plant
Eupomatiaceae	Eupomatia bennettii	Small bolwarra
Eupomatiaceae	Eupomatia laurina	Bolwarra
Fabaceae	Austrocallerya megasperma	Native wisteria
Fabaceae	Austrosteenisia glabristyla	Giant blood vine
Fabaceae	Castanospermum australe	Blackbean
Fabaceae	Derris involuta	Native derris
Fabaceae	Desmodium uncinatum*	Silver-leaved desmodium
Fabaceae	Erythrina x sykesii*	Coral tree
Fabaceae	Macroptilium atropurpureum*	Siratro
Fabaceae	Milletia megasperma	Native wistaria
Fabaceae	Milletia australis	Blunt wistaria
Fabaceae	Mucuna gigantea	Burny bean
Fabaceae	Oxvlobium robustum	Tree shaggy pea
Fabaceae	Pueraria lobata*	Kudzu
Fabaceae	Trifolium repens*	White clover
Flacourtiaceae	Casearia multinervosa	Casearia
Flacourtiaceae	Scolopia braunii	Flintwood
Flagellariaceae	Flagellaria indica	Whip vine
Glecheniaceae	Sticherus flabellatus	Umbrella fern
Icacinaceae	Citronella moorei	Churnwood
Icacinaceae	Pennantia cunninghamii	Brown Beech
Iridaceae	Watsonia sp.	Bugle lilv
Lamiaceae	Plectranthus sp.	
Lauraceae	Beilschmiedia elliptica	Grev walnut
Lauraceae	Beilschmiedia obtusifolia	Blush walnut
Lauraceae	Cinnamomum camphora*	Camphor laurel
Lauraceae	Cinnamomum oliveri	Oliver's sassafras
Lauraceae	Cinnamomum virens	Red-barked sassafras
Lauraceae	Cryptocarva foetida	Stinking cryptocarva
Lauraceae	Cryptocarya glaucescens	Jackwood

Lauraceae Cryptocarya olevigata Glossy laurel Lauraceae Cryptocarya sclerophylla Totempole Lauraceae Cryptocarya sclerophylla Totempole Lauraceae Endiandra globosa Black walnut Lauraceae Endiandra muelleri Rusty rose walnut Lauraceae Endiandra muelleri Green-leaved rose walnut Lauraceae Endiandra muelleri subsp. muelleri Green-leaved rose walnut Lauraceae Endiandra pubens Hairy walnut Lauraceae Litsea reticulata Bolly gum Lauraceae Neolitsea australiensis Green bolly gum Lauraceae Neolitsea dealbata White bolly gum Lauraceae Eriobotrya japonica* Loquat Malvaceae Strychnine Tree Luzuragaceae Malvaceae Strychnine Tree Loquat Malvaceae Strychning Tree Loquat Malvaceae Strychning Tree Loquat Malvaceae Stoa rhombifolia* Paddy's lucerne Meliaceae Dysoxylum rifum Hairy rosewood	Family	Scientific Name	Common Name
Lauraceae Cryptocarya solerophylla Totempole Lauraceae Cryptocarya triplinervis var pubers Three-veined laurel Lauraceae Endiandra globosa Black walnut Lauraceae Endiandra nuelleri Green-leaved rose walnut Lauraceae Endiandra muelleri Green-leaved rose walnut Lauraceae Endiandra muelleri Green-leaved rose walnut Lauraceae Endiandra pubens Hairy walnut Lauraceae Endiandra pubens Hairy walnut Lauraceae Neolitsea dealbata White bolly gum Lauraceae Neolitsea dealbata White bolly gum Leganiaceae Strychnos arborea Strychning lity Loganiaceae Geitonoplesium cymosum Scrambling lity Lytareae Lagerstroemia indica* Crepe Myrtle Malvaceae Hibiscus Malvaceae Malvaceae Dysoxylum fraserianum Rosewood Meliaceae Dysoxylum mollissimum ssp. Molle Red bean Meliaceae Dysoxylum mollissimum Scentles rosewood Meliaceae Mysoryum	Lauraceae	Cryptocarya laevigata	Glossy laurel
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	Moraceae	Morus alba*	Mulberry
Moraceae Strehlus brunonianus Whalebone tree	Moraceae	Strehlus hrunonianus	Whalebone tree
Moraceae Trophis scandans Burpy vino	Moraceae	Trophis scandars	Burny vine
Mursinaceae Itopins sculuens Dullity ville Mursinaceae Ardisia cronata* Corol borry	Mursinaceae	Ardisia cropata*	Coral berry
Myrsinaceae Embolia australiana Embolia	Myrsinaceae	Embolia australiana	Embelia

Family	Scientific Name	Common Name
Myrsinaceae	Rapanea variabilis	Muttonwood
Myrtaceae	Acmena hemilampra	Broad-leaved apple
Myrtaceae	Acmena ingens	Red apple
Myrtaceae	Acmena smithii	Lilly pilly
Myrtaceae	Archirhodomyrtus beckleri	Rose myrtle
Myrtaceae	Backhousia myrtifolia	Grey myrtle
Myrtaceae	Callistemon citrinus	Crimson bottlebrush
Myrtaceae	Callistemon salignus	Willow bottlebrush
Myrtaceae	Corymbia citriodora	Lemon scented gum
Myrtaceae	Corvmbia intermedia	Pink bloodwood
Myrtaceae	Corvmbia maculata	Spotted gum
Myrtaceae	Eucalvptus moluccana	Grev box
Myrtaceae	Eucalvptus pilularis	Blackbutt
Myrtaceae	Eucalyptus propingua	Grey gum
Myrtaceae	Eucalyptus robusta	Swamp mahogany
Myrtaceae	Eucalvptus tereticornis	Forest red gum
Myrtaceae	Eucalyptus torelliana*	Cadaghi
Myrtaceae	Gossia acmenoides	Scrub ironwood
Myrtaceae	Gossia bidwillii	Python tree
Myrtaceae	Gossia fragrantissima	Sweet myrtle
Myrtaceae	Gossia hillii	Scalv myrtle
Myrtaceae	Gossia punctata	
Myrtaceae	Leptospermum parvifolium	Tea-tree
Myrtaceae	Leptospermum petersonii	Lemon-scented tea tree
Myrtaceae	Lophostemon confertus	Brushbox
Myrtaceae	Melaleuca quinquenervia	Broad-leaved paperbark
Myrtaceae	Pilidiostigma glabrum	Plum myrtle
Myrtaceae	Psidium cattlevanum*	Strawberry Guava
Myrtaceae	Rhodamnia argentea	Silver myrtle
Myrtaceae	Rhodamnia maideniana	Smooth scrub turpentine
Myrtaceae	Rhodomyrtus psidiodes	Native guava
Myrtaceae	Syzygium crebrinerve	Purple cherry
Myrtaceae	Syzygium francisii	Giant water gum
Myrtaceae	Syzygium Juehmannii	Riberry
Myrtaceae	Syzygium moorei	Durobby
Myrtaceae	Syzygium aleasum	Blue lilly pilly
Myrtaceae	Syzygium wilsonii	Powder puff lilly pilly
Myrtaceae	Tristanionsis laurina	Water gum
Nymphaeaceae	Nymphae sp	Water lilv
Ochnaceae	lasminum sn *	lasmine
Ochnaceae	Ochna serrulata*	Mickey mouse plant
Oleaceae	ligustrum lucidum*	Large-leaved privet
	Ligustrum sinonso*	Small-leaved privet
	Notelaea johnsonii	Veinless mock olive
	Notelaea longifolia	Large mock olive
Oleaceae	Notelaea venosa	Smooth mack alive
Oleaceae	Alea papiculata	Native Olive
Onagraceae	Ludwigia bevapetala	Water primrose
Orchidaceae	Dondrohium sp	
Desciflorecore	Denul ODIUIII Sp. Dassiflora adulis*	Bassionfruit
Passifloração	russijiuiu euulis Daggiflara subpoltatat	rassionilluit
Philydraceae	Holmboltzia alabarimma	
Phormiacoac	Diapolla caprulas	Flax lily
Phytolacacoac	Diunella caerardra*	Intervent
Phytolacaceae	Piving humilie*	Coral borny
FIIYLUIACACEAE	κινιμα μαμμαίδ	Cular Delly

Family	Scientific Name	Common Name
Pinaceae	Pinus elliottii*	Slash pine
Piperaceae	Piper novae-hollandiae	Giant pepper vine
Pittosporaceae	Auranticarpa rhombifolium	Hollywood
Pittosporaceae	Hymenosporum flavum	Native frangipani
Pittosporaceae	Pittosporum multiflorum	Orange thorn
Pittosporaceae	Pittosporum revolutum	Hairy pittosporum
Pittosporaceae	Pittosporum undulatum	Sweet pittosporum
Poaceae	Andropogon virginicus*	Whiskey grass
Poaceae	Chloris gayana*	Rhodes grass
Poaceae	Cymbopogon refractus	Barged wire grass
Poaceae	Cynodon dactylon*	Couch grass
Poaceae	Dichelachne sp.	Plume grass
Poaceae	Eragrostis sp.*	Lovegrass
Poaceae	Imperata cylindrica	Blady grass
Poaceae	Melinis minutiflora*	Molasses grass
Poaceae	Melinis repens*	Red natal grass
Poaceae	Microlaena stipoides var. stipoides	Weeping grass
Poaceae	Oplismenus aemulus	Basket grass
Poaceae	Oplismenus imbecillis	Creeping beard grass
Poaceae	, Paspalum dilatatum*	Paspalum
Poaceae	Pennisetum clandestinum*	Kikuyu
Poaceae	Pennisetum purpureum*	Elephant grass
Poaceae	Phragmites australis	Common reed
Poaceae	Setaria sphacelata*	Pigeon grass
Poaceae	Sporobolus africanus*	Parramatta grass
Poaceae	Themeda triandra	Kangaroo grass
Podocarpaceae	Podocarpus elatus	Plum pine
Polyganaceae	Persicaria hvdropiper	Smartweed
Polygonaceae	Persicaria sp.	Smartweed
Polypodiaceae	Platvcerium bifurcatum	Elkhorn fern
Polypodiaceae	Platvcerium superbum	Staghorn fern
Polypodiaceae	Pyrrosia repestris	Rock felt fern
Proteaceae	Banksia integrifolia	Coast banksia
Proteaceae	Buckinghamia celsissima	Ivory curl tree
Proteaceae	Floydia praealta	Ball nut
Proteaceae	Grevillea hilliana	White yiel yiel
Proteaceae	Grevillea robusta	Silky oak
Proteaceae	Grevillea sp.	Grevillea
Proteaceae	Helicia glabriflora	Smooth helicia
Proteaceae	Hicksbeachia pinnatifolia	Red bopple nut
Proteaceae	Macadamia tetraphylla	Rough-shelled bush nut
Proteaceae	Stenocarpus salignus	Scrub beefwood
Proteaceae	Stenocarpus sinuatus	Firewheel tree
Proteaceae	Triunia voungiana	Native honevsuckle
Psilotaceae	Psilotum nudum	Skeleton fork-fern
Pteridaceae	Adiantum aethiopicum	Common maidenhair
Pteridaceae	Adiantum diaphanum	Filmy maidenhair
Pteridaceae	Adiantum formosum	Giant maidenhairr
Pteridaceae	Adiantum hispidulum	Rough maidenhair
Pteridaceae	Pteris umbrosa	Jungle brake
Rhamnaceae	Alphitonia excelsa	Red ash
Rhamnaceae	Emmenosperma alphitonioides	Yellow ash
Ripogonaceae	Ripogonum album	White suppleiack
Rinogonaceae	Ripogonum discolor	Prickly supplejack
Possesso	Prunus persica*	Peach

RosaceaeRubus elliptica*Yellow raspberryRosaceaeRubus parvifoliusNative raspberryRubiaceaeAtractocarpus chartaceusNarrow-leaved gardeniaRubiaceaeCanthium odoratumShiny-leaved CanthiumRubiaceaeHodgkinsonia ovatifloraHodgkinsoniaRubiaceaeIxora beckleriNative ixoraRubiaceaeMorinda jasminoidesMorindaRubiaceaePavetta australiensisPavettaRubiaceaePavetta australiensisPavettaRubiaceaeRandia mooreiSpiny gardeniaRutaceaeAcronychia baeuerleniiByron Bay AcronychiaRutaceaeBosistoa pentacoccaFerny leaf bosistoaRutaceaeBosistoa transversaYellow satinheartRutaceaeCitrus australaiscaFinger limeRutaceaeCoatesia paniculataAxebreakerRutaceaeFlindersia australisTeakRutaceaeFlindersia australisTeakRutaceaeFlindersia schottianaCudgerieRutaceaeFlindersia schottianaCudgerieRutaceaeFlindersia schottianaCudgerieRutaceaeFlindersia schottianaCudgerieRutaceaeFlindersia schottianaYellowwoodRutaceaeFlindersia cunninghamiiMedicosmaRutaceaeFlindersia cunninghamiiMedicosmaRutaceaeFlindersia cunninghamiiMedicosmaRutaceaeFlindersia cunninghamiiMedicosmaRutaceaeFlindersia cunninghamiiMedicosma
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Rutaceae Microcitrus australasica Finger Lime Butaceae Dentaceae gustrala Crewie ash
KULACEAE PENTACETAS AUSTRALE LTOW'S ASN
Rutaceae Sarcomelicope simplicifolia Baurella
Sapindaceae Alectryon subcinereus Native quince
Sapindaceae Alectryon tomentosus Hairy Bird's Eve
Sapindaceae Arvtera distylis Twin-leaf coogera
Sapindaceae Arvtera divaricata Coogera
Sapindaceae Atalva salicifolia Brush whitewood
Sapindaceae Cupaniopsis anacardioides Tuckeroo
Sapindaceae Cupaniopsis newmanii Long-leaved tuckeroo
Sapindaceae Cupaniopsis parvifolia Small-leaved tuckeroo
Sapindaceae Diploglottis australis Native tamarind
Sapindaceae Diploglottis campbellii Small-leaved tamarind
Sapindaceae Elattostachys nervosa Green tamarind
Sapindaceae Guioa semiglauca Guioa
Sapindaceae Harpullia alata Wing-leaved Tulip
Sapindaceae Harpullia hillii Oblong-leaved tulip
Sapindaceae Harpullia pendula Tulipwood
Sapindaceae Jagera pseudorhus Foambark
Sapindaceae Lepiderema pulchella Fine-leaved tuckeroo
Sapindaceae Mischarytera lauteriana Cordurov tamarind
Sapindaceae Mischocarpus anodontus Veiny pear fruit
Sapindaceae Mischocarpus australis
Sapindaceae Mischocarpus pyriformis Yellow pear fruit
Sapindaceae Rhysotoechia bifoliolata Twin-leaved Tuckeroo
Sapindaceae Sarcopteryx stinata Steelwood
Sapindaceae Toechima dasvrrhache Blunt-leaved steelwood
Sapindaceae Toechima tenax Pitted-leaf steelwood
Sapotaceae Amorphospermum antilogum Brown pearwood
Sapotaceae Niemeverg antiloga Brown pearwood
Sapotaceae Niemeyerg chartacea Smooth-leaved nlum
Sapotaceae Planchonella australis Black apple

Family	Scientific Name	Common Name
Sapotaceae	Planchonella chartacea	Thin-leaved coondoo
Sapotaceae	Planchonella laurifolia	Blush coondoo
Sapotaceae	Planchonella myrsinifolia	
Sapotaceae	Planchonella myrsinifolia	
Sapotaceae	Planchonella pohlmaniana	Yellow boxwood
Simaroubaceae	Ailanthus triphysa	White bean
Smilacaceae	Smilax australis	Prickly smilax
Solanaceae	Duboisia myoporoides	Corkwood
Solanaceae	Solanum chrysotrichum*	Devil`s Fig
Solanaceae	Solanum hispidulum*	Giant devil's thorn
Solanaceae	Solanum mauritianum*	Wild tobacco tree
Solanaceae	Solanum nigrum*	Black-berry nightshade
Solanaceae	Solanum seaforthianum*	Brazilian nightshade
Solanaceae	Solanum stelligerum	Star nightshade
Solanaceae	Solanum torvum*	Devil's apple
Sterculiaceae	Argyrodendron trifoliatum	White booyong
Sterculiaceae	Brachychiton acerifolius	Flame tree
Sterculiaceae	Brachychiton discolor	Lacebark tree
Sterculiaceae	Commersonia bartramia	Brown kurrajong
Sterculiaceae	Sterculia quadrifida	Red-fruited kurrajong
Symplocaceae	Symplocos stawellii	White hazelwood
Symplocaceae	Symplocos thwaitesii	Buff hazelwood
Thelypteridaceae	Christella dentata	Binung
Thymelaeaceae	Wikstroemia indica	Tie bush
Tiliaceae	Triumfetta rhomboidea*	Chinese burr
Typhaceae	Typha orientalis	Broad-leaved cumbungi
Ulmaceae	Aphananthe philippinensis	Rough-leaved elm
Ulmaceae	Celtis paniculata	Native celtis
Ulmaceae	Celtis sinensis*	Hackberry
Ulmaceae	Trema tomentosa	Poison peach
Urticaceae	Dendrocnide excelsa	Giant Stinging Tree
Urticaceae	Dendrocnide photoinphylla	Shiny-leaved stinger
Urticaceae	Pipturus argenteus	White Nettle
Verbenaceae	Clerodendrum floribundum	Smooth clerodendrum
Verbenaceae	Gmelina leichhardtii	White beech
Verbenaceae	Lantana camara*	Lantana
Verbenaceae	Verbena bonariensis*	Purple top
Verbenaceae	Verbena littoralis*	Common verbena
Viscaceae	Notothixos cornifolius	Kurajong mistletoe
Vitaceae	Cayratia acris	Hairy water vine
Vitaceae	Cayratia clematidea	Native grape
Vitaceae	Cissus antarctica	Water vine
Vitaceae	Cissus hypoglauca	Five-leaf water vine
Vitaceae	Cissus sterculiifolia	Long-leaved water vine
Zingiberaceae	Alpinia arundelliana	Native ginger
Zingiberaceae	Alpinia caerulea	Native ginger

APPENDIX 2 - THREATENED FLORA RECORDS

ID	Species	Count	Height	Retained / Removed
AB001	Acacia bakeri	1	2m	Retained
AB007		1	1 5m	Potained
AB002	Acacia bakeri	1	18m	Retained
ADOUS	Acacia bakeri	1	10111 20m	Retained
AB004		1	15m	Retained
AD005	Acacia bakeri	ו ר	12m & 0.2m	Retained
AB000	Acacia bakeri	<u> </u>	1.200	Retained
AD007		<u> </u>	1.8m	Retained
AB008		Z 7		Retained
AB009		1	3m & 6x <2m	Retained
ADOIO		1	1.8m	Retained
AB011		1	1m	Retained
ADUTZ	Acacia bakeri	1	0.5m	Retained
AB013	Acacia bakeri	1	1.8m	Retained
AB014	Acacia bakeri	1	<u>3m</u>	Retained
ABUTS	Acacia bakeri	1	<u>2m</u>	Retained
AB016	Acacia bakeri	1	22m	Retained
AB017	Acacia bakeri	1	25m	Retained
AB018	Acacia bakeri	1	18m	Retained
AB019	Acacia bakeri	1	17m	Retained
AB020	Acacia bakeri	1	2m	Retained
AB021	Acacia bakeri	1	30m	Retained
AB022	Acacia bakeri	1	4m	Retained
AB023	Acacia bakeri	12	4m & 11x 0.3-3.5m	Retained
AH001	Archidendron hendersonii	4	4x 8m	Retained
AH002	Archidendron hendersonii	2	2 x seedling	Retained
BT001	Bosistoa transversa	3	12m & 1.5m & 6m	Retained
BT002	Bosistoa transversa	6	5m & 3x 2m & 7m & 6m	Retained
BT003	Bosistoa transversa	1	1m	Retained
BT004	Bosistoa transversa	6	3x 2m & 1.5m & 10m & 2.5m	Retained
BT005	Bosistoa transversa	2	2x 1.5m	Retained
BT006	Bosistoa transversa	5	2x 1m & 3x 1.5m	Retained
BT007	Bosistoa transversa	1	6m	Retained
BT008	Bosistoa transversa	2	4m & 2m	Retained
BT009	Bosistoa transversa	1	1.5m	Retained
BT010	Bosistoa transversa	4	3x 2m & 5m	Retained
BT011	Bosistoa transversa	1	1.5m	Retained
BT012	Bosistoa transversa	1	4m	Retained
BT013	Bosistoa transversa	1	1.5m	Retained
BT014	Bosistoa transversa	3	4m & 2x 1.5m	Retained
BT015	Bosistoa transversa	3	3x 2m	Retained
BT016	Bosistoa transversa	1	4.5m	Retained
BT017	Bosistoa transversa	1	7m	Retained

ID	Species	Count	Height	Retained / Removed
DT019	Bosistoa transversa		5m	Retained
DT010	Bosistoa transversa	1	5m	Retained
D1019	Bosistoa transversa	1 	7m & Ev 1m	Retained
BT020	Bosistoa transversa	0		Retained
BT021	Posistoa transversa	2	22 1.311	Retained
BIOZZ	Dosistoa transversa	3	3111 @ 2X 0.3111	Retained
BT023	Bosistoa transversa	2	2x 2m	Retained
BT024	Bosistoa transversa	1	2m	Retained
BT025	Bosistoa transversa	4	4x 3m	Retained
BT026	Bosistoa transversa	1	6m	Retained
BT027	Bosistoa transversa	2	2x 1.5m	Retained
BT028	Bosistoa transversa	1	1.5m	Retained
BT029	Bosistoa transversa	5	6m & 4x 24m	Retained
BT030	Bosistoa transversa	3	3x 1.5m	Retained
BT031	Bosistoa transversa	1	3m	Retained
BT032	Bosistoa transversa	3	3x 1.5m	Retained
BT033	Bosistoa transversa	2	2x 1m	Retained
BT034	Bosistoa transversa	3	3x 2m	Retained
BT035	Bosistoa transversa	1	2m	Retained
BT036	Bosistoa transversa	2	0.5m & 1m	Retained
BT037	Bosistoa transversa	1	1.6m	Retained
BT038	Bosistoa transversa	1	1.5m	Retained
BT039	Bosistoa transversa	1	10m	Retained
BT040	Bosistoa transversa	1	2.1m	Retained
BT041	Bosistoa transversa	1	5m	Retained
BT042	Bosistoa transversa	1	2m	Retained
BT043	Bosistoa transversa	3	3x < 2m	Retained
BT044	Bosistoa transversa	1	5.5m	Retained
BT045	Bosistoa transversa	1	3.5m	Retained
BT046	Bosistoa transversa	1	6m	Retained
BT047	Bosistoa transversa	1	6m	Retained
BT048	Bosistoa transversa	1	1.5m	Retained
BT049	Bosistoa transversa	1	3m	Retained
BT050	Bosistoa transversa	1	10m	Retained
BT051	Bosistoa transversa	5	5x <2m	Retained
BT052	Bosistoa transversa	3	3m & 2x <2m	Retained
BT053	Bosistoa transversa	1	0.5m	Retained
BT054	Bosistoa transversa	1	2m	Retained
BT055	Bosistoa transversa	1	 1 6m	Retained
BT056	Bosistoa transversa	2	3m & 1m	Retained
BT057	Bosistoa transversa	1	6m	Retained
BT058	Bosistoa transversa	2	2v <1 5m	Retained
BT050	Bosistoa transversa	2	2x <1.511	Retained
BT040	Bosistoa transversa	1	0.5m	Retained
00010	DUSISTUA LI ALISVELSA		0.011	Retained

ID	Species	Count	Height	Retained / Removed
BT061	Bosistoa transversa	2	2m & 1m	Retained
BT062	Bosistoa transversa	2	211 a 111	Retained
BT063	Bosistoa transversa	6	6x <2m	Retained
BT064	Bosistoa transversa	1	1.6m	Retained
BT065	Bosistoa transversa	1	1.011	Retained
BT066	Bosistoa transversa	1	1.7m	Retained
BT067	Bosistoa transversa	2	5m & 1m	Retained
BT068	Bosistoa transversa	1	1.5m	Retained
BT069	Bosistoa transversa	1	10m	Retained
BT070	Bosistoa transversa	2	2x 2 5m	Retained
BT070	Bosistoa transversa	2	2x 2.5m	Retained
BT077	Bosistoa transversa	6	6x <3m	Retained
BT072	Bosistoa transversa	2	2v <1 5m	Retained
BT073	Bosistoa transversa	1	2 5m	Retained
BT075	Bosistoa transversa	1	10m	Retained
BT075	Bosistoa transversa	1	6m	Retained
BT077	Bosistoa transversa	1	2 5m	Retained
BT078	Bosistoa transversa	1	2.5m	Retained
BT070	Bosistoa transversa	1	3.5m	Retained
BT080	Bosistoa transversa	1	4m	Retained
BT081	Bosistoa transversa	2	1581m	Retained
BT082	Bosistoa transversa	1	2.2m	Retained
BT083	Bosistoa transversa	2	1.5m & 0.5m	Retained
BT084	Bosistoa transversa	4	6m & 3x 1m	Retained
BT085	Bosistoa transversa	1	2m	Retained
BT086	Bosistoa transversa	1	1m	Retained
BT087	Bosistoa transversa	1	1m	Retained
BT088	Bosistoa transversa	6	3m & 5x 0.5-2m	Retained
BT089	Bosistoa transversa	2	2x 2m	Retained
BT090	Bosistoa transversa	5	5x 1.5m	Retained
BT091	Bosistoa transversa	1	1m	Retained
BT092	Bosistoa transversa	1	3.5m	Retained
BT093	Bosistoa transversa	1	2.5m	Retained
BT094	Bosistoa transversa	1	2.5m	Retained
BT095	Bosistoa transversa	1	4m	Retained
BT096	Bosistoa transversa	2	2m & 1m	Retained
BT097	Bosistoa transversa	5	14m & 9m & 3x 0.5m	Retained
BT098	Bosistoa transversa	1	7m	Retained
BT099	Bosistoa transversa	2	3m & 1m	Retained
BT100	Bosistoa transversa	1	1.5m	Retained
BT101	Bosistoa transversa	1	2m	Retained
BT102	Bosistoa transversa	12	12x 1-2m	Retained
BT103	Bosistoa transversa	1	10m	Retained

ID	Species	Count	Height	Retained / Removed
BT104	Bosistoa transversa	1	2m	Retained
BT105	Bosistoa transversa	6	4m & 2x 2m & 3x 1.5m	Retained
BT106	Bosistoa transversa	1	8m	Retained
BT107	Bosistoa transversa	3	5m & 2x 3.5m	Retained
BT108	Bosistoa transversa	32	32x 0.5-1.5m	Retained
BT109	Bosistoa transversa	1	2.5m	Retained
BT110	Bosistoa transversa	1	6m	Retained
BT111	Bosistoa transversa	1	3m	Retained
BT112	Bosistoa transversa	4	4m & 2m & 2x 1m	Retained
BT113	Bosistoa transversa	3	4.5m & 2x 2.5m	Retained
BT114	Bosistoa transversa	6	15m & 2x 3m & 3x 2m	Retained
BT115	Bosistoa transversa	1	1m	Retained
BT116	Bosistoa transversa	2	4m & 1.5m	Retained
BT117	Bosistoa transversa	2	3m & 2m	Retained
BT118	Bosistoa transversa	3	3x 2m	Retained
BT119	Bosistoa transversa	4	4x 1.5m	Retained
BT120	Bosistoa transversa	1	0.6m	Retained
BT121	Bosistoa transversa	1	2.1m	Retained
BT122	Bosistoa transversa	1	1.1m	Retained
BT123	Bosistoa transversa	1	1.2m	Retained
BT124	Bosistoa transversa	1	1.6m	Retained
BT125	Bosistoa transversa	1	1.6m	Retained
BT126	Bosistoa transversa	1	11m	Retained
BT127	Bosistoa transversa	1	13m	Retained
BT128	Bosistoa transversa	2	1.5m & 1.4m	Retained
BT129	Bosistoa transversa	2	3m & 2m	Retained
BT130	Bosistoa transversa	1	2.2m	Retained
BT131	Bosistoa transversa	1	2.5m	Retained
BT132	Bosistoa transversa	4	2m & 1.5m & 1.3m & 1.2m	Retained
BT133	Bosistoa transversa	1	2m	Retained
BT134	Bosistoa transversa	1	2m	Retained
BT135	Bosistoa transversa	1	2m	Retained
BT136	Bosistoa transversa	1	3m	Retained
BT137	Bosistoa transversa	4	5.5m & 3m & 2x 2.5m	Retained
BT138	Bosistoa transversa	4	8m & 5m & 2x 4m	Retained
BT139	Bosistoa transversa	1	4m	Retained
BT140	Bosistoa transversa	1	4m	Retained
BT141	Bosistoa transversa	1	5.5m	Retained
BT142	Bosistoa transversa	1	5m	Retained
BT143	Bosistoa transversa	1	5m	Retained
BT144	Bosistoa transversa	1	6.5m	Retained
BT145	Bosistoa transversa	1	7m	Retained
BT146	Bosistoa transversa	1	8m	Retained

ID	Species	Count	Height	Retained / Removed
BT147	Bosistoa transversa	1	9m	Retained
BT148	Bosistoa transversa	1	9m	Retained
BT149	Bosistoa transversa	1	9m	Retained
BT150	Bosistoa transversa	2	8m & 2x 5m	Retained
BT150	Bosistoa transversa	1	2 5m	Retained
BT157	Bosistoa transversa	1	2.511 2m	Retained
BT152	Bosistoa transversa	1	2m	Retained
BT154	Bosistoa transversa	2	1.8m & 1.6m	Retained
CF001	Cryptocarya foetida	1	1 5m	Removed
CF007	Cryptocarya foetida	1	8m	Retained
CF002	Cryptocarya foetida	1	2m	Retained
CF004	Cryptocarya foetida	1	5m	Retained
CF005	Cryptocarya foetida	1	1.8m	Retained
CF006	Cryptocarya foetida	1	1 9m	Retained
CF007	Cryptocarya foetida	10	10v 1-4m	Retained
CF008	Cryptocarya foetida	1	2 5m	Retained
CF009	Cryptocarya foetida	30	30x 1-5m	Retained
CF010	Cryptocarya foetida	15	15x 1-6m	Retained
CF010	Cryptocarya foetida	2	2x 2m	Retained
CF017	Cryptocarya foetida	2	20 2m	Retained
CF012	Cryptocarya foetida	1	1 2m	Retained
CF014	Cryptocarya foetida	1	1.7m	Retained
CF015	Cryptocarva foetida	1	2m	Retained
CF016	Cryptocarya foetida	11	10m & 10x 1-4m	Retained
CF017	Cryptocarva foetida	20	20x 1-5m	Retained
CF018	Cryptocarya foetida	10	10x 1-2m	Retained
CF019	Cryptocarya foetida	2	2x 1.2m	Retained
CF020	Cryptocarya foetida	5	5x 1.5-3m	Retained
CF021	Cryptocarya foetida	1	0.5m	Retained
CF022	Cryptocarya foetida	2	2x 3m	Retained
CF023	Cryptocarya foetida	2	4m & 1.2m	Retained
CF024	Cryptocarya foetida	5	5x 4m	Retained
CF025	Cryptocarya foetida	2	2x 2m	Retained
CF026	Cryptocarya foetida	1	3m	Retained
CF027	Cryptocarya foetida	1	3m	Retained
CF028	Cryptocarya foetida	1	1.8m	Retained
CF029	Cryptocarya foetida	6	6x <3m	Retained
CF030	Cryptocarya foetida	1	1.5m	Retained
CF031	Cryptocarya foetida	1	3m	Retained
CF032	Cryptocarya foetida	6	6x <3m	Retained
CF033	Cryptocarya foetida	4	4 x 4m	Retained
CF034	Cryptocarya foetida	7	4.5m & 6x <2m	Retained
CF035	Cryptocarya foetida	2	2x 2m	Retained

ID	Species	Count	Height	Retained / Removed
CF036	Cryptocarva foetida	3	3x <4m	Retained
CP001	Coatesia paniculata	2	2x <2m	Retained
CP002	Coatesia paniculata	1	1.5m	Retained
CP003	Coatesia paniculata	6	2x 4m & 3m & 3x 1m	Retained
CP004	Coatesia paniculata	4	3m & 1.7m & 1m & 0.3m	Retained
CP005	Coatesia paniculata	2	2x 1m	Retained
CP006	Coatesia paniculata	50	50x 1-4m	Retained
CP007	Coatesia paniculata	1	8m	Retained
CP008	Coatesia paniculata	1	2m	Retained
CP009	Coatesia paniculata	1	15m	Retained
CP010	Coatesia paniculata	1	6.5m	Retained
CP011	Coatesia paniculata	3	8m & 2.2m & 0.3m	Retained
DC001	Diploglottis campbellii	1	28m	Retained
DC002	Diploglottis campbellii	1	0.5m	Retained
DC003	Diploglottis campbellii	1	32m	Retained
DC004	Diploglottis campbellii	4	30m & 3x 2m	Retained
DC005	Diploglottis campbellii	2	2.5m & 28m	Retained
DC006	Diploglottis campbellii	1	1m	Retained
DC007	Diploglottis campbellii	1	30m	Retained
DC008	Diploglottis campbellii	1	25m	Retained
DC009	Diploglottis campbellii	1	10m	Retained
DC010	Diploglottis campbellii	1	6m	Removed
DC011	Diploglottis campbellii	1	15m	Retained
DC012	Diploglottis campbellii	1	2m	Retained
DC013	Diploglottis campbellii	4	3m & 3x <2m	Retained
DC014	Diploglottis campbellii	4	3m & 3x <2m	Retained
DC015	Diploglottis campbellii	1	25m	Retained
DC016	Diploglottis campbellii	1	1m	Retained
DC017	Diploglottis campbellii	1	21m	Retained
DC018	Diploglottis campbellii	37	37x seedling	Retained
DC019	Diploglottis campbellii	1	19m	Retained
DC020	Diploglottis campbellii	1	22m	Retained
DC021	Diploglottis campbellii	1	17m	Retained
DC022	Diploglottis campbellii	1	20m	Retained
DC023	Diploglottis campbellii	1	25m	Retained
DC024	Diploglottis campbellii	56	25m & 55x seedling	Retained
DC025	Diploglottis campbellii	51	25m & 50x seedling	Retained
DR001	Drynaria rigidula	1		Retained
DY001	Diospyros yandina	1	2m	Retained
DY002	Diospyros yandina	2	2.5m & 2m	Retained
DY003	Diospyros yandina	4	4x <2m	Retained
DY004	Diospyros yandina	5	5x <2m	Retained
DY005	Diospyros yandina	10	10x <2.5m	Retained

ID	Species	Count	Height	Retained / Removed
DY006	Diospyros yandina	7	4m & 6x <2m	Retained
DY007	Diospyros yandina	2	2x 1.5m	Retained
DY008	Diospyros yandina	1	1.7m	Retained
DY009	Diospyros yandina	3	3x <2m	Retained
DY010	Diospyros yandina	3	3x <2m	Retained
DY011	Diospyros yandina	1	1.2m	Retained
DY012	Diospyros yandina	1	1.2m	Retained
DY013	Diospyros yandina	1	1.5m	Retained
DY014	Diospyros yandina	2	2x <2m	Retained
DY015	Diospyros yandina	5	5x <1.5m	Retained
DY016	Diospyros yandina	5	5x <2m	Retained
DY017	Diospyros yandina	1	1m	Retained
DY018	Diospyros yandina	14	5x 1.5m & 9x 0.5m	Retained
DY019	Diospyros yandina	5	5x 1m	Retained
DY020	Diospyros yandina	4	2x 1.5m & 2x 1m	Retained
DY021	Diospyros yandina	1	1.5m	Retained
DY022	Diospyros yandina	1	1.5m	Retained
DY023	Diospyros yandina	20	5x 1.5m & 15x 1m	Retained
DY024	Diospyros yandina	12	12x 1m	Retained
DY025	Diospyros yandina	50	50x 2m	Retained
DY026	Diospyros yandina	1	1.5m	Retained
DY027	Diospyros yandina	5	5x 1.5m	Retained
DY028	Diospyros yandina	1	1m	Retained
DY029	Diospyros yandina	5	5x 1m	Retained
DY030	Diospyros yandina	5	1.5m & 4x 1m	Retained
DY031	Diospyros yandina	2	2x 1m	Retained
DY032	Diospyros yandina	6	2x 1m & 4x 0.5m	Retained
DY033	Diospyros yandina	4	2m & 3x 1m	Retained
DY034	Diospyros yandina	1	0.5m	Retained
DY035	Diospyros yandina	4	1.3m & 1m & 0.8m & 0.5m	Retained
DY036	Diospyros yandina	9	2x 2.5m & 1m & 6x 0.2m	Retained
DY037	Diospyros yandina	2	2m & 1.2m	Retained
DY038	Diospyros yandina	1	1.5m	Retained
DY039	Diospyros yandina	10	10x 0.4-1.5m	Retained
DY040	Diospyros yandina	10	10x 0.2-3m	Retained
DY041	Diospyros yandina	12	12x 0.2-1.8m	Retained
DY042	Diospyros yandina	12	12x 0.5-1.5m	Retained
DY043	Diospyros yandina	12	12x 0.6-3m	Retained
DY044	Diospyros yandina	1	1m	Retained
DY045	Diospyros yandina	1	2m	Retained
DY046	Diospyros yandina	1	2m	Retained
DY047	Diospyros yandina	3	3x 1-2m	Retained
DY048	Diospyros yandina	30	30x 0.2-3m	Retained

ID	Species	Count	Height	Retained / Removed
DY049	Diospyros vandina	4	4x 1-2m	Retained
DY050	Diospyros vandina	1	4x 1-3m	Retained
			Fx 0 4 2 Fm	Detained
DYUST	Diospyros yandina	2	5X U.4-2.5M	Retained
DY052	Diospyros yandina	7	7x 0.5-2.5m	Retained
DY053	Diospyros yandina	8	8x 0.4-2.5m	Retained
EH001	Endiandra hayesii	1	2m	Retained
EH002	Endiandra hayesii	1	10m	Retained
EH003	Endiandra hayesii	1	2m	Retained
EH004	Endiandra hayesii	1	2m	Retained
FH005	Endiandra havesii	1	3.5m	Retained
EH006	Endiandra hayesii	1	2m	Retained
LIIOOO	Endiandra myesh Endiandra myelleri	•	2111	Retained
EMB001	subsp. bracteata	1	6m	Retained
	Endiandra muelleri			
EMB002	subsp. bracteata	3	12m & 1.5m & seedling	Retained
EMPOOR	Endiandra muelleri	4	4× 1.2m	Detained
EMDUUS	Fndiandra muelleri	4	4x 1.3111	Retained
EMB004	subsp. bracteata	1	1.8m	Retained
	Endiandra muelleri			
EMB005	subsp. bracteata	11	10m & 8x seedling	Retained
FURADA	Endiandra muelleri			
EWB006	subsp. bracteata	1	1.8m	Retained
EMB007	subsp. bracteata	1	5m	Retained
	Endiandra muelleri	•	•	
EMB008	subsp. bracteata	2	12m & 4m	Retained
FURGOO	Endiandra muelleri	_	2 5	
EWB009	subsp. bracteata	Ζ	2x 5m	Retained
FMB010	subsp. bracteata	1	12m	Retained
Linboro	Endiandra muelleri	•		
EMB011	subsp. bracteata	1	9m	Retained
	Endiandra muelleri			
EMB012	subsp. bracteata	1	2m	Retained
FMB013	subsp bracteata	9	12m & 8x 1-4m	Retained
Embors	Endiandra muelleri	-		Retained
EMB014	subsp. bracteata	1	4m	Retained
	Endiandra muelleri			
EMB015	subsp. Bracteata	1	15m	Retained
FP001	Floydia praealta	1	17m	Retained
GF001	Gossia fragrantissima	1	4m	Retained
GF002	Gossia fragrantissima	1	2.5m	Retained
GF003	Gossia fragrantissima	10	10x 2-3m	Retained
GF004	Gossia fragrantissima	1		Retained
GF005	Gossia fragrantissima	1	3m	Retained
GF006	Gossia fragrantissima	1	2m	Retained
GF007	Gossia fragrantissima	1	2 4m	Retained
			2.4111	Detained
GF008	Gossia tragrantissima	1	3m	Retained

ID	Species	Count	Height	Retained / Removed
GF009	Gossia fragrantissima	10	10x 2-3m	Retained
GF010	Gossia fragrantissima	1	4m	Retained
GF011	Gossia fragrantissima	2	4m & 3m	Retained
GF012	Gossia fragrantissima	3	1.6m & 2x <1m	Retained
GF013	Gossia fragrantissima	1	2m	Removed
GF014	Gossia fragrantissima	1	1.6m	Removed
GF015	Gossia fragrantissima	4	4x 2-3m	Retained
GF016	Gossia fragrantissima	4	4x 4-5m	Retained
GF017	Gossia fragrantissima	1	4m	Retained
GF018	Gossia fragrantissima	1	3m	Retained
GF019	Gossia fragrantissima	1	4.5m	Retained
GF020	Gossia fragrantissima	2	2x 4m	Retained
GF021	Gossia fragrantissima	1	4m	Retained
GF022	Gossia fragrantissima	1	2m	Removed
GF023	Gossia fragrantissima	1	4m	Retained
GF024	Gossia fragrantissima	2	2m & 1m	Retained
GF025	Gossia fragrantissima	6	6x 2-3m	Retained
GF026	Gossia fragrantissima	1	3m	Removed
GF027	Gossia fragrantissima	3	3x 1.5-2m	Retained
GF028	Gossia fragrantissima	1	3m	Retained
GF029	Gossia fragrantissima	1	3.5m	Retained
GF030	Gossia fragrantissima	1	3m	Retained
GF031	Gossia fragrantissima	1	2.5m	Retained
GF032	Gossia fragrantissima	1	1.5m	Retained
GF033	Gossia fragrantissima	1	3m	Retained
GF034	Gossia fragrantissima	2	2x 2m	Retained
GF035	Gossia fragrantissima	3	6m & 2 <3m	Retained
GF036	Gossia fragrantissima	1	2.5m	Retained
GF037	Gossia fragrantissima	1	1.6m	Retained
GF038	Gossia fragrantissima	11	4m & 10x < 2m	Retained
GF039	Gossia fragrantissima	1	4m	Retained
GF040	Gossia fragrantissima	1	1.5m	Retained
GF041	Gossia fragrantissima	1	6m	Retained
GF042	Gossia fragrantissima	1	2m	Retained
GF043	Gossia fragrantissima	2	3m & 0.5	Retained
GF044	Gossia fragrantissima	6	12m & 5x <2m	Retained
GF045	Gossia fragrantissima	1	1m	Retained
GF046	Gossia fragrantissima	1	3m	Retained
GF047	Gossia fragrantissima	1	4m	Retained
GF048	Gossia fragrantissima	1	5.5m	Retained
GF049	Gossia fragrantissima	2	2x 1.5m	Retained
GF050	Gossia fragrantissima	1	2m	Retained
GF051	Gossia fragrantissima	1	1m	Retained

ID	Species	Count	Height	Retained / Removed
GF052	Gossia fragrantissima	1	2m	Retained
GF053	Gossia fragrantissima	1	4m	Retained
GF054	Gossia fragrantissima	1	2m	Retained
GF055	Gossia fragrantissima	1	8m	Retained
GF056	Gossia fragrantissima	1	9m	Retained
GF057	Gossia fragrantissima	1	6m	Retained
GF058	Gossia fragrantissima	1	2.5m	Retained
GF059	Gossia fragrantissima	1	1.7m	Retained
GF060	Gossia fragrantissima	3	8m & 7m & 5m	Retained
GF061	Gossia fragrantissima	1	2m	Retained
GF062	Gossia fragrantissima	1	1.5m	Retained
GF063	Gossia fragrantissima	1	5m	Retained
GF064	Gossia fragrantissima	1	2.5m	Retained
GF065	Gossia fragrantissima	1	2m	Retained
GF066	Gossia fragrantissima	1	7m	Retained
GF067	Gossia fragrantissima	2	7m & 2m	Retained
GF068	Gossia fragrantissima	1	10m	Retained
GF069	Gossia fragrantissima	1	3m	Retained
GF070	Gossia fragrantissima	1	10m	Retained
GF071	Gossia fragrantissima	1	11m	Retained
GF072	Gossia fragrantissima	1	12m	Retained
GF073	Gossia fragrantissima	1	3.5m	Retained
GF074	Gossia fragrantissima	1	3m	Retained
GF075	Gossia fragrantissima	1	0.5m	Retained
GF076	Gossia fragrantissima	1	6.5m	Retained
GF077	Gossia fragrantissima	2	6m & 1.9m	Retained
GF078	Gossia fragrantissima	2	6m & 1.8m	Retained
GF079	Gossia fragrantissima	1	2m	Retained
GF080	Gossia fragrantissima	1	1.5m	Retained
GF081	Gossia fragrantissima	1	12m	Retained
GF082	Gossia fragrantissima	1	6m	Retained
GF083	Gossia fragrantissima	1	1.5m	Retained
GH001	Grevillea hilliana	2	28m & 30m	Retained
GH002	Grevillea hilliana	2	27m & 25m	Retained
GH003	Grevillea hilliana	1	2m	Retained
GH004	Grevillea hilliana	1	1m	Retained
GH005	Grevillea hilliana	1	3.5m	Retained
GH006	Grevillea hilliana	1	0.5m	Retained
GH007	Grevillea hilliana	1	2m	Retained
GH008	Grevillea hilliana	7	2x 4m & 2m & 4x 1m	Retained
GH009	Grevillea hilliana	1	2.5m	Retained
GH010	Grevillea hilliana	1	5m	Retained
GH011	Grevillea hilliana	1	6m	Retained

ID	Species	Count	Height	Retained / Removed
GH012	Grevillea hilliana	2	5m & 1.8m	Removed
GH013	Grevillea hilliana	1	seedling	Retained
GH014	Grevillea hilliana	2	5m & 1.5m	Retained
GH015	Grevillea hilliana	1	5m	Retained
GH016	Grevillea hilliana	1	seedling	Retained
GH017	Grevillea hilliana	1	0.5m	Retained
GH018	Grevillea hilliana	1	1.7m	Retained
GH019	Grevillea hilliana	1	4m	Retained
GH020	Grevillea hilliana	1	1.1m	Retained
GH021	Grevillea hilliana	1	4m	Retained
GH022	Grevillea hilliana	1	3m	Retained
GH023	Grevillea hilliana	1	7m	Retained
GH024	Grevillea hilliana	1	6m	Retained
GH025	Grevillea hilliana	1	1.8m	Retained
GH026	Grevillea hilliana	1	1.5m	Retained
GH027	Grevillea hilliana	2	2x 4m	Retained
GH028	Grevillea hilliana	1	12m	Retained
GH029	Grevillea hilliana	1	10m	Retained
GH030	Grevillea hilliana	1	1.2m	Retained
GH031	Grevillea hilliana	1	0.5m	Retained
GH032	Grevillea hilliana	1	0.2m	Retained
GH033	Grevillea hilliana	1	1.8m	Retained
GH034	Grevillea hilliana	1	1.6m	Retained
GH035	Grevillea hilliana	1	1.8m	Retained
GH036	Grevillea hilliana	1	20m	Retained
GH037	Grevillea hilliana	1	2.5m	Retained
GH038	Grevillea hilliana	1	9m	Retained
GH039	Grevillea hilliana	1	3m	Retained
GH040	Grevillea hilliana	1	0.6m	Retained
GH041	Grevillea hilliana	1	20m	Retained
GH042	Grevillea hilliana	1	4m	Retained
GH043	Grevillea hilliana	1	19m	Retained
GH044	Grevillea hilliana	1	0.2m	Retained
GH045	Grevillea hilliana	1	9m	Retained
GH046	Grevillea hilliana	1	25m	Retained
GH047	Grevillea hilliana	1	7m	Retained
GH048	Grevillea hilliana	1	9m	Retained
GH049	Grevillea hilliana	1	3.5m	Retained
GH050	Grevillea hilliana	1	2m	Retained
GH051	Grevillea hilliana	1	1.5m	Retained
GH052	Grevillea hilliana	1	7m	Retained
GH053	Grevillea hilliana	1	30m	Retained
GH054	Grevillea hilliana	1	20m	Retained

ID	Species	Count	Height	Retained / Removed
GH055	Grevillea hilliana	2	4.5m & 1m	Retained
GH056	Grevillea hilliana	1	14m	Retained
GH057	Grevillea hilliana	3	2m & 1m & 0.5m	Retained
GH058	Grevillea hilliana	1	5m	Retained
GH059	Grevillea hilliana	1	1m	Retained
GH060	Grevillea hilliana	1	1 5m	Retained
GH061	Grevillea hilliana	1	0.3m	Retained
GH062	Grevillea hilliana	1	1m	Retained
GH063	Grevillea hilliana	1	6m	Retained
GH064	Grevillea hilliana	2	2x 0 5m	Retained
GH065	Grevillea hilliana	1	28m	Retained
GH066	Grevillea hilliana	1	5m	Retained
GH067	Grevillea hilliana	2	23m & 24m	Retained
GH068	Grevillea hilliana	2	26m & 2m	Retained
GH069	Grevillea hilliana	1	3m	Retained
GH070	Grevillea hilliana	1	4 5m	Retained
GH071	Grevillea hilliana	1	0.15m	Retained
GH072	Grevillea hilliana	1	5.7m	Retained
GH073	Grevillea hilliana	1	0.2m	Retained
GH074	Grevillea hilliana	1	1 6m	Retained
GH075	Grevillea hilliana	1	1.4m	Retained
GH076	Grevillea hilliana	1	12m	Retained
GH077	Grevillea hilliana	1	13m	Retained
GH078	Grevillea hilliana	1	18m	Retained
GH079	Grevillea hilliana	2	6.5m & 0.5m	Retained
GH080	Grevillea hilliana	4	12m & 3.5m & 3m & 2m	Retained
GH081	Grevillea hilliana	2	0.8m & 0.5m	Retained
GH082	Grevillea hilliana	1	20m	Retained
GH083	Grevillea hilliana	1	20m	Retained
GH084	Grevillea hilliana	3	3.2m & 1.6m & 0.6m	Retained
GH085	Grevillea hilliana	1	3.5m	Retained
GH086	Grevillea hilliana	1	18m	Retained
GH087	Grevillea hilliana	1	1.5m	Retained
HP001	Hicksbeachia pinnatifolia	7	2x 10m & 3m & 1.5m & 1m & 2x 0.5m	Retained
HP002	Hicksbeachia pinnatifolia	6	10m & 2.5m & 1.5m & 3m & 2x 1m	Retained
HP003	Hicksbeachia pinnatifolia	1	5m	Retained
HP004	Hicksbeachia pinnatifolia	2	6m & 0.5m	Retained
HP005	Hicksbeachia pinnatifolia	3	7m & 3m & 1.5m	Retained
HP006	Hicksbeachia pinnatifolia	3	5m & 3.5m & 2m	Retained
HP007	Hicksbeachia pinnatifolia	3	12m & 2m & 1m	Retained
HP008	Hicksbeachia pinnatifolia	1	7m	Retained
HP009	Hicksbeachia pinnatifolia	2	9m & 1.5m	Retained

ID	Species	Count	Height	Retained / Removed
HP010	Hicksbeachia pinnatifolia	1	6m	Retained
HP011	Hicksbeachia pinnatifolia	5	5m & 4m & 3x 1m	Retained
HP012	Hicksbeachia pinnatifolia	7	10m & 5m & 2x 2m & 3x seedling	Retained
HP013	Hicksbeachia pinnatifolia	1	5m	Retained
LP001	Lepiderema pulchella	4	4x 1m	Retained
LP002	Lepiderema pulchella	6	2m (x 3) & 1.5m (x 2) & 2m	Retained
LP003	Lepiderema pulchella	2	0.5m & 1m	Retained
LP004	Lepiderema pulchella	1	5m	Retained
LP005	Lepiderema pulchella	2	2x 1.5m	Retained
LP006	Lepiderema pulchella	4	2m (x 2) & 1.5m (x 2)	Retained
LP007	Lepiderema pulchella	1	3m	Retained
LP008	Lepiderema pulchella	5	2.5m (x 2) & 1m (x 2) & 1.5m	Retained
LP009	Lepiderema pulchella	3	3x 1m	Retained
LP010	Lepiderema pulchella	3	2m (x 3)	Retained
LP011	Lepiderema pulchella	10	2m (x6) & 1m (x4)	Retained
LP012	Lepiderema pulchella	8	2.5m (x2) & 1m (x6)	Retained
LP013	Lepiderema pulchella	4	3.5m & 2m (x 3)	Retained
LP014	Lepiderema pulchella	6	4m (x 2) & 1m (x4)	Retained
LP015	Lepiderema pulchella	1	2m	Retained
LP016	Lepiderema pulchella	6	2m (x2) & 1m (x4)	Retained
LP017	Lepiderema pulchella	3	3x 1m	Retained
LP018	Lepiderema pulchella	6	6x 1.5m	Retained
LP019	Lepiderema pulchella	3	3x 2m	Retained
LP020	Lepiderema pulchella	2	2x 1.5m	Retained
LP021	Lepiderema pulchella	4	4x 1m	Retained
LP022	Lepiderema pulchella	2	2x 2m	Retained
LP023	Lepiderema pulchella	8	2x 6m & 3x 1m & 3x 0.5m	Retained
LP024	Lepiderema pulchella	7	2x 2.5m & 5m & 4x 0.5m	Retained
LP025	Lepiderema pulchella	1	3m	Retained
LP026	Lepiderema pulchella	2	2x 1.5m	Retained
LP027	Lepiderema pulchella	2	2x 2m	Retained
LP028	Lepiderema pulchella	4	3x 2m & 3m	Retained
LP029	Lepiderema pulchella	3	3x 1m	Retained
LP030	Lepiderema pulchella	16	2.5m & 15x 1m	Retained
LP031	Lepiderema pulchella	5	5x 2m	Retained
LP032	Lepiderema pulchella	4	4x 2m	Retained
LP033	Lepiderema pulchella	1	3m	Retained
LP034	Lepiderema pulchella	3	2.5m & 1m & 2m	Retained
LP035	Lepiderema pulchella	3	2x 4m & 2m	Retained
LP036	Lepiderema pulchella	8	3m (x2) & 8m & 4m (x2) & 2m (x3)	Retained
LP037	Lepiderema pulchella	1	6m	Retained
LP038	Lepiderema pulchella	1	2m	Retained

п	Species	Count	Height	Retained / Removed
	Leniderema pulchella	Count	Am	Removed
		1	4111	Retained
LP040	Lepiderema pulchella	2		Retained
LP041	Lepiderema pulchella	2	2m & 30cm	Retained
LP042	Lepiderema pulchella	1	6m	Retained
LP043	Lepiderema pulchella	1	5m	Retained
LP044	Lepiderema pulchella	1	9m	Retained
LP045	Lepiderema pulchella	21	8m & 20x 1m	Retained
LP046	Lepiderema pulchella	1	4m	Retained
LP047	Lepiderema pulchella	1	8m	Retained
LP048	Lepiderema pulchella	2	2m & 1m	Retained
LP049	Lepiderema pulchella	6	3m (x2) & 1m (x3) & 2m	Retained
LP050	Lepiderema pulchella	1	3m	Retained
LP051	Lepiderema pulchella	1	10m	Retained
LP052	Lepiderema pulchella	1	7m	Retained
LP053	Lepiderema pulchella	1	8m	Retained
LP054	Lepiderema pulchella	1	12m	Retained
LP055	Lepiderema pulchella	1	12m	Retained
LP056	Lepiderema pulchella	1	5m	Retained
LP057	Lepiderema pulchella	2	2x	Retained
LP058	Lepiderema pulchella	1	7m	Retained
LP059	Lepiderema pulchella	1	9m	Retained
LP060	Lepiderema pulchella	1	7m	Retained
LP061	Lepiderema pulchella	3	3x 2m	Retained
LP062	Lepiderema pulchella	3	8m (x2) & 5m	Retained
LP063	Lepiderema pulchella	7	3m (x4) & 2m (x2) & 16m	Retained
LP064	Lepiderema pulchella	4	3m (x3) & 2.5m	Retained
LP065	Lepiderema pulchella	5	6m & 1.5m & 2m & 8m & 1m	Retained
LP066	Lepiderema pulchella	1	12m	Retained
LP067	Lepiderema pulchella	1	18m	Retained
LP068	Lepiderema pulchella	1	2m	Retained
LP069	Lepiderema pulchella	6	$15m \text{ ft } 1m (x^2) \text{ ft } 0.3m (x^3)$	Retained
LP070	Lepiderema pulchella	8	18m & 3m (x2) & 5m (x2) & 1.5m (x3)	Retained
LP071	Lepiderema pulchella	1	1.5m	Retained
LP072	Lepiderema pulchella	1	3m	Retained
LP073	Lepiderema pulchella	2	3m (x2)	Retained
LP074	Lepiderema pulchella	6	5m & 2m (x2) & 1m & 0.5m (x2)	Retained
LP075	Lepiderema pulchella	3	3m & 8m (x2)	Retained
LP076	Lepiderema pulchella	1	2m	Retained
LP077	Lepiderema pulchella	1	5m	Retained
LP078	Lepiderema pulchella	1	1.5m	Retained
LP079	Lepiderema pulchella	1	6m	Retained
LP080	Lepiderema pulchella	3	8m & 6m & 2m	Retained

ID	Species	Count	Height	Retained / Removed
LP081	Lepiderema pulchella	5	3m (x2) & 1m (x3)	Retained
LP082	Lepiderema pulchella	1	1.5m	Retained
LP083	Lepiderema pulchella	6	8m ft 2m (x2) ft 1m (x3)	Retained
LP084	Lepiderema pulchella	1	1.5m	Retained
LP085	Lepiderema pulchella	1	5m	Retained
LP086	Lepiderema pulchella	5	7m & 6m & 1m (x2) & 2m	Retained
LP087	Lepiderema pulchella	9	6m (x2) & 1m (x3) & 0.3m (x4)	Retained
LP088	Lepiderema pulchella	1	1.5m	Retained
LP089	Lepiderema pulchella	1	1.5m	Retained
LP090	Lepiderema pulchella	1	9m	Retained
LP091	Lepiderema pulchella	1	12m	Retained
LP092	Lepiderema pulchella	1	2.5m	Retained
LP093	Lepiderema pulchella	2	12m & 1m	Retained
LP094	Lepiderema pulchella	1	12m	Retained
LP095	Lepiderema pulchella	1	10m	Retained
LP096	Lepiderema pulchella	2	2x 6m	Retained
LP097	Lepiderema pulchella	1	2m	Retained
LP098	Lepiderema pulchella	4	4x seedling	Retained
LP099	Lepiderema pulchella	4	4x seedling	Retained
LP100	Lepiderema pulchella	1	4m	Retained
LP101	Lepiderema pulchella	1	1.5m	Retained
LP102	Lepiderema pulchella	1	1m	Retained
LP103	Lepiderema pulchella	1	2.5m	Retained
LP104	Lepiderema pulchella	1	2.5m	Retained
LP105	Lepiderema pulchella	2	2m & 1x seedling	Retained
LP106	Lepiderema pulchella	2	2m & 1.5m	Retained
LP107	Lepiderema pulchella	5	5m (x2) & 4m (x2) & 2m	Retained
LP108	Lepiderema pulchella	1	5m	Retained
LP109	Lepiderema pulchella	4	6m & 3x seedling	Retained
LP110	Lepiderema pulchella	4	5m & 3m & 1m (x2)	Retained
LP111	Lepiderema pulchella	3	6m & 2.5m & 1m	Retained
LP112	Lepiderema pulchella	2	4m & 1m	Retained
LP113	Lepiderema pulchella	2	6m & 2m	Retained
LP114	Lepiderema pulchella	1	8m	Retained
LP115	Lepiderema pulchella	1	3m	Retained
LP116	Lepiderema pulchella	3	2.5m & 2x seedling	Retained
LP117	Lepiderema pulchella	4	2m (x3) & 1m	Retained
LP118	Lepiderema pulchella	5	3m & 1m (x4)	Retained
LP119	Lepiderema pulchella	6	1.5m (x6)	Retained
LP120	Lepiderema pulchella	2	3m & 2m	Retained
LP121	Lepiderema pulchella	5	4m & 4x seedling	Retained
LP122	Lepiderema pulchella	2	5m & 3m	Retained
LP123	Lepiderema pulchella	5	2m & 1m (x4)	Retained

ID	Species	Count	Height	Retained / Removed
LP124	Lepiderema pulchella	5	4.5m & 2m & 1m (x3)	Retained
LP125	Lepiderema pulchella	4	6m & 4m & 2 seedlings	Retained
LP126	Lepiderema pulchella	3	5m & 2m & 1.5m	Retained
LP127	Lepiderema pulchella	4	2m (x2) & 2 seedlings	Retained
LP128	Lepiderema pulchella	1	3m	Retained
LP129	Lepiderema pulchella	6	3m & 1m (x2) & 3 seedlings	Retained
LP130	Lepiderema pulchella	3	4m & 2m (x2)	Retained
LP131	Lepiderema pulchella	3	11m & 2x seedlings	Retained
LP132	Lepiderema pulchella	6	6m & 4m & 2m (x2) & 2 seedlings	Retained
LP133	Lepiderema pulchella	5	5m (x2) & 3 seedlings	Retained
LP134	Lepiderema pulchella	3	4m & 3m & 2.5m	Retained
LP135	Lepiderema pulchella	2	7m & 4m	Retained
LP136	Lepiderema pulchella	3	5m & 4m & 3m	Retained
LP137	Lepiderema pulchella	2	10m & 9m	Retained
LP138	Lepiderema pulchella	5	8m & 7m & 2m & 1m (x2)	Retained
LP139	Lepiderema pulchella	1	3m	Retained
LP140	Lepiderema pulchella	1	3.5m	Retained
LP141	Lepiderema pulchella	2	2x 1.5m	Retained
LP142	Lepiderema pulchella	1	1.5m	Retained
LP143	Lepiderema pulchella	5	2m (x2) & 3 seedlings	Retained
LP144	Lepiderema pulchella	1	1.5m	Retained
LP145	Lepiderema pulchella	1	1m	Retained
LP146	Lepiderema pulchella	3	3x 1m	Retained
LP147	Lepiderema pulchella	2	10m & 4m	Retained
LP148	Lepiderema pulchella	3	3x 1m	Retained
LP149	Lepiderema pulchella	1	2m	Retained
LP150	Lepiderema pulchella	1	6m	Retained
LP151	Lepiderema pulchella	3	1.5m & 2x seedling	Retained
LP152	Lepiderema pulchella	5	2.5m & 4 seedlings	Retained
LP153	Lepiderema pulchella	5	12m & 7m & 5m & 1m (x2)	Retained
LP154	Lepiderema pulchella	1	9m	Retained
LP155	Lepiderema pulchella	5	6m & 2.5m & 1m (x3)	Retained
LP156	Lepiderema pulchella	1	2m	Retained
LP157	Lepiderema pulchella	1	1.5m	Retained
LP158	Lepiderema pulchella	2	4m & 2.5m	Retained
LP159	Lepiderema pulchella	1	2.5m	Retained
LP160	Lepiderema pulchella	4	2m & 3x seedling	Retained
LP161	Lepiderema pulchella	1	2m	Retained
LP162	Lepiderema pulchella	1	1m	Retained
LP163	Lepiderema pulchella	1	1.5m	Retained
LP164	Lepiderema pulchella	1	- 3m	Retained
LP165	Lepiderema pulchella	1	1.5m	Retained

ID	Species	Count	Height	Retained / Removed
L P166		_	2.5m (x2) & 1m (x3) & 2	
	Lepiderema pulchella	7	seedlings	Retained
LP16/	Lepiderema pulchella	1	6m	Retained
LP168	Lepiderema pulchella	15	8m (x2) & 6m (x2) & 10m (x2) & 5m & 1m (x3) & 5 seedlings	Retained
LP169	Lepiderema pulchella	1	3m	Retained
LP170	Lepiderema pulchella	4	2.5m (x2) & 2m (x2)	Retained
LP171	Lepiderema pulchella	4	3m & 2m (x2) & 1m	Retained
LP172	Lepiderema pulchella	5	5m (x2) & 3m & 2m (x2)	Retained
LP173	Lepiderema pulchella	6	1.5m (x3) & 1m (x3)	Retained
LP174	Lepiderema pulchella	3	3x 2m	Retained
LP175	Lepiderema pulchella	3	4m & 2x seedling	Retained
LP176	Lepiderema pulchella	6	8m & 5x 1.5m	Retained
LP177	Lepiderema pulchella	2	3m & 1.5m	Retained
LP178	Lepiderema pulchella	3	4m (x2) & 3m	Retained
LP179	Lepiderema pulchella	1	3m	Retained
LP180	Lepiderema pulchella	2	2.5m & 1m	Retained
LP181	Lepiderema pulchella	1	8m	Retained
LP182	Lepiderema pulchella	1	7m	Retained
LP183	Lepiderema pulchella	1	3.5m	Retained
LP184	Lepiderema pulchella	1	4m	Retained
LP185	Lepiderema pulchella	1	11m	Retained
LP186	Lepiderema pulchella	1	5m	Retained
LP187	Lepiderema pulchella	1	9m	Retained
LP188	Lepiderema pulchella	2	6m & 4m	Retained
LP189	Lepiderema pulchella	2	10m & 6m	Retained
LP190	Lepiderema pulchella	1	4m	Retained
LP191	Lepiderema pulchella	1	3.5m	Retained
LP192	Lepiderema pulchella	11	4.5m & 10x seedling	Retained
LP193	Lepiderema pulchella	3	3x 1.5m	Retained
LP194	Lepiderema pulchella	2	1m & 0.5m	Retained
LP195	Lepiderema pulchella	1	1m	Retained
LP196	Lepiderema pulchella	1	3m	Retained
LP197	Lepiderema pulchella	2	2m & 0.3m	Retained
LP198	Lepiderema pulchella	5	7m & 2.5m & 1m (x3)	Retained
LP199	Lepiderema pulchella	1	2.5m	Retained
LP200	Lepiderema pulchella	1	0.5m	Retained
LP201	Lepiderema pulchella	1	5m	Retained
LP202	Lepiderema pulchella	1	2.5m	Retained
LP203	Lepiderema pulchella	3	4m (x2) & 2m	Retained
LP204	l eniderema pulchella	8	3m (x2) & 8m & 4m (x2) & 2m	Retained
LP205		2	1m & 0.5m	Retained
LP206		2	2m & 0.5m	Retained
		L L	201 0 0.00	Retained

ID	Species	Count	Height	Retained / Removed
LP207	Lepiderema pulchella	1	15m	Retained
LP208	Leniderema pulchella	1	4m	Retained
LP209	Lepiderema pulchella	7	3m & 1 5m (v2) & 1m (v4)	Retained
LP210	Lepiderema pulchella	1	3m	Retained
L P211	Lepiderema pulchella	2	2v 1m	Retained
L P212	Lepiderema pulchella	1	1m	Retained
LP213	Lepiderema pulchella	1	12m & 15m	Retained
L P214	Lepiderema pulchella	10	10x sanling	Removed
L P215	Lepiderema pulchella	3	2x juvenile & 1x seedling	Removed
L P216	Lepiderema pulchella	11	1x sub-mature & 10x sanling	Removed
L P217	Lepiderema pulchella	2		Removed
L P218		5	1 y maturo & dy capling	Removed
LP210		0	1x mature & 4x sapting	Removed
L P220		7		Removed
L 220		ו ר	Sapting	Removed
L 221		2	2X 3111	Removed
	Lepiderema pulchella	3	3X ZIII	Removed
		2		Removed
LI 224	Lepiderema pulchella	<u> </u>		Removed
	Lepiderema pulchella	2	sapling	Removed
	Lepiderema pulchella	<u> </u>	1x 4m & sapling	Removed
	Lepiderema pulchella	10	3X < 3m & 7 sapting	Removed
	Lepiderema pulchella	10	10x 2m	Removed
	Lepiderema pulchella	4		Removed
	Lepiderema pulchella	2	5m & sapling	Removed
	Lepiderema pulchella	2	2x 3m	Removed
	Lepiderema pulchella	2		Removed
	Lepiderema pulchella	1	2m	Removed
	Lepiderema pulchella	12	12x sapling	Retained
LP230	Lepiderema pulchella	1	sapling	Retained
	Lepiderema pulchella	1	<u>2m</u>	Retained
LP237	Lepiderema pulchella	1	4m	Removed
LP230	Lepiderema pulchella	2	<u>2x 2m</u>	Removed
LP239	Lepiderema pulchella	1	<u>1m</u>	Removed
	Lepiderema pulchella	1	3m	Removed
LP241	Lepiderema pulchella	5	<u>5x <5m</u>	Removed
	Lepiderema pulchella	6	6x sapling	Removed
	Lepiderema pulchella	1	2m	Removed
	Lepiderema pulchella	5	5x <2m	Retained
	Lepiderema pulchella	11	6x 2m & 5x <1m	Retained
	Lepiderema pulchella	1	4m	Retained
LP247	Lepiderema pulchella	4	10m & 3x 2m	Retained
LP248	Lepiderema pulchella	1	3m	Retained
LP249	Lepiderema pulchella	1	4m	Retained

ID	Species	Count	Height	Retained / Removed
LP250	Lepiderema pulchella	2	2x 2m	Retained
LP251	Lepiderema pulchella	6	8m & 5x <2m	Removed
LP252	Lepiderema pulchella	3	3x <3m	Removed
LP253	Lepiderema pulchella	1	2m	Retained
LP254	Lepiderema pulchella	1	2m	Retained
LP255	Lepiderema pulchella	1	2m	Retained
LP256	Lepiderema pulchella	2	2x 2m	Retained
LP257	Lepiderema pulchella	3	3x 2m	Retained
LP258	Lepiderema pulchella	3	3x <2m	Retained
LP259	Lepiderema pulchella	1	1.5m	Retained
LP260	Lepiderema pulchella	3	3m & 2x 1.5m	Retained
LP261	Lepiderema pulchella	1	1m	Retained
LP262	Lepiderema pulchella	4	4x <3m	Retained
LP263	Lepiderema pulchella	1	3m	Retained
LP264	Lepiderema pulchella	6	4x 3m & 2x 1m	Retained
LP265	Lepiderema pulchella	1	3m	Retained
LP266	Lepiderema pulchella	1	1.2m	Removed
LP267	Lepiderema pulchella	3	3m & 2x 1m	Retained
LP268	Lepiderema pulchella	2	2x 0.5m	Retained
LP269	Lepiderema pulchella	3	2x 3.5m & 1m	Removed
LP270	Lepiderema pulchella	1	3m	Removed
LP271	Lepiderema pulchella	1	2.5m	Removed
LP272	Lepiderema pulchella	2	2x <1m	Removed
LP273	Lepiderema pulchella	1	3.5m	Removed
LP274	Lepiderema pulchella	2	2x <1m	Removed
LP275	Lepiderema pulchella	5	4m & 3m & 3x <1.5m	Removed
LP276	Lepiderema pulchella	1	2m	Retained
LP277	Lepiderema pulchella	3	3x 1-2m	Retained
LP278	Lepiderema pulchella	1	0.8m	Removed
LP279	Lepiderema pulchella	2	4m & 1m	Removed
LP280	Lepiderema pulchella	1	2m	Retained
LP281	Lepiderema pulchella	1	0.5m	Removed
LP282	Lepiderema pulchella	1	1m	Removed
LP283	Lepiderema pulchella	5	5x <2m	Removed
LP284	Lepiderema pulchella	1	2m	Removed
LP285	Lepiderema pulchella	1	0.4m	Removed
LP286	Lepiderema pulchella	5	5x <1.5m	Removed
LP287	Lepiderema pulchella	1	1.3m	Retained
LP288	Lepiderema pulchella	1	4m	Retained
LP289	Lepiderema pulchella	1	6m	Retained
LP290	Lepiderema pulchella	4	6m & 3.5m & 2.5m & 1.6m	Retained
LP291	Lepiderema pulchella	4	8m & 2x 6m & 2m	Retained
LP292	Lepiderema pulchella	3	10m & 8m & 5m	Retained

ID	Species	Count	Height	Retained / Removed
LP293	Lepiderema pulchella	3	10m & 8m & 4m	Retained
LP294	Lepiderema pulchella	3	10m & 2x 5m	Retained
LP295	Lepiderema pulchella	6	6m & 4m & 4x 2m	Retained
LP296	Lepiderema pulchella	3	2x 2m & 4 seedlings	Retained
LP297	Lepiderema pulchella	3	2x 2.5m & sapling	Retained
LP298	Lepiderema pulchella	1	2.2m	Retained
LP299	Lepiderema pulchella	1	7m	Retained
LP300	Lepiderema pulchella	2	2x 1.8m	Retained
LP301	Lepiderema pulchella	1	2.4m	Retained
LP302	Lepiderema pulchella	4	4x <6m	Retained
LP303	Lepiderema pulchella	4	2x 3m & 2x 1.5m	Retained
LP304	Lepiderema pulchella	12	12x <2m	Retained
LP305	Lepiderema pulchella	1	3m	Retained
LP306	Lepiderema pulchella	1	2.5m	Retained
LP307	Lepiderema pulchella	1	2m	Retained
LP308	Lepiderema pulchella	2	2x 4m	Retained
LP309	Lepiderema pulchella	5	5x 1-3m	Retained
LP310	Lepiderema pulchella	1	3m	Retained
LP311	Lepiderema pulchella	3	8m & 6m & 4m	Retained
LP312	Lepiderema pulchella	1	2.2m	Retained
LP313	Lepiderema pulchella	2	5m & 1.5m	Retained
LP314	Lepiderema pulchella	1	1.8m	Retained
LP315	Lepiderema pulchella	4	4x <2m	Retained
LP316	Lepiderema pulchella	6	6m & 4m & 4x 2-3m	Retained
LP317	Lepiderema pulchella	1	3m	Retained
LP318	Lepiderema pulchella	1	1.6m	Retained
LP319	Lepiderema pulchella	1	1.9m	Retained
LP320	Lepiderema pulchella	1	1.4m	Retained
LP321	Lepiderema pulchella	3	3x 1-2m	Retained
LP322	Lepiderema pulchella	7	9m & 2x 7m & 3x 5-6m & 1.2m	Retained
LP323	Lepiderema pulchella	2	2x 1.8m	Retained
LP324	Lepiderema pulchella	6	3x 2-4m & 3x 1-2m	Retained
LP325	Lepiderema pulchella	1	7m	Retained
LP326	Lepiderema pulchella	1	8m	Retained
LP327	Lepiderema pulchella	2	2x 1.5-2m	Retained
LP328	Lepiderema pulchella	1	1m	Retained
LP329	Lepiderema pulchella	1	1.2m	Retained
LP330	Lepiderema pulchella	1	2.1m	Retained
LP331	Lepiderema pulchella	1	1.5m	Retained
LP332	Lepiderema pulchella	1	2m	Removed
LP333	Lepiderema pulchella	1	3m	Removed
LP334	Lepiderema pulchella	2	2x 1.6m	Retained
LP335	Lepiderema pulchella	1	1.6m	Removed

ID	Species	Count	Height	Retained / Removed
LP336	Lepiderema pulchella	20	20x 0.5-2m	Retained
LP337	Lepiderema pulchella	2	2x 3m	Retained
LP338	Lepiderema pulchella	4	4x 1-2.5m	Retained
LP339	Lepiderema pulchella	4	4x 1-2m	Retained
LP340	Lepiderema pulchella	3	3x 3m	Retained
LP341	Lepiderema pulchella	2	2x 2m	Retained
LP342	Lepiderema pulchella	4	4x 3-4m	Retained
LP343	Lepiderema pulchella	5	5x 2-3m	Retained
LP344	Lepiderema pulchella	8	5m & 7x <1.5m	Retained
LP345	Lepiderema pulchella	4	6m & 3x 2-3m	Retained
LP346	Lepiderema pulchella	15	15x 1.5-5m	Retained
LP347	Lepiderema pulchella	6	6x 1-4m	Retained
LP348	Lepiderema pulchella	3	4m & 2x 2m	Retained
LP349	Lepiderema pulchella	11	7m & 10x 1.5-2.5m	Retained
LP350	Lepiderema pulchella	13	3x 5m & 10x 2-3m	Retained
LP351	Lepiderema pulchella	10	10x 2-3m	Retained
LP352	Lepiderema pulchella	10	10x1-3m	Retained
LP353	Lepiderema pulchella	20	20x 1-3m	Retained
LP354	Lepiderema pulchella	6	6x 2-3m	Retained
LP355	Lepiderema pulchella	2	4m & 2.4m	Retained
LP356	Lepiderema pulchella	1	4.4m	Retained
LP357	Lepiderema pulchella	1	4.1m	Retained
LP358	Lepiderema pulchella	4	3m & 3x 1.5m	Retained
LP359	Lepiderema pulchella	1	1.9m	Retained
LP360	Lepiderema pulchella	1	2.5m	Retained
LP361	Lepiderema pulchella	2	2.8m & 1.5m	Retained
LP362	Lepiderema pulchella	3	3x 2-3m	Retained
LP363	Lepiderema pulchella	1	1.2m	Retained
LP364	Lepiderema pulchella	1	2.6m	Retained
LP365	Lepiderema pulchella	1	2m	Retained
LP366	Lepiderema pulchella	2	2m & 1.8m	Retained
LP367	Lepiderema pulchella	2	2.1m & 1.6m	Retained
LP368	Lepiderema pulchella	2	4m & 2.1m	Retained
LP369	Lepiderema pulchella	1	1.5m	Retained
LP370	Lepiderema pulchella	1	2m	Retained
LP371	Lepiderema pulchella	1	1.7m	Retained
LP372	Lepiderema pulchella	3	3x 3-4m	Retained
LP373	Lepiderema pulchella	3	3x 1.5-2.5m	Retained
LP374	Lepiderema pulchella	1	2m	Retained
LP375	Lepiderema pulchella	2	6m & 2m	Retained
LP376	Lepiderema pulchella	1	1.6m	Retained
LP377	Lepiderema pulchella	1	2.3m	Retained
LP378	Lepiderema pulchella	1	3m	Retained

ID	Species	Count	Height	Retained / Removed
LP379	Lepiderema pulchella	3	4m & 2x 2m	Retained
LP380	Lepiderema pulchella	5	5x 2-3m	Retained
LP381	Lepiderema pulchella	2	2x 2m	Retained
LP382	Lepiderema pulchella	2	2x 1 8m	Retained
LP383	Lepiderema pulchella	1	2 2m	Retained
LP384	Lepiderema pulchella	3	5m ft 2x 2m	Retained
LP385	Lepiderema pulchella	1	1 9m	Retained
LP386	Lepiderema pulchella	1	2m	Retained
LP387	Lepiderema pulchella	4	4x 2 5m	Retained
LP388	Lepiderema pulchella	1	5m	Retained
LP389	Lepiderema pulchella	3	4m x 2x 2m	Retained
LP390	Lepiderema pulchella	4	4x 2-3m	Retained
LP391	Lepiderema pulchella	1	2 4m	Retained
LP392	Lepiderema pulchella	4	6m ft 3x 2-3m	Retained
LP393	Lepiderema pulchella	3	3x 2-3m	Retained
LP394	Lepiderema pulchella	1	3.5m	Retained
LP395	Lepiderema pulchella	4	4x 2-4m	Retained
LP396	Lepiderema pulchella	2	2m & 0.8m	Retained
LP397	Lepiderema pulchella	4	4x 1 5-3m	Retained
LP398	Lepiderema pulchella	5	5x 1 5-2m	Retained
LP399	Lepiderema pulchella	10	10x 1-2m	Retained
LP400	Lepiderema pulchella	5	5x 2-5m	Retained
LP401	Lepiderema pulchella	6	6x 1-2m	Retained
LP402	Lepiderema pulchella	6	6x 2-3m	Retained
LP403	Lepiderema pulchella	7	7x 1.5-2.5m	Retained
LP404	Lepiderema pulchella	4	4x 2-3m	Retained
LP405	Lepiderema pulchella	4	1.8m & 3x seedling	Retained
LP406	Lepiderema pulchella	1	2.1m	Retained
LP407	Lepiderema pulchella	20	20x 1-2.5m	Retained
LP408	Lepiderema pulchella	4	4x 1.5-3m	Retained
LP409	Lepiderema pulchella	4	4x 1-3m	Retained
LP410	Lepiderema pulchella	6	6x 2-5m	Retained
LP411	Lepiderema pulchella	6	6x 2m	Retained
LP412	Lepiderema pulchella	4	4x 1-4m	Retained
LP413	Lepiderema pulchella	1	2m	Retained
LP414	Lepiderema pulchella	2	2x 2m	Retained
LP415	Lepiderema pulchella	1	3m	Removed
LP416	Lepiderema pulchella	5	4m & 2m & 3x <1m	Removed
LP417	Lepiderema pulchella	2	2x 3-4m	Removed
LP418	Lepiderema pulchella	6	2.5m & 2x 1.8m & 3x <1m	Removed
LP419	Lepiderema pulchella	2	4m & 1.5m	Retained
LP420	Lepiderema pulchella	1	1.6 m	Retained
LP421	Lepiderema pulchella	4	2x 5m & 2x 2m	Retained

ID	Species	Count	Height	Retained / Removed
LP422	Lepiderema pulchella	1	3m	Retained
LP423	Lepiderema pulchella	2	4m & 2x 2m	Retained
LP424	Lepiderema pulchella	3	2x 2m & 1 2m	Retained
LP425	Lepiderema pulchella	1	3 m	Retained
LP426	Lepiderema pulchella	4	4x 1-2m	Retained
LP427	Lepiderema pulchella	2	3m & 1.8m	Retained
LP428	Lepiderema pulchella	1	4m	Retained
LP429	Lepiderema pulchella	1	4.5 m	Retained
LP430	Lepiderema pulchella	4	4x seedling	Retained
LP431	Lepiderema pulchella	2	2x 5m	Retained
LP432	Lepiderema pulchella	2	5m & 2m	Retained
LP433	Lepiderema pulchella	3	3x<2m	Retained
LP434	Lepiderema pulchella	21	10m & 20x <2m	Retained
LP435	Lepiderema pulchella	6	5m & 5x <2m	Retained
LP436	Lepiderema pulchella	2	2x 1.9m	Retained
LP437	Lepiderema pulchella	7	7x 2-3m	Retained
LP438	Lepiderema pulchella	5	5x 1-2m	Retained
LP439	Lepiderema pulchella	20	20x <2m	Retained
LP440	Lepiderema pulchella	11	12m & 10x <2m	Retained
LP441	Lepiderema pulchella	1	10m	Retained
LP442	Lepiderema pulchella	10	10x <2m	Retained
LP443	Lepiderema pulchella	5	5x	Retained
LP444	Lepiderema pulchella	6	3m & 5x <2m	Retained
LP445	Lepiderema pulchella	4	4m & 3x <2m	Retained
LP446	Lepiderema pulchella	11	3.5m &10x < 2m	Retained
LP447	Lepiderema pulchella	1	2m	Retained
LP448	Lepiderema pulchella	2	3m & 2m	Retained
LP449	Lepiderema pulchella	2	2x 1.9m	Retained
LP450	Lepiderema pulchella	7	4m & 6x <2m	Retained
LP451	Lepiderema pulchella	7	10m & 6m & 5x <2m	Retained
LP452	Lepiderema pulchella	4	4x 2-4m	Retained
LP453	Lepiderema pulchella	3	3x<2m	Retained
LP454	Lepiderema pulchella	5	5x <2m	Retained
LP455	Lepiderema pulchella	15	15x <2m	Retained
LP456	Lepiderema pulchella	6	3m & 5x <1.2m	Retained
LP457	Lepiderema pulchella	9	3x 2m & 6x <2m	Retained
LP458	Lepiderema pulchella	5	2x 1.8m & 3x <1m	Removed
LP459	Lepiderema pulchella	5	5x <2m	Removed
LP460	Lepiderema pulchella	12	12x 1-3m	Removed
LP461	Lepiderema pulchella	7	7x 1-4m	Removed
LP462	Lepiderema pulchella	10	10x 1-3m	Removed
LP463	Lepiderema pulchella	15	15x 1-3m	Removed
LP464	Lepiderema pulchella	10	10x 1-2m	Removed

ID	Species	Count	Height	Retained / Removed
LP465	Lepiderema pulchella	5	5x 1-2m	Removed
LP466	Lepiderema pulchella	5	5x 1-2m	Removed
LP467	Lepiderema pulchella	20	20x 1-3m	Removed
LP468	Lepiderema pulchella	6	6x 1-2m	Removed
LP469	Lepiderema pulchella	8	8x 1-2m	Removed
LP470	Lepiderema pulchella	7	7x <1.5m	Retained
LP471	Lepiderema pulchella	6	6x <1.5m	Retained
LP472	Lepiderema pulchella	4	4x 1-2m	Retained
LP473	Lepiderema pulchella	5	5x 1-2m	Retained
LP474	Lepiderema pulchella	5	5x 1-3m	Retained
LP475	Lepiderema pulchella	4	10m & 3x 1-2m	Retained
LP476	Lepiderema pulchella	8	2x 8m ft 6x 1-2m	Retained
LP477	Lepiderema pulchella	3	3x 1.5-2m	Retained
LP478	Lepiderema pulchella	6	6x 1-2m	Retained
LP479	Lepiderema pulchella	5	5x 1-2m	Retained
LP480	Lepiderema pulchella	12	12x 1-3m	Retained
LP481	Lepiderema pulchella	2	2x 2.5m	Retained
LP482	Lepiderema pulchella	3	3x 1-2m	Retained
LP483	Lepiderema pulchella	3	3x 1-2m	Retained
LP484	Lepiderema pulchella	5	5x 1-2m	Retained
LP485	Lepiderema pulchella	4	4x 1-3m	Retained
LP486	Lepiderema pulchella	2	1.8m & 1.5m	Removed
LP487	Lepiderema pulchella	1	1m	Retained
LP488	Lepiderema pulchella	5	5x 1-2m	Retained
LP489	Lepiderema pulchella	4	1.7m & 3x <1m	Retained
LP490	Lepiderema pulchella	30	20x 1-2m & 10x <1m	Retained
LP491	Lepiderema pulchella	2	2x 2m	Removed
LP492	Lepiderema pulchella	1	3m	Removed
LP493	Lepiderema pulchella	3	3x seedling	Removed
LP494	Lepiderema pulchella	6	2m & 5x seedling	Removed
LP495	Lepiderema pulchella	2	2m & 1m	Removed
LP496	Lepiderema pulchella	13	7x 2-4m & 6x <1.5m	Retained
LP497	Lepiderema pulchella	1	1.5m	Retained
LP498	Lepiderema pulchella	4	5m & 3x 2m	Retained
LP499	Lepiderema pulchella	1		Removed
LP500	Lepiderema pulchella	1	1m	Retained
LP501	Lepiderema pulchella	1	1m	Retained
LP502	Lepiderema pulchella	3	3x 1-3m	Removed
LP503	Lepiderema pulchella	1	3.4m	Removed
LP504	Lepiderema pulchella	1	2m	Retained
LP505	Lepiderema pulchella	3	2m & 2x 2m	Retained
LP506	Lepiderema pulchella	2	2x 10m	Retained
LP507	Lepiderema pulchella	2	5m & 6m	Retained

ID	Species	Count	Height	Retained / Removed
LP508	Lepiderema pulchella	1	5m	Removed
LP509	Lepiderema pulchella	1	0.5m	Retained
LP510	Lepiderema pulchella	1	1m	Retained
LP511	Lepiderema pulchella	1	1 5m	Retained
LP512	Lepiderema pulchella	8	10m & 7x <1m	Retained
LP513	Lepiderema pulchella	3	3x 0 5m	Retained
LP514	Lepiderema pulchella	1	1 5m	Retained
LP515	Lepiderema pulchella	1	6m	Retained
LP516	Lepiderema pulchella	1	1 5m	Retained
LP517	Lepiderema pulchella	2	2x 0.8m	Retained
LP518	Lepiderema pulchella	1	3m	Retained
LP519	Lepiderema pulchella	1	2 5m	Retained
LP520	Lepiderema pulchella	1	2.5m	Retained
LP521	Lepiderema pulchella	1	5m	Retained
LP522	Lepiderema pulchella	1	0.3m	Retained
LP523	Lepiderema pulchella	1	8m	Retained
L P524	Lepiderema pulchella	6	4m & 5x <2m	Retained
LP525	Lepiderema pulchella	<u> </u>	3v 2m	Retained
LP526	Lepiderema pulchella	1	1 6m	Retained
LP527	Lepiderema pulchella	1	1.0m	Retained
LP529	Lepiderema pulchella	1	2m	Retained
LP530	Lepiderema pulchella	2	12m & 8m	Retained
LP531	Lepiderema pulchella	1	4m	Retained
LP532	Lepiderema pulchella	1	1 8m	Retained
LP533	Lepiderema pulchella	1	0.5m	Retained
LP534	Lepiderema pulchella	1	0.5m	Retained
LP535	Lepiderema pulchella	1	2m	Retained
LP536	Lepiderema pulchella	2	1 7m & 1m	Retained
LP537	Lepiderema pulchella	2	5m & 2,1m	Retained
LP538	Lepiderema pulchella	1	1m	Retained
LP539	Lepiderema pulchella	2	2x 1.2m	Retained
LP540	Lepiderema pulchella	1	2m	Retained
LP541	Lepiderema pulchella	1	1.5m	Retained
LP542	Lepiderema pulchella	2	4m & 1.5m	Retained
LP543	Lepiderema pulchella	2	3m & 1.5	Retained
LP544	Lepiderema pulchella	2	3m & 2m	Retained
LP545	Lepiderema pulchella	2	4.5m & 2m	Retained
LP546	Lepiderema pulchella	1	1.7m	Retained
LP547	Lepiderema pulchella	1	2.2m	Retained
LP548	Lepiderema pulchella	11	4m & 10x < 2m	Retained
LP549	Lepiderema pulchella	1	1m	Retained
LP550	Lepiderema pulchella	1	1.5m	Retained
LP551	Lepiderema pulchella	1	1.5m	Retained

חו	Species	Count	Height	Retained / Removed
1 P552	Lonidoroma nulchalla			Betained
L D552			5X <2111	Retained
1 0554		0 E	0X <2111	Retained
		<u>р</u>	58 < 2111	Retained
	Lepiderema pulchella	5	5X <2m	Retained
	Lepiderema pulchella	1	2m	Retained
	Lepiderema pulchella	2	<u>2x <2m</u>	Retained
LP558	Lepiderema pulchella	2	2x <2m	Retained
LP559	Lepiderema pulchella	2	2x 1.5m	Retained
LP560	Lepiderema pulchella	1	2.3m	Retained
LP561	Lepiderema pulchella	1	8m	Retained
LP562	Lepiderema pulchella	2	2x 2.2m	Retained
LP563	Lepiderema pulchella	2	2x <1m	Retained
LP564	Lepiderema pulchella	1	10m	Retained
LP565	Lepiderema pulchella	1	3m	Retained
LP566	Lepiderema pulchella	1	1.6m	Retained
LP567	Lepiderema pulchella	1	0.5m	Retained
LP568	Lepiderema pulchella	1	1.2m	Retained
LP569	Lepiderema pulchella	1	0.6m	Retained
LP570	Lepiderema pulchella	1	1.5m	Retained
LP571	Lepiderema pulchella	2	2x <2m	Retained
LP572	Lepiderema pulchella	1	2.5m	Retained
LP573	Lepiderema pulchella	1	1m	Retained
LP574	Lepiderema pulchella	1	1m	Retained
LP575	Lepiderema pulchella	1	1.8m	Retained
LP576	Lepiderema pulchella	1	2m	Retained
LP577	Lepiderema pulchella	2	1.5m & 1m	Retained
LP578	Lepiderema pulchella	1	2.5m	Retained
LP579	Lepiderema pulchella	1	1.3m	Retained
LP580	Lepiderema pulchella	1	1.8m	Retained
LP581	Lepiderema pulchella	1	1.5m	Retained
LP582	Lepiderema pulchella	1	2m	Retained
LP583	Lepiderema pulchella	1	5m	Retained
LP584	Lepiderema pulchella	1	2.5m	Retained
LP585	Lepiderema pulchella	5	5x <2m	Retained
LP586	Lepiderema pulchella	3	3x <2m	Retained
LP587	Lepiderema pulchella	1	4m	Retained
LP588	Lepiderema pulchella	5	4m & 4x <2m	Retained
LP589	Lepiderema pulchella	1	2m	Retained
LP590	Lepiderema pulchella	4	2.3m & 3x <1m	Retained
LP591	Lepiderema pulchella	10	10x <7.5m	Retained
LP592	Lepiderema pulchella	4	4m & 3x <2m	Retained
LP593	Lepiderema nulchella	1	1 7m	Retained
LP594	Lepiderema pulchella	1		Retained
				Retained
ID	Species	Count	Height	Retained / Removed
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LP595	Lepiderema pulchella	5	5x <2m	Retained
LP596	Lepiderema pulchella	1	2m	Retained
LP597	Lepiderema pulchella	1	 1m	Retained
LP598	Lepiderema pulchella	1	5m	Retained
LP599	Lepiderema pulchella	1	3m	Retained
LP600	Lepiderema pulchella	1	2m	Retained
LP601	Lepiderema pulchella	1	2m	Retained
LP602	Lepiderema pulchella	1	0.3m	Removed
LP603	Lepiderema pulchella	1	4m	Removed
LP604	Lepiderema pulchella	1	2m	Removed
LP605	Lepiderema pulchella	1	0.5m	Removed
LP606	Lepiderema pulchella	1	0.1m	Retained
LP607	Lepiderema pulchella	1	1.5m	Retained
LP608	Lepiderema pulchella	1	1.5m	Retained
LP609	Lepiderema pulchella	3	3x 2m	Retained
LP610	Lepiderema pulchella	2	2x 2m	Retained
LP611	Lepiderema pulchella	1	1.5m	Retained
LP612	Lepiderema pulchella	1	1.5m	Retained
LP613	Lepiderema pulchella	1	3.5m	Retained
LP614	Lepiderema pulchella	1	1.2m	Retained
LP615	Lepiderema pulchella	1	2m	Retained
LP616	Lepiderema pulchella	1	4m	Retained
LP617	Lepiderema pulchella	2	2x 2m	Retained
LP618	Lepiderema pulchella	1	18m	Retained
LP619	Lepiderema pulchella	2	3m & 1.5m	Retained
LP620	Lepiderema pulchella	15	18m & 16m & 2x 3m & 2m & 1.5m & 9x 0.5m	Retained
LP621	Lepiderema pulchella	5	5x 2.5m	Retained
LP622	Lepiderema pulchella	2	3.5m & 1.5m	Retained
LP623	Lepiderema pulchella	1	1m	Retained
LP624	Lepiderema pulchella	1	2m	Retained
LP625	Lepiderema pulchella	2	2x 1m	Retained
LP626	Lepiderema pulchella	1	4m	Retained
LP627	Lepiderema pulchella	1	2m	Retained
LP628	Lepiderema pulchella	5	5x 3m	Retained
LP629	Lepiderema pulchella	1	1m	Retained
LP630	Lepiderema pulchella	1	3m	Retained
LP631	Lepiderema pulchella	1	2m	Retained
LP632	Lepiderema pulchella	1	2.5m	Retained
LP633	Lepiderema pulchella	1	5.5m	Retained
LP634	Lepiderema pulchella	1	2m	Retained
LP635	Lepiderema pulchella	2	1m & 0.5m	Retained
LP636	Lepiderema pulchella	1	1m	Retained

П	Species	Count	Height	Retained / Removed
L P637		1	1.5m	Retained
L P638		1	1.5111 2m	Retained
1 050		1	3111	Retained
			11m	Retained
	Lepiderema pulchella	1	9m	Retained
LP041	Lepiderema pulchella	1	2m	Retained
	Lepiderema pulchella	1	<u>6m</u>	Retained
	Lepiderema pulchella	1	1m	Retained
	Lepiderema pulchella	1	<u>2m</u>	Retained
LP645	Lepiderema pulchella	1	4m	Retained
LP646	Lepiderema pulchella	1	2.5m	Retained
LP647	Lepiderema pulchella	3	3m & 2m & 1.5m	Retained
LP648	Lepiderema pulchella	1	1.5m	Retained
LP649	Lepiderema pulchella	1	2m	Retained
LP650	Lepiderema pulchella	2	2x 2m	Retained
LP651	Lepiderema pulchella	4	3x 2m & 1.5m	Retained
LP652	Lepiderema pulchella	1	1.5m	Retained
LP653	Lepiderema pulchella	1	4m	Retained
LP654	Lepiderema pulchella	1	1.5m	Retained
LP655	Lepiderema pulchella	2	6m & 4m	Retained
LP656	Lepiderema pulchella	2	3m & 1m	Retained
LP657	Lepiderema pulchella	1	1m	Retained
LP658	Lepiderema pulchella	1	1.5m	Retained
LP659	Lepiderema pulchella	1	3m	Retained
LP660	Lepiderema pulchella	2	11m & 1.5m	Retained
LP661	Lepiderema pulchella	1	1.5m	Retained
LP662	Lepiderema pulchella	2	3m & 1.5m	Retained
LP663	Lepiderema pulchella	1	1m	Retained
LP664	Lepiderema pulchella	1	4m	Retained
LP665	Lepiderema pulchella	1	1.5m	Retained
LP666	Lepiderema pulchella	2	2x 1.5m	Retained
LP667	Lepiderema pulchella	4	2x 2m & 2x 1.5m	Retained
LP668	Lepiderema pulchella	2	3.5m & 2m	Retained
LP669	Lepiderema pulchella	1	1m	Retained
LP670	Lepiderema pulchella	2	10m & 4m	Retained
LP671	Lepiderema pulchella	1	1.5m	Retained
LP672	Lepiderema pulchella	2	1m & 0.5m	Retained
LP673	Lepiderema pulchella	1	1m	Retained
LP674	Lepiderema pulchella	2	1.7m & 0.3m	Retained
LP675	l epiderema pulchella	1	2m	Retained
LP676	l epiderema nulchella	1	 1m	Retained
LP677	Leniderema pulchella	1	1 7m	Retained
LP678	Leniderema nulchella	1	2 2m	Retained
LP679	l epiderema nulchella	1	0.5m	Retained

ID	Species	Count	Height	Retained / Removed
L P680		1	2.5m	Retained
L P681		1	2.5III	Retained
L 001		1	3:3111	Retained
1 0683			2111	Retained
	Lepiderema pulchella	1	1m	Retained
	Lepiderema pulchella	1	<u> </u>	Retained
	Lepiderema pulchella	2	2x 4.5m	Retained
	Lepiderema pulchella	1	3.5m	Retained
LP687	Lepiderema pulchella	1	3.5m	Retained
LP688	Lepiderema pulchella	1	2.5m	Retained
LP689	Lepiderema pulchella	1	2.5m	Removed
LP690	Lepiderema pulchella	1	1.2m	Retained
LP691	Lepiderema pulchella	1	1.7m	Removed
LP692	Lepiderema pulchella	1	1.7m	Retained
LP693	Lepiderema pulchella	1	9m	Retained
LP694	Lepiderema pulchella	2	3.5m & 2.5m	Retained
LP695	Lepiderema pulchella	1	2m	Retained
LP696	Lepiderema pulchella	1	1.3m	Retained
LP697	Lepiderema pulchella	1	1.5m	Retained
LP698	Lepiderema pulchella	1	0.1m	Retained
LP699	Lepiderema pulchella	1	1.1m	Retained
LP700	Lepiderema pulchella	1	1.6m	Retained
LP701	Lepiderema pulchella	2	2m & 1.2m	Retained
LP702	Lepiderema pulchella	2	1.5m & 1.4m	Retained
LP703	Lepiderema pulchella	2	1.8m & 0.3m	Retained
LP704	Lepiderema pulchella	2	2.5m & 1m	Retained
LP705	Lepiderema pulchella	2	3.5m & 2m	Retained
LP706	Lepiderema pulchella	2	5m & 1.5m	Retained
LP707	Lepiderema pulchella	2	2m & 1m	Retained
LP708	Lepiderema pulchella	1	2.5m	Retained
LP709	Lepiderema pulchella	1	2.6m	Retained
LP710	Lepiderema pulchella	1	2m	Retained
LP711	Lepiderema pulchella	1	3.8m	Retained
LP712	Lepiderema pulchella	4	3m & 2m & 2x 1m	Retained
LP713	Lepiderema pulchella	4	4m & 3.5m & 3m & 2m	Retained
LP714	Lepiderema pulchella	1	0.5m	Retained
LP715	Lepiderema pulchella	2	9m & 6.5m	Retained
LP716	Lepiderema pulchella	1	0.6m	Retained
LP717	Lepiderema pulchella	1	0.3m	Retained
LP718	Lepiderema pulchella	1	1.4m	Retained
LP719	Lepiderema pulchella	2	2x 0.15m	Retained
LP720	Lepiderema pulchella	1	1 6m	Retained
LP721	Lepiderema nulchella	1	1m	Retained
LP722	Lepiderema pulchella	1	2m	Retained

ID	Species	Count	Height	Retained / Removed
LP723	Lepiderema pulchella	1	1.2m	Retained
LP724	Lepiderema pulchella	1	1.4m	Retained
LP725	Lepiderema pulchella	1	1.5m	Retained
LP726	Lepiderema pulchella	1	1.5m	Retained
LP727	Lepiderema pulchella	1	1.7m	Retained
LP728	Lepiderema pulchella	1	1.8m	Retained
LP729	Lepiderema pulchella	1	1.8m	Retained
LP730	Lepiderema pulchella	1	10m	Retained
LP731	Lepiderema pulchella	1	0.15m	Retained
LP732	Lepiderema pulchella	2	1.5m & 0.5m	Retained
LP733	Lepiderema pulchella	2	2m & 1.9m	Retained
LP734	Lepiderema pulchella	2	2.5m & 2m	Retained
LP735	Lepiderema pulchella	2	3m & 2.5m	Retained
LP736	Lepiderema pulchella	2	2x 1.9m	Retained
LP737	Lepiderema pulchella	1	2m	Retained
LP738	Lepiderema pulchella	1	2m	Retained
LP739	Lepiderema pulchella	3	1.8m & 1.2m & 1m	Retained
LP740	Lepiderema pulchella	3	1.9m & 1.7m & 0.4m	Retained
LP741	Lepiderema pulchella	1	0.3m	Retained
LP742	Lepiderema pulchella	4	4m & 1.9m & 1.5m & 0.5m	Retained
LP743	Lepiderema pulchella	4	2m & 1.4m & 1.2m 1.1m	Retained
LP744	Lepiderema pulchella	1	4m	Retained
LP745	Lepiderema pulchella	1	0.5m	Retained
LP746	Lepiderema pulchella	6	2.3m & 1.8m & 2x 1.6m & 1.2m & 0.5m	Retained
LP747	Lepiderema pulchella	1	0.6m	Retained
LP748	Lepiderema pulchella	1	7m	Retained
LP749	Lepiderema pulchella	1	2m	Retained
LP750	Lepiderema pulchella	2	1.5m & 1m	Removed
LP751	Lepiderema pulchella	1	2.5m	Removed
LP752	Lepiderema pulchella	10	10 x 1-3m	Removed
LP753	Lepiderema pulchella	1	1m	Retained
LP754	Lepiderema pulchella	1	1.2m	Retained
LP755	Lepiderema pulchella	2	2m & 1.5m	Removed
MT001	Macadamia tetraphylla	2	4m & 2m	Retained
MT002	Macadamia tetraphylla	1	2.5m	Retained
MT003	Macadamia tetraphylla	1	3m	Retained
MT004	Macadamia tetraphylla	1	0.5m	Retained
MT005	Macadamia tetraphylla	1	1m	Retained
MT006	Macadamia tetraphylla	1	2.5m	Retained
MT007	Macadamia tetraphylla	1	2m	Retained
MT008	Macadamia tetraphylla	1	18m	Retained
MT009	Macadamia tetraphylla	1	1.5m	Retained

ID	Species	Count	Height	Retained / Removed
MT010	Macadamia tetraphylla	1	2m	Retained
MT011	Macadamia tetraphylla	2	7m & 3.5m	Retained
MT012	Macadamia tetraphylla	4	3x 2m & 1m	Retained
MT013	Macadamia tetraphylla	4	2x 4m & 9m & 0.5m	Retained
MT014	Macadamia tetraphylla	1	12m	Retained
MT015	Macadamia tetraphylla	1	0.5m	Retained
MT016	Macadamia tetraphylla	1	2m	Retained
MT017	Macadamia tetraphylla	1	5m	Retained
MT018	Macadamia tetraphylla	3	3x 1.5m	Retained
MT019	Macadamia tetraphylla	1	2m	Retained
MT020	Macadamia tetraphylla	1	2.5m	Retained
MT021	Macadamia tetraphylla	1	3m	Retained
MT022	Macadamia tetraphylla	1	3m	Retained
MT023	Macadamia tetraphylla	1	5.5m	Retained
MT024	Macadamia tetraphylla	5	4x 3m & 12m	Retained
MT025	Macadamia tetraphylla	3	6m & 2m & 10m	Retained
MT026	Macadamia tetraphylla	2	2x 12m	Retained
MT027	Macadamia tetraphylla	1	20m	Retained
MT028	Macadamia tetraphylla	2	6m & 8m	Retained
MT029	Macadamia tetraphylla	4	4x 1m	Retained
MT030	Macadamia tetraphylla	2	6m & 5m	Retained
MT031	Macadamia tetraphylla	2	1.5m & 3m	Retained
MT032	Macadamia tetraphylla	1	2m	Retained
MT033	Macadamia tetraphylla	1	16m	Retained
MT034	Macadamia tetraphylla	2	12m & 2m	Retained
MT035	Macadamia tetraphylla	2	6m & 2m	Retained
MT036	Macadamia tetraphylla	5	3m & 2x 2m & 3m & 1.5m	Retained
MT037	Macadamia tetraphylla	1	30cm	Retained
MT038	Macadamia tetraphylla	2	2x 1m	Retained
MT039	Macadamia tetraphylla	1	3m	Retained
MT040	Macadamia tetraphylla	1	10m	Retained
MT041	Macadamia tetraphylla	3	8m & 7m & 2m	Retained
MT042	Macadamia tetraphylla	5	5m & 7m & 1m & 3m & 10m	Retained
MT043	Macadamia tetraphylla	9	14m & 6x 2m & 4m & 3m	Retained
MT044	Macadamia tetraphylla	2	4m & 10m	Retained
MT045	Macadamia tetraphylla	2	12m & 8m	Retained
MT046	Macadamia tetraphylla	7	20m & 2m & 2x 5m & 1m & 2x 3m	Retained
MT047	Macadamia tetraphylla	2	4m & 1.5m	Retained
MT048	Macadamia tetraphylla	5	3m & 1m & 3x 0.5m	Retained
MT049	Macadamia tetraphylla	1	6m	Retained
MT050	Macadamia tetraphylla	1	5m	Retained
MT051	Macadamia tetraphylla	2	1m & 0.6m	Retained

ID	Species	Count	Height	Retained / Removed
MT052	Macadamia tetraphylla	1	1m	Retained
MT053	Macadamia tetraphylla	1	6m	Retained
MT054	Macadamia tetraphylla	1	0.5m	Retained
MT054	Macadamia tetraphylla	1	2.5m	Retained
MT056	Macadamia tetraphylla	1	3m	Retained
MT057	Macadamia tetraphylla	6	14m & 5x seedling	Potained
MT057	Macadamia tetraphylla	1	1 5m	Retained
MT050	Macadamia tetraphylla	1	2	Retained
MT059	Macadamia tetraphylla	1	2111 8m & 4m & 3m & 2m	Retained
MT060		4		Retained
MT001	Macadamia tetraphylla	1	/m 5m % 12v 1m	Retained
M1062		13		Retained
M1063	Macadamia tetraphylla	4	3m & 1m & 2x seedling	Retained
M1004	Macadamia tetraphylla	1	4m	Retained
MT065	Macadamia tetraphylla	1	3.5m	Retained
MT066	Macadamia tetraphylla	4	4m & 1m & 2 seedling	Retained
M1067	Macadamia tetraphylla	1	5m	Retained
MT068	Macadamia tetraphylla	1	5m	Retained
MT069	Macadamia tetraphylla	3	5m & 2x 1m	Retained
MT070	Macadamia tetraphylla	24	15m & 3x 5m & 20x seedling	Retained
MT071	Macadamia tetraphylla	1	4m	Retained
MT072	Macadamia tetraphylla	1	9m	Retained
MT073	Macadamia tetraphylla	1	10m (multi-stem)	Retained
MT074	Macadamia tetraphylla	1	5m	Retained
MT075	Macadamia tetraphylla	2	2x 2m	Retained
MT076	Macadamia tetraphylla	1	8m	Retained
MT077	Macadamia tetraphylla	1	6m	Retained
MT078	Macadamia tetraphylla	13	10m & 2x 3m & 10x seedling	Retained
MT079	Macadamia tetraphylla	9	3x 1m & 6x seedling	Retained
MT080	Macadamia tetraphylla	7	14m & 6x seedling	Retained
MT081	Macadamia tetraphylla	1	1.5m	Retained
MT082	Macadamia tetraphylla	1	1.5m	Retained
MT083	Macadamia tetraphylla	1	2.5m	Retained
MT084	Macadamia tetraphylla	1	1m	Retained
MT085	Macadamia tetraphylla	1	3.5m	Retained
MT086	Macadamia tetraphylla	2	2x 2m	Retained
MT087	Macadamia tetraphylla	1	5m	Retained
MT088	Macadamia tetraphylla	1	1.5m	Retained
MT089	Macadamia tetraphylla	1	1m	Retained
MT090	Macadamia tetraphylla	2	2x seedling	Retained
MT091	Macadamia tetraphylla	1		Retained
MT092	Macadamia tetraphylla	2	1.5m & 1m	Retained
MT093	Macadamia tetraphylla	5	4m & 4x 1m	Retained
MT094	Macadamia tetraphylla	2	2.5m & 2m	Retained

ID	Species	Count	Height	Retained / Removed
MT095	Macadamia tetraphylla	4	3.5m & 1.5m & 2x 1m	Retained
MT096	Macadamia tetraphylla	1	12m (Multi-stem)	Retained
MT097	Macadamia tetraphylla	1	8m	Retained
MT098	Macadamia tetraphylla	1	3m	Retained
MT099	Macadamia tetraphylla	2	3m & 1m	Retained
MT100	Macadamia tetraphylla	1	0.5m	Retained
MT101	Macadamia tetraphylla	1	1.5m	Retained
MT102	Macadamia tetraphylla	1	2m	Retained
MT103	Macadamia tetraphylla	2	12m & 1x seedling	Retained
MT104	Macadamia tetraphylla	1	3m	Retained
MT105	Macadamia tetraphylla	1	5m	Retained
MT106	Macadamia tetraphylla	1	1m	Retained
MT107	Macadamia tetraphylla	1	0.3m	Retained
MT108	Macadamia tetraphylla	5	5x 1m	Retained
MT109	Macadamia tetraphylla	12	2m & 11x 1m	Retained
MT110	Macadamia tetraphylla	1	5.5m	Retained
MT111	Macadamia tetraphylla	1	6m	Retained
MT112	Macadamia tetraphylla	1	sapling	Removed
MT113	Macadamia tetraphylla	1	8m	Removed
MT114	Macadamia tetraphylla	2	2x 3m	Removed
MT115	Macadamia tetraphylla	1	sapling	Retained
MT116	Macadamia tetraphylla	1	2m	Removed
MT117	Macadamia tetraphylla	3	2x 2m & 1x 3m	Removed
MT118	Macadamia tetraphylla	3	3x 1.5m	Removed
MT119	Macadamia tetraphylla	5	5x	Removed
MT120	Macadamia tetraphylla	2	2x 8m	Removed
MT121	Macadamia tetraphylla	2	10m & 2m	Retained
MT122	Macadamia tetraphylla	1	6m	Retained
MT123	Macadamia tetraphylla	1	1m sapling	Retained
MT124	Macadamia tetraphylla	3	2x & 2m	Retained
MT125	Macadamia tetraphylla	13	7x 3m & 5x 2m	Retained
MT126	Macadamia tetraphylla	8	2x 5m & 6x 2m	Retained
MT127	Macadamia tetraphylla	6	6x 5m	Retained
MT128	Macadamia tetraphylla	1	6m	Retained
MT129	Macadamia tetraphylla	2	2x 4m	Retained
MT130	Macadamia tetraphylla	1	<u>3m</u>	Removed
MT131	Macadamia tetraphylla	3	2x 6m & 4m	Removed
MT132	Macadamia tetraphylla	2	2x 4m	Removed
MT133	Macadamia tetraphylla	6	10m & 5x <3m	Removed
MT134	Macadamia tetraphylla	4	6m & 3x sapling	Removed
MT135	Macadamia tetraphylla	3	2m & seedling	Removed
MT136	Macadamia tetraphylla	5	8m & 4x <3m	Retained
MT137	Macadamia tetraphylla	3	3x 4m	Retained

ID	Species	Count	Height	Retained / Removed
MT138	Macadamia tetraphylla	4	4x 4m	Retained
MT139	Macadamia tetraphylla	1	2m	Retained
MT140	Macadamia tetraphylla	3	2x 4m & 1x 2m	Retained
MT141	Macadamia tetraphylla	1	3m	Retained
MT142	Macadamia tetraphylla	1	4m	Retained
MT143	Macadamia tetraphylla	1	2m	Retained
MT144	Macadamia tetraphylla	1	5m	Retained
MT145	Macadamia tetraphylla	1	3m	Retained
MT146	Macadamia tetraphylla	6	2x 4m & 4x 2m	Removed
MT147	Macadamia tetraphylla	1	seedling	Retained
MT148	Macadamia tetraphylla	4	4m	Retained
MT149	Macadamia tetraphylla	2	2x seedling	Retained
MT150	Macadamia tetraphylla	2	2x 6m	Retained
MT151	Macadamia tetraphylla	2	2x 6m	Retained
MT152	Macadamia tetraphylla	5	3x 6m & 2x 4m	Retained
MT153	Macadamia tetraphylla	1	3.5m	Retained
MT154	Macadamia tetraphylla	3	4m & 2.5m & 2m	Retained
MT155	Macadamia tetraphylla	1	2m	Retained
MT156	Macadamia tetraphylla	5	4.5m & 3x 2m & 1x 1m	Retained
MT157	Macadamia tetraphylla	1	3.2m	Retained
MT158	Macadamia tetraphylla	5	5x <2m	Retained
MT159	Macadamia tetraphylla	10	5x 2-4m & 5x <1m	Retained
MT160	Macadamia tetraphylla	16	4x 3-5m & 12x <1m	Retained
MT161	Macadamia tetraphylla	3	4m & 2x 2m	Retained
MT162	Macadamia tetraphylla	4	3x 5.5m & 1x1m	Retained
MT163	Macadamia tetraphylla	2	4m & 2.5m	Retained
MT164	Macadamia tetraphylla	4	2x 8m & 2x 2m	Retained
MT165	Macadamia tetraphylla	10	10x 2-5m	Retained
MT166	Macadamia tetraphylla	7	2x 6m & 5x <3m	Retained
MT167	Macadamia tetraphylla	6	8m & 2x 6m & 3x <3m	Retained
MT168	Macadamia tetraphylla	16	5m & 15x 2-3m	Retained
MT169	Macadamia tetraphylla	1	3.5m	Retained
MT170	Macadamia tetraphylla	2	5m & 4m	Retained
MT171	Macadamia tetraphylla	3	10m & 2x 2m	Retained
MT172	Macadamia tetraphylla	3	3x 3-5m	Retained
MT173	Macadamia tetraphylla	2	8m & 1m	Retained
MT174	Macadamia tetraphylla	10	10x 1-3m	Retained
MT175	Macadamia tetraphylla	1	5m	Retained
MT176	Macadamia tetraphylla	1	5m	Retained
MT177	Macadamia tetraphylla	3	3.5m & 2x 1.5m	Retained
MT178	Macadamia tetraphylla	1	5.5m	Retained
MT179	Macadamia tetraphylla	1	2.5m	Retained
MT180	Macadamia tetraphylla	1	1.6m	Retained

ID	Species	Count	Height	Retained / Removed
MT181	Macadamia tetraphylla	1	1.2m	Retained
MT182	Macadamia tetraphylla	1	1.8m	Retained
MT183	Macadamia tetraphylla	2	7m & 2,5m	Retained
MT184	Macadamia tetraphylla	1	2m	Retained
MT185	Macadamia tetraphylla	1	6m	Retained
MT186	Macadamia tetraphylla	1	1.5m	Retained
MT187	Macadamia tetraphylla	2	5m & 2m	Retained
MT188	Macadamia tetraphylla	1	8m	Retained
MT189	Macadamia tetraphylla	1	2.1m	Retained
MT190	Macadamia tetraphylla	3	7m & 5m & 2m	Retained
MT191	Macadamia tetraphylla	1	5m	Retained
MT192	Macadamia tetraphylla	1		Retained
MT193	Macadamia tetraphylla	1		Retained
MT194	Macadamia tetraphylla	2	2x 3.5m	Retained
MT195	Macadamia tetraphylla	1	2m	Retained
MT196	Macadamia tetraphylla	3	6m & 3m	Retained
MT197	Macadamia tetraphylla	3	6m & 4m & 2m	Retained
MT198	Macadamia tetraphylla	12	12x 1-3m	Retained
MT199	Macadamia tetraphylla	1	5 5m	Retained
MT200	Macadamia tetraphylla	2	6m & 4m	Retained
MT200	Macadamia tetraphylla	2	3 5m & 2m	Retained
MT201	Macadamia tetraphylla	5	5.5.1 a 211 5m & 2x 3m & 2x 1m	Retained
MT203	Macadamia tetraphylla	1	1.9m	Retained
MT204	Macadamia tetraphylla	1	5m	Retained
MT205	Macadamia tetraphylla	3	5m & 2m & 0.8m	Retained
MT206	Macadamia tetraphylla	10	10x 2-5m	Retained
MT207	Macadamia tetraphylla	5	5x 2-3m	Retained
MT208	Macadamia tetraphylla	3	3x 1-3m	Retained
MT209	Macadamia tetraphylla	1	3.5m	Retained
MT210	Macadamia tetraphylla	1	3m	Retained
MT211	Macadamia tetraphylla	1	5m	Retained
MT212	Macadamia tetraphylla	10	10x 2-6m	Retained
MT213	Macadamia tetraphylla	4	8m & 3x 2-3m	Retained
MT214	Macadamia tetraphylla	2	7m & 2m	Retained
MT215	Macadamia tetraphylla	2	7m & 4m	Retained
MT216	Macadamia tetraphylla	25	25x 1.5-6m	Retained
MT217	Macadamia tetraphylla	12	12x 1-5m	Retained
MT218	Macadamia tetraphylla	7	8m & 6x 2-4m	Retained
MT219	Macadamia tetraphylla	2	2x 8m	Retained
MT220	Macadamia tetraphylla	6	6x 3-6m	Retained
MT221	Macadamia tetraphylla	11	10m & 10x 2-8m	Retained
MT222	Macadamia tetraphylla	4	4x 4-5m	Retained
MT223	Macadamia tetraphylla	20	20x 2-8m	Retained

ID	Species	Count	Height	Retained / Removed
MT224	Macadamia tetraphylla	3	3x 2-4m	Retained
MT225	Macadamia tetraphylla	4	4x 3m	Retained
MT226	Macadamia tetraphylla	1	1m	Removed
МТ227	Macadamia tetraphylla	12	12x 1-4m	Removed
MT228	Macadamia tetraphylla	14	5m & 2m & 12x <1m	Removed
MT229	Macadamia tetraphylla	13	2m & 12x <1m	Removed
MT230	Macadamia tetraphylla	1	2m	Retained
MT231	Macadamia tetraphylla	1	 7m	Retained
MT232	Macadamia tetraphylla	1	2m	Retained
MT233	Macadamia tetraphylla	7	2x 5m & 5x <2m	Retained
MT234	Macadamia tetraphylla	10	10x 1-6m	Retained
MT235	Macadamia tetraphylla	8	8x 2-3m	Retained
MT236	Macadamia tetraphylla	2	2x 2m	Removed
MT237	Macadamia tetraphylla	2	2x 2.5m	Removed
MT238	Macadamia tetraphylla	3	3x seedling	Removed
MT239	Macadamia tetraphylla	2	2x seedling	Removed
MT240	Macadamia tetraphylla	7	7x 2-4m	Removed
MT241	Macadamia tetraphylla	3	3x 2-5m	Removed
MT242	Macadamia tetraphylla	1	5m	Removed
MT243	Macadamia tetraphylla	3	2x 5m & 1m	Removed
MT244	Macadamia tetraphylla	1	2m	Removed
MT245	Macadamia tetraphylla	7	5x 1-2m & 2x seedling	Retained
MT246	Macadamia tetraphylla	1	6m	Retained
MT247	Macadamia tetraphylla	6	6x 4-10m	Removed
MT248	Macadamia tetraphylla	1	0.2m	Retained
MT249	Macadamia tetraphylla	1	0.2m	Retained
MT250	Macadamia tetraphylla	2	2x 0.2m	Retained
MT251	Macadamia tetraphylla	1	2m	Retained
MT252	Macadamia tetraphylla	1	6m	Retained
MT253	Macadamia tetraphylla	1	0.6m	Retained
MT254	Macadamia tetraphylla	1	0.6m	Retained
MT255	Macadamia tetraphylla	1	1m	Retained
MT256	Macadamia tetraphylla	1	0.2m	Retained
MT257	Macadamia tetraphylla	1	4m	Retained
MT258	Macadamia tetraphylla	1	1.5m	Retained
MT259	Macadamia tetraphylla	6	3x 3m & 3x 1.5m	Retained
MT260	Macadamia tetraphylla	1	6m	Retained
MT261	Macadamia tetraphylla	1	2m	Retained
MT262	Macadamia tetraphylla	1	3.5m	Retained
MT263	Macadamia tetraphylla	1	1.2m	Retained
MT264	Macadamia tetraphylla	2	2x 0.2m	Retained
MT265	Macadamia tetraphylla	1	3m	Retained
MT266	Macadamia tetraphylla	4	3m & 3x 1.5m	Retained

ID	Species	Count	Height	Retained / Removed
MT267	Macadamia tetraphylla	1	4m	Retained
MT268	Macadamia tetraphylla	3	6m & 2x 5m	Retained
MT269	Macadamia tetraphylla	1	0.5m	Retained
MT270	Macadamia tetraphylla	1	10m	Retained
MT271	Macadamia tetraphylla	1	0.2m	Retained
MT272	Macadamia tetraphylla	1	10m	Retained
MT273	Macadamia tetraphylla	2	10m & 2m	Retained
MT273	Macadamia tetraphylla	2	2x <1m	Retained
MT275	Macadamia tetraphylla	2	1 8m ft 0 3m	Retained
MT276	Macadamia tetraphylla	2	1 5m & 0.2m	Retained
MT277	Macadamia tetraphylla	1	3m	Retained
MT278	Macadamia tetraphylla	1	0.2m	Retained
MT279	Macadamia tetraphylla	1	5m	Retained
MT280	Macadamia tetraphylla	5	5x <3m	Retained
MT281	Macadamia tetraphylla	1	2m	Retained
MT287	Macadamia tetraphylla	1	1m	Retained
MT283	Macadamia tetraphylla	2	2 5m & 1 5m	Retained
MT284	Macadamia tetraphylla	1	4m	Retained
MT285	Macadamia tetraphylla	2	2x 1m	Retained
MT286	Macadamia tetraphylla	1	4m	Retained
MT287	Macadamia tetraphylla	4	4x 5m	Retained
MT288	Macadamia tetraphylla	1	1.2m	Retained
MT289	Macadamia tetraphylla	1	10m	Retained
MT290	Macadamia tetraphylla	3	3x <1m	Retained
MT291	Macadamia tetraphylla	1	8m	Retained
MT292	Macadamia tetraphylla	1	0.5m	Retained
MT293	Macadamia tetraphylla	1	1m	Retained
MT294	Macadamia tetraphylla	1	9m	Retained
MT295	Macadamia tetraphylla	3	4m & 2 x 1m	Retained
MT296	Macadamia tetraphylla	1	2m	Retained
MT297	Macadamia tetraphylla	1	6m	Retained
MT298	Macadamia tetraphylla	2	1.6m & 1m	Retained
MT299	Macadamia tetraphylla	1	11m	Retained
MT300	Macadamia tetraphylla	1	1.8m	Retained
MT301	Macadamia tetraphylla	1	2.1m	Retained
MT302	Macadamia tetraphylla	1	0.5m	Retained
MT303	Macadamia tetraphylla	2	4m & 1.5m	Retained
MT304	Macadamia tetraphylla	6	15m & 2x 12m & 3x 1.5m	Retained
MT305	Macadamia tetraphylla	1	2m	Retained
MT306	Macadamia tetraphylla	1	7m	Retained
MT307	Macadamia tetraphylla	1	3m	Retained
MT308	Macadamia tetraphylla	1	2m	Retained
MT309	Macadamia tetraphylla	1	2m	Retained

ID	Species	Count	Height	Retained / Removed
MT310	Macadamia tetraphylla	1	3m	Retained
MT311	Macadamia tetraphylla	1	0.3m	Retained
MT312	Macadamia tetraphylla	5	10m & 3m & 1m & 2x 0 5m	Retained
MT312	Macadamia tetraphylla	11	9m & 10x 0.5m	Retained
MT31/	Macadamia tetraphylla	1	0.5m	Retained
MT314	Macadamia tetraphylla	1	10m	Retained
MT315	Macadamia tetraphylla	2	1m & 0.5m	Retained
MT317	Macadamia tetraphylla	1	0.5m	Retained
MT318	Macadamia tetraphylla	1	3m	Retained
MT310	Macadamia tetraphylla	1	12m	Retained
MT220	Macadamia tetraphylla	1	12111 4m & 1 5m & 1m & 0 5m	Retained
MT320	Macadamia tetraphylla	4	4 III & 1.5III & IIII & 0.5III	Retained
MT321 MT322	Macadamia tetraphylla	1	0.5m	Retained
MT322	Macadamia tetraphylla	1	0.511	Retained
MI323		1	1411	Retained
MT324	Macadamia tetraphylla	1	9m	Retained
MT323	Macadamia tetraphylla	1	1.5m	Retained
MI320	Macadamia tetraphylla	3	6.5m & 2X 2m	Retained
MI32/	Macadamia tetraphylla	2	1m & 0.3m	Retained
M1320	Macadamia tetraphylla	1	0.5m	Retained
M1329	Macadamia tetraphylla	1	3.5m	Retained
MI330	Macadamia tetraphylla	1	<u>4m</u>	Retained
M1331	Macadamia tetraphylla	1	<u>1.5m</u>	Retained
M1332	Macadamia tetraphylla	1	<u> </u>	Retained
MT333	Macadamia tetraphylla	1	9m	Retained
M1334	Macadamia tetraphylla	1	4m	Retained
MT335	Macadamia tetraphylla	3	2m & 1.2m & 0.5m	Retained
MT336	Macadamia tetraphylla	1	<u>3m</u>	Retained
M1337	Macadamia tetraphylla	1	3.5m	Retained
MT338	Macadamia tetraphylla	6	14m & 3x 2m & 3m & 1m	Retained
MT339	Macadamia tetraphylla	1	4m	Retained
MT340	Macadamia tetraphylla	1	6m	Retained
MT341	Macadamia tetraphylla	1	1m	Retained
MT342	Macadamia tetraphylla	1	2.5m	Retained
MT343	Macadamia tetraphylla	1	1.7m	Retained
MT344	Macadamia tetraphylla	1	18m	Retained
MT345	Macadamia tetraphylla	1	1m	Retained
MT346	Macadamia tetraphylla	2	6.5m & 2.5m	Retained
MT347	Macadamia tetraphylla	1	1.1m	Retained
MT348	Macadamia tetraphylla	1	1.3m	Retained
MT349	Macadamia tetraphylla	2	2.2m & 2m	Retained
MT350	Macadamia tetraphylla	3	3.5m & 2.5m & 2m	Retained
MT351	Macadamia tetraphylla	1	0.5m	Retained
MT352	Macadamia tetraphylla	1	1.4m	Retained

ID	Species	Count	Height	Retained / Removed
MT353	Macadamia tetraphylla	2	1.8m & 0.2m	Retained
MT354	Macadamia tetraphylla	2	2x 0.15m	Retained
MT355	Macadamia tetraphylla	1	2.2m	Retained
MT356	Macadamia tetraphylla	1	212 2m	Retained
MT357	Macadamia tetraphylla	1	4 5m	Retained
MT358	Macadamia tetraphylla	1	4m	Retained
MT359	Macadamia tetraphylla	1	5m	Retained
MT360	Macadamia tetraphylla	2	6m & 1.2m	Retained
MT361	Macadamia tetraphylla	1	0.7m	Retained
MT362	Macadamia tetraphylla	1	0.8m	Retained
MT363	Macadamia tetraphylla	1	0.15m	Retained
MT364	Macadamia tetraphylla	1	0.15m	Retained
MT365	Macadamia tetraphylla	1	1.6m	Retained
MT366	Macadamia tetraphylla	1	1.1m	Retained
MT367	Macadamia tetraphylla	1	1.1m	Retained
MT368	Macadamia tetraphylla	1	1.5m	Retained
MT360	Macadamia tetraphylla	1	1.5m	Retained
MT309	Macadamia tetraphylla	1	11m	Retained
MT271	Macadamia tetraphylla	1	1m	Potained
MI371	Macadamia tetraphylla	1	1111 2.5m	Retained
MT372	Macadamia tetraphylla	1	2.5m	Retained
MT373	Macadamia tetraphylla	1	0.4111	Retained
M1374	Macadamia tetraphylla	1	4111 Em	Retained
MT375	Macadamia tetraphylla	1		Retained
MT370	Macadamia tetraphylla	1	0.8m	Retained
MI377	Macadamia tetraphylla	1	9m	Retained
MI378	Macadamia tetraphylla	1	9m 5.5m	Retained
0///001		1	8x 2.5m & 3x 0.5m & 12x 3m	Retained
OM002	Ochrosia moorei	47	& 5m & 6x 2m & 6m & 4m &	Potningd
04003	Ochrosia mooroi	42	2x 3m & 2x 1m & 5m	Potained
		1		Retained
	Peristeranthus hillii	1		Retained
	Peristeranthus hillii	1		Retained
	Peristeranthus hillii	ו ר	2.4	Retained
	Peristeranthus hilli		ZX	Retained
	Peristeranthus hilli	1 2	.	Retained
PH006		3	3X	Retained
PM001	Phylianthus microcladus	5		Retained
	Phylianthus microcladus	5	1.5m & 4x 1m	Retained
PM003	Phyllanthus microcladus	/	1.5m & 3x 1m & 3x 0.5m	Retained
PM004	Phyllanthus microcladus	2	2.5m & 1./m	Retained
PM005	Phyllanthus microcladus	1	1m	Retained
RM001	Randia moorei	1	<u>2m</u>	Retained
RM002	Randia moorei	3	2.5m & 2.5m & 1.5m	Retained

ID	Species	Count	Height	Retained / Removed
RM003	Randia moorei	3	2x 3m & 2m	Retained
RM004	Randia moorei	1	2.5m	Retained
RM005	Randia moorei	1	2m	Retained
RM006	Randia moorei	2	2x 2m	Retained
RM007	Randia moorei	1	1.5m	Retained
RM008	Randia moorei	1	2m	Retained
RM009	Randia moorei	1	1.5m	Retained
RM010	Randia moorei	1	2m	Retained
RM011	Randia moorei	1	2m	Retained
RM012	Randia moorei	1	1m	Retained
RM013	Randia moorei	7	6x 7m & 3m	Retained
RM014	Randia moorei	1	4m	Removed
RM015	Randia moorei	2	2x 2m	Removed
RM016	Randia moorei	1	1m	Removed
RM017	Randia moorei	1	2m	Removed
RM018	Randia moorei	1	1m	Removed
RM019	Randia moorei	1	1.8m	Removed
RM020	Randia moorei	1	1m	Retained
RM021	Randia moorei	1	4m	Retained
RM022	Randia moorei	1	4m	Retained
RM023	Randia moorei	3	3m & 2m & 1m	Retained
RM024	Randia moorei	1	2m	Retained
RM025	Randia moorei	1	2m	Retained
RM026	Randia moorei	1	1.6m	Removed
RM027	Randia moorei	1	2m	Removed
RM028	Randia moorei	1	0.8m	Retained
RM029	Randia moorei	6	1.6m & 5x <1.2m	Retained
RM030	Randia moorei	1	1m	Retained
RM031	Randia moorei	1	2m	Retained
RM032	Randia moorei	1	1m	Retained
RM033	Randia moorei	1	1.5m	Retained
RM034	Randia moorei	1	1m	Removed
RM035	Randia moorei	1	1.5m	Removed
RM036	Randia moorei	1	1m	Retained
RM037	Randia moorei	2	0.5m & 1.5m	Retained
RM038	Randia moorei	2	1m & 2m	Retained
RM039	Randia moorei	1	3.5m	Retained
RM040	Randia moorei	1	6m	Retained
RM041	Randia moorei	1	1m	Retained
RM042	Randia moorei	1	2m	Retained
RM043	Randia moorei	2	5m & 1.5m	Retained
RM044	Randia moorei	2	2.5m & 1.5m	Retained
RM045	Randia moorei	1	3m	Retained

ID	Species	Count	Height	Retained / Removed
RM046	Randia moorei	1	2m	Retained
RM047	Randia moorei	1	2m	Retained
RM048	Randia moorei	1	2m	Retained
RM049	Randia moorei	2	3 5m & 2m	Retained
RM050	Randia moorei	1	2m	Retained
RM051	Randia moorei	1	1.7m	Retained
RM052	Randia moorei	1	1.2m	Retained
RM053	Randia moorei	1	4.5m	Removed
RM054	Randia moorei	1	0.2m	Retained
RM055	Randia moorei	1	1.5m	Retained
RM056	Randia moorei	1	1.9m	Retained
RM057	Randia moorei	1	3m	Retained
RM058	Randia moorei	1	1.5m	Retained
RM059	Randia moorei	2	2.3m & 1.9m	Retained
RM060	Randia moorei	2	3m & 0.5m	Retained
RM061	Randia moorei	1	4m	Retained
RM062	Randia moorei	1	0.7m	Retained
RM063	Randia moorei	1	0.5m	Retained
RM064	Randia moorei	1	1m	Retained
RMAI001	Rhodamnia maideniana	4	4m & 3x 1.5m	Retained
RMAI002	Rhodamnia maideniana	2	3m & 1m	Retained
RMAI003	Rhodamnia maideniana	1	1m	Retained
RMAI004	Rhodamnia maideniana	1	1.5m	Retained
RMAI005	Rhodamnia maideniana	1	3m	Retained
RMAI006	Rhodamnia maideniana	1	1.5m	Retained
RMAI007	Rhodamnia maideniana	2	2x 1.5m	Retained
RMAI008	Rhodamnia maideniana	1	0.2m	Retained
RMA1009	Rhodamnia maideniana	1	2m	Retained
RMAI010	Rhodamnia maideniana	1	2m	Retained
RMAI011	Rhodamnia maideniana	1	1m	Retained
RMAI012	Rhodamnia maideniana	2	2x 2m	Retained
RMAI013	Rhodamnia maideniana	2	0.3m & 2.5m	Removed
RMAI014	Rhodamnia maideniana	1	3m	Retained
RMAI015	Rhodamnia maideniana	1	4m	Retained
RMAI016	Rhodamnia maideniana	4	4x 1.5m	Retained
RMAI017	Rhodamnia maideniana	4	5m & 2x 3 & 1m	Retained
RMAI018	Rhodamnia maideniana	3	3x 1m	Retained
RMAI019	Rhodamnia maideniana	1	4m	Retained
RMAI020	Rhodamnia maideniana	1	2.5m	Retained
RMAI021	Rhodamnia maideniana	2	1.2m & 1m	Retained
RMAI022	Rhodamnia maideniana	1	7m	Retained
RMAI023	Rhodamnia maideniana	1	3m	Retained
RMAI024	Rhodamnia maideniana	1	4.2m	Retained

ID	Species	Count	Height	Retained / Removed
RMAI025	Rhodamnia maideniana	4	4x 3-4.5m	Retained
SH001	Syzygium hodgkinsoniae	3	6m & 2m & 1m	Retained
SH002	Syzygium hodgkinsoniae	5	5x 1-4m	Retained
SH003	Syzygium hodgkinsoniae	6	6x 2-4m	Retained
SH004	Syzygium hodgkinsoniae	9	2x 6m & 7x 2-4m	Retained
SM001	Syzygium moorei	1	26m	Retained
SM002	Syzygium moorei	1	17m	Retained
SM003	Syzygium moorei	2	2x 16m	Retained
SM004	Syzygium moorei	1	8m	Retained
SM005	Syzygium moorei	1	20m	Removed
SM006	Syzygium moorei	4	4x 10-15m (planted)	Removed
SM007	Syzygium moorei	1	1.6m	Retained
SM008	Syzygium moorei	1	15m	Retained
SM009	Syzygium moorei	3	3x 5m	Removed
	TOTAL	40.42	Removed	454 (9%)
	TOTAL	4942	Retained	4,488 (91%)

APPENDIX 3 - TESTS OF SIGNIFICANCE (7-PART TESTS)

(a) In the case of a threatened species, whether the action 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.

Axe breaker (Coatesia paniculata)

Extent of the local population

One (1) mature tree has been recorded on the subject site, with approximately 39 saplings within a 20 m radius of this parent tree. This record is particularly significant, as it constitutes the only record for the entire Tweed LGA.

Stages of the life cycle affected by the proposed development

Axe breaker is very rare in north-east NSW, and is known only from the Tweed, Lismore and Wardell areas. Suitable habitat includes dry subtropical rainforest and vine scrubs.

The following threats have been identified for this species:

- Clearing and fragmentation of habitat for development and agriculture
- Risk of local extinction because numbers are low
- Infestation of habitat by introduced weeds
- Grazing and trampling by domestic stock
- Fire

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained	
Critically Endangered Ecological Community (EPBC Act)		
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)	
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)	
Endangered Ecological Community (BC Act)		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Axebreaker.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Axe breaker life cycle.

Likelihood of local extinction

The area in which the Axe breaker occurs will be retained and will not suffer any immediate disturbance from the proposed development. As these trees occur within potential access of any visitors to the area of rainforest in the south of the subject site, there is some potential for incidental damage by residents. This may include some impacts on the small population of Axe breaker on the subject site. The walking trail proposed in the south of the site will be located to avoid this area and be situated along disturbed tracks which currently occur within this vegetation community.

It should be noted that disturbance to/or loss of trees on the subject site will have significant implications for the local population, with potential for extinction.

Ball nut (Floydia praealta)

Extent of the local population

One (1) mature Ball nut has been recorded on the subject site, which accounts for the sole record of this species within 10 km from the NSW BioNet online database. This mature tree was recorded in the north of the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The Ball nut occurs in riverine and subtropical rainforest, usually on basalt-derived soils. The species occurs in small, scattered populations from Gympie (Qld) to the Clarence River in Northern NSW.

The following threats have been identified for this species:

- Clearing and fragmentation of habitat for coastal development, agriculture, roadworks and powerlines
- Risk of local extinction because numbers are small and sparsely distributed
- Infestation of habitat by weeds

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained	
Critically Endangered Ecological Community (EPBC Act)		
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)	
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)	
Endangered Ecological Community (BC Act)		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Ball nut.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Ball nut life cycle.

Likelihood of local extinction

The Ball nut on the subject site occurs outside of the proposed development area. This tree will be retained (in association with nearby White laceflower). The proposed development is highly unlikely to result in the local extinction of this species.

Barking owl (Ninox connivens)

Extent of the local population

This species has not been recorded on the subject site during previous or recent targeted surveys. There is one (1) record of the Barking owl from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Barking owl is found throughout continental Australia except for the central arid regions. Although still common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW.

The species inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Large, old hollow-bearing trees are required for nesting.

The OEH Threatened Species Profile for the Barking owl discusses the following threats:

- Clearing and degradation of habitat, mostly through cultivation, intense grazing and the establishment of exotic pastures.
- Inappropriate forest harvesting practices that remove old, hollow-bearing trees and change open forest structure to dense regrowth.
- Firewood harvesting resulting in the removal of fallen logs and felling of large dead trees.
- Too-frequent fire leading to degradation of understorey vegetation which provides shelter and foraging substrates for prey species.
- Destruction of hollow-bearing trees, which provide both nest sites for the owls and refuge sites for their prey
- Competition for prey by foxes
- Poor organisation and availability of species data
- Nestling predation by native species such as goannas and brush-tailed possums
- High use of rodenticide impacts on large forest owls through secondary poisoning.
- Disturbance of nesting and excessive disturbance of foraging by inappropriate use of call-playback surveys

Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies scattered mature trees and forest edges across the subject site while foraging; however, suitable nesting habitat is limited-to-absent.

The proposed development it is not considered likely to contribute significantly to the threats listed above or any aspect of the Barking owls life cycle. Conversely, given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not significantly impact the overall value of habitat or impede continued presence of this species.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the potential loss of marginal forage habitat on the edges of cleared areas would not impede the continued potential presence of this species. As such, the proposed development will not result in the local extinction of this species.

Barred cuckoo shrike (Coracina lineata)

Extent of the local population

This species has not been recorded on the subject site during previous or recent targeted surveys. There are two (2) records of the Barred cuckoo-shrike from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

Breeding and sheltering sites for the Barred cuckoo shrike as consisting of low elevation subtropical and littoral rainforest and coastal wet sclerophyll forest close to fruiting figs with the preferred habitat being a mature canopy. The Barred cuckoo-shrike forages in mature canopy and feeds on fruit and large insects including cicadas and phasmids with other small-fruited figs as their preferred food.

The OEH Threatened Species Profile for the Barred cuckoo shrike identified that reduction of habitat, particularly rainforest, due to clearing for agriculture, development and timber harvesting is the primary threat to this species.

Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies areas of the subject site that contain suitable rainforest habitat. Notwithstanding, the majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Barred cuckoo shrike across the subject site.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Barred cuckoo shrike life cycle should it occur in areas of the subject site from time-to-time.

Likelihood of local extinction

The proposed development is unlikely to have any direct impacts on the Barred cuckoo shrike, as the most suitable habitat for this species in the south of the subject site will be retained. Retention of mature figs within other areas of Camphor laurel dominated forest, and the subsequent restoration of this habitat, will also assure retention of suitable foraging habitat for this species. The proposed development is unlikely to result in the local extinction of this species.

Basket fern (Drynaria rigidula)

Extent of the local population

A single Basket fern has been recorded on the subject site, which is in addition to three (3) records of this species within 10 km from the NSW BioNet online database. This specimen was recorded in the north-eastern portion of the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The Basket fern occurs mainly in rocky areas on hillsides and in shaded positions in subtropical rainforest and in dry rainforest. It grows on rocks or as an epiphyte. The following threats have been identified for this species:

- Loss of habitat through clearing for agriculture and development.
- Frequent fires, as the plant has limited tolerance for fire.
- Browsing and trampling by domestic stock.
- Invasion of weeds and habitat degradation, which limits opportunities for establishment of young plants.
- Removal of forest understorey, resulting in loss of habitat.
- Risk of local extinction because numbers are low.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	

Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Basket fern.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Basket fern life cycle.

Likelihood of local extinction

The Proposed development will not result in the removal of the Basket fern from the site. The retained plant will be included in future conservation areas and buffered with plantings of local rainforest species.

Black-breasted button quail (Turnix melanogaster)

Extent of the local population

The Black-breasted button quail has not been recorded on the subject site during past field surveys, and there are no records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life cycle affected by the proposed development

Breeding and sheltering sites for the Black-breasted button quail as consisting of dry rainforest in association with eucalypt forest and with a well-developed litter layer, disturbed areas with a lantana understorey, areas of subtropical rainforest adjacent to eucalypt forest, and dry rainforest with an emergent layer dominated by Hoop pine. This species also frequents small grassy clearings on the edge of dry rainforest.

The OEH Threatened Species Profile for the Black-breasted button quail identifies the following threats:

- Clearing of subtropical and dry rainforests for agriculture leading to loss and fragmentation of habitat and loss of habitat connectivity. It is estimated over 90% of the habitat of the species has been cleared.
- Clearing of habitat for urban development.
- Logging activities modifying habitat, removing habitat (particularly in Hoop Pine plantations), and facilitating predator access.
- Inappropriate fire regimines can reduce the density of shrubs, ground layer species and deep litter-layer, all of which the species depends on for shelter and food.
- Loss and degradation of habitat and habitat connectivity through grazing by livestock.
- Predation by Foxes, feral cats, and feral dogs.
- Invasion and degradation of remnant rainforest habitat by weeds.
- Predation and degradation of habitat by feral pigs.
- The small population size of the Black-breasted Button quail makes it vulnerable to threatening processes.
- Lack of information on the species in NSW to inform a conservation management strategy.

Despite an absence of historical records, it cannot be conclusively ruled out that this species occupies areas of suitable habitat on the subject site. Notwithstanding, the majority (~99%) of suitable and higher quality lowland rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Black-breasted button quail across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Black-breasted button quail life cycle should it occupy suitable areas of the subject site.

Likelihood of local extinction

This species is likely to benefit from the large-scale rainforest restoration works proposed for the subject site. Given this and the protection on existing subtropical rainforest, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Brown fairy-chain orchid (Peristeranthus hillii)

Extent of the local population

There are six (6) records of the Brown fairy-chain orchid within 10 km of the subject site from the NSW BioNet online database. Nine (9) individuals of this species have been recorded on the subject site.

Stages of the life cycle affected by the proposed development

The Brown fairy-chain orchid is found in north-eastern NSW, north from Port Macquarie, extending to north-eastern Queensland as far as the Bloomfield River where it is restricted to coastal and near-coastal environments, particularly Littoral Rainforest and the threatened ecological community Lowland Rainforest on Floodplain. The species is an epiphyte, growing in clumps on tree trunks and thick vines. Tiny, scented flowers appear during September and October and produce nectar and are pollinated by small beetles.

The OEH Threatened Species Profile for the Brown fairy-chain orchid identifies the following threats:

- Habitat destruction and fragmentation.
- Risk of local extinction because populations are small.
- Visitor disturbance leading to physical damage of plants.
- Weed invasion.
- Inundation of low-lying areas due to sea level rise.
- Orchid lovers collecting plants.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community

Area to be retained

Critically Endangered Ecological Community (EPBC Act)		
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)	
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)	
Endangered Ecological Community (BC Act)		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Axebreaker.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Axe breaker life cycle.

Likelihood of local extinction

This species is likely to benefit from the large-scale rainforest restoration works proposed for the subject site. Given this and the protection on existing subtropical rainforest, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Brush Sauropus (Phyllanthus microcladus)

Extent of the local population

Twenty (20) specimens have been recorded on the subject site. These records are particularly significant, as there are no known records within 10km of the subject site based on a review of available recorfds/databases.

Stages of the life cycle affected by the proposed development

The Brush sauropus is confined in NSW to a few locations in the Tweed, Brunswick, Richmond and Wilson River Valleys with an outlying population near Grafton. The species also occurs in south-east Queensland. It is usually found on banks of creeks and rivers, in streamside rainforest or dry rainforest.

The OEH Threatened Species Profile for the Brush sauropus identifies the following threats:

- Clearing and fragmentation of habitat for agriculture.
- Clearing and fragmentation of habitat for development.

- Invasion of creekside habitat by introduced weeds including cat's claw creeper, Lantana and soda apple.
- Grazing and trampling by domestic stock.
- Erosion of banks of creeks and rivers.
- Risk of local extinction because populations are small.
- Inappropriate fire regimes.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Axebreaker.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Axe breaker life cycle.

Likelihood of local extinction

This species is likely to benefit from the large-scale rainforest restoration works proposed for the subject site. Given this and the protection on existing subtropical rainforest, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Bush-stone curlew (Burhinus grallarius)

Extent of the local population

The Bush-stone curlew has not been recorded during previous surveys; however, there are 23 records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life cycle affected by the proposed development

The Bush stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Preferred habitat includes open forests and woodlands with a sparse grassy ground layer and fallen timber. This species nests on the ground in a scrape or small bare patch.

The OEH Threatened Species Profile for the Bush-stone curlew identifies the following threats:

- Predation by foxes and cats.
- Trampling of eggs by cattle.
- Clearance of woodland habitat for agricultural and residential development.
- Modification and destruction of ground habitat through removal of litter and fallen timber, introduction of exotic pasture grasses, grazing and frequent fires.
- Disturbance in the vicinity of nest sites.
- Negative impacts of pesticides when used around nesting sites and habitat.

It cannot be conclusively ruled out that this species could occupy disturbed grassy areas with scattered trees, most likely those associated with the disused golf course.

The proposed development will remove the most suitable habitat for the Bush-stone curlew; however, given this species has not been recorded despite the extensive survey effort across the subject site, it is considered highly unlikely that this habitat is critical for the species.

In addition, the SRPMP (JWA 2024) includes measures for the monitoring and control of feral cats. It is recommended that any cats owned by future residents are to be fitted with a collar bell and kept inside at all times during the night. In particular, the management of feral species such as foxes and feral cats will assist in the long-term protection of the Bush-stone curlew should it occupy areas of the subject site from time-to-time.

Despite the loss of marginally suitable habitat, and in conjunction with the abovementioned recommendations for cats and feral animals, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Bush-stone curlew's life cycle.

Likelihood of local extinction

Given the absence of this species from the subject site, and the limited suitable habitat, it is considered unlikely that the proposed development will disrupt the lifecycle of the local population of the Bush-stone curlew to the point that it is at risk of extinction.

<u>Common planigale (*Planigale maculata*)</u>

Extent of the local population

This species has not been recorded on the subject site during previous surveys; however, suitable habitat is considered to occur. There are 10 records of the Common planigale within 10 km of the subject site from the NSW BioNet online database.

Stages of the life cycle affected by the proposed development

Breeding and sheltering sites for Planigales as consisting of nests of eucalypt leaves in logs or under bark, in cracks in the soil or in grass tussocks. Nests were also located in building debris. The Common planigale forages in dry sclerophyll, swamp sclerophyll, heathland and grassland at the ecotone with rainforest in areas with dense leaf litter or ground cover.

The OEH Threatened Species Profile for the Common planigale identifies the following threats:

- Predation by foxes and cats.
- Predation and poisoning by cane toads
- Loss of habitat from a variety of land uses resulting in species fragmentation and habitat degradation. Includes changes to riparian areas and hydrology from residential and associated infrastructure development, and loss of ground cover vegetation and woody debris from too frequent fire and clearing.
- Frequent burning that reduces ground cover such as hollow logs and bark.
- Over grazing that reduces ground cover
- Disturbance of vegetation surrounding water bodies.
- The species is often misidentified and requires further survey work to identify distribution and abundance.

The most suitable habitat for the Common planigale on the subject site includes areas of intact and/or connected rainforest (i.e. VC1 & VC3) and wet sclerophyll forest (i.e. VC2). In addition, VC4a could be conservatively considered marginal habitat for this species because in most cases it is connected to more suitable habitat as part of a larger patch. With this considered, the following outlines those areas of suitable habitat to be retained; however, these extents are conservative and do not factor in isolated patches (i.e. VC2b) whereby the Common planigale is unlikely to occupy:

Threatened Ecological Community	Area to be retained

VC1a - Tall Subtropical rainforest	15.01 ha (100%)
VC1b - Mid-high to tall Subtropical rainforest	9.89 ha (99%)
VC2a - Tall closed sclerophyll forest (Lophostemon confertus)	0.52 ha (91%)
VC2b - Tall open sclerophyll forest (Lophostemon confertus/Cinnamomum camphora)	0.92 ha (90%)
VC3a Mid-high to tall closed forest (Cinnamomum camphora +/- mixed species)	12.54 ha (99%)
VC3b Low to mid-high closed regrowth (Cinnamomum camphora +/- mixed species)	4.52 ha (73%)
VC4a - Mid-high to tall closed forest (Cinnamomum camphora)	25.17 ha (79%)

In accordance with the SRPMP, retained patches of vegetation will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating TEC to increase the overall extent of isolated patches and reduce existing anthropogenic impacts. In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of 'potentially' suitable subtropical rainforest habitat for the Common planigale.

In addition, the SRPMP (JWA 2024) includes measures for the monitoring and control of feral cats. It is recommended that any cats owned by future residents are to be fitted with a collar bell and kept inside at all times during the night to ensure there is no increase to the mortality threat to the Common planigale. Ideally, cat enclosures should be installed to always prevent access to protected areas.

This species is unlikely to occupy areas on the subject site that are highly degraded and assigned for the proposed development. As such, the proposed development will retain suitable habitat for the Common planigale and in conjunction with the abovementioned recommendations for cats and feral animals, will not contribute significantly to the threats listed above or any aspect of the species life cycle.

The proposed development will retain suitable habitat for the Common planigale and in conjunction with the abovementioned recommendations for cats, will not contribute significantly to the threats listed above or any aspect of the species life cycle.

Likelihood of local extinction

The proposed development will result in the loss of some marginal habitat for the Common planigale; however, the retention of large areas of forest will continue to provide suitable habitat that ensures the long-term viability of this species. Given this, and the recommended measures for domestic cat regulation, the proposed development is highly unlikely to result in the local extinction of this species

Coxen's fig parrot (Cyclopsitta diophthalma coxeni)

Extent of the local population

The Coxen's fig parrot has not been recorded during previous field surveys, and there are no records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Coxen's fig parrot is now limited to about five populations scattered between Bundaberg in QLD and the Hastings River in NSW. The total number is thought to be less than 200 birds which makes it one of Australia's most endangered birds. Preferred habitat includes drier rainforests and adjacent wetter eucalypt forest, with a decided preference for fig trees.

The OEH Threatened Species Profile for the Coxen's fig parrot identifies the following threats:

- Clearing of rainforest, wet schleropyll and ecotone habitat and clearing of fig trees on farms for agricultural purposes.
- Clearing of habitat for rural and residential development.
- Logging or clearing of eucalypt forest adjacent to rainforest.
- Habitat fragmentation, including loss of connectivity between summer and winter feeding areas.
- Illegal bird trapping and egg collection
- Dissection of habitat corridors by roads.
- Small population sizes make populations susceptible to stochastic events and fluctuations in food supply.
- Low numbers, preventing a social breeding triggers being activated and reducing available breeding partners.
- Weeds, particularly exotic vines and scramblers, impacting on habitat and food treed.
- Burning of rainforest and wet schleropyll ecotone areas preventing establishment of additional habitat and foraging resources.
- Insufficient understanding of distribution.

This species was conservatively considered a possible occurrence on the subject site based on the presence of suitable habitat. Notwithstanding this, the retention and protection of mature figs and rainforest, restoration and/or embellishment across ~17.52 ha of mature and regenerating lowland rainforest, and ~19.73 ha of revegetation / regeneration of lowland rainforest, will result in an overall net gain in habitat for the Coxen's fig parrot on the subject site should it occur. With the above considered, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Coxen's fig parrots life cycle.

Likelihood of local extinction

Based on a review of preferred habitat features of the Coxen's fig parrot, and the retention and net gain of suitable habitat, it is considered unlikely that the proposed development will disrupt the life cycle of the local population of this species to the point that it is at risk of extinction.

Durobby (Syzygium moorei)

Extent of the local population

There are 52 records of the Durobby within 10 km of the subject site from the NSW BioNet online database. Six (6) naturally occurring mature stems of this species have been recorded on the subject site. An additional four (4) planted stems occur within landscape plantings associated with the disused golf course.

Stages of the life cycle affected by the proposed development

The Durobby is found in the Richmond, Tweed and Brunswick River valleys in north-east NSW and with limited occurrence in SEQ. Preferred habitat includes subtropical and riverine rainforest at low altitude; however, it also often occurs as isolated remnant paddock trees.

The following threats have been identified for this species:

- Clearing and fragmentation of habitat for development, agriculture and roadworks
- Weed infestation and general degradation of rainforest habitat
- Grazing and trampling by domestic stock
- Illegal collection for horticulture

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	

Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Durroby.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Durroby.

Likelihood of local extinction

All naturally occurring Durroby on the subject site occur outside of the proposed development area and will be retained. Four (4) planted Durroby associated with the disused golf course will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Eastern free-tail bat (Micronomus norfolkensis)

Extent of the local population

This species has been recorded on the subject site during previous field surveys.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Eastern freetail-bat is found along the east coast from south QLD to southern NSW. Preferred habitat includes dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range; whereby it roosts mainly in tree hollows but will also roost under bark or in man-made structures.

The OEH Threatened Species Profile for the Eastern freetail-bat identifies the following threats:

• Loss of hollow-bearing trees.

- Loss of foraging habitat.
- Application of pesticides in or adjacent to foraging areas.
- Artificial light sources spilling onto foraging and/or roosting habitat
- Large scale wildfire or hazard reduction burns on foraging and/or roosting habitat

Suitable forage habitat is available across all VCs on the subject site (except grassland), of which 70.42 ha (72%) will be retained. Despite this marginal loss of forage habitat, in the context of the extent of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not directly impact the overall value of habitat or the continued presence of this species.

The proposed development it is therefore not considered likely to contribute significantly to the threats listed above or any aspect of the Eastern freetail-bat life cycle.

Likelihood of local extinction

Based on a review of preferred habitat features of the Eastern freetail-bat, and the negligible loss of forage habitat in the context of the broader landscape, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Eastern long-eared bat (Nyctophilus bifax)

Extent of the local population

The Eastern long-eared bat has not been recorded on the subject site during previous field surveys; however, there are 10 records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

In NSW, the Eastern long-eared bat appears to be confined to the coastal plain and nearby coastal ranges, extending south to the Clarence River area, with a few records further south around Coffs Harbour. The species can be locally common within its restricted range.

Preferred habitat included lowland subtropical rainforest and wet and swamp eucalypt forest, extending into adjacent moist eucalypt forest. Coastal rainforest and patches of coastal scrub are particularly favoured. Roosts are typically found in tree hollows, the hanging foliage of palms, in dense clumps of foliage of rainforest trees, under bark and in shallow depressions on trunks and branches, among epiphytes, in the roots of strangler figs, among dead fronds of tree ferns and less often in buildings.

The OEH Threatened Species Profile for the Eastern long-eared bat identifies the following threats:

- Development pressures in or near swamp, wet sclerophyll and rainforests resulting in habitat degradation, alterations to moisture regimes, and edge effects, and loss of connectivity
- Loss of hollow-bearing trees and stands of palms and rainforest trees used for roosting and maternity sites.
- Invasion of habitat by weeds, particularly by Bitou Bush on the coast.
- High frequency fire.
- Climate change resulting in degradation of habitat from forest drying and increasing likelihood of fire.
- Limited known sites for the species reducing NSW population viability.
- Predation from cats.
- Vehicle strike.
- Light pollution in and near habitat areas impacting species behaviour.

The majority (~99%) of suitable and higher quality subtropical rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of lowland rainforest will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Eastern long-eared bat.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Eastern long-eared bat life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued potential presence of this species. As such, the proposed development will not result in the local extinction of this species.

Fine-leaved tuckeroo (Lepiderema pulchella)

Extent of the local population

There are 1,077 records of the Fine-leaved tuckeroo within 10 km of the subject site from the NSW BioNet online database. 2,220 specimens have been recorded on the subject site.

Stages of the life cycle affected by the proposed development

The Fine-leaved tuckeroo is a small rainforest tree growing to 15 m tall. It is distributed along the NSW north coast north of Brunswick Heads, and in Queensland. Most records in NSW are from the Tweed Valley, and the majority of known populations are on private land. It generally inhabits Lowland subtropical rainforest in NSW. It is found on infertile metasediments and on fertile basalts in the Tweed Valley.

The following threats have been identified for this species:

- Invasion of habitat by introduced weeds.
- Clearing and fragmentation of habitat for development.
- Collection of seed for horticulture.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.
In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Fine-leaved tuckeroo.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Fine-leaved tuckeroo. *Likelihood of local extinction*

A total of 311 (14%) of the recorded Finer-leaved tuckeroo will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Green-leaved rose walnut (Endiandra muelleri subsp. bracteata)

Extent of the local population

There are 27 records of the Fine-leaved tuckeroo within 10 km of the subject site from the NSW BioNet online database. 40 specimens have been recorded on the subject site.

Stages of the life cycle affected by the proposed development

The Green-leaved rose walnut is a rainforest tree growing to 30 m tall. It occurs in Queensland and in north-east NSW south to Maclean. It is sparsely distributed within this range. It inhabits subtropical and warm temperate rainforests and Brush Box forests, including regrowth and highly modified forms of these habitats. Records are usually from poorer soils derived from sedimentary, metamorphic or acid volcanic rocks. The species is generally recorded at lower altitudes. Flowering and fruiting have been observed from November to May.

The following threats have been identified for this species:

- Clearing and fragmentation of habitat for coastal development.
- Clearing and fragmentation of habitat for agriculture.
- Infestation of habitat by weeds.
- Clearing and fragmentation of habitat for roadworks.
- Frequent fire.
- Disturbance from recreational users in reserve areas.
- Forestry related activities within wet sclerophyll forest habitat.
- Damage from domestic stock.
- Habitat loss and fragmentation as a result of infrastructure development including powerline construction.
- Insufficient understanding of distribution.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Green-leaved rose walnut.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Green-leaved rose walnut.

Likelihood of local extinction

The Green-leaved rose walnut on the subject site occur outside of the proposed development area and will be retained. The proposed development is highly unlikely to result in the local extinction of this species.

Grey-headed flying fox (Pteropus poliocephalus)

Extent of the local population

This species has been recorded foraging on the subject site during previous field surveys. There are 41 records of the Grey-headed flying fox from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area. This species is highly mobile and can travel up to 50 km from the camp to forage. The local population of this species is therefore likely to extend to areas well outside of the study area.

Stages of the life cycle affected by the proposed development

This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops. Roost sites are generally located within 20 km of a regular food source and are typically located near water, such as lakes, rivers, or the coast.

The OEH Threatened Species Unit discusses the following threats for the Grey-headed flying fox:

- Loss of roosting and foraging sites.
- Electrocution on powerlines, entanglement in netting and on barbed wire.
- Heat stress.
- Conflict with humans.
- Incomplete knowledge of abundance and distribution across the species' range
- Illegal shooting

No roost sites have been recorded on the subject site.

All VCs on the subject site that contain flowering or fruiting trees provide potential forage habitat for the Grey-headed flying fox. Despite this, the highest quality habitat is being largely retained (~98%) in areas associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and tall, closed Camphor laurel dominated forests (VC3). Retained patches of suitable habitat will be buffered from the proposed development and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating communities to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Grey-headed flying fox across the subject site.

With the above considered and given the extent of forage habitat across the broader landscape, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Grey-headed flying fox life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As a result, the development is considered unlikely to result in the local extinction of this species.

Koala (Phascolarctos cinereus)

Extent of the local population

The Koala (or evidence thereof) has not been recorded from previous field surveys; however, there are 280 records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on or traverse the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life-cycle affected by the proposed development

The OEH Threatened Species Profile for the Koala identifies the following threats:

- loss, modification and fragmentation of habitat
- disease (chlamydia)
- vehicle strike
- intense prescribed burns or wildfires that scorch or burn the tree canopy
- predation by roaming or domestic dogs
- heat stress through drought and heatwaves
- human-induced climate change.

Koalas are known to occupy the surrounding landscape; however, habitat on the subject site is limited to planted trees associated with the disused golf course. Given suitable habitat is available, it cannot be conclusively ruled out that the Koala occurs on the subject site from time-to-time.

Notwithstanding the above, suitable habitat of the subject site is surrounded by nonpreferred habitat (i.e. rainforest, camphor dominated forest, disturbed grasslands) and resident development. With this considered, use of the subject site is almost certainly restricted to individuals traversing the landscape and is not likely to constitute an important area for long-term Koala persistence across the broader landscape.

It is acknowledged that the proposed development will increase vehicle frequency and domestic dog presence in the landscape. However, habitat remaining on the subject site will be largely unsuitable to support and/or attract Koalas to the extent where it would be reasonable to assume that there would be an increase in vehicle strike or dog attack other than what already exists.

With the above considered, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Koala life cycle.

Likelihood of local extinction

Given the availability of more suitable habitat across the broader landscape and lack thereof on the subject site, it can be confidentially concluded that the loss of scattered

(planted) trees associated with the disused golf course would not result in the local extinction of this species.

Large bent-wing bat (Miniopterus orianae oceanensis)

Extent of the local population

This species has been recorded on the subject site during previous field surveys. There are 12 records of the Large bent-wing bat from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

Large Bent-wing bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but they also use derelict mines, storm-water tunnels, buildings and other man-made structures.

The OEH Threatened Species Profile for the Large bent-wing bat identifies the following threats:

- Disturbance by recreational cavers and general public accessing caves and adjacent areas particularly during winter or breeding.
- Loss of high productivity foraging habitat.
- Introduction of exotic pathogens, particularly white-nose fungus.
- Cave entrances being blocked for human health and safety reasons, or vegetation (particularly blackberries) encroaching on and blocking cave entrances.
- Hazard reduction and wildfire fires during the breeding season.
- Predation by feral cats.

Suitable roosting habitat is largely unavailable, with the 'conservative' exception of the derelict golf clubhouse.

Suitable forage habitat is associated with all intact forested areas of the subject site, of which 70.24 ha (~72%) is being retained. The retention and protection suitable habitat, restoration and/or embellishment across ~17.52 ha of mature and regenerating lowland rainforest, and ~19.73 ha of revegetation / regeneration of lowland rainforest, will result in an overall net gain in suitable habitat for the Large bent-wing bat.

With the above considered, and in the context of the extent of suitable habitat across the broader landscape, it can be confidentially concluded that the proposed development would not impede the continued presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Large bent-wing bat life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Little bent-wing bat (Miniopterus australis)

Extent of the local population

This species has been recorded on the subject site during previous field surveys. There are 69 records of the Little bent-wing bat from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Little bent-wing bat is found along the east coast and ranges of Australia from Cape York in QLD to Wollongong in NSW. Preferred habitat includes moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. They are generally found in well-timbered areas. Roosting occurs in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings.

The OEH Threatened Species Profile for the Little bent-wing bat identifies the following threats:

- Disturbance of colonies, especially in nursery or hibernating caves, may be catastrophic.
- Extractive mining activity that destroys or disturbs caves and resident bats. Includes maternity, staging and over-wintering roosting caves.
- Illegal extraction of guano causing disturbance to resident bats
- Changes to habitat, especially surrounding maternity/nursery caves and winter roosts.
- Pesticides on insects and in water consumed by bats bio accumulates, resulting in poisoning of individuals.
- Predation from foxes, particularly around maternity caves, winter roosts and roosts within culverts, tunnels and under bridges.
- Predation from feral cats, particularly around maternity caves, winter roosts and roosts within culverts, tunnels and under bridges
- Woody weeds such as Lantana or blackberry that can overgrow cave entrances and block access or provide an entanglement risk
- Introduction of exotic pathogens such as the White-nosed fungus.

- Hazard reduction and wildfire fires during the breeding season.
- Large scale wildfire or hazard reduction can impact on foraging resources.
- Poor knowledge of reproductive success and population dynamics.

The highest quality habitat for this species is being largely retained (~98%) in areas associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and tall, closed Camphor laurel dominated forests (VC3). Retained patches of suitable habitat will be buffered from the proposed development and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Little bent-wing bat across the subject site.

With the above considered, and in the context of the extent of suitable habitat across the broader landscape, it can be confidentially concluded that the proposed development would not impede the continued presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Little bent-wing bat life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Little lorikeet (Glossopsitta pusilla)

Extent of the local population

This species was recorded is the central portion of the subject site during previous field surveys. There are four (4) records of the Little lorikeet from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

NSW provides a large portion of the species' core habitat, with little lorikeets found westward as far as Dubbo and Albury. This species forages primarily in the canopy of open eucalyptus forest and woodland. Isolated flowering trees in open country (e.g., paddocks, roadside remnants, and urban trees) also help sustain viable populations of the species.

The OEH Threatened Species Profile for the Little lorikeet identifies the following threats:

- Given that large old Eucalyptus trees on fertile soils produce more nectar, the extensive clearing of woodlands for agriculture has significantly decreased food for the lorikeet, thus reducing survival and reproduction. Small scale clearing, such as during roadworks and fence construction, continues to destroy habitat and it will be decades before revegetated areas supply adequate forage sites.
- The loss of old hollow bearing trees has reduced nest sites, and increased competition with other native and exotic species that need large hollows with small entrances to avoid predation. Felling of hollow trees for firewood collection or other human demands increases this competition.
- Competition with the introduced Honeybee for both nectar and hollows exacerbates these resource limitations.
- Infestation of habitat by invasive weeds.
- Inappropriate fire regimes.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Climate change impacts including reduction in resources due to drought.
- Degradation of woodland habitat and vegetation structure due to overgrazing.
- Lack of knowledge within the community regarding the species and its habitat requirements.
- Historical and ongoing loss of woodlands and dry open sclerophyll forests, including mallee because of agriculture, mining, forestry and residential development.

Potentially suitable habitat across the subject site is likely limited to scattered trees throughout grassland and disturbed areas and in association with the disused golf course. Given the extent of higher quality habitat across the broader landscape and the loss of marginal forage habitat, the proposed development it is not considered likely to contribute significantly to the threats listed above or any aspect of the Little lorikeet life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued presence of this species. As such, the proposed development will not result in the local extinction of this species.

Marblewood (Acacia bakeri)

Extent of the local population

There are 41 records of the Marblewood within 10 km of the subject site from the NSW BioNet online database. One (1) naturally occurring specimen has been recorded on the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The Marblewood is restricted to coastal SEQ and north-east NSW, where it occurs north from Mullumbimby. Most plants are on private property. Preferred habitat includes in or near lowland subtropical rainforest, adjacent eucalypt forest or regrowth of both. Usually occurs in the understorey but may occur as a large canopy tree.

The following threats have been identified for this species:

- Loss of habitat through land development and agriculture.
- Invasion by weeds, particularly Lantana.
- Fire, which kills adult trees and encourages weed growth.
- Visitor impacts in high use areas.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Marblewood.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Marblewood life cycle.

Likelihood of local extinction

The Marblewood on the subject site occurs outside of the proposed development area and will therefore be retained in the designated conservation areas. The proposed development is highly unlikely to result in the local extinction of this species.

Masked owl (Tyto novaehollandiae)

Extent of the local population

This species has not been recorded on the subject site during previous field surveys. There are four (4) records of the Masked owl from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the subject site. This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Masked owl Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides.

The OEH Threatened Species Profile for the Barking owl discusses the following threats:

- Clearing and degradation of habitat, mostly through cultivation, intense grazing and the establishment of exotic pastures.
- Inappropriate forest harvesting practices that remove old, hollow-bearing trees and change open forest structure to dense regrowth.
- Firewood harvesting resulting in the removal of fallen logs and felling of large dead trees.
- Too-frequent fire leading to degradation of understorey vegetation which provides shelter and foraging substrates for prey species.
- Destruction of hollow-bearing trees, which provide both nest sites for the owls and refuge sites for their prey
- Competition for prey by foxes
- Poor organisation and availability of species data
- Nestling predation by native species such as goannas and brush-tailed possums
- High use of rodenticide impacts on large forest owls through secondary poisoning.
- Disturbance of nesting and excessive disturbance of foraging by inappropriate use of call-playback surveys

It cannot be conclusively ruled out that this species forages throughout scattered mature trees and forest edges across the subject site; however, suitable nest / roost habitat is limited-to-absent.

The proposed development it is not considered likely to contribute significantly to the threats listed above or any aspect of the Masked owls life cycle. Conversely, given the availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed

development would not significantly impact the overall value of habitat or impede continued presence of this species.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the potential loss of marginal forage habitat on the edges of cleared areas would not impede the continued potential presence of this species. As such, the proposed development will not result in the local extinction of this species.

Mitchell's rainforest snail (Thersites mitchellae)

Extent of the local population

There are no records of the Mitchell's rainforest snail from within 10 km of the subject site from the NSW BioNet online database. This species has not been recorded on the subject site during previous surveys.

If present, the subject site may support a local population of this species; however, this is most likely within intact subtropical rainforest in the southern portion.

Stages of the life cycle affected by the proposed development

The Mitchell's rainforest snail is most commonly known from remnant vegetation on the coastal plain between the Richmond River and Tweed River on the NSW north coast. Preferred habitat includes lowland subtropical rainforest and swamp forest on alluvial soils, with a particular preference for slightly higher ground around the edges of wetlands with palms and fig trees.

The NSW Threatened Species Profile discusses the following threats for the Mitchell's rainforest snail:

- Clearing of lowland rainforest, swamp forest and wetland margins for agriculture.
- Clearing of lowland rainforest, swamp forest and wetland margins for urban development.
- Damage to remnant areas of habitat from grazing by domestic stock.
- Damage to remnant areas of habitat by fire.
- Damage to remnant areas of habitat by weed invasion.
- Predation of snails by introduced rats.
- Habitat fragmentation increasing edge effects including increasing the severity of disturbance from fire, weeds and predation by introduced rats.
- Use of herbicides and pesticides in and near areas of habitat.
- Impacts on habitat as a result of dieback caused by root rot fungus (*Phytophthora cinnamomi*).
- Loss of coastal populations from sea level rise and climate change

- Damage to habitat from changes in hydrology
- Poor knowledge of species distribution
- Lack of awareness of the species within the community

Given the presence of lowland rainforest and large mature Figs (particularly areas in the southern portion of the subject site), the presence of this species could be considered likely. Notwithstanding, the majority (~99%) of suitable rainforest (including mature Figs) will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of EEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Mitchell's rainforest snail across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Mitchell's rainforest snail quail life cycle.

With the above considered, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Mitchell's rainforest snail life cycle.

Likelihood of local extinction

Based on a review of preferred habitat features of the Mitchell's rainforest snail, and the retention and net gain of suitable habitat, it is considered unlikely that the proposed development will disrupt the lifecycle of the local population of this species to the point that it is at risk of extinction.

Northern free-tailed bat (Ozimops lumsdenae)

Extent of the local population

The Northern free-tailed bat has not been recorded on the subject site during previous surveys; however, there are 15 records of this species from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the subject site. This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The only confirmed record of the Northern free-tailed bat in NSW is of a colony found in the roof of a house in Murwillumbah, however, calls have been detected from a few other locations in the far northeast of the State.

They prefer a range of vegetation types, from rainforests to open forests and woodlands, and are often recorded along watercourses. Roosts are mainly formed in tree hollows, but relatively large colonies have been found under house roofs in urban areas in QLD.

The NSW Threatened Species Profile discusses the following threats for the Northern freetailed bat:

- Clearing of forest and woodland habitat for agricultural, residential and infrastructure development.
- Loss of hollow-bearing trees used for roosting and maternity sites as the result dieback, too frequent burning and forest management favouring younger stands.
- Use of pesticides.

Suitable forage habitat is available across all VCs on the subject site (except grassland), of which 70.24 ha (~72%) will be retained. Despite this loss of forage habitat, and in the context of the extent of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development would not directly impact the overall value of habitat or the continued presence of the Northern free-tailed bat.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the proposed development would not impede the continued potential presence of this species. As such, the proposed development will not result in the local extinction of this species.

Pink underwing moth (Phyllodes imperialis smithersi)

Extent of the local population

There are 14 records of the Pink underwing moth within 10 km of the subject site from the NSW BioNet online database and this species has been confirmed on the subject site by way of eggs and caterpillars in five (5) locations.

The subject site could be considered to support part of an important population of the Pink underwing moth, which is likely to extend into neighbouring suitable habitat.

Stages of the life cycle affected by the proposed development

In NSW, the Pink underwing moth is known to occur in a small number of localities from the QLD border to Wardell, and there is a disjunct population in the Bellingen area. Preferred habitat includes subtropical rainforest below about 600 m elevation, with breeding habitat that is restricted to areas where the caterpillar's food plant, a native rainforest vine, *Carronia multisepalea*, occurs.

The NSW Threatened Species Profile discusses the following threats for the Pink underwing moth:

- Clearing or disturbance of remnant patches of rainforest habitat for development and agriculture.
- Risk of local extinction due to restricted distribution and low numbers.
- Weed invasion of rainforest remnants particularly by exotic vine species.
- Use of rainforest remnants by domestic stock for shelter and grazing.
- Insufficient understanding of taxonomy.

It is expected that this species occupies suitable rainforest habitat on the subject site, and particularly the higher-quality lowland rainforest in the southern portion. Notwithstanding, the majority (~99%) of suitable rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of EEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Pink underwing moth across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to impede the continued presence of the Pink underwing moth or contribute significantly to the listed threats or any aspect of its life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not impede the continued presence of the Pink underwing moth or result in its local extinction.

Powerful owl (Ninox strenua)

Extent of the local population

This species has not been recorded on the subject site during previous or recent targeted surveys. There is one (1) record of the Powerful owl from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the subject site. This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

In NSW, the Powerful owl is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains suggesting occupancy prior to land clearing. Preferred habitat includes a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. While they require large tracts of forest and woodland, they can occur in fragments landscapes and even urban areas. Nesting occurs in large hollows of old eucalypts, typically greater than 800 mm in diameter.

The NSW Threatened Species Profile discusses the following threats for the Powerful owl:

• Historical loss and fragmentation of suitable forest and woodland habitat from land clearing for residential and agricultural development. This loss also affects the populations of arboreal prey species, particularly the Greater glider which reduces food availability for the Powerful owl.

- Inappropriate forest harvesting practices that have changed forest structure and removed old growth hollow-bearing trees. Loss of hollow-bearing trees reduces the availability of suitable nest sites and prey habitat.
- Can be extremely sensitive to disturbance around the nest site, particularly during pre-laying, laying and downy chick stages. Disturbance during the breeding period may affect breeding success.
- High frequency hazard reduction burning may also reduce the longevity of individuals by affecting prey availability.
- Road kills.
- Secondary poisoning.
- Predation of fledglings by foxes, dogs and cats.

It cannot be conclusively ruled out that this species forages throughout scattered mature trees and forest edges across the subject site; however, suitable nest / roost habitat is limited-to-absent.

The proposed development it is not considered likely to contribute significantly to the threats listed above or any aspect of the Powerful owls life cycle. Conversely, given the availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development would not significantly impact the overall value of habitat or impede continued presence of this species.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained on the subject site, it can be confidentially concluded that the potential loss of marginal forage habitat on the edges of cleared areas would not impede the continued potential presence of this species. As such, the proposed development will not result in the local extinction of this species.

Red bopple nut (Hicksbeachia pinnatifolia)

Extent of the local population

There are no records of the Bopple nut within 10 km of the subject site from the NSW BioNet online database; however, 49 stems of this species have been recorded in the northern portion of the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The Bopple nut occurs in coastal areas of north-east NSW from the Nambucca Valley north to SEQ, where it is found in subtropical rainforest, moist eucalypt forest and Brushbox forest.

The following threats have been identified for this species:

• Clearing of rainforest habitat for development and agriculture

- Infestation of habitat by introduced weeds, particularly Lantana and exotic vines
- Fire
- Collection of seed for horticulture

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Bopple nut.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Bopple nut life cycle.

Likelihood of local extinction

The Proposed development will not result in the removal of any Bopple nut stems from the subject site. The retained trees will be included in future conservation areas and buffered with plantings of local rainforest species. The Proposed development is highly unlikely to result in the local extinction of this species. Furthermore, seed will be collected and propagated to ameliorate for the loss of any trees to the development envelope, and to further bolster the local population.

Red lilly pilly (Syzygium hodgkinsoniae)

Extent of the local population

This species has not been recorded by WBM (1996) within the 7(a) zoned area in the southwest of the subject site was not recorded due to a combination of limited survey time

and the extremely thick nature of the vegetation in this area. There are 41 records of the Red lilly pilly from within 10 km of the subject site from the NSW BioNet online database.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life cycle affected by the proposed development

The Red lilly pill has a restricted range from the Richmond River in north-east NSW to Gympie in QLD. This species is usually found in riverine and subtropical rainforest on rich alluvial or basaltic soils.

The following threats have been identified for this species:

- Clearing and fragmentation of habitat for development, agriculture, roadworks and powerlines.
- Weed infestation and general degradation of rainforest habitat.
- Grazing and trampling of seedlings and saplings by domestic stock.
- Roadside slashing and mowing.
- Illegal collection for horticulture.
- Large scale, high intensity fire is likely to cause significant damage to the population.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Red lilly pilly.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the lifecycle of the Red lilly pilly.

Likelihood of local extinction

It is considered unlikely that the proposed development will disrupt the life cycle of the local population of this species to the point that it is at risk of extinction.

Rose-crowned fruit-dove (Ptilinopus regina)

Extent of the local population

There are 28 records of the Rose-crowned fruit-dove from within 10 km of the subject site and this species has been recorded on several occasions in areas of the subject site.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

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.

The OEH Threatened Species Profile discusses the following threats for the Rose-crowned fruit-dove:

- Clearing and fragmentation of low to mid-elevation rainforest.
- Logging and roading in moist eucalypt forest with well-developed rainforest understorey.
- Burning of remnant rainforest habitat.
- Invasion of habitat by introduced weed species
- Removal of Camphor laurel food source without appropriate mitigation measures.

All rainforest and Camphor laurel dominated forests that contain a variety of fruiting trees provide potential habitat for the Rose-crowned fruit-dove. Despite this, the highest quality habitat is being largely retained (~98%) in areas associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and tall, closed Camphor laurel dominated forests (VC3). Retained patches of suitable habitat will be buffered from the proposed development and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating communities to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Rose-crowned fruit-dove across the subject site.

With the above considered, the proposed development would not impede the continued presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Rose-crowned fruit-dove life cycle.

Likelihood of local extinction

Given the likely availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not impede the continued presence of the Rose-crowned fruit-dove or result in its local extinction.

Rough-shelled bush nut (Macadamia tetraphylla)

Extent of the local population

There are 374 records of the Rough-shelled bush nut within 10 km of the subject site from the NSW BioNet online database. A total of 1,010 individuals of this species has been recorded on the subject site, of which 113 (11%) are from inside the proposed development area.

Stages of the life cycle affected by the proposed development

Confined chiefly to the Richmond and Tweed Rivers in north-east NSW, extending just across the border into QLD. Found in subtropical rainforest, usually near the coast.

The OEH Threatened Species Profile discusses the following threats for the Rose-crowned fruit-dove:

- Clearing and fragmentation of habitat for coastal development, agriculture and roadworks.
- Risk of local extinction due to low numbers.
- Grazing and trampling by domestic stock.
- Fire.
- Invasion of habitat by weeds.
- Loss of local genetic strains through hybridisation with commercial varieties.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Rough-shelled bush nut.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the lifecycle of the Rough-shelled bush nut.

Likelihood of local extinction

It is considered unlikely that the proposed development will disrupt the life cycle of the local population of this species to the point that it is at risk of extinction.

Rusty rose walnut (Endiandra hayesii)

Extent of the local population

There are 14records of the Rusty rose walnut within 10 km of the subject site from the NSW BioNet online database. This species has been recorded on the subject site, outside the proposed development area.

Stages of the life cycle affected by the proposed development

A restricted distribution from Burleigh Heads in QLD to the Richmond River in north-east NSW. It is locally abundant in some parts of its range in NSW. Preferred habitat includes sheltered moist gullies in lowland subtropical and warm temperate rainforest on alluvium or basaltic soils.

The OEH Threatened Species Profile discusses the following threats for the Rusty rose walnut:

• Clearing and fragmentation of habitat for development, agriculture and road-works.

- Timber harvesting activities.
- Infestation of habitat by weeds.
- Fire.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Rusty rose walnut.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Rusty rose walnut life cycle.

Likelihood of local extinction

The Rusty rose walnut on the subject site occurs outside of the proposed development area. The proposed development is highly unlikely to result in the local extinction of this species.

Scarlet robin (Petroica boodang)

Extent of the local population

There is one (1) record of the Scarlet robin from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life cycle affected by the proposed development

Prefers dry eucalypt forests and woodlands with an understorey that is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. An important component of the species habitat is abundant logs and fallen timber.

The OEH Threatened Species Profile discusses the following threats for the Scarlet robin:

- Historical habitat clearing and degradation.
- Habitat modification due to overgrazing.
- Reduction of size of remnant patches.
- Reduction in the structural complexity of habitat, including reductions in canopy cover, shrub cover, ground cover, logs, fallen branches and leaf litter.
- Reduction in native ground cover from invasion by weeds including exotic grasses and woody weeds.
- Loss of nest sites, food sources and foraging sites, such as standing dead timber, logs and coarse woody debris, from depletion by grazing, firewood collection and 'tidying up' of rough pasture.
- Predation by over-abundant populations of pied currawong (*Strepera graculina*) which are supported by planted exotic berry-producing shrubs; this pressure, is addition to that from other native and exotic predators, may be a potentially severe threat to the breeding success of scarlet robin populations.
- Predation by feral cats (*Felis catus*).
- Isolation of patches of habitat, particularly where these patches are smaller than 10 ha, and in landscapes where clearing has been heavy or where remnants are surrounded by cropping or stock grazing.
- Habitat for the scarlet robin may become unsuitable if dense regeneration occurs after bushfires or other disturbances.
- Competetive exclusion by over-abundant Noisy Miners (*Manorina melanocephala*) within habitat.

The proposed development will remove marginal forage habitat for the Scarlet robin; however, given this species has not been recorded despite the extensive survey effort across the subject site, it is considered highly unlikely that this habitat is critical for the species.

Notwithstanding this, to mitigate risks, conditions of consent could require the registration of covenants on the titles to the residential lots that requires future owners to, if they have cats, ensure that cats are fitted with a collar bell and always kept inside during the

night to ensure there is no increase to the mortality threat to the Scarlet robin. Ideally, cat enclosures should be installed to always prevent access to protected areas.

In addition, a dedicated Pest Animal Control Strategy will outline a comprehensive and integrated approach to guide the immediate and ongoing management of feral animals on the subject site and to ensure the protection of native fauna species. In particular, the management of feral species such as foxes and feral cats will assist in the long-term protection of the Scarlet robin should it occupy areas of the subject site from time-to-time.

Despite the loss of marginally suitable habitat, and in conjunction with the abovementioned recommendations for cats and feral animals, the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the Scarlet robin life-cycle.

Likelihood of local extinction

Given the absence of this species from the subject site, and the limited suitable habitat, it can therefore be confidentially concluded that the proposed development will not result in the local extinction of the Scarlet robin.

Shiny-leaved ebony (Diospyros yandina)

Extent of the local population

There are 14 records of the Shiny-leaved ebony within 10 km of the subject site from the NSW BioNet online database. 327 specimens have been recorded on the subject site.

Stages of the life cycle affected by the proposed development

The Shiny-leaved ebony can be a small tree up to 6 m tall but most specimens are shrubs of about 3 m. Prior to discovery on the site in NSW this species was known only in Hogans Scrub at North Tumbulgum and on Mount Cougal, in the Tweed Valley. It also occurs in south-east Queensland. It grows in the understorey of riverine or lowland subtropical rainforest.

The following threats have been identified for this species:

- Loss of habitat through clearing for agriculture or other development.
- Browsing and trampling by domestic stock.
- Infestation of habitat by weeds, particularly Lantana.
- Fire affecting the margins of rainforest habitats.
- Seed collection for horticulture.
- The species is susceptible to extinction via stochastic processes due to its small known population size and restricted distribution.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Shiny-leaved ebony.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Shiny-leaved ebony.

Likelihood of local extinction

The Shiny-leaved ebony on the subject site occur outside of the proposed development area and will be retained. The proposed development is highly unlikely to result in the local extinction of this species.

Small-leaved Tamarind (Diploglottis campbellii)

Extent of the local population

There are 38 records of the Small-leaved tamarind within 10 km of the subject site from the NSW BioNet online database. A total of 176 individuals of this species has been recorded on the subject site with one (1) specimen inside the proposed development area.

Stages of the life cycle affected by the proposed development

Recorded from the coastal lowlands between Richmond River on the Far North Coast of NSW and Mudgeeraba Creek on the Gold Coast hinterland, QLD. Confined to the warm subtropical rainforests of the NSW-QLD border lowlands and adjacent low ranges. The forest types in which the species occurs vary from lowland subtropical rainforest to drier subtropical rainforest with a Brush Box open overstorey.

The OEH Threatened Species Profile discusses the following threats for the Small-leaved tamarind:

- Clearing and fragmentation of habitat is believed to be the primary reason for decline.
- Risk of local extinction because populations are small.
- Loss of, or physical damage to plants from roadways and road maintenance.
- Physical damage to plants and compaction of soils from grazing and trampling by stock.
- Infestation of habitat by weeds.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Small-leaved tamarind.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Small-leaved tamarind.

Likelihood of local extinction

One (1) out of the 176 individuals occurring on the site will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Smooth scrub turpentine (Rhodamnia maideniana)

Extent of the local population

There are 57 records of the Smooth scrub turpentine within 10 km of the subject site from the NSW BioNet online database. A total of 44 individuals of this species have been recorded on the subject site with two (2) specimens inside the proposed development area.

Stages of the life cycle affected by the proposed development

This species is found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.

The OEH Threatened Species Profile discusses the following threats for the Rose-crowned fruit-dove:

- Decline in health/loss of mature plants and a lack of seed-based recruitment due to infection by *Austropuccinia psidii* (Myrtle Rust).
- Degradation of habitat and competition from transformer weed species.
- Clearing from rural, agricultural and urban development leading to edge effects, degradation and further fragmentation.
- Habitat degradation and clearing due to forestry operations.
- Too frequent/intense fire destroying habitat and individual plants.
- Road and track development and maintenance.
- Small and fragmented population.
- Changes in rainfall and moisture availability potentially impacting the species.
- Altered species ecology in response to fire.
- Altered species ecology in response to drought

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Smooth scrub turpentine.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Smooth scrub turpentine.

Likelihood of local extinction

Two (2) out of the 44 individuals occurring on the site will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Sooty owl (Tyto tenebricosa)

Extent of the local population

There are one (1) records of the Sooty owl from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise).

Stages of the life cycle affected by the proposed development

The Sooty owl occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.

The OEH Threatened Species Profile discusses the following threats for the Sooty owl:

- Loss of mature hollow-bearing trees and changes to forest and woodland structure, which leads to fewer such trees in the future.
- Clearing of habitat for grazing, agriculture, forestry or other development.
- A combination of grazing and regular burning is a threat, through the effects on the quality of ground cover for mammal prey, particularly in open, grassy forests.
- Secondary poisoning from rodenticides.

Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies areas of suitable habitat on the subject site. Notwithstanding, the majority (~99%) of suitable and higher quality lowland rainforest will be retained and protected by the

proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Sooty owl across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Sooty owl life cycle should it occupy suitable areas of the subject site.

Likelihood of local extinction

This species is likely to benefit from the large-scale rainforest restoration works proposed for the subject site. Given this and the protection of existing lowland rainforest, it can be confidentially concluded that the proposed development will not result in the local extinction of the Sooty owl.

Southern ochrosia (Ochrosia moorei)

Extent of the local population

There is one (1) record of the Southern ochrosia within 10 km of the subject site from the NSW BioNet online database. This species has been recorded on the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

Southern ochrosia is found in north-east NSW north from the Richmond River, and in SEQ. It is very sparsely distributed within this range and is found in riverine and lowland subtropical rainforest.

The OEH Threatened Species Profile discusses the following threats for the Southern Ochrosia:

- Clearing and fragmentation of habitat for coastal development, agriculture and roadworks.
- Risk of local extinction because populations are small.
- Invasion of habitat by introduced weeds.
- Collection of seed for horticulture.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Southern ochrosia.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the Southern ochrosia cycle.

Likelihood of local extinction

The area where this species was recorded will be included in future conservation areas, and given the retention and restoration of suitable habitat, the proposed development is highly unlikely to result in the local extinction of this species.

Spiny gardenia (Randia moorei)

Extent of the local population

There are 82 records of the Spiny gardenia within 10 km of the subject site from the NSW BioNet online database. A total of 90 individuals of this species has been recorded on the subject site, of which 12 are from inside the proposed development area.

Stages of the life cycle affected by the proposed development

This species is found from Lismore in north-east NSW north to the Logan River in SEQ. Sparsely distributed, with most records in the Tweed and Brunswick areas. Subtropical, riverine, littoral and dry rainforest. In NSW, Hoop Pine and Brush Box are common canopy species.

The OEH Threatened Species Profile discusses the following threats for the Spiny gardenia:

- Clearing and fragmentation of habitat for development, agriculture and roadworks.
- Invasion of habitat by introduced weeds.
- Trampling by visitors.
- Fire.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Spiny gardenia.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Spiny gardenia.

Likelihood of local extinction

Twelve (12) out of the 90 individuals occurring on the site (i.e. 13%) will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Spotted-tailed quoll (Dasyurus maculatus)

Extent of the local population

There are four (4) records of the Spotted-tailed quoll from within 10 km of the subject site. Based on interrogation of historical records; this species was recorded just outside (<100 m) of the eastern boundary of the subject site in 2004.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species has large home ranges, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

This species is recorded from a wide range of habitats, including montane rainforests, sclerophyll forests (e.g. open, closed, wet), coastal heathlands, sub-alpine woodlands, and riparian forests. It prefers mature wet forests that have not been logged and require large areas of relatively intact forest for foraging. Preferred den sites include hollow logs, caves, or rocky outcrops for daytime shelter.

The NSW Threatened Species Profile discusses the following threats for the Spotted-tailed quoll:

- Loss, fragmentation and degradation of habitat.
- Competition with introduced predators such as cats and foxes.
- Deliberate poisoning, shooting and trapping, primarily in response to chicken predation.
- Roadkill
- Poisoning from eating cane toads in the wild.

Given the proximity of the 2004 record, it cannot be conclusively ruled out that this species persists in the broader landscape. Despite this, suitable habitat on the subject site is likely to be limited and restricted to intact and connected rainforest remnants.

Notwithstanding, the majority (~99%) of suitable rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of EEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Spotted-tailed quoll across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to impede the potential future presence of the Spotted-tailed quoll or contribute significantly to the listed threats or any aspect of its life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not impede the potential future presence of the Spotted-tailed quoll or result in its local extinction.

Stinking laurel (Cryptocarya foetida)

Extent of the local population

There are 50 records of the Stinking cryptocarya within 10 km of the subject site from the NSW BioNet online database. A total of 162 individuals of this species have been recorded on the subject site, with one (1) specimen inside the proposed development area.

Stages of the life cycle affected by the proposed development

This species is found from coastal SEQ and north-east NSW south to Iluka. Preferred habitat includes littoral rainforest, usually on sandy soils, but mature trees are also known on basalt soils.

The NSW Threatened Species Profile discusses the following threats for the Stinking cryptocarya:

• Risk of local extinction because populations are small.

- Clearing and fragmentation of habitat for coastal development, agriculture and roadworks.
- Infestation of habitat by weeds.
- Trampling by visitors when accessing beach areas through littoral rainforest.
- Fire.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Stinking cryptocarya.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Stinking cryptocarya.

Likelihood of local extinction

Only one (1) out of the 162 individuals occurring on the site will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

<u>Superb fruit-dove (Ptilinopus superbus)</u>

Extent of the local population

There are four (4) records of the Superb fruit-dove from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The NSW Threatened Species Profile discusses the following threats for the Superb fruitdove:

- Clearing and fragmentation of low-elevation rainforest resulting in irregular food availability throughout the year.
- Changes to rainforest habitat with climate change including drying and increased fire frequency.

All rainforest and Camphor laurel dominated forests that contain a variety of fruiting trees provide potential habitat for the Superb fruit-dove. Despite this, the highest quality habitat is being largely retained (~98%) in areas associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and tall, closed Camphor laurel dominated forests (VC3). Retained patches of suitable habitat will be buffered from the proposed development and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating communities to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Superb fruit-dove across the subject site.

With the above considered, the proposed development would not impede the potential future presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Superb fruit-dove life cycle.

Likelihood of local extinction

Given the likely availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not result in its local extinction of the Superb fruit-dove.

<u>Sweet myrtle (Gossia fragrantissima)</u>

Extent of the local population

There are 70 records of the Sweet myrtle within 10 km of the subject site from the NSW BioNet online database. A total of 144 individuals of this species have been recorded on the subject site, with four (4) inside of the proposed development area.

Stages of the life cycle affected by the proposed development

Occurs in SEQ and in north-east NSW south to the Richmond River. Mostly found on basaltderived soils. Preferred habitat includes dry subtropical and riverine rainforest. As it can coppice from roots left in the ground when rainforest is cleared, it is found at several sites as isolated plants in paddocks or regrowth.

The OEH Threatened Species Profile discusses the following threats for the Sweet myrtle:

- Habitat degradation through weed invasion and disturbance.
- Loss of habitat through clearing and fragmentation.
- Risk of local extinction because populations are small.
- Grazing by domestic stock.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the Sweet myrtle.
With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the life cycle of the Sweet myrtle.

Likelihood of local extinction

Only four (4) out of the 144 individuals occurring on the site will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Three-toed snake-tooth skink (Saiphos reticulatus)

Extent of the local population

There are no records of the Three-toed snake-tooth skink from within 10 km of the subject site and it has not been recorded during past surveys.

If present, the local population of this species may comprise those individuals that potentially occur on the subject site or in the immediate surrounds.

Stages of the life cycle affected by the proposed development

This species inhabits rainforest and occasionally moist eucalypt forest, on loamy or sandy soils. This species feeds on earthworms and beetle grubs and is found in leaf litter, often immediately adjacent to fallen tree trunks.

The OEH Threatened Species Profile considers that reduction of habitat and the removal of leaf litter and fallen logs due to clearing, fire or climate change is the primary threat to this species.

Despite an absence of historical records, suitable habitat is on the subject site for this species. Notwithstanding, the majority (~99%) of suitable rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of EEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature

and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Three-toed snake-tooth skink across the subject site.

This species is unlikely to occupy habitat on the subject site that is highly degraded and assigned for the proposed development. As such, and with the above considered, the proposed development is unlikely to impede the continued presence of the Three-toed snake-tooth skink or contribute significantly to the listed threats or any aspect of its life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained and restored, it can be confidentially concluded that the proposed development will not result in its local extinction of the Three-toed snake-tooth skink if it occurs in suitable areas of the subject site.

White-bellied Sea-Eagle (Haliaeetus leucogaster)

Extent of the local population

There are 65 records of the White-bellied sea-eagle from within 10 km of the subject site from the NSW BioNet online database. This species was recorded soaring over the southern vegetated portion of the subject site during previous surveys.

The White-bellied sea-eagle is wide-ranging, so the local population of this species is therefore likely to extend to areas well outside of the subject site and broader landscape.

Stages of the life cycle affected by the proposed development

This species has a large distribution range, and is found in association with coasts, large rivers and estuaries and prefers to nest in large trees adjacent to watercourses.

The OEH Threatened Species Profile for the White-bellied sea-eagle identifies the following threats:

- Land clearing reduces the amount of suitable habitat available and this can force birds to nest in sub-optimal habitats where their breeding success is greatly reduced. Coastal development is increasing in density and spread impacting White-bellied Sea-Eagle habitat and populations.
- The White-bellied Sea-eagle is sensitive to disturbance when nesting, especially during the early stages of the breeding season, and may desert nests and young if confronted by humans or exposed to human activity. Residential development, coastal tourism developments, and coastal land sub-divisions have been implicated in the abandonment of White-bellied Sea-Eagle nest sites.

- In coastal areas potential threats to foraging resources include: clearing, degradation or reclamation of saltmarsh, mangroves, sea grass and other riparian or shallow water vegetation resulting in loss of fish nursery habitats and food resources.
- Off-road vehicles accessing remote coastal areas, and various forms of recreation (e.g. surfing, bushwalking, rock-climbing, fishing, hunting and intrusive photography), have each been implicated in the abandonment of White-bellied Sea-Eagle nest sites.
- Increased mortality due to entanglement in discarded fishing gear, and entanglement in fish farm nets.
- Increased mortality or reduced breeding success due to non-target poisoning during vertebrate pest control, exposure to industrial chemicals and pesticides used for agriculture (directly or indirectly through prey), and deliberate poisoning.
- Climate change, leading to sea-level rise will result in inundation of low-lying coastal areas with unknown impacts on this species. In inland areas increased drought frequency and duration may result in inland areas being increasingly unsuitable for nesting, compared with baseline levels.

The subject site provides limited habitat for this species and its presence is likely to be a result of higher quality habitat in the surrounding landscape such as wetlands, estuaries and rivers. As such the proposed development is not considered likely to contribute significantly to the threats listed above or any aspect of the White-bellied Sea-eagle life cycle.

Likelihood of local extinction

Based on a review of preferred habitat features, it is considered highly unlikely that the proposed development will result in the local extinction of the White-bellied Sea-eagle.

White-eared monarch (Carterornis leucotis)

Extent of the local population

There are 13 records of the White-eared monarch from within 10 km of the subject site from the NSW BioNet online database. This species was recorded in rainforest in the southwestern portion of the subject site during previous surveys.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The OEH Threatened Species Profile for the White-eared monarch identifies the following threats:

- Clearing and increasing fragmentation and isolation of habitat, especially lowelevation subtropical rainforest, littoral rainforest and wet sclerophyll forest, through agricultural, tourist and residential development or forestry activities.
- Forest management that results in conversion of multi-aged forests to young, evenaged stands.
- Invasion of forests by weeds.
- Inappropriate fire regimes that degrade habitat or allow invasion by weeds.
- Degradation or loss of habitat through grazing of stock.
- Changes to rainforest habitat with climate change including drying and increased fire frequency.
- Lack of information on the species habitat requirements in NSW, particularly breeding habitat.
- Easily disturbed by the presence of people

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the White-eared monarch across the subject site.

With the above considered, the proposed development would not impede the continued presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the White-eared monarch life cycle.

Likelihood of local extinction

Given the likely availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not impede the continued presence of the Ro White-eared monarch or result in its local extinction.

White lace flower (Archidendron hendersonii)

Extent of the local population

There are 28 records of the White lace flower within 10 km of the subject site from the NSW BioNet online database. One (1) naturally occurring specimen has been recorded on the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The White lace flower occurs from north QLD south to the Richmond River in north-east NSW. It is found on a variety of soils including coastal sands and those derived from basalt and metasediments. Preferred habitat includes riverine and lowland subtropical rainforest and littoral rainforest.

The following threats have been identified for this species:

- Loss of habitat through clearing and fragmentation.
- Habitat degradation through weed invasion and disturbance.
- Illegal collection of seeds for horticulture.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained
Critically Endangered Ecological Community (EPBC Act)	
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)
Endangered Ecological Community (BC Act)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain

of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the White lace flower.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the White lace flower life cycle.

Likelihood of local extinction

The White lace flower on the subject site occurs outside of the proposed development area. This tree will be retained (in association with nearby Ball nut). The proposed development is highly unlikely to result in the local extinction of this species.

White yiel yiel (Grevillea hilliana)

Extent of the local population

There are 59 records of the White yiel yiel within 10 km of the subject site from the NSW BioNet online database. A total of 111 individuals of this species has been recorded on the subject site, of which two (2) are from inside the proposed development area.

Stages of the life cycle affected by the proposed development

Confined chiefly to the Richmond and Tweed Rivers in north-east NSW, extending just across the border into QLD. Found in subtropical rainforest, usually near the coast.

The OEH Threatened Species Profile discusses the following threats for the Rose-crowned fruit-dove:

- Clearing and fragmentation of habitat for coastal development, agriculture and roadworks.
- Risk of local extinction due to low numbers.
- Grazing and trampling by domestic stock.
- Fire.
- Invasion of habitat by weeds.
- Loss of local genetic strains through hybridisation with commercial varieties.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained	
Critically Endangered Ecological Community (EPBC Act)		
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)	
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)	
Endangered Ecological Community (BC Act)		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the White yiel yiel.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the lifecycle of the White yiel yiel.

Likelihood of local extinction

Only two (2) out of the 11 individuals occurring on the site will be removed and offset at a 5:1 ratio in areas of subtropical habitat that will be retained and/or restored. With this considered, the proposed development is highly unlikely to result in the local extinction of this species.

Wompoo fruit dove (Ptilinopus magnificus)

Extent of the local population

There are eight (8) records of the Wompoo fruit-dove from within 10 km of the subject site. This species has not been recorded on the subject site during past surveys; however, was recorded in 2022 on a property ~500 m to the south-eastern of the subject site.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Wompoo fruit-dove occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests where it feeds on a diverse range of tree and vine fruits and is locally nomadic. The NSW Threatened Species Profile discusses the following threats for the Wompoo fruitdove:

- Clearing and fragmentation of low to mid-elevation rainforest due to coastal development and grazing.
- Logging and roading in moist eucalypt forest with well-developed rainforest understorey.
- Burning, which reduces remnant rainforest habitat patches.
- Infestation of rainforest habitat by invasive weeds.

All rainforest and Camphor laurel dominated forests that contain a variety of fruiting trees provide potential habitat for the Wompoo fruit-dove. Despite this, the highest quality habitat is being largely retained (~98%) in areas associated with areas of lowland rainforest (VC1), closed sclerophyll forest (VC2), and tall, closed Camphor laurel dominated forests (VC3). Retained patches of suitable habitat will be buffered from the proposed development and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating communities to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition to the above, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of suitable habitat for the Wompoo fruit-dove across the subject site.

With the above considered, the proposed development would not impede the potential future presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Wompoo fruit-dove life cycle.

Likelihood of local extinction

Given the likely availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not result in its local extinction of the Wompoo fruit-dove.

Yellow-bellied sheathtail-bat (Saccolaimus flaviventris)

Extent of the local population

There are two (2) records of the Yellow-bellied sheathtail bat from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.

The local population of this species comprises those individuals that potentially occur on the subject site, as well as any individuals occurring in adjoining areas (contiguous or otherwise). This species is highly mobile, so the local population of this species is therefore likely to extend to areas well outside of the subject site.

Stages of the life cycle affected by the proposed development

The Yellow-bellied sheathtail-bat roost singly or in groups of up to six, in tree hollows and buildings. It forages in most habitats across its wide range, with and without trees.

The OEH Threatened Species Profile for the Yellow-bellied sheathtail-bat identifies the following threats:

- Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.
- When foraging for insects, flies high and fast over the forest canopy, but lower in more open country.
- Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.
- Breeding has been recorded from December to mid-March, when a single young is born.
- Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn.

Suitable forage habitat is associated with all intact forested areas of the subject site, of which 70.24 ha (~72%) is being retained. The retention and protection suitable habitat, restoration and/or embellishment across ~17.52 ha of mature and regenerating lowland rainforest, and ~19.73 ha of revegetation / regeneration of lowland rainforest, will result in an overall net gain in suitable habitat for the Yellow-bellied sheathtail-bat.

With the above considered, and in the context of the extent of suitable habitat across the broader landscape, it can be confidentially concluded that the proposed development would not impede the continued presence of this species and is therefore unlikely to contribute significantly to the threats listed above or any aspect of the Yellow-bellied sheathtail-bat life cycle.

Likelihood of local extinction

Given the availability of suitable habitat across the broader landscape and that being retained and restored on the subject site, it can be confidentially concluded that the proposed development will not impede the potential future presence of the Yellow-bellied sheathtail-bat or result in its local extinction.

Yellow satinheart (Bosistoa transversa)

Extent of the local population

There are 19 records of the Yellow satinheart within 10 km of the subject site from the NSW BioNet online database. This species has been recorded on the subject site, outside of the proposed development area.

Stages of the life cycle affected by the proposed development

The White lace flower occurs from north QLD south to the Richmond River in north-east NSW. It is found on a variety of soils including coastal sands and those derived from basalt and metasediments. Preferred habitat includes riverine and lowland subtropical rainforest and littoral rainforest.

The following threats have been identified for this species:

• Loss of habitat through clearing and fragmentation.

- Habitat degradation through weed invasion and disturbance.
- Illegal collection of seeds for horticulture.

The majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Threatened Ecological Community	Area to be retained	
Critically Endangered Ecological Community (EPBC Act)		
Lowland Rainforest of Subtropical Australia - Type A	15.53 ha (99%)	
Lowland Rainforest of Subtropical Australia - Type B	7.47 ha (100%)	
Endangered Ecological Community (BC Act)		
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	

In accordance with the SRPMP, retained patches of the lowland rainforest TEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest TEC, and subsequently, suitable habitat for the White lace flower.

With the above considered, the proposed development is unlikely to contribute significantly to the listed threats or any aspect of the White lace flower life cycle.

Likelihood of local extinction

The White lace flower on the subject site occurs outside of the proposed development area. This tree will be retained (in association with nearby Ball nut). The proposed development is highly unlikely to result in the local extinction of this species.

(b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

Not applicable

(c) In the case of an endangered ecological community or critically endangered ecological community whether the action proposed:

Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregion

- (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;
- (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 majority (~99%) of suitable and higher quality rainforest will be retained and protected by the proposed development. Of the 2.13 ha of TEC to be impacted, ~1.94 ha is considered highly degraded. Areas to be retained include the following:

Endangered Ecological Community	Area to be retained	Area to be impacted
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion	25.42 ha (99%)	0.19 ha (1%)
Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion - highly degraded	17.99 ha (90%)	1.94 ha (10%)

In accordance with the SRPMP, retained patches of the lowland rainforest EEC will be buffered from the proposed development, and will include ~17.52 ha of restoration and/or embellishment in mature and regenerating areas to increase the overall extent of isolated patches and reduce existing anthropogenic impacts.

In addition, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest EEC.

With the above considered, there is no evidence to indicate that the proposed development is unlikely to place the lowland rainforest EEC at risk of extinction.

(d) In relation to the habitat of a threatened species, population or ecological community:

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

The proposed development has been designed to minimise impacts on the highest quality native vegetation and associated habitat values.

The extent of vegetation clearing for the proposed development is 88.35 ha. Of this, 71.34 ha (~80%) is strategically placed across grasslands, disturbed areas, or planted trees/landscaping associated with the disused golf course. An additional 14.25 ha of

vegetation to be cleared is in highly degraded Camphor laurel dominated forest and regrowth (i.e. VC4A & VC4B). With this considered, approximately 2.13 ha (~2.5%) of vegetation to be cleared is considered of moderate to high quality (i.e. VCs 1-3).

Notwithstanding this, revegetation / regeneration will be completed across disturbed land/depauperate rainforest and cleared land, which will result in the net long-term gain of ~19.73 ha of the lowland rainforest EEC and subsequent habitat values for threatened species.

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

The proposed development will retain the majority of native vegetation and associated habitat values on the subject site. No areas of habitat are considered likely to become fragmented or isolated from other areas of habitat as a result of the proposed action.

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

When considered in the context of the vegetation to be retained and/or restored, the proposed development is considered unlikely to prevent the long-term survival of any threatened species or the lowland rainforest ECC.

(e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

There will be no adverse effects on any of the critical habitats listed under the TSC Act.

(f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

It is noted that under the EP&A Act, it is the responsibility of the consent or determining authority to form a view as to whether a proposed development or activity is likely to significantly affect threatened species, communities, populations or their habitat. This is achieved by undertaking an Assessment of Significance under Section 5A of the EP&A Act.

In this regard, an assessment of significance has been conducted for the proposal which concludes that a species impact statement is not required. It is further concluded within this report that the proposal is unlikely to have a significant impact on recorded or potentially occurring threatened species, communities and their associated habitat.

As such, it is considered that the proposal is not in conflict with the objectives or actions of the listed recovery plans.

(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of or increase the impact of a key threatening process. An assessment of the proposed development against the Key Threatening Processes (KTP) listed in Schedule 4 of the BC Act (2016) indicates that with the adoption of the recommended mitigation measures, the proposed development is unlikely to exacerbate these KTPs on top of what is already present.

Conclusion

Based upon the above assessments, it is considered that the proposed development not likely to have a significant impact to EECs or threatened flora and fauna both locally and across the broader landscape. It is therefore concluded that a Species Impact Statement (SIS) is not required.

APPENDIX 4 - HABITAT SUITABILITY ASSESSMENTS

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
Assa darlingtoni	Pouched frog	V	V	Pouched frogs live in cool, moist rainforest, including Antarctic Beech, or moist eucalypt forest in mountainous areas, mostly above 800 m but have been found as low as 300 m	There are two (2) records of the Pouched frog from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available in the subject site.	Unlikely
Crinia tinnula	Wallum froglet	v		Wallum froglets are found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgelands and wet heathlands but can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests. The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches.	There are 171 records of the Wallum froglet from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available in the subject site.	Unlikely
Litoria olongburensis	Wallum sedge frog	v	v	The wallum sedge frog is found in ephemeral, seasonal and permanent wetlands with emergent reeds, ferns and/or sedges, in undisturbed coastal wallum swamps. Griffith and colleagues (2003) describe wallum as sandmass heathland and shrubland, and various forest, woodland, sedgeland and	There are 62 record of the Wallum sedge frog from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.	Unlikely

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence		
Amphibians								
				grassland communities (Bantianoff & Elsol 1989; Coaldrake 1961). While most common in swamps, the wallum sedge frog may also be found around creeks and freshwater lakes in coastal wallum. At swamp sites, the wallum sedge frog can be found sheltering amongst sedges, reeds and ferns all year round (Anstis 2002; Ehmann 1997; Ingram & Corben 1975; James 1996; Lewis & Goldingay 2005; Liem & Ingram 1977; Neilson 2000).	No suitable habitat is available in the subject site.			
Mixophyes balbus	Stuttering frog	E	v	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Outside the breeding season adults live in deep leaf litter and thick understorey vegetation on the forest floor.	There are no records of the Stuttering frog from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. No suitable habitat is available in the subject site.	Unlikely		
Mixophyes fleayi	Fleay's frog	E	E	Fleay's frog is associated with montane rainforest (Corben & Ingram 1987) and open forest communities adjoining rainforest (Hines 2001, pers. comm.). The species occurs along stream habitats from first to third order streams (i.e. small streams close to their origin through to permanent streams with grades of 1 in 50) and is not found in ponds or ephemeral pools. Adults may be found in leaf litter and along watercourses in rainforest and adjoining	There are no records of the Fleay's frog from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. No suitable habitat is available in the subject site.	Unlikely		

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence		
Amphibians								
				wet sclerophyll forests (Hines & SEQTFRT 2002).				
Mixophyes iteratus	Giant barred frog	E	V	Giant barred frogs are found along freshwater streams with permanent or semi-permanent water, generally (but not always) at lower elevation. Moist riparian habitats such as rainforest or wet sclerophyll forest are favoured for the deep leaf litter that they provide for shelter and foraging, as well as open perching sites on the forest floor. However, giant barred frogs will also sometimes occur in other riparian habitats, such as those in drier forest or degraded riparian remnants, and even occasionally around dams.	There are no records of the Giant barred frog from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. No suitable habitat is available in the subject site.	Unlikely		
Birds								
Anthochaera phrygia	Regent honeyeater	CE	CE	The Regent honeyeater is found from Dalby in QLD, south to Bendigo in Victoria, especially along the ranges and the western slopes. Its distribution is extremely patchy with only a small number of known breeding sites. The estimated total population is between 350 and 400 mature individuals. Potential habitat for this species includes dry eucalypt woodland and open forest, rural and urban areas with mature eucalypts. It favours ironbark-box associations, mugga ironbark (<i>Eucalyptus sideroxylon</i>), white box (<i>E. albens</i>), and	There are no records of the Regent honeyeater from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. No suitable habitat is available in the subject site.	Unlikely		

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
				yellow box (E. <i>melliodora</i>). Other habitat includes swamp mahogany (E. robusta), spotted gum (Corymbia maculata), or river she-oak (Casuarina cunninghamiana) with associated needle-leaf mistletoe (Amyema cambagei). This species generally prefers wetter, more fertile sites that are reliable nectar producers (both in timing and quantity), such as creek flats, river valleys and lower slopes (OEH 2014).		
Burhinus grallarius	Bush stone- curlew	E		Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. In the south-east it is either rare or extinct throughout its former range.	There are 23 records of the Bush stone- curlew from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. It cannot be conclusively ruled out that this species could occupy disturbed grassy areas with scattered trees, most likely those associated with the disused golf course.	Possible
Calyptorhynchus lathami lathami	Glossy black cockatoo	v	v	This species is associated with woodland or open sclerophyll forests with populations of <i>Allocasuarina</i> , which comprise its exclusive diet. They require large old trees with hollows for nesting.	There is one (1) record of the Glossy-black cockatoo from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.	Unlikely

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
					Considered likely to persist across the broader landscape; however, the subject site provides little to no suitable habitat.		
Carterornis leucotis	White-eared monarch	v		In NSW, White-eared monarchs occur in rainforest, especially drier types, such as littoral rainforest, as well as wet and dry sclerophyll forests, swamp forest and regrowth forest.	There are 13 records of the White-eared monarch from within 10 km of the subject site from the NSW BioNet online database. This species was recorded in suitable rainforest habitat in the south-western portion of the subject site during previous surveys (JWA 2009).	KNOWN	
Climacteris picumnus victoriae	Brown treecreeper	v		Found in eucalypt woodlands and dry open forest of the inland slopes and plains inland of the Great Dividing Range. This species mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. It is also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses. Fallen timber is an important habitat component for foraging. The Brown treecreeper has been recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains. Hollows in standing dead or live trees and tree stumps are essential for nesting.	There is one (1) record of the Brown treecreeper from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available on the subject site.	Unlikely	

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
Coracina lineata	Barred cuckoo- shrike	V		Found in rainforest, eucalypt forests and woodlands, clearings in secondary growth, swamp woodlands and timber along watercourses. They are usually seen in pairs or small flocks foraging among foliage of trees for insects and fruit. They are active birds, frequently moving from tree to tree.	There are two (2) records of the Barred cuckoo-shrike from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Although considered less likely due to a paucity of historical records, it cannot be conclusively ruled out that this species occupies areas of the subject site that contain suitable habitat.	Possible
Cuculus optatus	Oriental cuckoo		м	This species is found in monsoon forests, the edges of rainforests, treed paddocks, mangroves, roadsides, and river flats (Pizzey and Knight 1999).	There are no records of the Oriental cuckoo from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. Although considered less likely due to a paucity of historical records, it cannot be conclusively ruled out that this species occupies areas of the subject site that contain suitable rainforest or treed paddocks.	Possible
Cyclopsitta diophthalma coxeni	Coxen's fig parrot	CE	E	Usually recorded from drier rainforests and adjacent wetter eucalypt forest but rarely seen due to its small size and cryptic habits. Also found in the wetter lowland rainforests that are now largely cleared in NSW.	There are no records of the Coxen's fig parrot within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. Although this species is rarely recorded (which could account for an absence of	Possible

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence				
Amphibians	Amphibians									
					historical records), suitable habitat is available to suggest could possibly occupy the subject site.					
Daphoenositta chrysoptera	Varied sittella	v		Varied sitellas are found in eucalypt woodlands and forests throughout their range. They prefer rough-barked trees like stringybarks and ironbarks or mature trees with hollows or dead branches.	There are six (6) records of the Varied sittella from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available on the subject.	Unlikely				
Erythrotriorchis radiatus	Red goshawk	CE	v	This species occupies open forests and woodlands along rivers and wetlands and rainforest fringes. In NSW favoured habitat includes <i>Melaleuca</i> forest along coastal rivers (Debus 1991, 1993).	There are no records of the Red goshawk from within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. The subject site does not provide suitable habitat for this species, which is more likely to be recorded closer to the coast or to the east or north-east around the Terranora and Cobaki Broadwater's, respectively.	Unlikely				
Falco hypoleucos	Grey falcon	E	v	This species is associated with arid or semi- arid environments, where it can be found in shrublands, grasslands, watercourses, and wetlands.	There are no records of the Grey falcon within 10 km of the subject site and this species has not been recorded on the subject site during past surveys. No suitable habitat is available in the subject site.	Unlikely				

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
Glossopsitta pusilla	Little lorikeet	v		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. Isolated flowering trees in open country (e.g., paddocks, roadside remnants, and urban trees) also help sustain viable populations of the species.	There are four (4) records of the Little lorikeet from within 10 km of the subject site, and this species has been recorded on the subject site during past surveys. Despite a paucity of historical records, the subject site provides suitable habitat for this species to occur.	KNOWN
Haliaeetus leucogaster	White-bellied sea-eagle	v	м	This species has a large distribution range, and is found in association with coasts, large rivers and estuaries and prefers to nest in large trees adjacent watercourses.	There are 65 records of the White-bellied sea-eagle from within 10 km of the subject site from the NSW BioNet online database. This species was recorded soaring over the southern vegetated portion of the subject site during previous surveys (JWA 2009). Notwithstanding, the subject site provides limited habitat for this species and its presence is likely to be a result of nearby Broadwater's and Rivers.	KNOWN
Hieraaetus morphnoides	Little eagle	v		Found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. Occupies open eucalypt forest, open woodland, She oak or Acacia woodlands, and riparian woodlands of interior NSW.	There is one (1) record of the Little eagle from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. This species may traverse the area while foraging; however, the subject site contains no habitat of value.	Unlikely

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
Hirundapus caudacutus	White-throated needletail		V, M	This species is recorded in all coastal regions of QLD and NSW and almost always forages aerially. Most often, the species is recorded above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland.	There are 14 records of the White-throated needletail from within 10 km of the subject site. This species has not been recorded on the subject site during past surveys; however, was recorded in 2011 and 2012 on a property directly adjacent to the south-eastern corner of the subject site. Given the proximity of past records, it cannot be conclusively ruled out that this species traverses the subject site while foraging.	Possible
Lathamus discolor	Swift parrot	E	CE	The swift parrot migrates from its Tasmanian breeding grounds to overwinter in the box- ironbark forests and woodlands of Victoria, NSW, and southern QLD.	There are no records of the Swift parrot within 10 km of the subject site and this species has not been recorded on the subject site during past surveys No suitable habitat is available in the subject site to attract or support this species.	Unlikely
Monarcha melanopsis	Black-faced monarch		м	This species occurs in rainforest ecosystems, including semi-deciduous vine-thickets, complex notophyll vine-forest, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and (occasionally) cool temperate rainforest.	There are eight (8) records of the Black- faced monarch from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.	Possible

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
				During winter or migration, this species also occurs in marginal habitats such as 20-30 years old regrowth rainforest, nearby open eucalypt forest (mainly wet sclerophyll forests), especially in gullies with a dense, shrubby understorey as well as dry sclerophyll forests and woodlands, often with a patchy understorey.	Suitable habitat is available on the subject site.				
Motacilla flava	Yellow wagtail		Μ	Inhabits open country near water, such as wet meadows. It nests in tussocks.	There are no records of the Yellow wagtail within 10 km of the subject site and this species has not been recorded during past surveys. Suitable habitat is not available on the subject site.	Unlikely			
Myiagra cyanoleuca	Satin flycatcher		Μ	This species occurs in heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occurs in coastal forests, woodlands, mangroves and drier woodland and open forests.	There are two (2) records of the Satin flycatcher from within 10 km of the subject sit; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Suitable habitat is available on the subject site.	Unlikely			
Ninox connivens	Barking owl	v		Barking owls are found in open woodlands and the edges of forests, often adjacent to farmland. They are less likely to use the interior of forested habitat. They are usually found in habitats that are dominated by	There is one (1) record of the Barking owl from within 10 km of the subject sit; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records.	Possible			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
				eucalytpus species, particularly red gum, and, in the tropics, paperbark species. They prefer woodlands and forests with a high density of large trees and particularly sites with hollows that are used by the owls as well as their prey. Roost sites are often located near waterways or wetlands.	Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies scattered mature trees and forest edges across the subject site while foraging. Suitable nest / roost habitat is limited-to- absent.				
Ninox strenua	Powerful owl	V		The Powerful owl is found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks, and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest.	There is one (1) record of the Powerful owl from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies scattered mature trees and forest edges across the subject site while foraging. Suitable nest / roost habitat is limited-to- absent.	Possible			
Pandion cristatus	Eastern osprey	V	Μ	This species is found in littoral and coastal habitats, occasionally following large watercourses inland. It requires extensive open areas of water for foraging.	There are 128 records of the Eastern osprey from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. This species is likely to traverse the area while foraging; however, the subject site contains no habitat of value.	Unlikely			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence				
Amphibians	Amphibians									
Petroica boodang	Scarlet robin	V		Prefers dry eucalypt forests and woodlands with an understorey that is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. An important component of the species habitat is abundant logs and fallen timber.	There is one (1) record of the Scarlet robin from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Although considered less likely due to a paucity of historical records, it cannot be conclusively ruled out that this species occupies areas of the subject site that contain scattered trees (i.e. disused gold course) or wet forest (VC2).	Possible				
Ptilinopus magnificus	Wompoo fruit- dove	v		Occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests. Feeds on a diverse range of tree and vine fruits and is locally nomadic - following ripening fruit. Thought to be an effective medium to long-distance vector for seed dispersal.	There are eight (8) records of the Wompoo fruit-dove from within 10 km of the subject site. This species has not been recorded on the subject site during past surveys; however, was recorded in 2022 on a property -500 m to the south-eastern of the subject site. Closed forest (Camphor laurel dominated) / rainforest remnants contain a variety of fruiting trees that provide good quality food resource for this species.	Likely				
Ptilinopus regina	Rose-crowned fruit-dove	V		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.	There are 28 records of the Rose-crowned fruit-dove from within 10 km of the subject site. This species was recorded on two (2) occasions in the south-western portion of	KNOWN				

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
					 the subject site, and on three (3) occasions immediately to the north of the subject site during previous surveys (JWA 2009). Closed forest (Camphor laurel dominated) / rainforest remnants contain a variety of fruiting trees that provide good quality food resource for this species. 				
Ptilinopus superbus	Superb fruit-dove	v		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.	There are four (4) records of the Superb fruit-dove from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Closed forest (Camphor laurel dominated) / rainforest remnants contain a variety of fruiting trees that provide good quality food resource for this species.	Likely			
Rhipidura rufifrons	Rufous fantail		м	In east and south-east Australia, the Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallowwood (<i>Eucalyptus microcorys</i>), Mountain grey gum (<i>E. cypellocarpa</i>), Narrow- leaved peppermint (<i>E. radiata</i>), Mountain ash (<i>E. regnans</i>), Alpine ash (<i>E. delegatensis</i>), Blackbutt (<i>E. pilularis</i>) or Red mahogany (<i>E. resinifera</i>); usually with a dense shrubby understorey often including ferns. They also occur in subtropical and temperate	There are 10 records of the Rufous fantail from within 10 km of the subject site and this species was recorded during previous surveys (JWA 2009). Closed forest (Camphor laurel dominated) / rainforest remnants provide suitable habitat for this species.	KNOWN			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence				
Amphibians										
				rainforests; for example, near Bega in south- east NSW, where they are recorded in temperate Lilly pilly (Acmena smithi) rainforest, with Grey myrtle (Backhousia myrtifolia), Sassafras (Doryphora sassafras) and Sweet pittosporum (Pittosporum undulatum) subdominants. They occasionally occur in secondary regrowth, following logging or disturbance in forests or rainforests. When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, including Spotted gum (Eucalyptus maculata), Yellow box (E. melliodora), ironbarks or Stringybarks, often with a shrubby or heath understorey. In north and north-east Australia, they often occur in tropical rainforest and monsoon rainforests, including semi-evergreen mesophyll vine forests, semi-deciduous vine thickets or thickets of Melaleuca spp.						
Stagonopleura guttata	Diamond firetail		v	The Diamond firetail is typically found in grassy eucalypt woodlands (including Box-Gum woodlands and Snow Gum <i>Eucalyptus</i> <i>pauciflora</i> woodlands), and is often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. It also occurs in open forest, mallee, natural temperate grassland, and in secondary grassland derived from other communities. Nests are built either in the shrubby understorey, or higher up, especially under	There are no records of the Diamond firetail from within 10 km of the subject site and this species has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely				

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
				hawk's or raven's nests. Birds roost in dense shrubs or in smaller nests built especially for roosting.					
Symposiachrus trivirgatus	Spectacled monarch		м	The Spectacled monarch prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	 There are five (5) records of the Spectacled monarch from within 10 km of the subject site and this species was recorded during previous surveys (JWA 2009). Closed forest (Camphor laurel dominated) / rainforest remnants provide the most suitable habitat for this species. 	KNOWN			
Turnix melanogaster	Black-breasted button quail	CE	V	This species is restricted to areas mostly with 770-1200 mm rainfall per annum. They prefer drier low closed forests, particularly semi- evergreen vine thicket, low microphyll vine forest, Araucarian microphyll vine forest and Araucarian notophyll vine forest. This species may also be found in low, dense acacia thickets and in littoral areas, in vegetation behind sand dunes. An extensive dense leaf- litter layer is required for foraging and possibly also roosting. Fallen logs and a dense, heterogeneously distributed shrub layers are also considered to be important habitat characteristics for shelter and breeding.	There are no records of the Black-breasted button quail within 10 km of the subject site and this species has not been recorded during previous surveys. Although this species has never been recorded within 10 km of the subject site, its presence cannot be conclusively ruled out due to suitable rainforest habitat, most likely in association with the southern portion of the subject site.	Possible			
Tyto longimembris	Eastern grass owl	v		Eastern grass owls are found in areas of tall grass, including grass tussocks, in swampy areas, grassy plains, swampy heath, and in cane grass or sedges on flood plains. They rest	There are one (1) record of the Eastern grass owl from within 10 km of the subject site; however, this species has not been recorded	Unlikely			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
				by day in a 'form' - a trampled platform in a large tussock or other heavy vegetative growth.	on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available in the subject site.				
Tyto novaehollandiae	Masked owl	V		Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides.	There are four (4) records of the Masked owl from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Despite a paucity of historical records, it cannot be conclusively ruled out that this species occupies scattered mature trees and forest edges across the subject site while foraging. Suitable nest / roost habitat is limited-to- absent.	Possible			
Tyto tenebricosa	Sooty owl	V		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	There are one (1) records of the Sooty owl from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Despite a paucity of historical records, the presence of this species cannot be conclusively ruled out due to suitable rainforest remnants and to a lesser degree, closed forest (Camphor laurel dominated).	Possible			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
Invertebrates						
Argynnis hyperbius inconstans	Australian fritillary	E	CE	Restricted to open, swampy, coastal areas where the larval food plant, <i>Viola</i> <i>betonicifolia</i> , grows as a small, ground herb in association with <i>Lomandra longifolia</i> (long leaved matrush) and grasses, especially the grass <i>Imperata cylindrica</i> (blady grass).	There are no records of the Australian fritillary within 10 km of the subject site and this species has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely
Phyllodes imperialis smithersi	Pink underwing moth		E	The Southern pink underwing moth is found in subtropical rainforest below about 600 m elevation.	There are 14 records of the Pink underwing moth within 10 km of the subject site and this species has been confirmed on the subject site by way of eggs and caterpillars in five (5) locations. It is expected that this species occupies most suitable rainforest habitat on the subject site, and in particular, the high quality subtropical rainforest in the southern portion.	KNOWN
Thersites mitchellae	Mitchell's Rainforest Snail	E	CE	Remnant areas of lowland subtropical rainforest and swamp forest on alluvial soils. Slightly higher ground around the edges of wetlands with palms and fig trees are particularly favoured habitat.	There are no records of the Mitchell's rainforest snail within 10 km of the subject site and this species has not been recorded during past surveys. Given the presence of subtropical rainforest and large mature Figs, it cannot be conclusively ruled out that this species occurs on the subject site.	Likely

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence			
Amphibians									
					In the high-quality subtropical rainforest in the southern portion of the subject site, the presence of this species could be considered likely.				
Mammals									
Chalinolobus dwyeri	Large-eared pied bat	v	V	This species requires a combination of sandstone cliff/escarpment to provide roosting habitat that is adjacent to higher fertility sites, particularly box gum woodlands or river/rainforest corridors that are used for foraging. Almost all records have been found within several kilometres of cliff lines or rocky terrain. Roosting has also been observed in disused mine shafts, caves, overhangs, and disused fairy martin (<i>Hirundo ariel</i>) nests. The structure of primary nursery roosts appears to be very specific, <i>i.e.</i> arch caves with dome roofs (that need to be deep enough to allow juvenile bats to learn to fly safely inside) and with indentations in the roof (presumably to allow the capture of heat). These physical characteristics are very uncommon in the landscape and therefore a limiting factor to the species distribution.	There are no records of the Large-eared pied bat within 10 km of the subject site and this species has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely			
Chalinolobus nigrogriseus	Hoary wattled bat	v		In NSW the Hoary wattled bat occurs in dry open eucalypt forests, favouring forests dominated by Spotted gum, Boxes and Ironbarks, and heathy coastal forests where	There is one (1) record of the Hoary wattled bat from within 10 km of the subject site; however, this species has not been recorded	Unlikely			

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
				Red bloodwood and Scribbly gum are common. Because it flies fast below the canopy level, forests with naturally sparse understorey layers may provide the best habitat.	on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available on the subject site.		
Dasyurus maculatus	Spotted-tail quoll	v	E	This species is recorded from a wide range of habitats, including montane rainforests, sclerophyll forests (<i>e.g.</i> open, closed, wet), coastal heathlands, sub-alpine woodlands, and riparian forests. It prefers mature wet forests that have not been logged and require large areas of relatively intact forest for foraging. Preferred den sites include hollow logs, caves, or rocky outcrops for daytime shelter.	There are four (4) records of the Spotted- tailed quoll from within 10 km of the subject site. Based on interrogation of historical records; this species was recorded just outside (<100 m) of the eastern boundary of the subject site in 2004 Given the proximity of the aforementioned record, it cannot be conclusively ruled out that this species persists in the broader landscape. However, suitable habitat on the subject site is likely to be limited.	Possible	
Micronomus norfolkensis	Eastern free-tail bat			Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. It roosts mainly in tree hollows but will also roost under bark or in man-made structures.	 There is one (1) record of the Eastern freetail bat from within 10 km of the subject site from the NSW BioNet online database. Despite the lack of historical records, this species has been recorded on the subject site during past surveys (JWA 2009). Suitable forage and roosting habitat remain on the subject site and is most likely associated with the disused golf course and other open areas containing scattered trees. 	KNOWN	

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence		
Amphibians	Amphibians							
Miniopterus australis	Little bent- winged bat	v		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. It generally occupies caves and tunnels during the day, and may occasionally roost singularly or in small collectives under the bark of mature paperbark trees.	There are 69 records of the Little bent- winged bat from within 10 km of the subject site. This species has been recorded on the subject site during past surveys (JWA 2009). Suitable habitat is available in closed forest (camphor laurel dominated) and rainforest remnants.	KNOWN		
Miniopterus orianae oceanensis	Large bent- winged bat			Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings, and other man-made structures. Hunt in forested areas, catching moths and other flying insects above the treetops.	There are 12 records of the Large bent- winged bat from within 10 km of the subject site. This species has been recorded on the subject site during past surveys (JWA 2009). Suitable forested areas are available in the southern portion of the subject site.	KNOWN		
Myotis macropus	Southern myotis	v		The Southern myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. They 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. Foraging occurs over streams and pools catching insects and small fish by raking their feet across the water surface.	There are seven (7) records of the Southern myotis from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Considered likely to forage in surrounding areas; however, habitat on the subject site is largely unsuitable.	Unlikely		

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
Nyctophilus bifax	Eastern long- eared bat	v		Lowland subtropical rainforest and wet and swamp eucalypt forest, extending into adjacent moist eucalypt forest. Coastal rainforest and patches of coastal scrub are particularly favoured. Roosts in tree hollows, the hanging foliage of palms, in dense clumps of foliage of rainforest trees, under bark and in shallow depressions on trunks and branches, among epiphytes, in the roots of strangler figs, among dead fronds of tree ferns and less often in buildings.	There are 10 records of the Eastern long- eared bat from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. This species has not been recorded on the subject site during past surveys or based on interrogation of historical records (Atlas of Living Australia refers). Suitable habitat is available in closed forest (camphor laurel dominated) and rainforest remnants.	Possible	
Notomacropus parma	Parma wallaby		V	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest. During the day they shelter in dense cover.	There are no records of the Parma wallaby from within 10 km of the subject site and it has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely	
Ozimops lumsdenae	Northern free- tailed bat	v		The only confirmed record of this species in NSW is of a colony found in the roof of a house in Murwillumbah, however, calls have been detected from a few other locations in the far north east of the State. They prefer a range of vegetation types in northern Australia, from rainforests to open	There are 15 records of the Northern free- tailed bat from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Although considered less likely, the presence of suitable habitat means it cannot be	Possible	

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
				forests and woodlands, and are often recorded along watercourses. Roosts are mainly formed in tree hollows but relatively large colonies have been found under house roofs in urban areas in QLD.	conclusively ruled out that this species may occupy areas of the subject site.		
Petauroides volans	Greater glider	E	E	This species is found in eucalypt forests and woodlands. It prefers forests with a good diversity of eucalypt species to provide consistent forage opportunities year-round, and is found in the greatest abundance in tall, montane, moist old growth forests.	There are no records of the Greater glider from within 10 km of the subject site and it has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely	
Petaurus australis	Yellow-bellied glider	v		Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	There are no records of the Yellow-bellied glider from within 10 km of the subject site and it has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely	
Petaurus norfolcensis	Squirrel glider	v		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.	There are 11 records of the Squirrel glider from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Suitable habitat is available for this species in areas containing mature scattered Eucalypts (i.e. disused golf course). Notwithstanding, a long history of disturbance and clearing has likely resulted	Unlikely	

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
					in this species being absent from the subject site.		
Petrogale penicillata	Brush-tailed rock-wallaby	E	V	Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.	There are no records of the Brush-tailed rock-wallaby from within 10 km of the subject site and it has not been recorded during past surveys No suitable habitat is available in the subject site.	Unlikely	
Phascolarctos cinereus	Koala	E	E	This species inhabits a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities where suitable food trees are present. The koala is a leaf-eating specialist that feeds primarily during dawn, dusk, or night. Its diet is restricted mainly to foliage of a small selection of preferred <i>Eucalyptus</i> spp; however, it may also consume foliage of related genera, including <i>Corymbia</i> spp., <i>Angophora</i> spp., <i>Melaleuca</i> spp., and <i>Lophostemon</i> spp.	The Koala (or evidence thereof) has not been recorded from previous field surveys; however, there are 280 records of the this species from within 10 km of the subject site from the NSW BioNet online database. Koalas are known to occupy the surrounding landscape; however, habitat on the subject site is limited to planted trees associated with the disused golf course. Given suitable habitat is available, it cannot be conclusively ruled out that the Koala occurs on the subject site from time-to- time. Notwithstanding this, given this habitat is isolated and surrounded by non- preferred habitat (i.e. rainforest, camphor dominated forest, grasslands) and residential development (to the east), use is almost certainly restricted to individual traversing the landscape.	Possible	
Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
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Amphibians							
Planigale maculata	Common planigale	v		Common planigales inhabit rainforest, eucalypt forest, heathland, marshland, grassland, and rocky areas where there is surface cover, and usually close to water. They are active at night and during the day shelter in saucer-shaped nests built in crevices, hollow logs, beneath bark or under rocks.	There are 10 records of the Common planigale from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available in the subject site.	Possible	
Potorous tridactylus tridactylus	Long-nosed potoroo	v	v	This species inhabits coastal heath and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an important habitat feature, and may consist of grasstrees, sedges, ferns, or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature.	There are 13 records of the Long-nosed potoroo from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available in the subject site.	Unlikely	
Pseudomys novaehollandiae	New Holland mouse		v	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes.	There are no records of the New Holland mouse from within 10 km of the subject site and has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely	
Pteropus poliocephalus	Grey-headed flying-fox	V	v	This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops. This	There are 41 records of the Grey-headed flying-fox from within 10 km of the subject site from the NSW BioNet online database.	KNOWN	

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence
Amphibians						
				species feeds on the nectar and pollen of native trees, in particular <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Banksia</i> , and fruits of rainforest trees and vines. It also feeds on commercial fruit crops and on introduced tree species in urban areas. The grey-headed flying-fox roosts in aggregations of various sizes on exposed branches. Roost sites are generally located within 20 km of a regular food source and are typically located near water, such as lakes, rivers, or the coast. Roost vegetation includes rainforest patches, stands of <i>Melaleuca</i> , mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas. The species can maintain fidelity to roost sites for extended periods, although new sites have been colonized.	This species has been recorded on the subject site during past surveys (JWA 2009). Suitable forage habitat for this species includes any vegetation that contain flowering or fruiting trees. No roosting sites have been observed on the subject site.	
Saccolaimus flaviventris	Yellow-bellied sheathtail bat	v		The Yellow-bellied sheathtail-bat roost singly or in groups of up to six, in tree hollows and buildings. Forages for insects over the forest canopy, but lower in more open country. Forages in most habitats across its wide range, with and without trees.	There are two (2) records of the Yellow- bellied sheathtail bat from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. Suitable forage habitat is available across most of the subject site so the presence of this species cannot be conclusively ruled out.	Possible

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence		
Amphibians								
Syconycteris australis	Common Blossom-bat	v		Common blossom-bats often roost in littoral rainforest and feed on nectar and pollen from flowers in adjacent heathland and paperbark swamps. They have also been recorded in a range of other vegetation communities, such as subtropical rainforest, wet sclerophyll forest and other coastal forests.	There are two (2) records of the Common blossom-bat from within 10 km of the subject site; however, this species has not been recorded on the subject site during past surveys or based on interrogation of historical records. No suitable habitat is available.	Unlikely		
Reptiles								
Coeranoscincus reticulatus	Three-toed snake-tooth skink	v	V	This species inhabits rainforest and occasionally moist eucalypt forest, on loamy or sandy soils. This species feeds on earthworms and beetle grubs and is found in leaf litter, often immediately adjacent to fallen tree trunks.	There are no records of the Three-toed snake-tooth skink from within 10 km of the subject site and it has not been recorded during past surveys. Despite an absence of historical records, suitable habitat is available in the southern portion of the subject site for this species.	Possible		
Delma torquata	Collared delma		V	Due to specific habitat requirements, this species distribution is highly fragmented and restricted to only a few locations. The collared delma is known from the western suburbs of Brisbane, Queensland and the following sites: Bunya Mountains, Blackdown Tableland National Park (NP), Bullyard Conservation Park, D'Aguilar Range NP, Expedition NP, Naumgna and Lockyer Forest Reserves, Western Creek near Millmerran and the Toowoomba Range. This species inhabits eucalypt dominated woodland and open forest	There are no records of the Collared delma from within 10 km of the subject site and it has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely		

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence		
Amphibians								
				where it is associated with suitable micro- habitats (exposed rocky outcrops). The ground cover is predominantly native grasses, such as kangaroo grass (<i>Themeda triandra</i>), barbed- wire grass (<i>Cymbopogon refractus</i>), wiregrass (<i>Aristida</i> sp.) and Lomandra (<i>Lomandra</i> sp.). The presence of rocks, logs, bark and other coarse woody debris, and leaf litter (typically 30-100 mm thick) appears to be an essential characteristic of the collared delma microhabitat, and these features are always present where the species occurs.				
Furina dunmalli	Dunmall's snake		V	Preferred habitat is Brigalow Forest and woodland with fallen timber and ground litter, growing on cracking clay soils and clay loam soils. Also occurs in eucalypt and Callitris woodland with fallen timber and ground litter.	There are no records of the Dunmall's snake from within 10 km of the subject site and it has not been recorded during past surveys. No suitable habitat is available in the subject site.	Unlikely		
* NSW Biodiversity Conservation Act 2016 (BC Act)								
# Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)								
CE - Critically Endangered, E - Endangered, V - Vulnerable, M - Migratory (marine, terrestrial or listed)								
¹ Sources (including specific literature references) from:								
• DAWE (2024) Species Profile and Threats Database. Department of Agriculture, Water and the Environment (DAWE). Australian Government. Available at http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl .								

• DES (2022). Species Profile Search. Department of Environment and Science (DES), Queensland Government.

Scientific name	Common name	BC Act*	EPBC Act [#]	Habitat assessment ¹	Records ² and Suitable Habitat	Likelihood of occurrence	
Amphibians							
• DoPIE (2024). Threatened biodiversity profile search. Office of Environment and Heritage, Department of Planning, Industry and Environment (DoPIE), New South Wales Government.							
² Records sourced from NSW BioNet Online Database and interrogated for location and date using the Atlas of Living Australia (Available at: <u>https://www.ala.org.au/</u>)							