



Vegetation Management Plan

for
Uniting Wesley Gardens Belrose
2B Morgan Road
Belrose

25 September 2025





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Glossary

Acronym/ Term	Definition
APZ	Asset Protection Zone
BAM	New South Wales Biodiversity Assessment Method 2020
BOS	New South Wales Biodiversity Offset Scheme
BOSET	New South Wales Biodiversity Offset Scheme Entry Tool
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
CEMP	Construction Environmental Management Plan
DA	Development Application
DCP	Development Control Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Development	The use of land, and the subdivision of land, and the carrying out of a work, and the demolition of a building or work, and the erection of a building, and any other act, matter or thing referred to in section 26 that is controlled by an environmental planning instrument but does not include any development of a class or description prescribed by the regulations for the purposes of this definition (Environmental Planning and Assessment Act 1979).
DPE	Department of Planning and Environment
Duffys Forest	Duffys Forest ecological community in the Sydney Basin Bioregion
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
ha	Hectares
IPA	Inner Protection Area
KPI	Key Performance Indicator
km	Kilometre
KTP	Key Threatening Process (as listed in the BC Act)
LEP	Local Environment Plan
LGA	Local Government Area
Locality	The area within a 10km radius of the Subject Land. The same meaning when describing a local population of a species or local occurrence of an ecological community.
m	Metres
mm	Millimetres
MP	Management Plan
NPWS	NSW National Parks and Wildlife Services
NSW	New South Wales
OEH	Office of Environment and Heritage (now the Department of Planning Industry and Environment)
PCT	Plant Community Type
Proposal	The development, activity or action proposed.
ROTAP	Rare or Threatened Australian Plants
SEPP	State Environmental Planning Policy
SSD	State Significant Development
SSDA	State Significant Development Application
Subject Land	Maximum extent of the proposed development within the Subject Land. The Subject Land covers the entirety of the Subject Property.
Subject Property	2B Morgan Rd, Belrose NSW 2085 (Lot 1 in DP 1037395)
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1, 1A and 2 and <i>threatened species, population or ecological community</i> means a species, population or ecological community specified in any of those Schedules.
TPZ	Tree Protection Zone
VMP	Vegetation Management Plan
WONS	Weeds of National Significance

Executive Summary

Land Eco Consulting was engaged by Uniting to prepare a Vegetation Management Plan (VMP) for the proposed redevelopment of Uniting Belrose (SSD-71 378958) at 2B Morgan Road, Belrose, NSW 2085 (Lot 1 /- /DP1037395) (the 'Subject Property') to support the State Significant Development Application (SSDA). The lot is a large block which currently consists of a residential aged care facility and associated buildings with portions of managed lawn, and both planted and remnant trees and shrubs. Portions of structurally complete remnant vegetation is present along the northern boundary of the Subject Property.

The proposed SSDA involves the redevelopment of the existing residential care facility, including:

- Site preparation and excavation works
- Construction of a residential care facility and independent living units across six (6) buildings encompassing:
 - 147 Independent living units
 - 120 Residential care beds
- Ancillary services including recreational spaces, wellness spaces, cafe, salon, swimming pool, multipurpose spaces and men's shed
- Seniors gym for use by Uniting Belrose residents and the broader public; and
- Landscaping and associated public domain works
- Inner Protection Area Asset Protection Zone (IPA APZ)

This VMP aims to support the restoration and protection of the Duffys Forest Ecological Community, which is listed as an Endangered Ecological Community (EEC) under the *Biodiversity Conservation Act 2016* (BC Act) (NSW TSSC 2002). The VMP outlines management actions that prioritise the conservation of this threatened community while also enhancing overall biodiversity across the Subject Property. Through targeted weed control, native plantings, and protection of remnant vegetation, the plan seeks to improve ecological resilience and habitat quality within the site.

This report separates the site into four management zones (Zone A1, A2, B & C) (**Figure 6**) and details management actions and performance criteria for five years to ensure that the remnant bushland within and adjacent the site is maintained. Management actions include weed control, habitat enrichment, fencing no-go zones and sensitive management of an IPA APZ.

Zones A1 and A2

Zones A1 and A2 are established within a 5-metre buffer outside the APZ which enables the retention and protection of structurally intact Duffys Forest EEC, thereby preserving its ecological integrity and function. Vegetation within these zones consist of remnant vegetation that exhibits signs of natural regeneration and ecological resilience (**Plate 3**). While minor weed infestations and planted exotic species are present, these zones support native canopy species and contain structurally complete areas of the Duffys Forest EEC.

Consequently, no additional plantings are required within Zone A1, and management efforts will focus solely on targeted weed control. In contrast Zone A2 will require understorey plantings. The existing kerbs within Zone A2 will be realigned to provide clearance around established trees, creating additional space for understorey plantings. These plantings are all representative of the Duffys Forest EEC, as specified in the MP3 – Landscape Plan (Group GSA 2024b).

Zones A1 and A2 plays an important role in supporting the long-term restoration of Duffys Forest by maintaining connectivity and acting as a buffer that limits the spread of weeds into the high-quality remnant bushland located to the east of the Subject Property.

Zone B

Zone B is located within the proposed On-site Stormwater Detention (OSD) Basin (Indesco 2024). It is expected that all existing vegetation within this zone will be removed for construction works (**Plate 4**). Upon completion of construction works associated with the OSD, Land Eco recommends revegetating this zone where practicable, using species representative of PCT 1804: Coastal Upland Wet Heath Swamp. This plant community is associated with *Coastal Upland Swamp in the Sydney Basin Bioregion*, an EEC listed under the BC Act. The planting schedule for Zone B is provided in **Appendix B**. No canopy or tree species are proposed within this zone. The proposed plantings will be limited to low-growing understorey species consistent with the site's ecological character and operational constraints. Revegetation within this community not only supports ecological restoration but also enhances local habitat connectivity and biodiversity outcomes.

Zone C

Zone C exists over the majority of the Subject Land and will predominantly be managed in accordance with the Landscape Plan (Group GSA 2024b). The Subject Land contains buildings associated with the existing residential aged care facility and preschool facilities along with associated carparks and landscaping. Zone C has largely been historically cleared and consists

of a mix of commonly planted native and non-native species within mulched garden bed and pathway verges. Given that Zone C is subject to APZ restrictions and will function as a residential care facility the capacity to establish a fully functional Duffys Forest ecological community within this zone is limited. Despite these constraints, efforts have been made to ensure that the majority of tree species planted within this zone are either representative of the Duffys Forest community or locally indigenous to the area. Understorey plantings will also predominantly consist of native species, with particular areas, such as zone MP1 in the landscape plan (Group GSA 2024b), including over 80% Duffys Forest species. This approach seeks to balance the ecological intent of the VMP with the functional and safety requirements of a residential care setting.

1. Introduction

1.1 Background

Land Eco Consulting (Land Eco) was commissioned by Uniting ('the proponent') to prepare this Vegetation Management Plan (VMP) for the proposed redevelopment of Uniting Belrose (SSD-71378958) at 2B Morgan Road, Belrose, NSW 2085 (Lot 1/-/DP1037395) (the 'Subject Property') to support the State Significant Development Application (SSDA). The Subject Property lies within the Northern Beaches Local Government Area (LGA).

This VMP has been prepared to satisfy the response to the Uniting Wesley Gardens Belrose submission table from Conservation Programs Heritage and Regulation:

Biodiversity – CPHR has reviewed the Biodiversity Development Assessment Report (BDAR) (LandEco Consulting, 13 December 2024) and find it inadequate in its assessment of impacts on the Serious and Irreversible Impact (SII) entity identified as Duffys Forest Ecological Community (DFEC). To avoid and mitigate impacts on DFEC, a vegetation management plan (VMP) should be prepared, and the Mitigation Measures (Ethos Urban, 28 March 2025) should be updated to ensure consistency with the BDAR.

Site-specific plans and documents reviewed for this project:

- Biodiversity Development Assessment Report (Land Eco 2024)
- Development Plans (Plus Architecture 2024)
- Bushfire Assessment (Peterson Bushfire 2024)
- Tree Management Plan (Group GSA 2024a)
- Landscape Plan (Group GSA 2024b)
- Arboricultural Impact Assessment (TMS 2024)

1.2 Subject Land

The Subject Land comprises the area of land likely to be directly or indirectly impacted by the proposed development. The Subject Land details are outlined in **Table 1** and the boundaries and simplified plans are shown in **Figure 1**. The design plan is shown in **Figure 4**.

Table 1. Site Details

Property Name	Uniting Wesley Gardens Belrose
Site address	2B Morgan Road, Belrose
Property identifier (Lot and DP)	Lot 1/-/DP1037395
Local Government Area	Northern Beaches Council
Zoning	DM – Deferred Matter

Surrounding land use is low density residential and commercial buildings with several reserves in close proximity including Garigal National Park.

1.3 Staff Qualifications

This VMP has been prepared by suitably qualified personnel. Their qualifications are below:

Table 2. Qualifications

Qualifications	
Kurtis Lindsay	• Bachelor of Science (Honours) – Macquarie University • >15 years of industry experience
Semonn Oleksyn	• Bachelor of Advanced Science (Biology) – Macquarie University • Master of Research (Biology) – Macquarie University • 5 years of industry experience
Serene White	• Bachelor of Science (Zoology)/Bachelor of Natural Science (Animal Science) – Western Sydney University

Qualifications	
	• Master of Research – Western Sydney University • 3.5 years of industry experience
Juliette Hennessy	• Bachelor of Science (Zoology) (Honours) – University College Cork • 2.5 years of industry experience

1.4 Relevant Legislation and Planning Instruments

Within the Northern Beaches Council LGA, relevant legislation and policies which apply to this VMP include:

- *Biodiversity Conservation Act 2016* (NSW)
- *Biosecurity Act 2015* (NSW)
- Bushfire Environmental Assessment Code 2006
- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
- *Local Government Act 1993* (NSW)
- Planning for Bushfire Protection 2006
- *Protection of the Environment Operations Act 1999* (NSW)
- *Rural Fires Act 1997* (NSW)
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
- *State Environmental Planning Policy (Resilience and Hazards) 2021*
- Warringah Local Environmental Plan 2000
- Warringah Development Control Plan 2011

1.5 Objectives of the VMP

The overall aim of this VMP is to inform best practice vegetation management including revegetation and weed management for the proposed development works over a 5-year period.

To achieve this aim, the following objectives have been identified:

- Outline strategies to avoid or minimise impacts on vegetation where possible
- Outline the management requirements for any vegetation to be retained, including details on tree and vegetation protection measures e.g. fencing.
- Outline rehabilitation details, including identification of flora species and sources, and measures for the management and maintenance of rehabilitated areas (including the duration of the implementation of such measures).
- Describe weed management activities to reduce weed coverage.
- Remove all anthropogenic litter and debris above the soil surface
- Prevent invasion of the Subject Land from novel weeds and pathogens
- Describe planting density and composition for revegetation works within the VMP area.
- Provide schedules for inspection, monitoring, management and corrective actions.



Legend

- Subject Property
- Subject Land

0 15 30 60 90 120 150 Metres



Date: 5/08/2025
 Imagery: © Nearmap 2022
 Coordinate System: GDA2020 MGA Zone 56
 This map was produced for this report only.
 It is indicative, not survey-accurate
 and should not be used for design or
 construction purposes.

Figure 1. Location of the Subject Land and Subject Property

2 Methods

2.1 Desktop Research Review of Existing Information

The scope for this VMP was restricted to a desktop assessment only. Land Eco has previously however undertaken extensive field surveys within the Subject Property between 2022 and 2024 for the preparation of the BDAR for the proposed development (Land Eco 2024). Weed species have been identified and management zones allocated in accordance with the data collected during this fieldwork.

Land Eco reviewed any existing information on native vegetation relevant to the Subject Land and land within the 1500 m buffer area. This includes:

- individual species records that are held in the NSW Wildlife Atlas BioNet (NSW DCCEEW 2025c);
- existing maps of native vegetation in the area such as those held by the Department, or a local government authority;
- information from publicly accessible ecological reports, soil surveys or previous native vegetation surveys that is relevant to the Subject Land (where available).

A review of all available design plans and reports relating to the site was conducted, as well as legislation, recent vegetation mapping and other documentation relevant to the proposed development including:

- Biodiversity Development Assessment Report (BDAR) (Land Eco 2024)
- Development Plans (Plus Architecture 2024)
- Bushfire Assessment (Peterson Bushfire 2024)
- Tree Management Plan (Group GSA 2024a)
- Landscape Plan (Group GSA 2024b)
- Arboricultural Impact Assessment (TMS 2024)

2.2 Plot-based Vegetation Survey

Two representative BAM VIS plot were allocated to the vegetation within the Subject Land using GIS to capture a representative sample of the vegetation proposed for removal (**Figure 2**). Two Ecologists then visited the Subject Land on 25th July 2024 and sampled the two plots. The full species name, percentage cover, and estimate of abundance all native and exotic vascular plant species were recorded. The survey plots were as follows:

- A floristic plot covering the minimum requirement of 400 m², to assess all the composition and structure attributes
- A structural plot covering the requirement of 1000 m², to assess the function attributes (number of large trees, stem size classes, tree regeneration and length of logs) (except for the grassland plot as the functional attributes for grasslands aside from high threat weed cover are not required under section 4.3.3 of the BAM. Sampling a larger area would not have altered the structural data collected (i.e. tree stems, logs, etc.))
- five 1 m² sub-plots, to assess average litter cover (and other optional ground cover components) for the plot.

The presence of hollow-bearing trees, the composition, the vegetation structure and vegetation function were all assessed according to the protocol outlined in Section 4.3.4 of the BAM (NSW DPIE 2020a).

The floristic plots from the two BAM VIS plots that were undertaken by Land Eco on 25th July 2024 were utilised as the baseline floristic data in the preparation of this VMP. No further baseline monitoring plots have been undertaken by Land Eco to date.

2.3 Limitations

Further site survey was outside of the scope of engagement for the preparation of this VMP. Therefore, baseline monitoring plot data has been based on the BAM VIS plots Land Eco undertook in July 2024.



Legend

- Subject Property
- Subject Land
- BAM Plot
- Floristic
- Structural

0 15 30 60 90 120 150 Metres



Date: 5/08/2025

Imagery: © Nearmap 2022

Coordinate System: GDA2020 MGA Zone 56

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Figure 2. The location of the Subject Land in reference to the BAM Plots undertaken by Land Eco

3 Site Description

3.1 Identification and description of the site and surrounds

3.1.1 General

The Subject Property is located on Morgan Road in the suburb of Belrose, in the Northern Beaches Council of Northern Sydney. The Subject Property is zoned 'DM – Deferred Matter'. A major road, Forest Way that is zoned as a 'SP2 Classified Road' occurs along the western boundary of the Subject Property. Most of the immediate surrounding land to the east and north is mapped 'Deferred Matter'. To the west and south 'R2 – Low Density Residential' zoned land occurs including residential dwellings, shops and Belrose Public School. Several 'RE1 – Public Recreation' areas occur within the vicinity including Wyatt Reserve to the west. Garigal National Park occurs within the vicinity, zoned 'C1 – National Parks and Nature Reserves' (NSW DCCEEW 2025a).

The Subject Land contains buildings associated with the existing residential aged care facility and preschool facilities along with associated carparks and landscaping. The existing vegetation within the Subject Property is a mixture of remnant native vegetation, along with managed lawns and garden beds dominated by planted vegetation. The Subject Land is surrounded by roads within the township of Belrose with moderate connectivity to surrounding habitat, particularly towards remnant native bushland to the east.

Existing attributes of the Subject Land are noted as follows:

- Residential aged care in the form of two to four storey brick buildings with gabled roofs constructed in the 1970s and 1990s
- Single detached dwelling house located in the south-western corner of the site; and
- Early Learning Centre and Belrose Uniting Church located in the north-western corner of the site.

3.1.2 Soils

The Subject Property is mapped within two soil landscapes (NSW DCCEEW 2025e):

- The majority of the Subject Property occurs on the 'Somersby' soil landscape (NSW DCCEEW 2025e). This soil landscape is described as having gently undulating to rolling rises in deeply weathered Hawkesbury Sandstone plateau. Local relief to 40 m, slopes <15%. Rock outcrop is absent. Crests are broad and convex; valleys are narrow and concave. Extensively cleared, low eucalypt open-woodland and scrubland.
- The eastern edge of the Subject Property occurs on the 'Gynea' soil landscape (NSW DCCEEW 2025e). This landscape has undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief 20–80 m, slopes 10–25%. Rock outcrop <25%. Broad convex crests, moderately inclined side slopes with wide benches, localised rock outcrop on low broken scarps. Extensively cleared open-forest (dry sclerophyll forest) and eucalypt woodland.

3.1.3 Topography, Aspect and Hydrology

The Subject Land is on mildly sloping land. The highest point is approximately 180m above sea level (asl) and the lowest point is approximately 150m asl. No karsts, caves, crevices or cliffs were identified within the Subject Land. This was determined as a result of a comprehensive site-based assessment. One rocky crevice was identified below a small waterfall within 100m of the Subject Land which may be indirectly impacted by the proposed development (TreeHouse Ecology 2024).

The Subject Land occurs over the 'Belrose Coastal Slopes' Mitchell Landscape (Mitchell 2002; OEH 2016a). Belrose Coastal Slopes Mitchell Landscape is described as benched hill slopes and deep valleys of the coastal fall on horizontal Triassic quartz sandstone, lithic sandstone and shales. High proportion of rock outcrop with discontinuous cliffs to 5m high. General elevation 0 to 180m, local relief 80m. Shallow uniform or gradational sands and earthy sands on ridges, deeper sands, loamy sands and organic sands on wet benches and in hanging swamps, grey or yellow texture-contrast soils on shale benches. Accumulations of deeper sand and occasional podsoles in depositional sites and along streams (Mitchell 2002; OEH 2016a).

3.1.4 Riparian Lands and Waterways

There are no mapped watercourses within the Subject Land. The nearest mapped watercourse is a first-order tributary named Snake Creek that occurs approximately 430m east of the Subject Land. Therefore, the proposed development is not located on 'waterfront land' as defined under the *Water Management Act 2000*.

One small culvert leading into a constructed rocky drainage line was identified within the Subject Property. This drainage line has not been mapped as a hydroline and is man-made. The drainage line is weed infested with *Lantana camara*, *Ageratina adenophora* and *Senna pendula*, though provides potential habitat to native fauna such as amphibians, reptiles and invertebrates. Protection and recovery of the riparian vegetation will help to uphold the biodiversity values within the Subject Property.



Plate 1. Small culvert drain that occurs within the Subject Property

3.2 The ecological value of existing bushland and bushland impacted upon by the proposed development

The remnant bushland within the Subject Property, particularly along the north-eastern boundary forms habitat links that connect to larger habitat corridors in the adjacent reserves such as Garigal National Park and Ku-ring-gai National Park. Some of this bushland is mapped on the NSW Biodiversity Values Map under the BC Act. The proposed development seeks to retain the habitat link along Morgan Road, prioritising the retention of trees belonging to Duffys Forest EEC, and has been designed to retain the Duffys Forest EEC along the north-western corner of the Subject Property. This bushland is connected to adjoining Duffys Forest EEC and other remnant vegetation along Morgan Road.

3.2.1 Flora Habitat

One remnant native plant community type (PCT) was identified on the Subject Land (**Figure 3**):

- PCT 3593 - Sydney Coastal Sandstone Bloodwood Shrub Forest. PCT 3593 is associated with *Duffys Forest ecological community in the Sydney Basin Bioregion* Endangered Ecological Community that is listed under the BC Act (Duffys Forest EEC). This PCT is not associated with any threatened ecological communities listed under the EPBC Act.

Within the Subject Land, PCT 3593 is present in two vegetation zones/condition classes:

- **Remnant Disturbed (see Plate 2):** A remnant native canopy dominated by *Angophora costata*, *Eucalyptus sieberi* and *Corymbia gummifera* over a mid-dense shrub layer including *Acacia* spp., *Ceratopetalum gummiferum* and *Banksia serrata*. The groundlayer is intact in small areas, though largely disturbed and infill planted. This edge-effected vegetation occurs in narrow corridors and isolated remnants, adjoining mowed lawns and mulched gardens.
- **Derived Grassland:** Exotic-dominant grassland regularly maintained through grazing and mowing. Native vegetation cover is sparse.

Much of the remainder of the Subject Property was historically cleared, leaving only patches of remnant vegetation as displayed in **Figure 3**. The Subject Property now largely consists of a mix of commonly planted native (e.g. *Melaleuca quinquenervia*, *Casuarina glauca*, *Lophostemon confertus*, *Callistemon viminalis*, *Eucalyptus microcorys*, *Eucalyptus grandis* etc.) and non-native (*Poplar deltoides*, *Fraxinus griffithii*, *Rosa spp.* etc.) species within mulched garden bed and pathway verges. The majority of the native species are either non-indigenous or indigenous to the area but unlikely to occur within this landscape position. The planted vegetation is predominantly native vegetation with a canopy that often overhangs any non-native planted vegetation that is present.

Areas of weed density were identified throughout the Subject Property, particularly along Forest Way and within the grassland areas. The land holder obligations under the *Biosecurity Act 2015* are listed in **Table 9 of Appendix D**. Of the weed species present three are listed as Weeds of National Significance (WONS): *Asparagus aethiopicus*, *Lantana camara* and *Senecio madagascarensis*.

One threatened flora species, Magenta Lilly Pilly (*Syzygium paniculatum*) was identified within the Subject Land by Land Eco. This species is a commonly cultivated species that has been planted within the Subject Property in a location where it is unlikely to have historically occurred, and thus does not require further consideration in this VMP.



Plate 2. Resilient Duffys Forest EEC vegetation along Morgan Road

3.2.2 Fauna Habitat

A total of 41 native vertebrate fauna species were recorded by Land Eco, Corymbia Ecology and Tree House Ecology during the site surveys between 2022 to 2024 (see **Appendix A**). Of the fauna species recorded within the Subject Land, six threatened species which are listed as Vulnerable under the BC Act were recorded:

- Barking Owl (*Ninox connivens*)
- Eastern Pygmy Possum (*Cercartetus nanus*)
- White-bellied Sea-eagle (*Haliaeetus leucogaster*)
- Little Eagle (*Hieraaetus morphnoides*)
- Little Bent-winged Bat (*Miniopterus australis*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

Three exotic species, including Common Myna, Black Rat and European Red Fox were recorded by Land Eco within the Subject Property.

During the site surveys the following habitat features were identified within and in close proximity to the Subject Land by Land Eco, including:

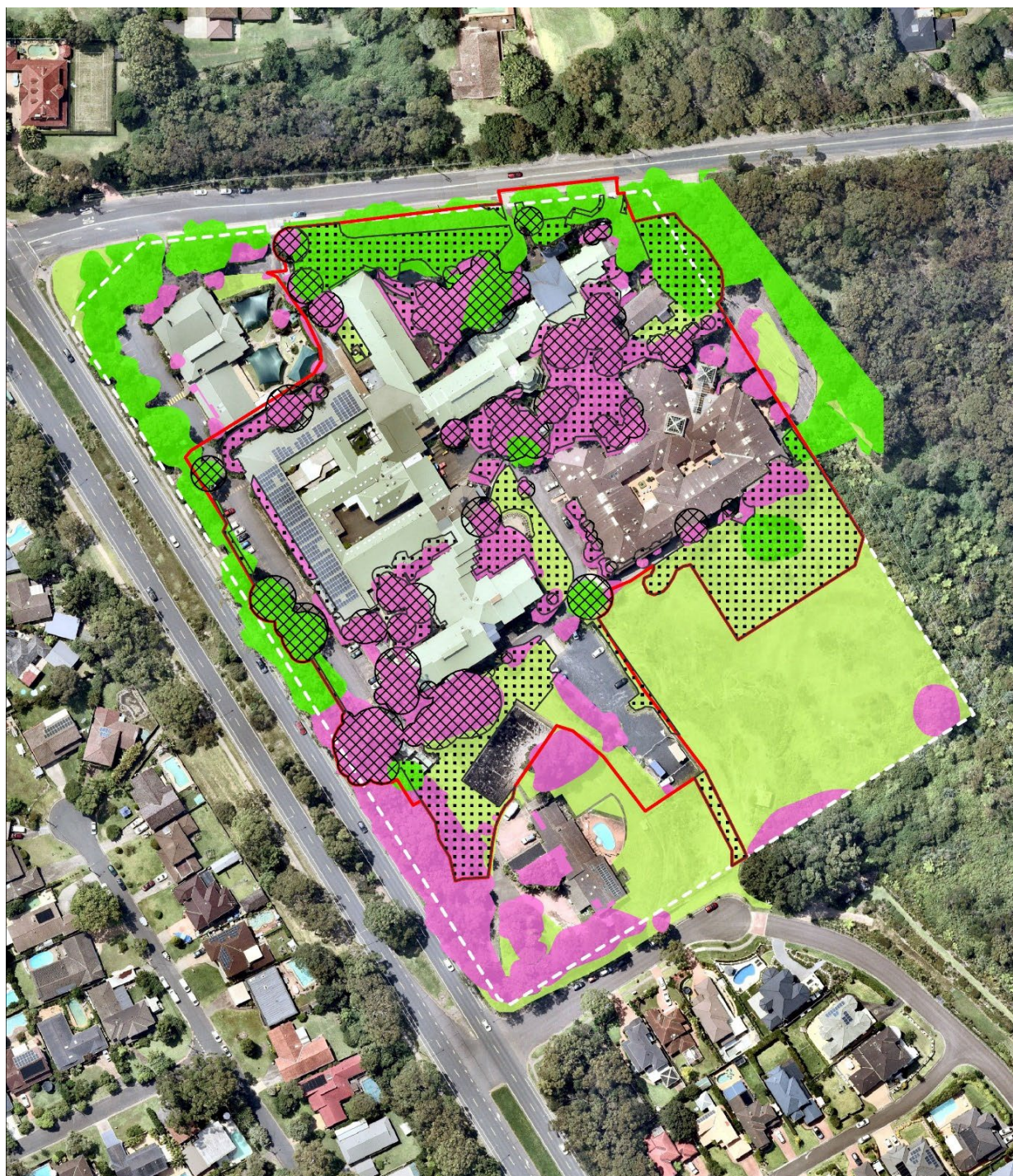
- Tree hollows of a size suitable for shelter and nesting by threatened species of microbats, parrots and owls were observed in *Angophora costata*
- Minor sandstone outcropping within the Subject Land
- One rocky crevice below a small waterfall within 100m of the Subject Land
- Small culvert leading into a constructed rocky drainage (**Plate 1**)
- Areas of coarse woody debris including some logs
- Ephemeral pooling of water in some areas
- Small stick nest within dense *Lantana camara*
- Nectar-bearing and soft-fruit-bearing trees and shrubs such as *Eucalyptus* spp., *Corymbia* spp., *Angophora costata*, *Banksia* spp. and *Syzygium paniculatum*
- Decorticated bark
- Areas of dense grassland and shrubbery

3.3 Vegetation Condition and Resilience

Structurally complete bushland present in the north of the Subject Property displays resilience and regeneration from the soil seedbank, yet is subject to disturbance including historical ornamental planting and edge effects such as weed infestation. Weeds are present in low to moderate densities within the Subject Property, particularly within the managed grassland area. Weed species include but is not limited to Ground Asparagus Fern (*Asparagus aethiopicus*), Lantana (*Lantana camara*), Senna (*Senna pendula*), Panic veldtgrass (*Ehrharta erecta*), Camphor laurel (*Cinnamomum camphora*), Kikuyu grass (*Cenchrus clandestinum*), and Fireweed (*Senecio madagascarensis*). Weed species are encroaching upon quality remnant bushland within and adjacent to the Subject Property and need to be controlled, particularly within the structurally complete Duffys Forest EEC. The weed species recorded within the BAM plots are detailed in **Table 3** and the description of management zones displayed in **Figure 6** are provided in **Table 4**.

Table 3. Weed species recorded within the Subject Property during plot-based surveys

Family	Scientific Name	Common Name
Amaryllidaceae	<i>Agapanthus praecox</i>	African Lily
Amaryllidaceae	<i>Allium</i> sp.	-
Arecaceae	<i>Phoenix canariensis</i>	Canary Island Date Palm
Asparagaceae	<i>Chlorophytum comosum</i>	Spider plant
Asteraceae	<i>Ageratina adenophora</i>	Mexican Devil
Asteraceae	<i>Chrysanthemum</i> spp.	-
Asteraceae	<i>Conyza bonariensis</i>	Fleabane
Asteraceae	<i>Gazania rigins</i>	Treasure Flower
Asteraceae	<i>Gnaphalium uliginosum</i>	Marsh Cudweed
Asteraceae	<i>Hypochaeris radicata</i>	Flatweed
Asteraceae	<i>Senecio madagascarensis</i>	Fireweed
Asteraceae	<i>Soliva sessilis</i>	Lawn Burrweed
Asteraceae	<i>Sonchus oleraceus</i>	Common Sowthistle
Asteraceae	<i>Taraxacum officinale</i>	Common Dandelion
Brassicaceae	<i>Cardamine hirsuta</i>	Hairy Bittercress
Caprifoliaceae	<i>Lonicera japonica</i>	Japanese Honeysuckle
Caryophyllaceae	<i>Cerastium glomeratum</i>	Sticky mouse-ear chickweed
Caryophyllaceae	<i>Paronychia brasiliensis</i>	Whitlow wart
Caryophyllaceae	<i>Stellaria media</i>	Common Chickweed
Ericaceae	<i>Rhododendron</i> spp.	-
Fabaceae	<i>Senna pendula</i>	Senna
Fabaceae	<i>Trifolium repens</i>	White Clover
Lauraceae	<i>Cinnamomum camphora</i>	Camphor laurel
Malvaceae	<i>Modiola caroliniana</i>	Carolina bristlemallow
Malvaceae	<i>Sida rhombifolia</i>	Paddy's lucerne
Ochnaceae	<i>Ochna serrulata</i>	Mickey Mouse Plant
Oleaceae	<i>Ligustrum sinense</i>	Chinese Privet
Poaceae	<i>Cenchrus clandestinum</i>	Kikuyu Grass
Poaceae	<i>Digitaria sanguinalis</i>	Hairy Crabgrass
Poaceae	<i>Ehrharta erecta</i>	Panic veldtgrass
Poaceae	<i>Setaria pumila</i>	Yellow Foxtail
Poaceae	<i>Stenotaphrum secundatum</i>	Buffalo grass
Polygalaceae	<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort
Rubiaceae	<i>Galium aparine</i>	Goosegrass
Rubiaceae	<i>Richardia stellaris</i>	Mexican Clover
Verbenaceae	<i>Lantana camara</i>	Lantana



Legend

- - - Subject Land
- Subject Property

Vegetation Community

- PCT 3593: Sydney Coastal Sandstone Bloodwood Forest (Derived Grassland)
- PCT 3593: Sydney Coastal Sandstone Bloodwood Forest (Remnant Disturbed)
- Planted Vegetation

Vegetation Proposed For Removal

- X X X X Complete Removal
- Understorey Only

0 15 30 60 90 120 150 Metres



Date: 15/11/2024

Imagery: © Nearmap

Coordinate System: GDA2020 MGA Zone 56

This map was produced for this report only.
It is indicative, not survey-accurate
and should not be used for design or
construction purposes.

Figure 3. Field-validated vegetation mapping within the Subject Land

4 Identification of Potential Impacts to Biodiversity

1.1 Nature and Extent of Proposed Construction Activities

The proposed development includes the redevelopment of an existing residential care facility, including:

- Site preparation and excavation works
 - Construction of a residential care facility and independent living units across six (6) buildings encompassing:
 - 147 Independent living units, and
 - 120 Residential care beds
- Ancillary services including recreational spaces, wellness spaces, cafe, salon, swimming pool, multipurpose spaces and men's shed
- Seniors gym for use by Uniting Belrose residents and the broader public
- Landscaping (Group GSA 2024b) and associated public domain works
- IPA APZ Management

For a detailed project description refer to the Environmental Impact Statement prepared by Ethos Urban.

The impact area for the construction of the infrastructure (i.e. buildings, footpaths and carparking) and landscaping is shown in **Figure 4**. Landscaping plantings will be undertaken in accordance with Landscape Plan (Group GSA 2024b).

Most of the vegetation to be cleared/impacted is within areas of managed lawn or amongst planted vegetation and includes mature native and exotic tree species.

1.2 Nature and Extent of any Bushfire Hazard Asset Protection Zones

The area to be managed as an APZ is shown in **Figure 5**. The APZ will be managed as an Inner Protection Area (IPA) (Peterson Bushfire 2024). Most of the area to be managed as an IPA APZ is already subject to garden maintenance with some mature remnant and planted native trees and exotic species.

The landscape design (Plus Architecture 2024) has been tailored to address the bushfire risk at the Subject Property whilst being sympathetic to the presence of Duffys Forest EEC and the need to provide a safe environment for the occupants. The landscaping and the area of vegetation removal for the development has been designed through multiple stages of review, with the preferred option adopting a 5m buffer for APZ works, rather than complete understorey vegetation removal (Group GSA 2024b). This allows for the Duffys Forest EEC along the western boundary to be kept in its current structurally complete condition and retains the habitat corridor of Duffys Forest EEC along the road verge. Where structurally complete Duffys Forest EEC understorey does not exist, the garden bed will be mulched and maintained free of understorey.

Some native canopy, shrub and groundcover species and may need to be removed to meet the IPA requirements. Planning for Bushfire Protection (NSW RFS 2019) states that the following requirements apply when establishing and maintaining an IPA:

"Trees:

- *canopy cover should be less than 15% (at maturity)*
- *trees (at maturity) should not touch or overhang the building*
- *lower limbs should be removed up to a height of 2m above ground*
- *canopies should be separated by 2 to 5m*
- *preference should be given to smooth barked and evergreen trees.*

Shrubs:

- *create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings*
- *shrubs should not be located under trees*
- *shrubs should not form more than 10% ground cover*
- *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.*

Grass:

- *should be kept mown (as a guide grass should be kept to no more than 100mm in height)*
- *leaves and vegetation debris should be removed - litter fuels within the IPA should be kept below 1 cm in height and be discontinuous."*

The APZ is to be managed in a manner that provides as much biodiversity value as possible, within the constraints required for fire protection performance. The measures taken as per the Bushfire Assessment Report include (Peterson Bushfire 2024):

- Weeds to be completely removed and suppressed
- Tree and shrub thinning is required to reduce the canopy cover to 15% or less and the shrub layer to 20% cover or less
- Retain diversity in groundcover species with grasses and forbs

- The new buildings proposed will be setback 5m further from the bushfire hazard than the existing buildings to achieve BAL-29 at the highest
- Retention of corridor of existing trees (Duffys Forest EEC) along the site frontages with Morgan Road to the north, Forest Way to the west and the access road to the east
- Allowance of 5 m wide garden bed that will act as a landscape screen and permit the retention of Duffys Forest EEC understorey (where existing) along Morgan Road and eastern access road (part way). Where structurally complete Duffys Forest EEC understorey does not exist, the garden bed will be mulched and maintained free of understorey.
- Replacement planting of low native grasses and ground covers at minimum of 10 per square metres
- Replacement planting of trees representative of Duffys Forest EEC located throughout the Subject Property as 'planted islands' ensuring separation between canopies and buildings

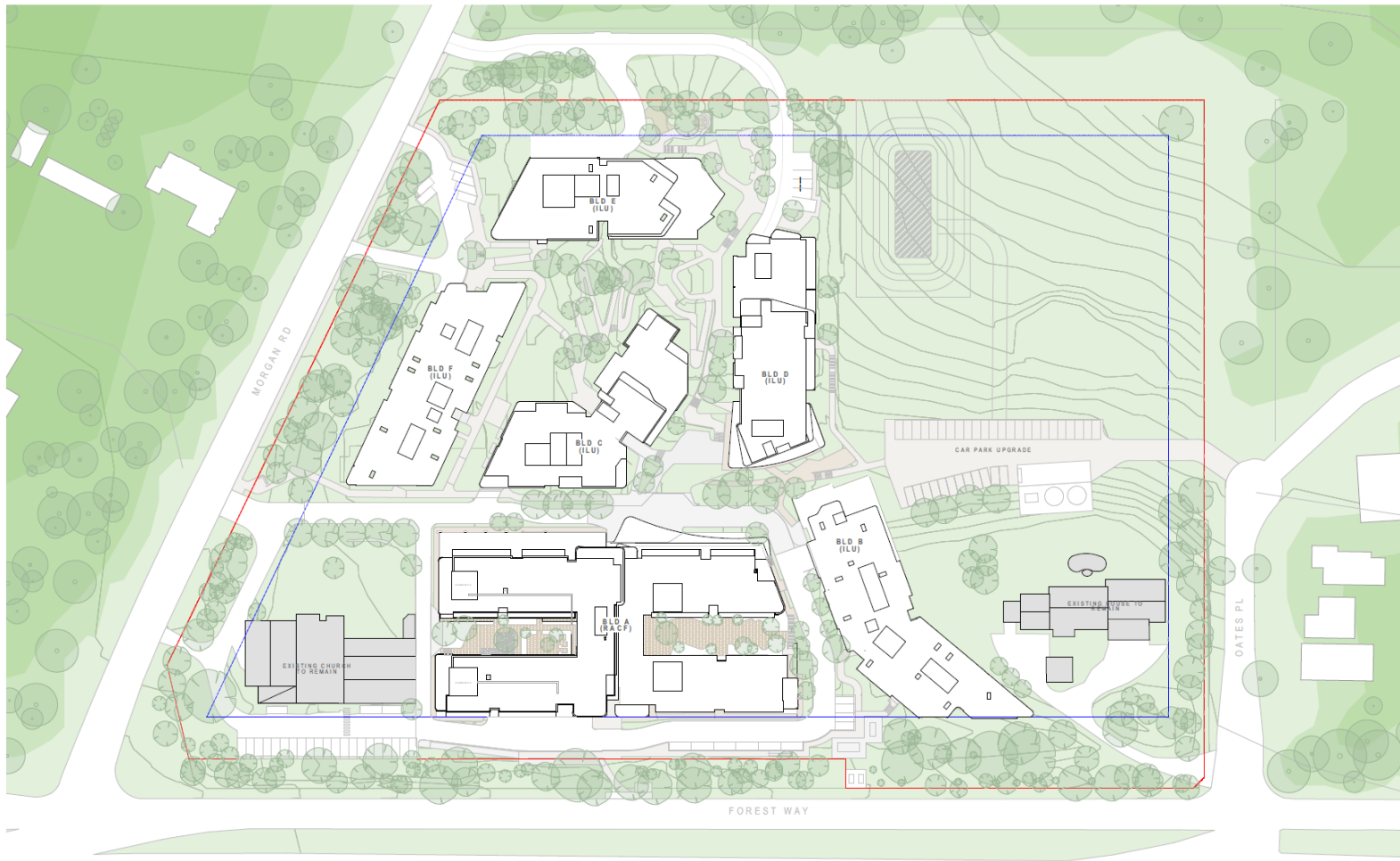
1.3 Nature and Extent of Proposed Operational Activities

The nature of the ongoing operational activities includes use of the residential buildings, facilities and garden areas by senior residents and their visitors. Road use is likely to be infrequent and as it will be used as a thoroughfare. Potential ongoing impacts include increased levels of noise and light spill due to increased ongoing human and vehicle presence closer to retained bushland, as well as increased dumping of gross pollutants and litter, soil disturbance, and the novel spread of weeds and pathogens.

1.4 Potential Indirect Impacts to Any Vegetation in Areas Adjoining the Development

Potential indirect impacts to retained vegetation in the adjacent land include the potential encroachment of exotic plants into bushland by human activities. The appropriate selection of landscaping species can minimise this risk.

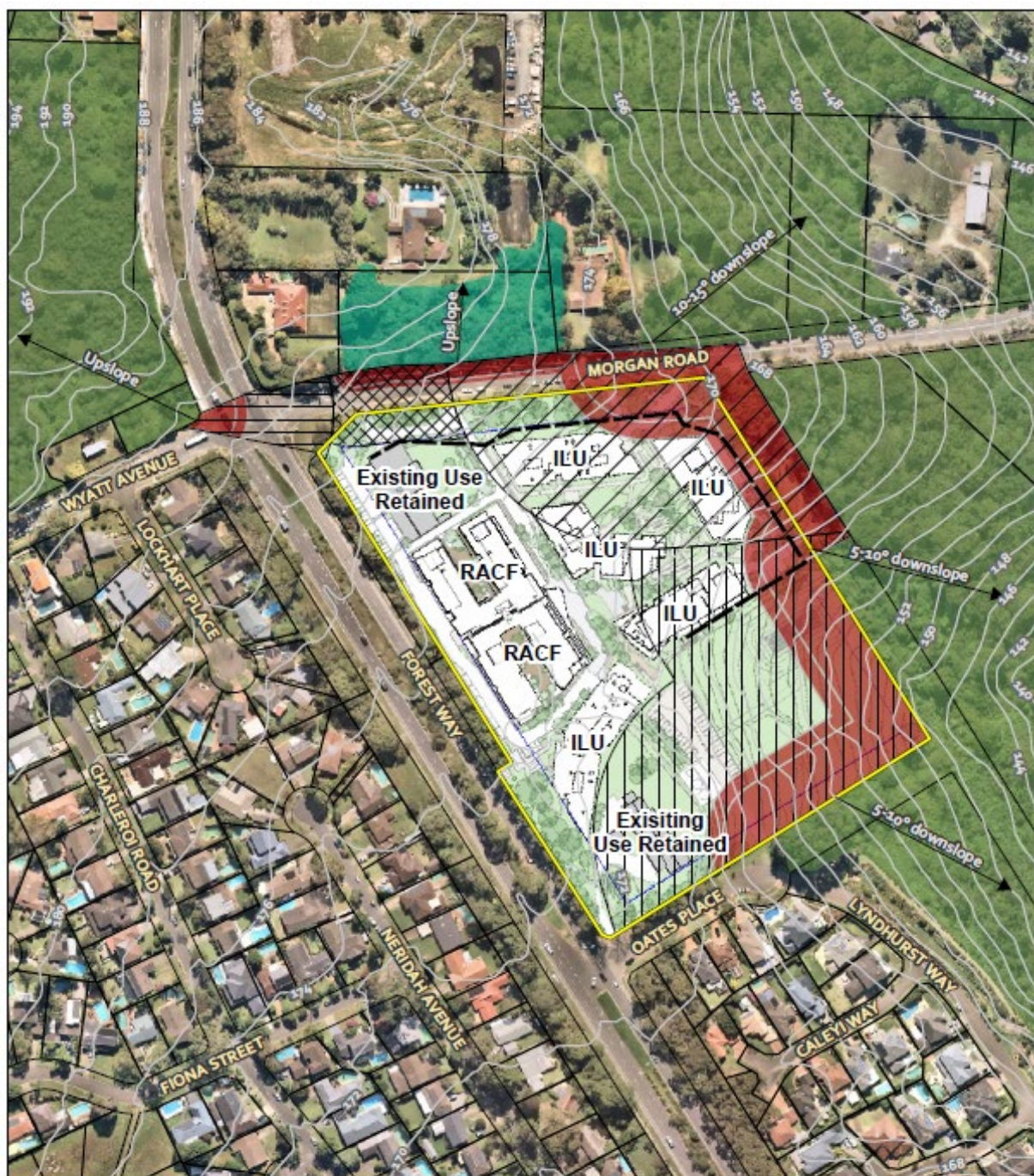
There are potential impacts from erosion and sediment run-off which can be minimised with standard control techniques (Landcom 2004) and must be addressed in the Construction Environment Management Plan (CEMP) that should be prepared prior to works as a requirement of this management plan.



Schematic Design									
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Figure 4. Proposed Development Plan (Plus Architecture 2024)



Legend

- | | | | |
|-----------------------------|------------------------|------------------------------|------------------------------|
| | Existing Building Line | | Low Hazard |
| | Watercourse | Asset Protection Zone | |
| | Contour - 2m | | Asset Protection Zone - 38m |
| | Subject Land | | Asset Protection Zone - 67m |
| | Cadastral | | Asset Protection Zone - 93m |
| Vegetation Formation | | | Asset Protection Zone - 100m |
| | Forest | | BAL 29 Asset Protection Zone |



Date: 5/11/2024

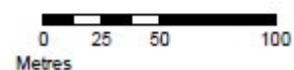


Figure 5. Proposed Asset Protection Zone within the Subject Property (Peterson Bushfire 2024)

2. Impact Mitigation Pre-clearing and During Clearing Works

2.1 Pre-clearing

The following mitigation measures are to be documented in a CEMP and implemented prior to clearing:

- All Environmental Subplans (e.g. Soil & and Water MP) within the CEMP must include Scope, Project Compliance Requirements, Project Targets, Control Measures Used, and Monitoring Details.
- Erosion and sediment control must be detailed in an Erosions and Sediment Management Plan, including types of control, method of installation, locations, maintenance regime, responsibilities, and stockpile storage. These may include, but are not limited to, silt fencing, vehicle shake-down, floating silt boom, and stabilisation access for machinery.
- Prior to works commencing a pre-clearance survey must be conducted by a qualified Ecologist to determine the presence of any nests, dreys or fauna using hollows. A report of findings for any required supervision of clearing works is to be submitted to Council. An experienced, vaccinated ecologist to check buildings for roosting microbats and remain present during the demolition of all human-made structures that contain microbat habitat to capture, treat/relocate and displaced fauna, particularly microbats.
- Areas determined not to be cleared must be marked and flagged off as “no-go” zones prior to construction and maintained throughout the works period.
- Any trees marked within “no-go” zones are to be retained and protected. Any impacts to these trees have not been assessed in this current report. AS 4970-2009 Protection of trees on development sites, is to be followed for all trees to be retained.
- Any trees within close proximity to the works zones must be examined by an arborist prior to works to identify the Tree Protection Zone (TPZ) and the Structural Root Zone (SRZ).
- For the IPA APZ:
 - Survey the APZ alignments (IPA APZ and significant habitat features)
 - Delineate the alignment with bunting
 - Identify trees for removal or pruning in consultation with fire consultant and ecologist
 - Tag all trees which are to be protected
 - Protect all trees which are to remain within the APZ in close proximity to the clearing alignment
- All environmentally sensitive areas must be permanently delineated from clearance areas with fencing and signage. Delineation must allow for passage of native fauna.
- All personnel must undertake environmental site inductions to highlight any and all environmental and ecological constraints within the site.
- Hygiene controls must be implemented for all vehicles and personnel entering the site. *Phytophthora* hygiene controls are provided in **Appendix C**.
- The bushland area must be permanently delineated from the areas managed as APZ, to assist in defining areas for ongoing fuel reduction management actions. This is to be an indicative boundary and not designed to restrict human or fauna access. A minimum specification consists of a single wire star picket fence or similar. Other posts of similar dimensions could be chosen for aesthetic consideration. Small auger or drilled post holes may be required given the shallow exposed bedrock.

2.2 During Clearing

The following mitigation measures should be implemented and maintained during clearing:

- Erosion and sediment controls should be implemented and maintained as per the Erosions and Sediment Management Plan.
- Areas which are marked and flagged off as “no-go” zones should be maintained during construction.
- Any trees marked within “no-go” zones are to be retained and protected. AS 4970-2009 Protection of trees on development sites, is to be followed.
- TPZs and the SRZs should be maintained for trees within proximity of the work zones.
- All environmentally sensitive areas must be permanently delineated from impacted areas with fencing and signage. Delineation must allow for passage of native fauna.
- All personnel should undertake environmental site inductions to highlight any and all environmental and ecological constraints within the site.
- Hygiene controls must be implemented for all vehicles and personnel entering the site. *Phytophthora* hygiene controls are provided in **Appendix C**.
- Felled trees are to be placed within the remnant bushland within the Subject Property or adjacent Council reserve (with the permission of Northern Beaches Council) under the direction of an Ecologist.

- An experienced, vaccinated ecologist to check buildings for roosting microbats and remain present during the demolition of all human-made structures that contain microbat habitat to capture, treat/relocate and displaced fauna, particularly microbats.
- Any hollows which are removed should be replaced with nest boxes at a ratio of 2:1 (two nest boxes for every hollow removed). The size of these should be determined by the size of the hollow removed. For example, large hollows should be replaced with large nest boxes at a 2:1 ratio.
- During tree clearing works, a qualified Ecologist should be on present on site. If an animal is identified and at risk during construction, works should not continue until the animal has been rescued. If the animal is injured a qualified carer should be contacted by either ringing Sydney Metro Wildlife on 02 9413 4300 or WIRES on 1300 094 737, or the animal is to be taken to a local Veterinary Clinic such as Belrose Veterinary Hospital (70 Pringle Ave, Belrose NSW 2085).
- All weed vegetation should be removed from the site for disposal. Weedy vegetation should not be moved or stockpiled in areas of retained vegetation in order to reduce their spread. Ongoing treatment of remaining weeds outside cleared areas is covered in **Section 3** of this management plan.
- Log salvage and relocation for ground habitat enrichment within the remnant bushland within the Subject Property or adjacent Council reserve (with the permission of Northern Beaches Council) under the direction of an Ecologist.

2.3 Construction

The following mitigation measures should be implemented and maintained during construction:

- Erosion and sediment controls should be implemented and maintained as per the Erosion and Sediment Management Plan.
- Areas which are marked and flagged off as “no-go” zones should be maintained during construction.
- Any trees marked within “no-go” zones are to be retained and protected. AS 4970-2009 Protection of trees on development sites, is to be followed.
- TPZs and the SRZs should be maintained for trees within proximity of the works zones.
- All environmentally sensitive areas must be permanently delineated from construction areas with fencing and signage. Delineation must allow for passage of native fauna.
- All personnel should undertake environmental site inductions to highlight any and all environmental and ecological constraints within the site.
- Hygiene controls must be implemented for all vehicles and personnel entering the site. *Phytophthora* hygiene controls are provided in **Appendix C**.
- The marking and flagging of the APZ boundaries should be maintained to protect the surrounding remnant intact bushland.

2.4 Post-construction

The following mitigation measures should be implemented post construction:

- Bush regeneration within the adjacent remnant bushland is recommended to increase habitat quality for native ground cover species and address the existing problem weeds at the edges which include but are not limited to: Ground Asparagus Fern (*Asparagus aethiopicus*), Lantana (*Lantana camara*), Senna (*Senna pendula*), and Fireweed (*Senecio madagascarensis*). Bush regeneration is also required to address new weed infestations that are likely to arise after construction.
- Bush regeneration and management of the retained bushland should be conducted as per the management zones detailed in **Section 3** of this report.
- All environmentally sensitive areas must be permanently delineated from the residents' area. Delineation must allow for passage of native fauna.
- Landscaping works are to not include Environmental Weeds.
- Nest box installation for Eastern Pygmy-possum habitat enrichment under the supervision and guidance of a suitably trained Ecologist

3. Management of Retained Vegetation and Rehabilitation of Areas

The areas of vegetation to be retained and managed as per this VMP are described in **Table 4** below and as illustrated in **Figure 6**. Photo-monitoring points for each zone are displayed in **Figure 7**. Baseline photographs must be taken prior to the commencement of construction works. The management actions, timing, duration and performance indicators for these zones are provided in **Table 5**. A Gantt Chart with the timing of works is provided in

Table 6.

Weed Removal

All Zones managed under this VMP will require weed removal. Weed species in the context of this report refers to species which are not locally indigenous species belonging to Duffys Forest EEC. Trees in this report refers to 'a palm or woody perennial plant with a single or multi stem greater than five (5) metres in height' (Warringah DCP). No 'tree' species, if not already proposed for removal in the BDAR (Landeco 2024), can be removed for the purpose of weed removal/restoration works including exotic trees without further approvals.

Where non-indigenous understorey vegetation (including trees under 5 metres in height) are being removed as part of weed management or APZ management works, it is recommended that all Banksia species be retained. While some Banksia species may not be representative of the Duffys Forest EEC, their ecological value, particularly as a foraging resource for a range of native fauna, including the Eastern Pygmy Possum warrants their preservation.

Details of weed removal techniques and methods are outlined in **Appendix D**.

Zone A1

The vegetation within this zone consists of remnant vegetation (**Plate 3**). Although minor weed infestations were recorded, this vegetation indicates signs of resilience and includes native canopy species with structurally complete areas of Duffys Forest EEC vegetation including evidence of natural regeneration. As such no additional plantings are required within this zone and works will be limited to weed control in this area.



Plate 3. Representative photo of Zone A1 (and BAM Plot 1)

Zone A2

The existing kerbs will be adjusted to create clearance around the existing trees. The newly formed spaces will be planted with understorey species as outlined in the MP3 - Landscape Plan (Group GSA 2024b). All plantings in this area will consist entirely of species representative of the Duffys Forest EEC.

Zone B

Zone B is located within the footprint of a proposed On-site Stormwater Detention (OSD) Basin (Indesco 2024), which will be enclosed by a wall and fence. A driveway and gate are proposed to facilitate maintenance access to the OSD infrastructure (Indesco 2024). It is expected that all existing vegetation within this zone will be removed for construction works (**Plate 4**).

Upon completion of construction works associated with the OSD, Land Eco recommends revegetating the area where practicable, using native species representative of PCT 1804: Coastal Upland Wet Heath Swamp. This plant community is associated with *Coastal Upland Swamp in the Sydney Basin Bioregion*, an EEC listed under the BC Act. Typically found on seasonally waterlogged soils over Hawkesbury Sandstone plateaus, this community occurs locally and is generally treeless (NSW TSSC 2012), making it well suited for the hydrological conditions of an OSD basin.

Coastal Upland Swamp in the Sydney Basin Bioregion provides habitat to a wide variety of birds, mammals, amphibians, reptiles and invertebrate species (NSW TSSC 2012). Revegetation with this community not only supports ecological restoration but also enhances local habitat connectivity and biodiversity outcomes, and supports the ecological function of Duffys Forest EEC with these two communities often occurring adjacent to each other.

Due to the functional requirements and ongoing maintenance needs of the OSD infrastructure, revegetation will be restricted to areas where plantings will not obstruct access or operational capacity. Accordingly, no canopy or tree species are proposed within this zone. All planting will be limited to low-growing understorey species consistent with the site's ecological character and operational constraints.

The planting schedule for Zone B is provided in **Appendix B**.



Plate 4. Representative photo of Zone B

Zone C

Given this zone is subject to APZ restrictions and will function as a residential care facility, the capacity to establish a fully functional Duffys Forest ecological community is limited. Despite these constraints, efforts have been made to ensure that the majority of tree species planted within this zone are either representative of the Duffys Forest community or locally indigenous to the area. Understorey plantings will also predominantly consist of native species, with particular areas, such as zone MP1 in the landscape plan (Group GSA 2024b), including over 80% Duffys Forest species. This approach seeks to balance the ecological intent of the VMP with the functional and safety requirements of a residential care setting.

Plantings within this zone should be carried out in accordance with the specifications and planting schedules outlined in the Landscape Plan (Group GSA 2024b).

Other

Uniting Church located on the north-western portion of the Subject Property and the private residence located on the southern portion of the Subject Property are private tenancies. These areas are outlined in **Figure 6** and are not included in this VMP at the request of the proponent.

Table 4. Management Zones

Management Zone	Vegetation within this Zone	Area (m ²)	Management Actions
All Zones	All Zones	N/A	Manage biodiversity threats that are within the Subject Property including weeds, rubbish/debris and erosion.
Zone A (Remnant Vegetation)	The vegetation along the northern boundary of the Subject Property (fronting Morgan Road) consists of remnant vegetation. Although minor weed infestations are present, this vegetation indicates signs of resilience and includes native canopy species with structurally complete areas of Duffys Forest EEC vegetation including evidence of natural regeneration. The groundlayer is intact in portions of this zone while other areas are disturbed and infill planted. This zone is a priority to manage and monitor to ensure the control of weeds and prevent further encroachment or establishment of weeds from neighbouring areas. Weed species that occur in this zone include but are not limited to Ground Asparagus Fern (<i>Asparagus aethiopicus</i>), Senna (<i>Senna pendula</i>), Lantana (<i>Lantana camara</i>), Camphor laurel (<i>Cinnamomum camphora</i>), Japanese Honeysuckle (<i>Lonicera japonica</i>) and Buffalo Grass (<i>Stenotaphrum secundatum</i>).	678 m ²	<u>Zone A1</u> - Management efforts in this zone should be targeted as a priority to prevent weed encroachment into areas both within and adjacent this zone which contain high quality bushland. Existing native vegetation should be retained within this zone and allowed to naturally regenerate. - All weed species within this zone are required to be removed to support the restoration of native vegetation and ecological integrity. Qualified bush regenerators must be engaged to carry out this work. - Bush regenerators are responsible for determining the most appropriate and effective methods for weed removal, with a strong emphasis on minimising soil disturbance and preventing erosion. - This zone will also be managed as an APZ (BAL 29) as per the IPA requirements addressed in the Bushfire Assessment (David Peterson 2024) (Figure 5) and Planning for Bushfire Protection (NSW RFS 2019). As discussed in Section 4.2, a 5m buffer for APZ works allows for the retention of Duffys Forest EEC along the western boundary. This vegetation will be kept in its current structurally complete condition, which will retain the habitat corridor of Duffys Forest EEC along the road verge. - No plantings should be undertaken in Zone A1. - Install and monitor usage of 10 Eastern Pygmy-possum nest boxes to provide habitat enrichment under the supervision and guidance of an Ecologist.
		76 m ²	<u>Zone A2</u> - The management actions outlined for Zone A1 are also applicable and must be implemented in Zone A2. - Additionally, plantings are required within Zone A2 using species specified in the MP3 - Landscape Plan (Group GSA 2024b). 100% of the plantings in this zone will be representative of Duffys Forest EEC.
Zone B (Derived Grassland)	This zone lacks canopy and shrub species, consisting purely of exotic-dominant grassland that is regularly maintained through grazing and mowing. Weed infestation is high across this zone with native vegetation cover is extremely sparse. Weed species include a high density of Kikuyu Grass (<i>Cenchrus clandestinum</i>) and Flatweed (<i>Hypochaeris radicata</i>) with a variety of other weeds such	1793 m ²	- Zone B is located within the footprint of a proposed OSD Basin (Indesco 2024), which will be enclosed by a wall and fence. A driveway and gate are proposed to facilitate maintenance access to the OSD infrastructure (Indesco 2024). - Following the completion of construction works associated with the OSD, Land Eco recommends that this area be revegetated where feasible, using species representative of PCT 1804: Coastal upland wet heath swamp. Given the functional constraints and access requirements of this zone, revegetation is limited to areas where planting will not interfere with the ongoing use and maintenance of the OSD infrastructure. No canopy or tree species are required within this zone,

Management Zone	Vegetation within this Zone	Area (m ²)	Management Actions
	as White Clover (<i>Trifolium repens</i>), Sticky Mouse-ear Chickweed (<i>Cerastium glomeratum</i>), Hairy Bittercress (<i>Cardamine hirsuta</i>) and Common Dandelion (<i>Taraxacum officinale</i>).		due to its nature and intended purpose. The planting schedule specific to this zone is outlined in Appendix B. • Additionally as this area is also to be managed in accordance with APZ BAL 29 requirements (David Peterson 2024), all plantings must also comply with the specified spacing, percentage cover densities, and ongoing management practices, as outlined in Section 1.2. • All exotic weed species within this zone are required to be removed. Qualified bush regenerators must be engaged to carry out this work. • Bush regenerators are responsible for determining the most appropriate and effective methods for weed removal, with a strong emphasis on minimising soil disturbance and preventing erosion.
Zone C (Managed Garden Beds)	This zone has been historically cleared and consists of a mix of commonly planted native (e.g. <i>Melaleuca quinquenervia</i> , <i>Casuarina glauca</i> , <i>Lophostemon confertus</i> , <i>Callistemon viminalis</i> , <i>Eucalyptus microcorys</i> , <i>Eucalyptus grandis</i> etc.) and non-native (<i>Poplar deltoides</i> , <i>Fraxinus griffithii</i> , <i>Rosa spp.</i> etc.) species within mulched garden bed and pathway verges. The majority of the native species are either non-indigenous or indigenous to the area but unlikely to naturally occur within this landscape position.	29365 m ²	• All exotic weed species/ non-cultivated weed (not proposed for retention as part of the Landscape Plan (Group GSA 2024b), within this zone are required to be removed. Qualified bush regenerators must be engaged to carry out this work. • Bush regenerators are responsible for determining the most appropriate and effective methods for weed removal, with a strong emphasis on minimising soil disturbance and preventing erosion. • Plantings within this zone should be carried out in accordance with the specifications and planting schedules outlined in the Landscape Plan (Group GSA 2024b).



Legend

- Subject Land
- Subject Property

Management Zone

- Zone A1
- Zone A2
- Zone B
- Zone C
- Private Residential Property
- Uniting Church Property

0 15 30 60 90 120 150 Metres



Date: 12/09/2025

Imagery: © Nearmap (2022)

Coordinate System: GDA2020 MGA Zone 56

This map was produced for this report only.
It is indicative, not survey-accurate
and should not be used for design or
construction purposes.

Figure 6. Management Zones within the Subject Property

Table 5. Schedule of Works

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
Site Meeting, Induction and WH&S	All zones	Project meeting with client, construction contractors and bush regeneration contractors.	Meeting on site with all concerned parties prior to commencement of works. Induction, including environmental inductions undertaken. Review and implementation of site specific WH&S and CEMP. Discussion, review and induction for protocols for prevention of pathogen and weed spread.	Pre-construction	Half a day	Property Owner and Contractors	WH&S documentation Inductions, including environmental inductions completed by all staff Phytophthora Hygiene Protocols to be implemented e.g. Designated wash down areas. Follow Appendix C. All staff inducted into work site safety and protocols
Baseline Survey	All zones	Begin establishment of baseline monitoring photo-points. Begin baseline weed mapping of all zones. Location of Photo Management Points are displayed in Figure 7.	Establish baseline monitoring photo points and weed density mapping for each management zone. Conduct weed density mapping. An overall assessment of the density of weeds on site is to be conducted by an Ecologist or qualified bush regenerator.	Start of VMP implementation	One day	Project Ecologist	Baseline photo points, signs of dieback in vegetation and weed densities established, to be collated into first progress report (at 6 months from implementation of VMP)
Pre-clearance survey	Development Footprint/ Subject Land	Pre-clearance survey for active next, dreys and any fauna that could be injured during vegetation	A qualified ecologist experienced in handling fauna is required to do a preclearance survey before any trees or vegetation are	Prior to clearing	1 day	Project Ecologist	Pre-clearance letter report

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
		clearing and construction works.	removed. If any nests or hollows are identified an ecologist must supervise the clearing.				
Fence off “no-go” zones	Vegetation to be retained within the Subject Property (particularly within Zone A and the remnant bushland east of the Subject Property)	Protection of retained vegetation	Areas of vegetation to be retained must be fenced off or flagged off prior to vegetation clearing and construction works. Hi-vis flagging is recommended to flag off the “no-go” zones. No equipment, stockpiles or fill is to be stored in these areas. Machinery or construction contractors must not enter the “no-go” areas.	Pre-construction and maintained until post construction	1 day	Construction Contractor with Assistance from Project Ecologist	Photos provided in monitoring report and flagging maintained throughout the construction period
Sediment Fencing	The construction area	Installation of sediment fencing and maintenance of existing sediment fencing	Sediment fencing to be installed down slope of any earthworks and above drainage lines. Specifications included in Appendix E. Sand bags must be used in the access road gutter to prevent sediment entering drainage lines, bushland and stormwater. Fences to be maintained and functional throughout period of construction.	Before construction works begin. Must be maintained during the entire construction period until the erosion risk is eliminated.	One day, two staff	Construction Contractor or Bush Regeneration Contractor	No sediment flow into bushland or drainage lines. Sediment fence functional throughout the period of construction. Performance of fence noted in monitoring VMP reporting.

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
Identify vegetation for IPA APZ Clearing	All Zones	Identify vegetation for removal	Bushfire Consultant and Ecologist to determine the vegetation required for removal within the IPA.	Prior to APZ clearing (within two (2) weeks of clearing)	One day with an Ecologist and Bushfire Consultant	Construction Contractor, Bush Fire Consultant and Project Ecologist	Trees to be removed and retained clearly marked.
Rubbish Removal	All Zones	Remove all anthropogenic litter	Rubbish to be removed across the Subject Land Subject Property maintained free of anthropogenic litter/rubbish for the implementation of the VMP	At the commencement of the VMP, and opportunistically during Bush Regeneration visits over the course of the VMP	One day, team of two to four	Bush Regeneration Contractor	Anthropogenic waste removed off-site Maintain site waste free
Salvage of Logs/ Woody Debris	Nearby Reserve	Salvage the logs from felled trees to created habitat within Subject Property without compromising APZ integrity or nearby reserves with council's approval.	All logs cut from the trees to be removed is to be placed within Subject Property without compromising APZ integrity or nearby reserves with council's approval to provide habitat for locally occurring fauna.	During construction work	One day	Construction Contractor or Arborist and Project Ecologist	Minimum of 20m logs installed
Nest Box Installation	Zone A1 & A2	Installation of Eastern Pygmy-possum Nest Boxes	Supply and installation of 10 Eastern Pygmy-possum nest boxes across Zone A to provide habitat enrichment under the supervision and guidance of an Ecologist	Prior to or during construction work	One day, one Ecologist	Project Ecologist	Minimum of 10 Pygmy-possum nest boxes installed (nest box installation letter needed)
Initial Weed Control	Zone A1, A2 (All vegetation in Zone B expected to be removed for	Weed Control	Weed treatment including hand removal, cut and paint and herbicide spraying where relevant. Treat woody weeds in situ. See Appendix D for species specific treatment techniques.	Prior to or during construction work	Two days, team of four	Bush Regeneration Contractor	Engage Bush Regenerators to commence works in this zone (letter of evidence needed).

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
	construction works)		Progressive weed removal with cut-and-paint methods preferred for established shrubs to allow roots to continue to stabilise the soil.				Before and after monitoring photographs. Waste and weed propagules removed off-site.
Planting	Zone A2	Revegetation/Restoration Planting of Duffys Forest EEC	Planting using species specified in the MP3-Landscape Plan (Group GSA 2024b). 100% of the plantings in this zone will be representative of Duffys Forest EEC. Shrub guards installed. Each plant should be watered at the time of planting to help overcome transplant shock and remove air pockets. If no rainfall is predicted following planting, a follow-up watering must be undertaken 5-7 days after planting, and once per week for the remainder of the month.	Within six months after initial weed control. Ideally planting should be undertaken in Autumn or early Spring when weather conditions are mild. Planting in Summer or Winter is unlikely to achieve success.	Two days, team of four	Bush Regeneration Contractor and Landscape Contractor (Group GSA 2024b)	Ensure a minimum of 95% plantings survive over the course of this VMP

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
	Zone B	Planting with species representative of PCT 1804: Coastal upland wet heath swamp.	Planting with species representative of PCT 1804: Coastal upland wet heath swamp. No canopy or tree species to be installed. The planting schedule for this zone is outlined in Appendix B. Additionally as this area is also to be managed in accordance with APZ BAL 29 requirements (David Peterson 2024), all plantings must also comply with the specified spacing, percentage cover densities, and ongoing management practices, as outlined in Section 1.2.	Ideally planting should be undertaken in Autumn or early Spring when weather conditions are mild. Planting in Summer or Winter is unlikely to achieve success.	Two days, team of four	Bush Regeneration Contractor and Landscape Contractor (Group GSA 2024b)	Ensure a minimum of 95% plantings survive over the course of this VMP
	Zone C	Revegetation/Restoration Planting of Duffys Forest EEC	Planting using species specified in the Landscape Plan (Group GSA 2024b). Tree and Shrub guards installed. Each plant should be watered at the time of planting to help overcome transplant shock and remove air pockets. If no rainfall is predicted following planting, a follow-up watering must be undertaken 5-7 days after planting, and	Ideally planting should be undertaken in Autumn or early Spring when weather conditions are mild. Planting in Summer or Winter is unlikely to achieve success.	Unknown refer to landscape Plan (Group GSA 2024b).	Landscape Contractor (Group GSA 2024b)	Ensure a minimum of 95% plantings survive over the course of this VMP

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
			once per week for the remainder of the month.				
Stake Instalment	Zone A2, B & C	Every plant installed must be individually marked with brightly coloured stakes.	The total number of stakes installed in each zone is to be documented and included in the Year One Annual Monitoring Report. An ecologist is to conduct assessments of each staked plant at the 6-month and 12-month mark and record success rate in the Year One Annual Monitoring Report.	The survival and health of planted vegetation will be assessed at both 6-month and 12-month intervals following installation.	1 Year	Bush Regeneration Contractor and Project Ecologist	Any plants that have not survived must be replaced with the same species to maintain consistency with the original planting schedule.
Planting Replacement/Maintenance	Zone A2, B & C	Watering Replacement of dead plants Maintaining tree and shrub guards	Watering plants Replacing dead plants to maintain minimum of 90% survival	Watering once per week for the month following plantings Replacement of dead plants as required	As required	Bush Regeneration Contractor and Project Ecologist	Ensure a minimum of 95% plantings survive over the course of this VMP Ecologist to do plantings audit each monitoring period
Secondary Weed Control	All Zone	Secondary Weed Control	Secondary weed treatment including hand removal, cut and paint and herbicide spraying where relevant. See Appendix D for species specific treatment techniques.	Six months after the completion of construction works and the installation of all proposed plantings.	Two days, team of four (4)	Bush Regeneration Contractor	Before and after monitoring photographs. Waste and weed propagules removed off-site.
Year 1 Maintenance	All Zones	Maintenance weeding	Minimum two annual visits. Maintenance works to prevent re- establishment of weeds.	First visit prior to weed control and the second visit six months after initial weed control. Ideally visits during the spring and summer	One day, team of four each visit	Qualified Bush Regeneration Contractor	All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone,

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
			Weed control methods that can be undertaken include hand weeding and spraying if necessary. Maintenance of APZ following RFS specifications for an IPA as outlined in Section 4.2.	months to target the flush of annual species.			provided their removal does not increase the risk of erosion or conflict with site constraints. APZ meets RFS specifications for maintenance of an IPA.
Year 2 Maintenance	All Zones	Maintenance weeding	Minimum of one annual maintenance visit. Maintenance works to prevent re- establishment of weeds. Weed control methods which can be undertaken include hand weeding and spraying if necessary. Maintenance of APZ following RFS specifications for an IPA as outlined in Section 4.2.	During the spring and summer months to target the flush of annual species.	One day, team of four each visit	Qualified Bush Regeneration Contractor	All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone, provided their removal does not increase the risk of erosion or conflict with site constraints. APZ meets RFS specifications for maintenance of an IPA.
Year 3 Maintenance	All Zones	Maintenance weeding	Minimum of one annual maintenance visits. Maintenance works to prevent re- establishment of weeds. Weed control methods which can be undertaken include hand weeding and spraying if necessary.	During the spring and summer months to target the flush of annual species.	One day, team of four each visit	Qualified Bush Regeneration Contractor	All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone, provided their removal does not increase the risk of erosion or conflict with site constraints.

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
			Maintenance of APZ following RFS specifications for an IPA as outlined in Section 4.2.				APZ meets RFS specifications for maintenance of an IPA.
Year 4 Maintenance	All Zones	Maintenance weeding	Minimum of one annual maintenance visits. Maintenance works to prevent re- establishment of weeds. Weed control methods which can be undertaken include hand weeding and spraying if necessary. Maintenance of APZ following RFS specifications for an IPA as outlined in Section 4.2.	During the spring and summer months to target the flush of annual species.	One day, team of four each visit	Qualified Bush Regeneration Contractor	All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone, provided their removal does not increase the risk of erosion or conflict with site constraints. APZ meets RFS specifications for maintenance of an IPA.
Year 5 Maintenance	All Zones	Maintenance weeding	Minimum of one annual maintenance visits. Maintenance works to prevent re- establishment of weeds. Weed control methods that can be undertaken include hand weeding and spraying if necessary.	During the summer months to target the flush of annual species.	One day, team of four each visit	Qualified Bush Regeneration Contractor	All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone, provided their removal does not increase the risk of erosion or conflict with site constraints.
Eastern Pygmy-possum Nest Box Monitoring	Zones A1 & A2	Monitoring of 10 Eastern Pygmy-possum Nest Boxes	Inspect for condition, occupancy, and pest activity using a borescope. Record species use, breeding success, and box condition.	Annually (until year 5)	All years	Project Ecologist	If nest boxes are damaged, they are to be replaced.

Management Action	Management Zone	Task	Specifications	Timing	Estimated Duration	Responsibility	Performance indicators/deliverables
Monitoring and Reporting	All Zones	Conduct annual monitoring, surveys and progress reports. Details on the monitoring and reporting tasks required for each report are outlined in Section 4 .	Progress and monitoring reports are to be prepared and submitted to Council at the 6-month and 12-month milestones, and annually thereafter, to demonstrate whether Key Performance Indicators (KPIs) have been satisfactorily achieved in accordance with Council guidelines.	6-month mark, 12-month mark, and then annually thereafter (until year 5).	All years	Ecologist	Reports should include criteria outlined in Section 4 .
Final Monitoring Report	All Zones	Conduct final monitoring, surveys and progress report. Details on the monitoring and reporting tasks required for each report are outlined in Section 4 .	Assess and present a final report to Council to show whether KPIs have been satisfactorily met to Council guidelines	End of Year 5 after practical completion	All years	Ecologist	Reports should include criteria outlined in Section 4 .

Table 6. Implementation Schedule

Actions	Timeframe					
	Pre-construction	6 Months	Year 1	Year 2	Year 3	Year 4
Meeting & Inductions – address WH&S issues						
Permanent delineation of APZ extent						
Identify trees for APZ clearing						
Fence off “no-go” zones						
Pre-clearance Survey						
Install Sediment Fencing						
Baseline Survey						
Rubbish Removal						
Salvage of Logs/ Woody Debris						
Nest Box Installation						
Initial Weed Control – Zones A1 & A2						
Planting – Zone A2, B & C						
Install Stakes						
Watering and Planting Replacement/Maintenance						
Secondary Weed Control – All Zones (6-Months Post-construction Works/ Plantings)						
Year 1 Maintenance						
Year 2 Maintenance						
Year 3 Maintenance						

Actions	Timeframe					
	Pre-construction	6 Months	Year 1	Year 2	Year 3	Year 4
Year 4 Maintenance						
Year 5 Maintenance						
Eastern Pygmy-possum Nest Box Monitoring						
BAM Plot Monitoring, Weed Mapping and Annual Reporting						
Final Monitoring Report						

4. Monitoring Guidelines

A program of monitoring and inspection is to be carried out by a qualified Bushland Management Consultant (qualified Ecologist) to ensure the measures outlined in this VMP are implemented and that performance criteria have been satisfied. The monitoring programme will commence prior to any works to gather baseline data and will continue for the duration of the five-year VMP period.

The monitoring programme will involve:

- Assessment of weed control works and native regeneration success via permanent repeatable photographic monitoring points, and surveys of whole management zones by a suitably qualified person (Ecologist or Bush Regeneration Supervisor). Monitoring point locations are displayed in **Figure 7**.
- A BAM plot survey is to be conducted annually (up to Year 5) at the location of BAM Plot 1 (**Figure 2**). The baseline results presented in **Appendix F** should be used for comparison in each Annual Monitoring Report. This will support the assessment of weed cover and the success of natural regeneration.
- All weeds identified as suitable for removal by the bush regeneration supervisor should be selectively removed from each zone, provided their removal does not increase the risk of erosion or conflict with site constraints.
- A detailed Weed Map should be included in each Annual Monitoring Report, clearly identifying and mapping the extent and distribution of weed infestations across the site. This map will assist in tracking changes in weed cover over time and should help guide management efforts.
- The survival and health of planted vegetation will be assessed at both 6-month and 12-month intervals following installation. To facilitate monitoring, all installed plants within Zones A2, B, and C must be individually marked with brightly coloured stakes. The total number of stakes installed in each zone is to be documented and included in the Year One Annual Monitoring Report.
- An ecologist is to conduct assessments of each staked plant at the 6-month and 12-month mark and record success rate in the Year One Annual Monitoring Report. Any plants that have not survived must be replaced with the same species to maintain consistency with the original planting schedule. Stakes can be removed after submission of Year 1 Annual Report.
- An ecologist is to conduct a yearly assessment of the 10 installed Eastern Pygmy-possum nest boxes. Inspect for condition, occupancy, and pest activity using a borescope. Record species use, breeding success, and box condition.
- General observations (e.g. erosion, sediment, anthropogenic litter, evidence of pest species)
- Recommendations for corrective measures and/or specific vegetation management required; and,
- Provision of regular reports outlining data collected and tracking of works towards final KPIs.

Monitoring events and reporting are to follow the following schedule (**Table 7**):

Table 7. Proposed monitoring and reporting tasks and timeframes

Monitoring/Reporting	Duration	Personnel Required
Baseline Survey	Once at the beginning of the VMP	Ecologist
Permanent Photo Locations	6-month mark, 12-month mark, and then annually thereafter (until year 5).	Ecologist
Weed Assessment and Mapping	6-month mark, 12-month mark, and then annually thereafter (until year 5).	Ecologist/Bush Regeneration Contractor
General Observations (e.g. erosion, sediment, anthropogenic litter, evidence of pest species)	6-month mark, 12-month mark, and then annually thereafter (until year 5).	Ecologist
Planting Survival Audit (using stakes)	First 6-month mark and at the 12-month mark	Ecologist
BAM Plot 1 Survey	Annually	Ecologist
Eastern Pygmy-possum Nest Box Monitoring	Annually	Ecologist
Surveys and Progress Monitoring Report	6-month mark, 12-month mark, and then annually thereafter (until year 5).	Ecologist
Final Monitoring Report	Once at the end of the five-year period of the VMP	Ecologist

All reports should be prepared by suitably qualified professionals and submitted to Council. Council defines a qualified person for supervision of on ground bush regeneration works such as weed removal, bush regeneration and revegetation as having:

- A minimum two years supervising experience of on ground bush regeneration work and TAFE Certificate III in Conservation and Land Management - Natural Area Restoration or equivalent.

And for undertaking the bush regeneration works:

- A minimum of a TAFE Certificate II in Conservation and Land Management-Natural Area Restoration or equivalent.



Legend

- Subject Land
- Subject Property
- Monitoring Points/ Photo Points

Management Zone

- Zone A1
- Zone A2
- Zone B
- Zone C
- Private Residential Property
- Uniting Church Property

0 15 30 60 90 120 150 Metres



Date: 12/09/2025

Imagery: © Nearmap (2022)

Coordinate System: GDA2020 MGA Zone 56

This map was produced for this report only.
It is indicative, not survey-accurate
and should not be used for design or
construction purposes.

Figure 7. Photo-point and Monitoring Locations within each Management Zone

5. Corrective Actions

Based on the monitoring report results, corrective actions must be implemented where performance targets are not on track. **Table 8** details corrective actions for potential management issues which may be identified during the monitoring stage. Corrective actions must be provided in the monitoring reports when required.

Table 8. Potential management issues and corrective actions

Management Issue	Corrective Action
Accidental vegetation removal	Replacement planting to be undertaken under the guidance of a qualified Bushfire Consultant and Ecologist.
All WONS are not eradicated within Year 1 Areas mapped as weeds on the Annual Weed Map have increase	Increase weed control visits by a qualified Bush Regenerator. Frequency of visits to be determined by a qualified Ecologist or Bush Regenerator to meet KPI's.
If Eastern-pygmy Possum Nest Box are damaged/broken	Replace Eastern-pygmy Possum nest box and report in Annual Monitoring Report.
Planting survival less than 95% or more of target	Increase planting maintenance/watering visits by a qualified Bush Regenerator. Frequency of visits to be determined by a qualified Ecologist or Bush Regenerator to meet KPI's. Increase planting preparation such as where time allows, plant stock is to be progressively hardened-up by exposing plants to increasing amounts of sunlight. This is particularly important if the plant stock has been propagated in a greenhouse/shade house.
Ineffective sediment fencing or in disrepair	Repair existing fencing. Add additional fencing where required to ensure no sediment is entering drainage lines, bushland or stormwater.
Destabilisation after weed removal work	If any areas (particularly slopes) become destabilised after weed removal it should be stabilised using the following methods: • Installation of coir logs and/or jute matting depending on the extent and level of erosion potential. • Planting of local provenance tube stock plant species and watering. Plant survival rates must be maintained at 95 % and in filled with additional plants if required.
Increased prevalence of pest species	Undertake consultation with Northern Beaches Council regarding ongoing management of feral pest species if they are observed on the Subject Property.
Unexpected findings	If during the construction of the proposed development, the Project Ecologist finds that a species listed under the EPBC Act that was not assessed prior to the works taking place, and that species has potential to be impacted, works must cease until the Project Ecologist advises on a suitable approach. This may require a referral to the Commonwealth to determine whether the proposed development will need formal assessment and approval under the EPBC Act
KPIs not achieved at the end of the five-year period of the VMP	Extend the duration of the VMP as per advice from a qualified Ecologist.

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Appendix A. Fauna Species List

Class	Scientific Name	Common Name	BC Act Status
Amphibia	<i>Crinia signifera</i>	Common Eastern Froglet	Protected
Amphibia	<i>Limnodynastes peronii</i>	Striped Marsh Frog	Protected
Amphibia	<i>Litoria fallax</i>	Dwarf Tree Frog	Protected
Amphibia	<i>Litoria peronii</i>	Peron's Tree Frog	Protected
Aves	<i>Acridotheres tristis</i>	Common Miner	Exotic
Aves	<i>Alectura lathami</i>	Australian Brush Turkey	Protected
Aves	<i>Anthochaera chrysoptera</i>	Little Wattlebird	Protected
Aves	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	Protected
Aves	<i>Colluricincla harmonica</i>	Gray Shrike-thrush	Protected
Aves	<i>Corvus coronoides</i>	Australian Raven	Protected
Aves	<i>Cracticus torquatus</i>	Grey Butcherbird	Protected
Aves	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Protected
Aves	<i>Eopsaltria australis</i>	Eastern Yellow Robin	Protected
Aves	<i>Gymnorhina tibicen</i>	Australian Magpie	Protected
Aves	<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle (foraging)	Vulnerable
Aves	<i>Hieraaetus morphnoides</i>	Little Eagle (foraging)	Vulnerable
Aves	<i>Hirundo neoxena</i>	Welcome Swallow	Protected
Aves	<i>Manorina melanocephala</i>	Noisy Miner	Protected Key Threatening Process
Aves	<i>Meliphaga lewinii</i>	Lewins Honeyeater	Protected
Aves	<i>Ninox connivens</i>	Barking Owl	Vulnerable
Aves	<i>Pachycephala pectoralis</i>	Golden Whistler	Protected
Aves	<i>Pardalotus punctatus</i>	Spotted Pardalote	Protected
Aves	<i>Platycercus elegans</i>	Crimson Rosella	Protected
Aves	<i>Psophodes olivaceus</i>	Eastern Whipbird	Protected
Aves	<i>Rhipidura albiscapa</i>	Grey Fantail	Protected
Aves	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	Protected
Aves	<i>Sericornis frontalis</i>	White-browed Scrubwren	Protected
Aves	<i>Strepera graculina</i>	Pied Currawong	Protected
Aves	<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet	Protected
Aves	<i>Turnix varius</i>	Painted Button-quail	Protected
Aves	<i>Zosterops lateralis</i>	Silvereye	Protected
Mammalia	<i>Cercartetus nanus</i>	Eastern Pygmy Possum	Vulnerable
Mammalia	<i>Miniopterus australis</i>	Little Bent-winged Bat	Vulnerable
Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable
Mammalia	<i>Perameles nasuta</i>	Long-nosed Bandicoot	Protected
Mammalia	<i>Rattus fuscipes</i>	Bush Rat	Protected
Mammalia	<i>Rattus rattus</i>	Black Rat	Pest

Class	Scientific Name	Common Name	BC Act Status
Mammalia	<i>Trichosurus vulpecula</i>	Common Brush-tailed Possum	Protected
Mammalia	<i>Vulpes vulpes</i>	Red Fox	Pest
Mammalia	<i>Wallabia bicolor</i>	Swamp Wallaby	Protected
Reptilia	<i>Eulamprus quoyii</i>	Eastern Water Skink	Protected
Reptilia	<i>Intellagama lesuerii</i>	Australian Water Dragon	Protected
Reptilia	<i>Lampropholis guichenoti</i>	Grass Skink	Protected
Reptilia	<i>Morelia spilota</i>	Diamond Python	Protected

Appendix B. Species Planting Schedule for Zone B (Species representative of PCT 1804: Coastal upland wet heath swamp)

Species	Stratum
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	Mid
<i>Banksia oblongifolia</i>	Mid
<i>Banksia robur</i>	Mid
<i>Boronia parviflora</i>	Mid
<i>Dillwynia floribunda</i>	Mid
<i>Epacris obtusifolia</i>	Mid
<i>Hakea teretifolia</i>	Mid
<i>Isopogon anemonifolius</i>	Mid
<i>Leptospermum juniperinum</i>	Mid
<i>Sprengelia incarnata</i>	Mid
<i>Viminaria juncea</i>	Mid
<i>Blandfordia nobilis</i>	Ground
<i>Chorizandra sphaerocephala</i>	Ground
<i>Dampiera stricta</i>	Ground
<i>Empodisma minus</i>	Ground
<i>Entolasia stricta</i>	Ground
<i>Gahnia sieberiana</i>	Ground
<i>Gleichenia dicarpa</i>	Ground
<i>Gymnoschoenus sphaerocephalus</i>	Ground
<i>Lepidosperma limicola</i>	Ground
<i>Leptocarpus tenax</i>	Ground
<i>Lepyrodia scariosa</i>	Ground
<i>Mitrasacme polymorpha</i>	Ground
<i>Schoenus brevifolius</i>	Ground
<i>Selaginella uliginosa</i>	Ground
<i>Xanthorrhoea resinosa</i>	Ground

Appendix C. *Phytophthora* Hygiene Protocols

Task	Action
Timing	When possible/practical, the development should be completed in dry soil conditions and postponed following significant rainfall. Working in dry soil conditions will reduce the need for cleaning vehicles and equipment. If it is necessary to work in wet or damp areas, then greater attention will need to be spent on vehicle and equipment cleaning.
Staff	Contractors and staff involved in the development are to be made aware that fungus has / has not been recorded on site and provided with information regarding management protocols and its threat to native vegetation.
Drainage and Water	Alterations to drainage that may result in the spread of <i>Phytophthora</i> into new areas are to be avoided as highest priority. Water used during construction should be minimised. When water is necessary, it should be from a reticulated mains system, bore supply or sterilised source. Surface water collected from infected areas should not be used. Water draining from the site should not enter bushland areas. The use of water for dust suppression should be kept to a minimum.
Landscaping and Bush Regeneration	Plants used in landscaping should be purchased from a nursery with accreditation from the Nursery Industry Association, or from a nursery with excellent hygiene conditions. Species selected for landscaping should preferably be resistant to <i>Phytophthora cinnamomi</i>. Any gravel/sand/topsoil to be bought onto site should be purchased from a Nursery Industry Association accredited supplier or should be certified (through testing) to be free of <i>Phytophthora cinnamomi</i>. Any infected soil/sand/gravel/vegetation moved on the site or removed from the site should be stored at in area that is also infected with <i>Phytophthora cinnamomi</i>, or a site where the pathogen will not have any impact. Storage of gravel/sand/topsoil on site should preferably be on a dry well drained surface. Construction materials such as pipes, rocks, timber, bricks etc., should be free of mud and soil when arriving at the site. Staff should not enter infected areas unless necessary, movement within these areas should be kept to a minimum.
Vehicles and Machinery	All machinery, vehicles and equipment should arrive at the site free of uncontained mud and soil, particularly on tyres, mudflaps and the underbody. Vehicles and machinery existing from the site to be free of all uncontained mud and soil, particularly on the tyres, mudflaps and the underbody. Minimise the amount of water used. Try to remove soil and mud when it is dry (a stiff brush or stick maybe useful). Cleaning will be easier and more effective if it is completed at a depot or a permanent/designated cleaning area (it is acceptable for vehicles and machinery to be taken to a cleaning facility on sealed roads). If cleaning is to occur in the field select a site with a hard, well-drained surface (e.g. a road) that is well away from remnant vegetation. If possible, wash down in an area that is close to the area you have been operating in. Wash down on ramps if possible. Do not allow mud and wash-down effluent to drain into bushland. Do not drive through wash-down effluent.
Footwear and Tools	Try to remove as much mud and soil as possible when it is dry with a stiff brush or stick. Minimise the amount of water used to initially clean footwear and tools. Footwear and tools should be scrubbed with a sterile solution (see below). All mud and soil should be collected (including in liquid) and removed in a bag or bucket. This material is to be disposed of at a site that is already infected with Cinnamon Fungus, or a site that contains no bushland.
Sterilising	Equipment can be sterilised by soaking in a disinfectant such as bleach (containing sodium hypochlorite). The bleach should be diluted (1 part bleach to 10 parts water), soak the tools for a few minutes, and then rinse. Alternatively methylated spirits can also be used for sterilising small hand tools and footwear in the field. A spray bottle containing methylated spirits can be used to cover all surfaces, allowing time for it to soak into all soil material (a couple of minutes is sufficient). A sterile water solution suitable for spraying down vehicles and machinery can be made by mixing 6mL of sodium hypochlorite (e.g. pool chlorine or bleach) to every 10L of water.

Appendix D. Weed Management Techniques

Environmental weeds are exotic species considered to either have a high risk of dispersing and becoming established in adjacent native vegetation or have the potential to cause significant ecological harm. The proposed development has the potential to introduce and promote the spread of weeds and pathogens in the development footprint as well as in the surrounding area.

Weed management works are to consist of primary (revegetation preparation and woody weed removal) in the six-month establishment phase and then secondary and maintenance works during the maintenance phase.

The weed management for the VMP must be implemented on site by a suitably qualified and experienced bush regenerator possessing as a minimum qualification in Conservation and Ecosystem Management – Certificate III (or equivalent) in addition to a minimum of 500 hours practical bushland regeneration under an experienced supervisor within the specified time frames within the VMP.

The use of herbicide to control weeds should be carefully considered. Herbicide use should assess potential long-term impacts of the technique including whether the proposed works address the source of the weed infestation. Herbicide use should occur during the active growing season for plants to encourage the chemical uptake into the plant. The selection of herbicides should also consider the type of weed and the location. Where non-selective herbicides are required for use, glyphosate is the most suitable. If herbicides are required to be used near waterways, a glyphosate-based herbicide formulated for use near waterways will be used (e.g. RoundUp® Biactive™).

Details for managing the different types of weeds found on site are found below.

Grasses

Grasses should be hand removed if located near native vegetation or where isolated/low concentrations occur. If not located near native vegetation, larger patches may be slashed prior to seed production in spring or summer (depending on the growth cycle of the species) and the regrowth spot-sprayed 2-3 weeks later when it is actively growing. The best time of year to slash is winter and spring. Grasses are not to be high volume sprayed or sprayed prior to being slashed. Monitoring of these species must occur and if new seed production occurs, the same treatment will be applied again as required. However, slashing will not reduce the presence of exotic grasses on its own and must always be combined with targeted removal to reduce densities and allow for native regeneration. Individual plants should be hand removed. If they contain seed, they must be bagged and disposed of appropriately offsite.

Woody Weeds

Where woody weeds are present, these will be controlled through the hand pull method. If the woody weeds reach a size where this is not possible, then the cut and paint or drill and fill method using a non-selective herbicide will be required. The most appropriate method to be used depends on the size of the individual to be removed and will be determined by the bush regeneration contractor. Primary weed control should use techniques that will not encourage flushes of secondary weed growth. All seedlings of woody weeds can be hand removed, unless in large densities away from native vegetation where they can be carefully spot sprayed.

Creepers and Climbers

The control of creepers varies depending on the species. For the most part, seedlings will be hand pulled, while mature plants can be controlled by skirting if climbing trees or fences. Once skirted, the roots should be hand pulled or dug up. The precise method to be used will be determined by the bush regeneration contractor depending on the species, size and reproductive status of the individual. All vegetative material removed should be bagged, removed from site, and disposed of appropriately.

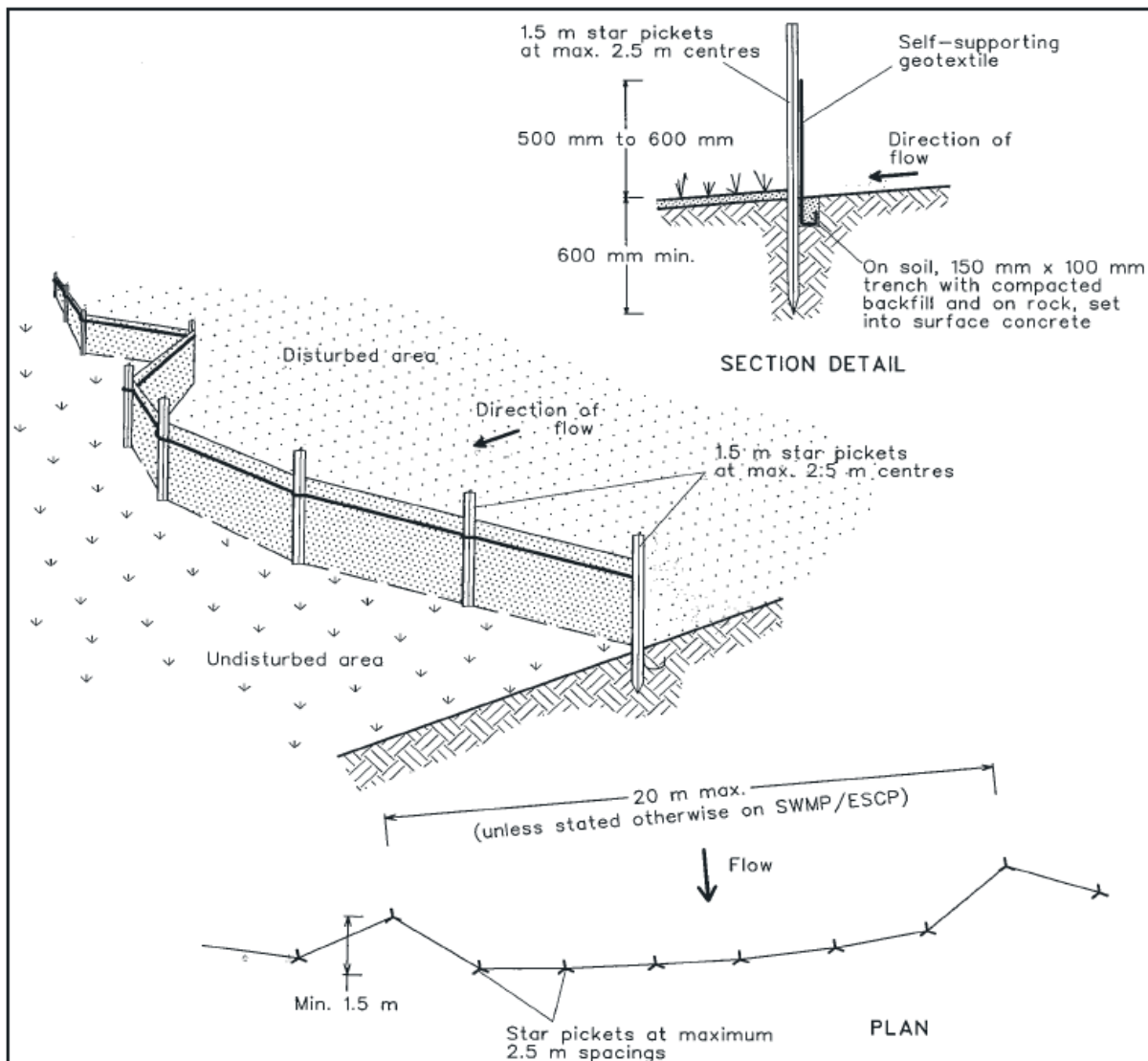
Herbaceous Weeds

Where individual plants are found, they will be hand pulled prior to flowering. Where large swaths of these species occur and they are not located near native vegetation, they can be very carefully spot sprayed.

If high densities of mature stands occur, weeds may be slashed first using a brush cutter and any subsequent regrowth carefully spot sprayed. Monitoring of these species will be required to prevent seed production. All vegetative material that is pulled out and has the potential to regrow if deposited on ground will be bagged and removed from site alongside any plants with seeds.

Table 9. Categories of Management under the Greater Sydney Regional Strategic Weed Management Plan 2023-2027 under the NSW Biosecurity Act 2015

Category	Management Action
Prevention (Prevent)	To prevent the weed species arriving and establishing in the region.
Eradication (Eliminate)	To permanently remove the species and its propagules from the region OR to destroy infestations to reduce the extent of the weed in the region with the aim of local eradication.
Containment (Minimise)	To prevent the ongoing spread of the species in all or part of the region.
Asset protection (Manage)	To prevent the spread of weeds to key sites/assets of high economic, environmental and social value, or to reduce their impact on these sites if spread has already occurred.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE

SD 6-8

Appendix F. BAM Plot 1

BAM Site - Field Survey Form

Date:	25.7.24	Plot ID:	1	Photo #:		Counts apply when the number of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For a multi-stemmed tree, only the largest living stem is included in the count/estimate. Tree stems must be living.
Zone:	56H	Plot Dimensions:	Irregular	Easting:	335033	
Datum:	GDA 2020	Middle Bearing (o) at 0m:	265	Northing:	6267244	
PCT:	3593	Condition Class	Remnant Disturbed	Ecologists:	Semonn Oleksyn and Nick Henson	

Growth Form	Scientific Name	Cover	Abundance	DBH	# Tree Stems Count	Number of Hollow-bearing Trees
Tree (TG)	Angophora costata	35	N/A	80+cm	3	For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.
Tree (TG)	Acacia parramattensis	20	N/A	50-79cm	6	
Shrub (SG)	Persoonia pinifolia	0.1	1	30-49cm	8	
Shrub (SG)	Pittosporum undulatum	0.1	1	20-29cm	3	
Exotic	Gnaphalium uliginosum	0.1	4	10-19cm	14	
Exotic	Digitaria sanguinalis	0.1	2	5-9cm	16	
HTW	Polygala myrtifolia	5	20	<5cm	34	
Exotic	Pavonia hastata	0.1	4			
HTW	Asparagus aethiopicus	2	15	Length of Logs (m)	2.5	
Exotic	Chrysanthemum spp.	0.3	30	(≥10 cm diameter, >50 cm in length)		
Exotic	Gazania rigins	0.1	1			
Exotic	Rhododendron sp.	0.2	3	BAM Attribute (1 x 1 m plots)	Litter Cover (%)	
Grass & grasslike (GG)	Entolasia stricta	0.1	5	1	2	
Shrub (SG)	Grevillea linearifolia	0.2	2	2	100	
Exotic	Camellia sasanqua	2	4	3	100	
Other (OG)	Cordyline stricta	0.3	1	4	1	
Exotic	Allium sp.	0.1	3	5	1	
Exotic	Loropetalum chinense	1.5	2	Average (#no./5)	40.8	
Shrub (SG)	Acacia floribunda	2.5	2	Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.		
Shrub (SG)	Grevillea banksii	0.5	1			
Exotic	Taraxacum officinale	0.1	3			
Grass & grasslike (GG)	Cynodon dactylon	2.5	50			

Exotic	Setaria pumila	0.1	2			
Forb (FG)	Pratia purpurascens	0.1	1			
HTW	Senna pendula	1	3			
Tree (TG)	Eucalyptus haemastoma	4	1	Growth Form	Composition Data	Structure Data
Tree (TG)	Ceratopetalum gummiferum	8	N/A	Tree	8	76.2
Forb (FG)	Dianella caerulea	0.3	10	Shrub	14	8.3
Exotic	Agapanthus praecox	1	15	Grass	3	2.8
HTW	Ehrharta erecta	0.2	10	Forb	7	0.9
Exotic	Aechmia gamosepala	0.5	10	Fern	1	0.1
Exotic	Strelitzia reginae	3.5	3	Other	4	0.6
Other (OG)	Dendrobium spp.	0.1	1	HTW	12	14.7
HTW	Phoenix canariensis	2.5	2	Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m		
Fern (EG)	Asplenium australasicum	0.1	1	Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...		
Tree (TG)	Eucalyptus sieberi	3	1			
Shrub (SG)	Hymenosporum flavum	1.5	1			
Other (OG)	Hardenbergia violacea	0.1	2			
Exotic	Sonchus oleraceus	0.1	1			
Tree (TG)	Banksia serrata	1	1			
Tree (TG)	Allocasuarina littoralis	0.2	1			
HTW	Lantana camara	0.2	1			
Shrub (SG)	Acacia ulicifolia	0.2	1			
Forb (FG)	Commelina cyanea	0.1	3			
Shrub (SG)	Acacia longifolia	1	1			
Shrub (SG)	Banksia spinulosa	0.3	1			
Tree (TG)	Corymbia gummifera	5	2			
Grass & grasslike (GG)	Gahnia spp.	0.2	10			
Shrub (SG)	Homalanthus populifolius	0.1	1			
Other (OG)	Smilax glyciphylla	0.1	3			
HTW	Cinnamomum camphora	0.1	1			
Forb (FG)	Cryptostylis erecta	0.1	10			
Shrub (SG)	Hibbertia empetrifolia subsp. empetrifolia	0.1	1			
HTW	Lonicera japonica	0.3	5			
Shrub (SG)	Grevillea speciosa	0.1	1			
Shrub (SG)	Acacia longifolia	1.5	1			
HTW	Ligustrum sinense	0.1	1			

Forb (FG)	Oxalis perennans	0.1	10
Forb (FG)	Hydrocotyle sibthorpioides	0.1	10
HTW	Chlorophytum comosum	0.2	3
Exotic	Sida rhombifolia	0.1	3
Shrub (SG)	Elaeocarpus reticulatus	0.1	1
HTW	Stenotaphrum secundatum	3	50
Exotic	Modiola caroliniana	0.1	5
Exotic	Richardia stellata	0.1	1
Exotic	Hypochaeris radicata	0.1	2
Forb (FG)	Cotula australis	0.1	1
Exotic	Aechmia fasciata	0.5	10
Exotic	Plumeria sp.	0.2	1
HTW	Ochna serrulata	0.1	1



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