SUBURBAN RAIL LOOP EAST

SRL East Draft Structure Plan | Burwood

Ecology and Arboriculture Technical Report

More Homes For Victorians

VICTORIA State Government

Suburban Rail Loop

PREPARED FOR SUBURBAN RAIL LOOP AUTHORITY

SRL EAST DRAFT STRUCTURE PLAN – ECOLOGY AND ARBORICULTURE TECHNICAL REPORT - BURWOOD

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Contents

Appendices

Glossary and abbreviations

TERM	DEFINITION
AJM-JV	Aurecon Jacobs Mott MacDonald Joint Venture
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEECA	Department of Energy, Environment and Climate Action (formerly DELWP)
DELWP	Department of Environment, Land, Water and Planning (DELWP) is a former government department in Victoria, Australia (now referred to as DEECA or DTP).
DTP	Department of Transport and Planning
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPR	Environmental Performance Requirement
ESO	Environmental Significance Overlay
EVC	Ecological Vegetation Class
FFG Act	*Flora and Fauna Guarantee Act 1988*
the Guidelines	*Guidelines for the removal, destruction of lopping of native vegetation* (DELWP, 2017)
ha	Hectare(s)
km	Kilometre(s)
LGA	Local Government Area
m	Metre(s)
MNES	Matters of National Environmental Significance
NVIM	Native Vegetation Information Management System
Plan Melbourne	*Plan Melbourne 2017-2050*
PMST	Protected Matters Search Tool
PPRZ	Public Park and Recreation Zone
Project Land	The Project Land describes the approval area which has been identified within the *Suburban Rail Loop East Incorporated Document (August 2022).* The Project Land includes the areas in which the Suburban Rail Loop East (the Project) components would be contained, including both permanent structures and temporary construction areas (both above and below ground).
SLO	Significant Landscape Overlay
SRL	Suburban Rail Loop
SRLA	Suburban Rail Loop Authority
SRL East (the Project)	Suburban Rail Loop East
VBA	Victorian Biodiversity Atlas
VPO	Vegetation Protection Overlay
WSUD	Water sensitive urban design

Executive summary

As part of the Suburban Rail Loop (SRL) East, Draft Structure Plans (Structure Plans) are being prepared for land identified as being suitable for significant change surrounding the new underground stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill.

The Structure Plans will set a vision and framework to guide growth and change in each Structure Plan, while protecting and preserving the features that people love about them now.

This technical report will inform the development of the Draft Burwood Structure Plan (Burwood Structure Plan).

The report describes the existing ecology and arboricultural values in the Burwood Structure Plan Area.

It identifies issues and opportunities that should be considered when developing the Burwood Structure Plan and makes recommendations to improve and enhance ecology and arboricultural values.

Existing Conditions

ECOLOGY

The Burwood Structure Plan Area is heavily modified and dominated by infrastructure, buildings and residential areas. The Structure Plan Area is intersected by Gardiners Creek, a revegetated rock-lined drainage channel that provides a significant local corridor for foraging, resting and dispersal opportunities for biodiversity.

Gardiners Creek contains revegetated areas of Swampy Riparian Woodland (EVC 83) with 1.35 hectares of native vegetation previously recorded during ecological site investigations. It is likely the native vegetation occurs along the length of Gardiners Creek in the Structure Plan Area. The Structure Plan Area is unlikely to support listed *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Flora and Fauna Guarantee Act 1988* (FFG Act) threatened ecological communities. No EPBC Act and FFG Act-listed threatened flora are considered to have a high likelihood of occurring in the Structure Plan Area.

The mix of revegetated and remnant trees within Gardiners Creek is considered to provide temporary refuge opportunities for threatened species, Gang-gang Cockatoo, Grey-headed Flying Fox and Powerful Owl. While these species may occasionally occur within or fly over the Structure Plan Area, they are not considered to be heavily dependent on habitat at Gardiners Creek.

ARBORICULTURE

The Burwood Structure Plan Area supports 15 per cent tree canopy cover in the overall Burwood Precinct. Residential land provides 14.5 per cent canopy cover in the Structure Plan Area and commercial and industrial land provides 5.2 per cent canopy cover.

Five parcels of land in the Structure Plan Area are subject to a Vegetation Protection Overlay (VPO) and contain a tree (or trees) considered significant under the Whitehorse Planning Scheme.

A significant portion of the Structure Plan Area is subject to protection under the Significant Landscape Overlay (SLO9) that applies to all residential zones in the Structure Plan Area as part of the Whitehorse Planning Scheme. Residential precincts in the south-east and south-west of the Structure Plan Area in Monash are subject to protection under the Vegetation Protection Overlay (VPO1) which applies as part of the Monash Planning Scheme.

Notable and mature tree plantings, in addition to trees on land affected by SLO9 within Whitehorse, are generally within public land managed by Council including areas such as Bennettswood Reserve, and Sinnott St Reserve. Gardiners Creek Reserve, which extends into the City of Monash and Deakin University also have notable tree plantings. These sites all support significant canopy cover in the Structure Plan Area.

Issues and Opportunities

ECOLOGY

Challenges for increasing biodiversity and open spaces include the high proportion of developed areas and paved impervious surfaces, increasing population pressures and development, a heavy reliance on motor vehicles, limited biodiversity values in the existing open space network, the dominance of non-native and European street trees, and a lack of large mature trees.

There are opportunities to enhance biodiversity by planting climate-change resilient native vegetation in the open space network throughout the Structure Plan Area that improves habitat and enhances habitat corridors for biodiversity. The naturalisation of Gardiners Creek and planting more flowering native trees, shrubs and grasses throughout the Structure Plan Area would improve habitat for fauna, particularly Gang-gang Cockatoo and Grey-headed Flying-fox. Additional planning controls and overlays could also be considered to protect biodiversity from future development, including recreated habitat.

ARBORICULTURE

Potential impacts to trees and canopy cover from development in the Structure Plan Area include the loss of individually significant trees listed in the VPO, loss of urban tree canopy cover from re-zoning residential land to commercial uses, more intense development of residential land, as well as the loss of canopy cover due to infrastructure upgrades, including roads and vehicular access. Rezoning land from residential to other uses will likely make Whitehorse's interim SLO9 control and Monash's VPO1, where they apply to rezoned land, redundant. The loss of trees and reduced opportunities for new tree plantings will create challenges for achieving the Whitehorse and Monash tree canopy targets.

Opportunities to protect and enhance tree canopy and the urban forest in the Structure Plan Area include promoting tree planting on residential, commercial and industrial land, as well as on public land. Local planning controls could be revised to mandate improved approaches to greening in particular zones.

Recommendations

1. Promote the concept of habitat corridors to link new and existing open spaces within the Precinct to support Plan Melbourne 2017-2050 *Direction 6.5 and Policy 6.5.1* and local City of Whitehorse and City of Monash policies. It is recommended that habitat corridors consider the surrounding environment, including habitat connections to Gardiners Creek within the Precinct.

    a) As depicted in the below figure, the proposed habitat corridors have been developed based on a logical path that incorporates areas of existing and proposed open spaces, remnant vegetation and habitat corridors in proximity to the Structure Plan Area.

    b) It is recommended that the habitat corridors are enhanced for biodiversity through the planting of native trees, particularly flowering natives, and understorey that provides a diversity of flowering plants at a variety of heights.

2. It is recommended to support State Government and local policy to explore opportunities with City of Whitehorse and Melbourne Water to protect, expand and restore the creek naturalisation of Gardiners Creek to extend habitat corridors between Gardiners Creek and Wattle Park and other open spaces within the Structure Plan Area.

3. As per Direction 6.4 of Plan Melbourne 2017-2050, to provide cooler and greener urban forests it is recommended that existing and proposed open green spaces, including along roadsides and pedestrian walkways, are enhanced with native plantings (particularly flowering trees and a diversity of nectivorous species). Refer to the below table that provides recommendations in new and existing open spaces. These locations are included in the figure below.

a) Native plant selection in these areas should consider and prioritise drought-tolerant, long-lived and flowering species for their biodiversity values.

b) Tree selection should consider the threatened species that occasionally visit the Structure Plan Area, notably Grey-headed Flying-fox and Gang-gang Cockatoo.

RECOMMENDATIONS FOR BIODIVERSITY IN PUBLIC OPEN SPACE

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODIVERSITY IMPROVEMENTS
Lundgren Chain Linear Reserve	Existing open space	Function: Community Park Size: 14,039 m²	• Retain all trees in the open space. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Linking habitat corridor across the reserve.
Gardiners Reserve and Gardiners Creek	Existing open space	Function: Linear corridor Size: 227,737 m²	• Retain all trees in the open space, where practicable. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes . • Improve blue infrastructure with naturalisation of Gardiners Creek including riparian vegetation to provide suitable natural habitat for aquatic fauna. • Overhead rope fauna crossings across main roads including Burwood Highway and Highbury Road to provide safe passage for terrestrial fauna.
Bennettswood Reserve	Existing open space	Function: Sports Park Size: 48,497 m²	• Retain all trees in the open space. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Linking habitat corridor from Bennettswood Reserve to Gardiners Creek Reserve.
Linear park connecting Sinnott St, McComas Grove and Cumming Street to connect McComas Grove and Lundgren Chain Linear Reserves with Gardiners Reserve	Proposed (New and enhanced open space)	Function: Linear corridor Size: 1800 m²	• Retain all trees in the open spaces. • Create a linking habitat corridor connecting Lundgren Chain Linear Reserves and other smaller reserves with Gardiners Reserve. • Where possible, create green streets to connect open spaces. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn.
Barlyn Road	Proposed (Enhanced open space)	Function: Landscape Park Size: 1554 m²	• Plant native trees that provide nectar resources for birds. • Revegetation comprising understory flowering vegetation for pollinators that replaces non-native lawn.
Roslyn Street Reserve	Proposed (Enhanced open space)	Function: Community Park Size: 2218 m2	• Retain all trees in the open space. • Provide fauna nest boxes. • Create a wildlife corridor between Roslyn Street Reserve and Gardiners Creek Reserve by using green streets along McIntyre Street and Ireland Street. • Plant native trees that provide nectar resources for birds.

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODIVERSITY IMPROVEMENTS
			• Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn.

4. It is recommended to retain and protect all remnant trees and native vegetation where possible during development, particularly along the Gardiners Creek Corridor and in existing open spaces in accordance with the Whitehorse Urban Biodiversity Strategy to conserve and maintain existing biodiversity and areas of indigenous flora and fauna.
5. To support the City of Whitehorse Biodiversity Principles and Objectives “increase the focus of replenishing and supplementing indigenous plantings”, it is recommended to enhance proposed and existing open spaces with indigenous plantings and revegetate understorey ground layer with flowering native species to promote native wildlife. Recommendations for biodiversity improvements to the open space network are identified in the above table, including selecting native plant species that are drought-tolerant, long-lived and flowering with various heigh structures. Open space locations are identified in the below figure.
6. Align the Structure Plan with Whitehorse Urban Biodiversity Strategy initiatives (i.e. tree planting, bushland regeneration and development of biodiversity corridors) and work with the City of Whitehorse City to improve open space, streetscapes and community areas, including with a tree planting program to improve canopy cover and planting that links habitat between open spaces enhanced for biodiversity, as well as ensuring a diversity of tree species selected for climate change resilience.
7. Support existing and new tree plantings to increase canopy cover in accordance with the Whitehorse Urban Forest Strategy 2021-2031, Monash Urban Landscape and Canopy Vegetation Strategy and Living Melbourne, endorsed by both the City of Whitehorse and the City of Monash. Ensure development includes integrated water management interventions that address green infrastructure assets, provides adequate irrigation for trees and other plantings, and optimises permeable surfaces to enhance tree growth.

Other opportunities

- As per Objective 2 of the City of Monash Urban Biodiversity Strategy 2018 – 2028, enhance and expand revegetation activities to improve degraded areas using local indigenous plants with a focus on establishing understorey species. This can be achieved by prioritising revegetation within new and existing open spaces and green streets and removing concrete and other impervious materials and replace with a suitable mixture of native vegetation.
- Consider planting more flowering native trees, shrubs and grasses along the Gardiners Creek habitat corridor to enhance the habitat for fauna, particularly Powerful Owl, Gang-gang Cockatoo and Grey-headed Flying-fox.
- Ensure significant trees protected by the Vegetation Protection Overlay in the City of Whitehorse are protected and integrated into new development.
- Support municipal street and public open space planting strategies to meet canopy coverage targets, as well as ensuring a diversity of tree species selected for climate change resilience.
- Habitat corridors require the support of private landholders and public land managers to include private land and associated streetscapes. Seek to engage and obtain the support of private landholders in the adoption of habitat corridors on private land.
- Private landholders within the mapped corridor are to be encouraged and supported in contributing native trees and understorey plantings. It is considered that the Structure Plan Area wide habitat corridor will require local government and community support. Seek to engage and obtain the support of private landholders in the adoption of habitat corridors on private land.

SRL East Structure Plan Area
SRL East Station Box
SRL East Alignment
Existing Public Open Space
Indicative Habitat Corridor
Watercourse

Ecology Data

Native Patch (AJM Data)
83 Swampy Riparian Woodland

Native Scattered Trees (AJM Data)
Native Scattered tree
Native Tree in Patch
Planted Tree

Modelled Ecological Vegetation Class (DEECA)
83 Swampy Riparian Woodland

Victorian Biodiversity Atlas (VBA) Threatened Fauna (DEECA)
Grey-headed Flying-fox

Victorian Biodiversity (VBA) Atlas Threatened Flora (DEECA)
Spotted Gum

Data Sources:
AJMJV 2024
Esri 2024
SRLA 2024
VicMap (DEECA) 2024

SUBURBAN RAIL LOOP

AJM Joint Venture

aurecon Jacobs MOTT MACDONALD

Suburban Rail Loop
Burwood
Indicative Habitat Corridor

Drawing Number:			Revision:
SRL-301-AJM-TPWD-MAP-PPG-PWD-508304			A.7
Drawn By:	Approved By:	Date:	Map Size:
L. Tily	R. Ffrost	14/10/2024	A3

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Metres
Coordinate System: GDA2020 MGA Zone 55

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INDICATIVE HABITAT CORRIDORS IN THE BURWOOD STRUCTURE PLAN AREA

1 Introduction

The Suburban Rail Loop (SRL) is a transformational project that will reshape Melbourne's growth in the decades ahead. It will better connect Victorians to jobs, retail, education, health services and each other – and help Melbourne evolve into a 'city of centres'.

SRL will deliver a 90-kilometre rail line linking every major train service from the Frankston Line to the Werribee Line via Melbourne Airport.

SRL East from Cheltenham to Box Hill will connect major employment, health, education and retail destinations in Melbourne's east and south east. Twin 26-kilometre tunnels will link priority growth suburbs in the municipalities of Bayside, Kingston, Monash and Whitehorse.

SRL East Structure Plan Areas will surround the six new underground stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill.

1.1 Purpose of this report

This technical report will inform the development of the Draft Burwood Structure Plan (Burwood Structure Plan) to guide land use planning and development in the Structure Plan Area.

The report describes the existing ecology and arboricultural values in the Structure Plan Area and the surrounding area.

Issues and opportunities relating to ecology and arboriculture that impact planning for the development of the Structure Plan Area are identified.

Recommendations to consider when developing the Burwood Structure Plan are made, with the objective to avoid, minimise or manage potential negative impacts of change, and to maximise potential for positive change.

1.2 Project context

Construction of the SRL East underground stations is underway at Box Hill, Burwood, Glen Waverley, Monash, Clayton and Cheltenham. This provides an opportunity to enhance the surrounding neighbourhoods. SRL East will support thriving and sustainable neighbourhoods and communities that offer diverse and affordable housing options, with easy access to jobs, transport networks, open space, and community facilities and services.

A Precinct Vision has been developed in consultation with the community and stakeholders for the Structure Plan Area and surrounds. The visions set out the long-term aspirations for these areas, ensuring they are ready to meet the needs of our growing population.

Figure 1.1 shows SRL East in the context of the entire SRL project and Melbourne's rail network.

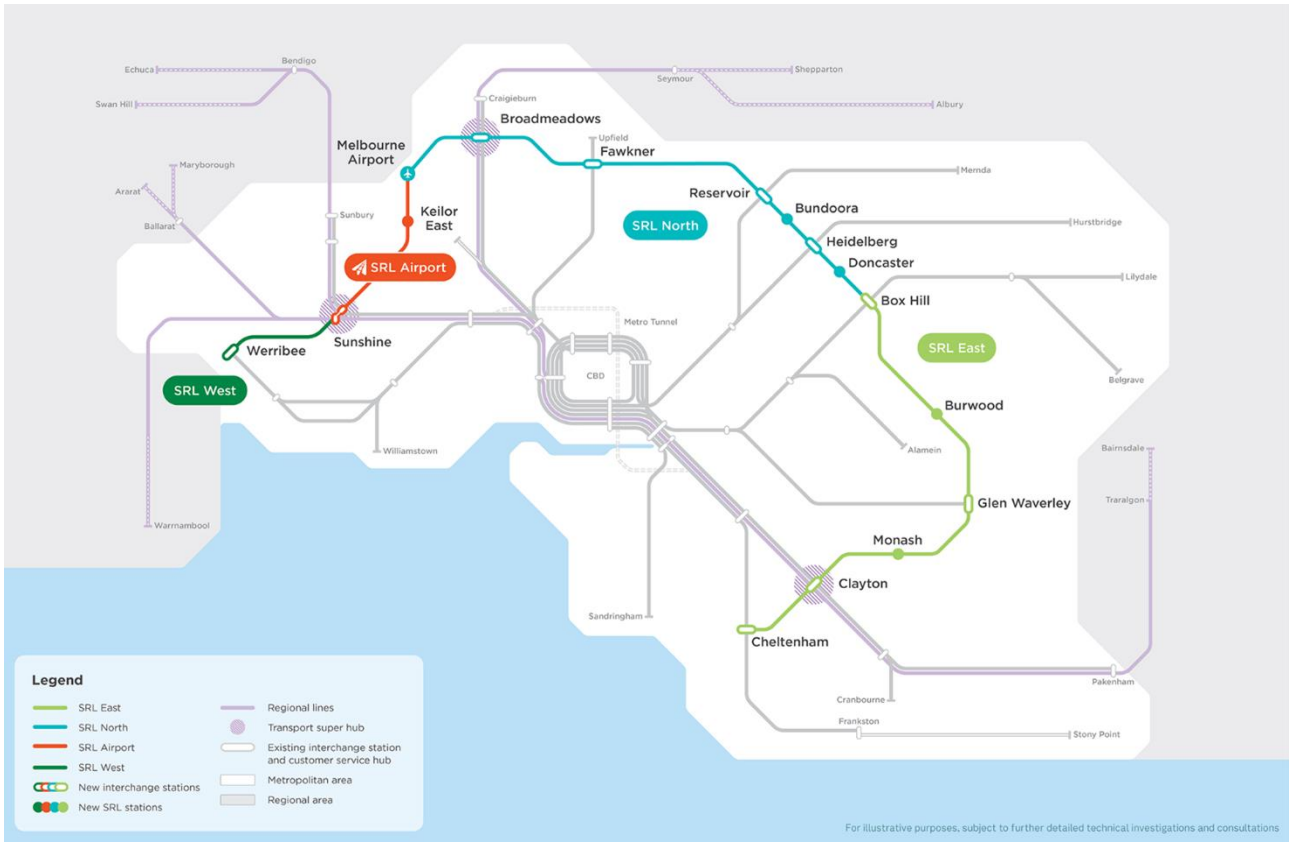


FIGURE 1.1 SRL EAST CONTEXT IN MELBOURNE'S RAIL NETWORK

1.3 Structure planning

Draft Structure Plans (Structure Plans) have been prepared for defined areas surrounding the new SRL East stations to help deliver the Precinct Vision developed for each SRL East neighbourhood.

The Structure Plans cover defined SRL East Structure Plan Areas that can support the most growth and change. These areas cover a walkable catchment that extends from the SRL station entrances. Additional places are included within each defined area as required to make planning guidance more robust and effective, and to align with each community's aspirations and current and future needs.

A Structure Plan is a blueprint to guide how an area develops and changes over a period of time. Structure Plans describe how future growth within the area will be managed in an appropriate and sustainable way to achieve social, economic and environmental objectives. The plans cover a wide range of matters, such as transport connections and car parking, housing and commercial development, community infrastructure, urban design, open space, water and energy management, climate resilience and sustainability.

By tailoring planning decisions to reflect the needs of a defined area, Structure Plans give effect to the policies and objectives set for these areas and cater for changing community needs. They also provide certainty for residents, businesses and developers by identifying the preferred locations and timing of future land uses, development and infrastructure provision.

Structure Plans take a flexible and responsive approach that enables places to evolve over time.

Planning scheme amendments will be required to implement the Burwood Structure Plan into the planning schemes of the cities of Monash and Whitehorse.

1.4 Structure of this report

- **Section 1** provides the background and context of the technical assessment.
- **Section 2** explains the methodology for the technical assessment.
- **Section 3** defines the Structure Plan Area.
- **Section 4** summarises legislation, policies and other documents relevant to the assessment.
- **Section 5** describes the existing ecological and arboricultural conditions in the Structure Plan Area.
- **Section 6** sets out the findings of the assessment. It identifies the issues, challenges and opportunities relating ecology and arboriculture that will impact land use planning and development in each Structure Plan Area.
- **Section 7** sets out the recommendations to consider when developing the Structure Plan Area.

2 Methodology

The methodology for the ecology and arboriculture technical assessment involved:

- Study area for the technical assessment was identified. For this assessment the study area is the same area as the Structure Plan Area (see Section 3).
- Legislation, policies and documents relevant to the assessment, and to land use planning and development in the Structure Plan Area was reviewed (see Section 4).
- The existing ecology and arboricultural values in the Structure Plan Area were identified (see Section 5). This included a desk top review of the Structure Plan Area and a radius of 5 kilometres from its boundary.
- Issues, challenges and opportunities relating to ecology and arboriculture and land use planning and development in the Structure Plan Area was identified (see Section 6).
- Based on the assessment, recommendations were developed to avoid, minimise or manage potential negative impacts of change relating to ecology and arboriculture, and to maximise potential for positive change in the Structure Plan Area (see Section 7).

2.1 Methodology for ecology existing conditions

The desktop study to assess existing ecology in the Structure Plan Area involved:

- **Previous reports** prepared for SRLA relevant to ecology and arboriculture were reviewed
- **Database searches** to identify threatened flora, fauna and ecological communities protected under the *Environment Protection and Biodiversity Act 1999* (Cth) (EPBC Act) and the *Flora and Fauna Guarantee Act 1999* (Vic) (FFG Act)
- **A likelihood of occurrence analysis** of threatened flora, fauna and ecological communities in the Structure Plan Area.

More information on these activities is provided below.

2.1.1 PREVIOUS REPORTS

Previous reports prepared for SRLA reviewed for this assessment were:

- *SRL East Environment Effects Statement Technical Appendix G.1 Ecology Existing Conditions* (AJM-JV 2021a October 2021)
- *SRL East Environment Effects Statement Technical Appendix G.2 Ecology Impact Assessment* (AJM-JV 2021b October 2021).

Information in these reports relevant to this assessment is summarised in Section 5.1.3.

2.1.2 DATABASE SEARCHES

The database search area comprised the Structure Plan Area and a radius of 5 kilometres from its boundary. This is referred to as the 5-kilometre search area in this report. Database searches identified a shortlist of potential flora, fauna and ecological communities that may occur in the Structure Plan Area.

Database records reviewed on 7th October 2024 for the 5-kilometre search area were:

- Protected Matters Search Tool (PMST) of the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) for matters protected by the EPBC Act (DCCEEW 2024a, See Appendix A)
- The Victorian Biodiversity Atlas (DEECA 2024a) for records of listed threatened flora and fauna species.

The following information was also reviewed:

- The Victorian Native Vegetation Information Management System (NVIM) (DEECA 2024b)
- NatureKit (DEECA 2024c)
- VicPlan (DTP 2024a)
- Publicly available aerial imagery (dated 2024).

2.1.3 LIKELIHOOD OF OCCURRENCE ANALYSIS

Each species identified in the database search was considered against the suitability, condition and extent of suitable habitat in the Structure Plan Area and broader landscape to determine their likelihood of occurrence in the Structure Plan Area. The likelihood of a species occurring in the Structure Plan Area was classified as 'Negligible', 'Low', 'Moderate' or 'High' based on consideration of the:

- Presence or absence of previous records in the search region (as identified in the database search)
- Known habitat requirements and distribution of the species
- Suitability of habitat in the Structure Plan Area (based on the findings of the field assessment and previous reports).

The likelihood of ecological communities occurring in the Structure Plan Area was considered and is discussed in Section 5.

The criteria to rank the likelihood of threatened flora and fauna occurring in the Structure Plan Area is defined in Table 2.1 and Table 2.2 respectively. Species determined to have a high to moderate likelihood of occurring in the Structure Plan Area are discussed in Section 5.

TABLE 2.1 LIKELIHOOD OF OCCURRENCE CRITERIA FOR THREATENED FLORA SPECIES

LIKELIHOOD OF OCCURRENCE	CRITERIA
High	Recent records of the species in the local vicinity (in the last 10 years).
	Known to occur in the area based on site observations, database records or expert advice and/or the Structure Plan Area contains high-quality habitat.
Moderate	Previous reputable records of the species in the local vicinity and/or the Structure Plan Area contains moderate quality habitat
Low	Limited previous records of the species in the local vicinity; and/or the Structure Plan Area contains poor or limited habitat. May also be considered low if other environmental factors are present such as fragmented or isolated habitat.
Negligible	No suitable habitat and/or the Structure Plan Area falls outside the known species range.

TABLE 2.2 LIKELIHOOD OF OCCURRENCE CRITERIA FOR THREATENED AND MIGRATORY FAUNA SPECIES

LIKELIHOOD OF OCCURRENCE	CRITERIA
High	Known resident in the area based on site observations, database records or expert advice.
	Recent reputable records (in 5 years) of the species in the local area.

LIKELIHOOD OF OCCURRENCE	CRITERIA
	The Structure Plan Area contains the species' preferred habitat.
Moderate	The species is likely to visit the Structure Plan Area regularly (at least seasonally).
	Previous reputable records of the species in the local area.
	The Structure Plan Area contains some characteristics of the preferred habitat of the species.
Low	The species is likely to visit the Structure Plan Area occasionally or opportunistically while en-route to more suitable sites.
	There are only limited or historical records of the species in the local area (more than 20 years old).
	The Structure Plan Area contains few or no characteristics of the preferred habitat of the species.
Negligible	No previous records of the species in the local area.
	Previous records of the species exist in the local area (but records are more than 30 years old).
	The species may fly over the area when moving between areas of more suitable habitat.
	Out of the known range of the species.
	No suitable habitat in the Structure Plan Area.
	Species is known to be regionally extinct.

2.2 Methodology for arboriculture existing conditions

The arboriculture existing conditions assessment comprised a review of previous relevant reports prepared for SRLA as well as other relevant planning and strategy documents. Aerial imagery of the Structure Plan Area and surrounds was also reviewed.

2.2.1 PREVIOUS REPORTS

Previous reports prepared for SRLA reviewed for this assessment were:

- *SRL East –Arboriculture and Urban Forest Existing Conditions*. TA D.1 Arbor EC (AJM-JV 2021c October 2021)
- *SRL East –Arboriculture and Urban Forest Impact Assessment*. TA D.2 Arbor IA (AJM-JV 2021d October 2021).

Other relevant documents reviewed for the assessment were:

- Whitehorse Planning Scheme – Schedule 9 to the Significant Landscape Overlay – Schedules 1, 3 and 5 to the Vegetation Protection Overlay
- Monash Planning Scheme – Schedule 1 to the Vegetation Protection Overlay
- Whitehorse City Council Urban Forest Strategy 2021–2031
- VPO1 – City of Whitehorse statements of tree significance, 2005
- VPO3 – City of Whitehorse statements of tree significance, 2006
- City of Whitehorse Significant Tree Study, 2016
- City of Whitehorse Interim Urban Forest Policy and Tree Management Plan, 2020
- Monash Urban Landscape and Canopy Vegetation Strategy, 2018
- *Living Melbourne: our metropolitan urban forest* (The Nature Conservancy and Resilient Melbourne 2019)
- Plan Melbourne 2017–2050 (DELWP 2017b).

Information from these reports relevant to this assessment is summarised in Section 5.1.3.

2.3 Assumptions and limitations

The following assumptions and limitations apply to this assessment:

- The assessment was based on desktop research. No fieldwork, site assessments, consultation or engagement was undertaken.

Assumptions and limitations specific to the ecology assessment are:

- This report is intended for the purpose of identifying potential ecological existing conditions, issues and opportunities in the Structure Plan Area, with information presented in this report based on desktop information available and review of previous existing reports.
- Information from the desktop research is limited to the time the data was obtained (7th October 2024) and is based on pre-existing data only. The sources reviewed for this Assessment (such as Ecological Vegetation Class (EVC) mapping and EPBC PMST results) contain desktop information limited to the time desktop data is obtained (7th October 2024) and so should be considered as indicative only. No field assessment has been completed to verify the results of the desktop assessment.
- With regards to the Victorian Biodiversity Atlas (VBA) threatened species records, data is variable depending on the number of previous surveys undertaken and the ability to readily observed species. In the case of fauna, species move around the landscape and can be in hidden or cryptic locations, so while they potentially utilise a site, they may often not be observed during surveys. A lack of species records for a given search area may reflect a simple lack of survey effort at a location rather than demonstrating the absence of species. This is particularly true for aquatic species as survey efforts are typically less than for terrestrial areas.

Assumptions and limitations specific to the arboriculture assessment are:

- Existing tree canopy cover spatial data is sourced from Vicmap Vegetation Tree Extent (2020). The dataset defines tree cover as woody vegetation greater than 2 metres high, which is likely to over-state existing canopy cover, which is usually measured at 3 metres high or greater. Derived canopy polygons were not manually checked or corrected for the technical assessment.
- The arboriculture assessment is based on a desktop review and should not be considered an authoritative review, which would require fieldwork and an assessment of individual trees.

2.4 Interactions with other technical reports

2.4.1 URBAN DESIGN

In response to the SRL Urban Design Framework, AJM-JV prepared the *SRL East Draft Structure Plan - Urban Design Report - Burwood* (AJM-JV 2025a), which outlines the recommended urban design strategies and initiatives for the Structure Plan Area.

In relation to ecology, this includes identifying how the Structure Plan Area aligns with the SRL Urban Design Objectives, including increasing tree canopy cover and other landscaping, and optimising green and blue infrastructure in existing and new streets and open spaces.

Recommendations this report makes consider the recommended initiatives of the *SRL East Draft Structure Plan - Urban Design Report - Burwood* (AJM-JV 2025a), in particular using existing and proposed open spaces and Green Streets identified in the Public Realm Framework. As defined in the SRL Urban Design Framework, Green Streets are a broad classification for a local street that may be enhanced to support a range of

opportunities including pedestrian connectivity and access to recreation facilities, enhanced environmental and biodiversity outcomes, and the potential to accommodate cycle and bus routes. Green Streets provide a valuable opportunity to increase habitat and dispersal corridors for biodiversity.

More detail is provided in the *SRL East Draft Structure Plan - Urban Design Report - Burwood* (AJM-JV 2025a).

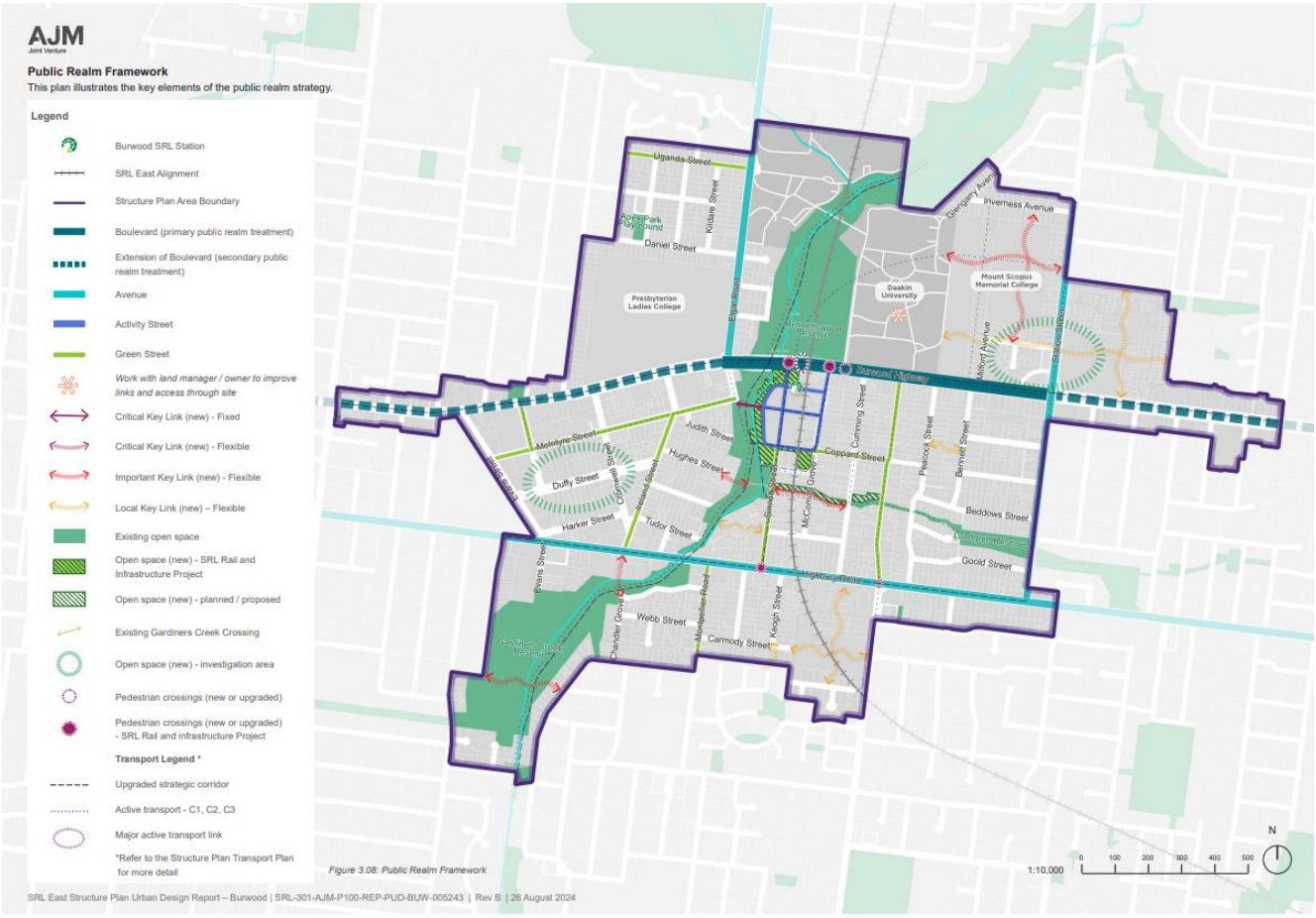


FIGURE 2.1 PUBLIC REALM FRAMEWORK DEPCTING OPEN SPACE AND GREEN STREETS (AJM-JV 2024b)

2.4.2 LANDSCAPE HERITAGE

Trees subject to protection under the Heritage Overlay, including sites on the Victorian Heritage Register, are included in the *SRL East Draft Structure Plan - Historical Heritage Technical Report* (AJM-JV 2025b). This report identifies Former Kildonan Children's Home, 70 Elgar Road, Burwood (HO249) as a place that includes tree controls.

2.4.3 FLOODING AND WATER MANAGEMENT

Water sensitive urban design (WSUD) has a role to support new tree growth and biophilic design in new development and is further considered in greater detail in the *SRL East Draft Structure Plan – Integrated Water Management Strategy* (AJM-JV 2025c).

Specific WSUD opportunities relating to the Burwood Structure Plan Area are outlined in Section 6.2.2.

Recommendations for the implementation of Integrated Water Management are outlined in the *SRL East Draft Structure Plan - Climate Response Plan – Burwood* (AJM-JV 2025d).

2.4.4 SUSTAINABILITY AND CLIMATE CHANGE

The *SRL East Draft Structure Plan - Climate Response Plan – Burwood* (AJM-JV 2025d) recognises the challenges in declining urban tree canopy cover, including population increases, urbanisation and climate change increasing pressures in the health and extent of urban forest.

The Burwood Climate Response Plan provides detailed assessments and recommendations for tree canopy coverage targets and green infrastructure for new developments.

2.4.5 OPEN SPACE ASSESSMENT

There are 13 public open space areas in the Structure Plan Area that cover a total area of 312,044 m². The largest open space is Gardiners Creek which provides a linear green space alongside a concrete-lined channel. Although Gardiners Creek comprises a large area, there is little native vegetation considered to provide high quality habitat for native flora and fauna. Opportunities exist to naturalise Gardiners Creek and to increase biodiversity through the public open spaces listed below in Table 2.3.

Open spaces outlined in this report consider the recommended initiatives of the *SRL East Draft Structure Plan - Open Space Technical Report* (AJM-JV 2025e).

TABLE 2.3 BURWOOD STRUCTURE PLAN AREA CURRENT OPEN SPACE CONDITION AND PRESENT VALUES

PUBLIC OPEN SPACE	CURRENT CONDITION AND PRESENT VALUES	AREA (M²)
Apex Park Playground	Community Park a mix of indigenous and non-indigenous trees with a layer of shrubs and no understory	2613
Ashwood Drive Reserve	Community Park a mix of indigenous and non-indigenous trees with a layer of shrubs and a sparse exotic understory	2152
Barlyn Road POS	Landscape Park one planted tree and maintained exotic understory	639
Bennettswood Reserve	Sports Park with no native vegetation	48,497
Gardiners Reserve (north of Burwood Hwy)	Linear Park with a mix of native and non-native trees, shrubs and understory occurring alongside Gardiners Creek	65,394
Gardiners Reserve (south of Burwood Hwy)	Linear Park with a mix of native and non-native trees, shrubs and understory occurring alongside Gardiners Creek	38,797
Gardiners Reserve (south of Highbury Road)	Linear Park with a mix of native and non-native trees, shrubs and understory occurring alongside Gardiners Creek	48,777
Gardiners Reserve (south of Highbury Road)	Sports Park with native and non-native trees bordering	74,769
Lundgren Chain Reserve Playground	Community Park with a mix of native and non-native trees and an exotic maintained understory	11,998
McComas Grove Linear Reserve (through to Lundgren Chain Reserve)	Linear Park with a mix of native and non-native trees and an exotic maintained understory	3,563
Octavia Court Playground	Community Park with native trees and a mix of native and exotic planted understory species	1,991
Roslyn Street Reserve	Community Park planted native and non-indigenous trees with an exotic understory	2,219
Total		301,413

As documented in the Open Space Assessment, in addition to retaining the current areas of open space in the Structure Plan Area, a total of seven sites comprising new and/or enhanced open spaces and pedestrian links have the potential to provide additional biodiversity benefits in the Structure Plan Area. These sites are summarised in the *SRL East Draft Structure Plan - Open Space Technical Report* (AJM-JV 2025e).

3 Structure Plan Area

This section defines the Structure Plan Area in the Burwood SRL East neighbourhood.

3.1 Burwood Structure Plan Area

The Structure Plan Area surrounds the SRL station at Burwood. The Structure Plan Area is mainly located in the City of Whitehorse, with the southern portion south of Highbury Road extending into the City of Monash.

The Structure Plan Area is generally bounded by Uganda Street, Deakin University, Inverness Avenue, Bronte Avenue and Yarra Bing Crescent to the north, Andrews Street, Wridgway Avenue, Prospect Street and Huntingdale Road to the east, Zodiac Street, Ashwood Drive, Carmody Street and Barlyn Road to the south and Sixth Avenue, Evans Street, Warrigal Road, Parer Street and Meldan Street to the west.

Burwood Highway intersects the centre of the Structure Plan Area in an east-west alignment.

Deakin University Burwood campus is located in the Structure Plan Area.

The Burwood Structure Plan Area is shown in Figure 3.1.

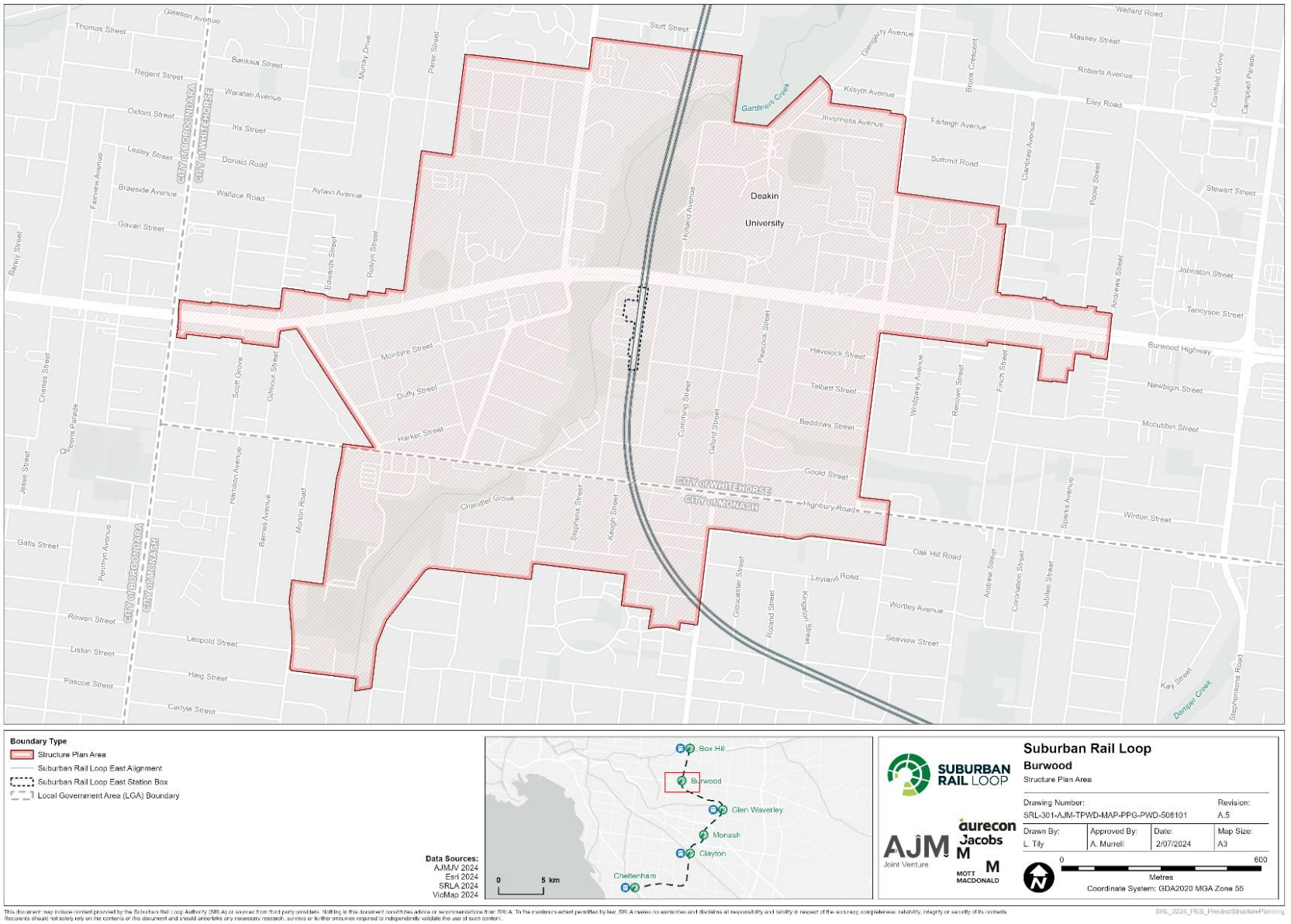


FIGURE 3.1 BURWOOD STRUCTURE PLAN AREA

4 Legislative and policy context

This section summarises legislation, polices and other documents relevant to the technical assessment, and to land use planning and development in the Structure Plan Area.

4.1 National

4.1.1 ENVIRONMENT PROTECTION AND BIODVIERSITY CONSERVATION ACT 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is Commonwealth legislation that provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, termed Matters of National Environmental Significance (MNES). Under the EPBC Act, an action that has, will have, or is likely to have, a significant impact on a MNES must be referred to the Commonwealth Minister for the Environment. The Minister will then determine whether the proposed action requires formal assessment and approval under the EPBC Act.

4.2 State

4.2.1 FLORA AND FAUNA GUARANTEE ACT 1988

The *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) is the key Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes. Under the FFG Act a permit is required from the Department of Energy, Environment and Climate Action (DEECA) to take (kill, injure, disturb or collect) threatened or protected flora species from public land.

4.2.2 PLANNING AND ENVIRONMENT ACT 1987 (VIC)

The *Planning and Environment Act 1987* (Vic) establishes a framework for planning the use, development and protection of land in Victoria. It sets out procedures for preparing and amending the Victoria Planning Provisions and planning schemes. Each municipality is required to have a planning scheme which includes the Planning Policy Framework (which sets out state and regional policies) and the Local Planning Policy Framework (that is specific to each municipality), zones, overlays and particular and general provisions.

4.3 Local

4.3.1 WHITEHORSE AND MONASH PLANNING SCHEMES

4.3.1.1 State policies

A review of the Whitehorse and Monash Planning Schemes identified the following relevant policy and provisions in relation to ecology and arboriculture.

Clause 12.01-1S (Protection of Biodiversity) seeks to protect and enhance Victoria's biodiversity. Of relevance to the Structure Plan Area is the need to support land use and development that contributes to protection and enhancing habitat for indigenous plants and animals in urban areas.

Clause 12.01-2S (Native vegetation management) aims to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation.

4.3.2 WHITEHORSE PLANNING SCHEME

4.3.2.1 Local policies

Under Clause 21.01 (Municipal Profile of the Local Planning Policy Framework) of the Whitehorse Planning Scheme, trees are identified as an integral aspect of the City and are a key determinant of the character of the residential areas of the city. Environment is one of the key strategic directions under Clause 21.05 of the Local Planning Policy Framework. The key objectives set out under Clause 21.05-3 of relevance to ecology and arboriculture include:

- To facilitate environmental protection and improvements to known assets including water, flora and fauna and biodiversity assets
- To develop main thoroughfares as attractive boulevards with improved advertising, signage, landscaping and building design
- To protect and enhance tree canopy cover in residential areas of the municipality

Strategies to achieve this include:

- Requiring the planting of upper canopy trees and other vegetation that enhances the character of the area.
- Ensure that where applicable, the contribution of land towards any public open space requirements can assist in the protection of sites of environmental value identified as having high conservation significance.

These strategies are implemented by the application of relevant overlays and policies. These are outlined below:

- Applying a Significant Landscape Overlay to all remaining residential areas in the municipality.
- Applying a Vegetation Protection Overlay to identified significant vegetation.
- Ensuring that all tree removal, tree replanting and development complies with the Tree Conservation Policy at Clause 22.04.
- Strongly encouraging the planting of indigenous species where appropriate.

The relevant objectives of Clause 22.04 Tree Conservation are to:

- Improve the tree canopy cover in residential areas across the municipality
- Assist in the management of the City's tree canopy by ensuring that new development minimises the loss of significant trees.

4.3.3 MONASH PLANNING SCHEME

4.3.3.1 Local policies

Under Clause 21.01 (Municipal Profile of the Local Planning Policy Framework) the 'garden city character', including well vegetated private gardens, high canopy trees and wide streets with street trees, is identified as an integral aspect of the City and a key determinant of the character of the residential areas of the city.

Clause 21.04 (Residential Development) seeks the need to maintain and enhance the city's garden city character with the following objective:

- To recognise the need to conserve treed environments and revegetate new residential developments to maintain and enhance the garden city character of the municipality.

This objective is reinforced with a strategy that seeks a high level of amenity provided for new residential development, including canopy tree cover (among other matters), which is implemented by:

- Clause 22.05 (Tree Conservation Policy), which applies to all land.
- Applying the Vegetation Protection Overlay to areas which possess a special leafy character, valued by the community.

The relevant objectives of Clause 22.05 (Tree Conservation Policy) are to:

- To maintain, enhance and extend the Garden City Character throughout Monash by ensuring that new development and redevelopment is consistent with and contributes to the Garden City Character as set out in the Municipal Strategic Statement.
- To promote the retention of mature trees and encourage the planting of new canopy trees with spreading crowns throughout Monash.

4.3.4 RELEVANT PLANNING ZONES

The typical planning zone that affects publicly open space/reserves in the Structure Plan Area is the Public Park and Recreation Zone (PPRZ) and the Public Use Zone (PUZ).

4.3.4.1 Public Park and Recreation Zone

The primary purposes of the PPRZ are to

- To recognise areas for public recreation and open space.
- To protect and conserve areas of significance where appropriate.
- To provide for commercial uses where appropriate

No vegetation removal permit triggers are within this Zone. Any planning permit for buildings and works on PPRZ or PUZ land must be accompanied by written consent from the public land management.

4.3.4.2 Public Use Zone

The primary purposes of the PUZ are to:

- To recognise public land use for public utility and community services and facilities.
- To provide for associated uses that are consistent with the intent of the public land reservation or purpose.

No vegetation removal permit triggers are within zones. Similar to the PPRZ, a planning permit for buildings and works on PPRZ land must be accompanied by written consent from the public land management.

4.3.5 RELEVANT PLANNING OVERLAYS

Overlays in planning schemes are the primary instrument for the protection of non-native vegetation within a municipal planning scheme.

In the City of Whitehorse these are primarily implemented through the Significant Landscape Overlay (SLO), and Vegetation Protection Overlay (VPO). In the City of Monash, the VPO is used to provide vegetation protection. Trees subject to tree controls in the schedule to the Heritage Overlay are considered in the SRL East Precinct Structure Plan - Historical Heritage Technical Report (AJM, 2024) (301-AJM-AJM-NAP-REP-XLP-PWD-0002609).

4.3.5.1 City of Whitehorse

Vegetation Protection Overlay

Trees included in various significant tree studies conducted by the City of Whitehorse are covered by Schedules 1, 3 and 5 to the VPO. Whilst these overlays apply to entire parcels of land, the scope of the overlay generally applies to one or two trees within each parcel as identified in the incorporated documents that support each of the three schedules.

Trees subject to protection under the VPO have been assessed against a set of criteria generally in accordance with the criteria for assessing significant trees as developed by the National Trust of Australia (Victoria), and so are identified as of cultural heritage significance, including, potentially, Aboriginal cultural heritage.

In accordance with the VPP Practice Note PPN07 *Vegetation protection in urban areas* (PPN07), the VPO is specifically designed to protect significant native and exotic vegetation in an urban or rural environment and can be applied to individual trees, stands of trees or areas of significant vegetation.

The purposes of the VPO are to:

- protect areas of significant vegetation
- Ensure development minimises loss of vegetation
- Preserve existing trees and other vegetation
- Recognise vegetation protection areas as locations of special significance, natural beauty, interest and importance
- Enhance habitat and habitat corridors for indigenous fauna
- Encourage the regeneration of native vegetation.

The VPO does not include buildings and works or subdivision requirements. It is, therefore, the appropriate tool for identifying and protecting vegetation where buildings and works or subdivision are not important considerations.

Under the provisions of each schedule, a permit is required to remove, destroy or lop vegetation included in the incorporated document referenced in each of the three schedules to the VPO.

Significant Landscape Overlay

Schedule 9 to the Significant Landscape Overlay (SLO9) applies to trees within residential Precincts of the Structure Plan Area. SLO9 seeks to:

- Retain and enhance the canopy tree cover of the Garden and Bush Suburban Neighbourhood Character Areas
- Encourage the retention of established and mature trees
- Provide for the planting of new and replacement canopy trees
- Ensure that development is compatible with the landscape character of the area.

In accordance with PPN07, the function of the SLO is to identify and conserve the character of a significant landscape and is appropriate when vegetation is primarily of aesthetic or visual importance in the broader landscape and should be used where vegetation is identified as an important contributor to the character of an area.

The SLO also includes permit requirements for building and works which can be applied where appropriate to assist in vegetation protection.

SLO9 applies to residential Precincts in the Burwood Study Area, but not the majority of commercial or industrially zoned land, nor trees within nominated road zones.

Under SLO9, a permit is required to remove, destroy or lop a tree, unless that tree is less than 5m high and has a single trunk circumference of 1 m or less at a height of one metre above ground level.

This overlay is an interim control that will cease to have effect after 23 December 2024. The extension to the expiry of SLO9 enables the control to be in effect while the Department of Transport and Planning (DTP) develops consistent statewide tree protection provisions in response to *Plan Melbourne* Action 91: Cooling and greening Melbourne. This includes consideration of the Victorian Government's commitment to meet housing supply targets and support *Victoria's Housing Statement: The decade ahead 2024-2034*.

4.3.5.2 City of Monash

Vegetation Protection Overlay

Schedule 1 to the Vegetation Protection Overlay (VPO1) is the sole environmental and landscape overlay that applies as part of the Monash planning scheme. VPO1 defines tree protection areas and is aimed to conserve significant treed environments and ensure that new development complements the Garden City Character of the neighbourhood.

In this instance, the VPO is applied to areas of significant vegetation, rather than individual trees or stands of trees (PPN07).

Under the provisions of VPO1 a permit is required to remove or destroy any vegetation that:

- Has a trunk circumference greater than 500 millimetres (160 millimetres diameter) at 1200 millimetres above ground level, and
- Is higher than 10 metres.

This does not apply to dead vegetation or to the following species:

- All willow trees
- Radiata or monterey pines
- Evergreen alders
- Sweet pittosporums
- Desert ashes.

4.3.6 RELEVANT PARTICULAR PROVISIONS

4.3.6.1 Clause 52.17 Native vegetation

Clause 52.17 (Native Vegetation) requires that the removal of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity, and that this is achieved by applying the three-step approach outlined in the Victorian *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a):

- **Avoid** the removal, destruction or lopping of native vegetation.
- **Minimise** impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
- Provide an **offset** to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation.

4.3.7 WHITEHORSE URBAN FOREST STRATEGY 2021–2031

The *Whitehorse Urban Forest Strategy* has been developed to provide a municipal-wide tree canopy target of 27 per cent by 2031, and 30 per cent by 2050, from a baseline of 18 per cent in 2018.

The Strategy seeks to address declining canopy cover in the municipality, develop an urban forest better suited to cope with climate change and enhance the liveability of the municipality, including by reducing the urban heat

island effect and its impacts on an ageing demographic and increasing biodiversity and ecosystem services (such as water capture and carbon sequestration).

The Strategy sets five objectives to meet the tree canopy targets:

1. Protect the urban forest
2. Expand the urban forest to adapt to climate change
3. Enhance biodiversity
4. Build community capacity to learn from each other, protect and enhance the urban forest
5. Build on Council's knowledge base.

4.3.8 WHITEHORSE INTERIM URBAN FOREST POLICY AND TREE MANAGEMENT PLAN

The *Whitehorse Interim Urban Forest Policy and Tree Management Plan* provides clarity and direction for the ongoing management of trees in the municipality, replacing the previous *Streetscape Policy and Strategy* (2002). The Plan relates to trees on public land, owned and managed by Council including street trees and park trees.

The Plan provides guidelines for tree planting and establishment, pruning and maintenance, as well as policies for tree removal on public land managed by Council. It also includes specific management directives for managing tree risk, liability, infrastructure damage caused by trees and guidelines for the management of significant streetscapes.

4.3.9 WHITEHORSE URBAN BIODIVERSITY STRATEGY

The *Whitehorse Urban Biodiversity Strategy* has been developed to address biodiversity conservation and management actions undertaken by Council. The strategy considers the significance of indigenous flora and fauna within a modified suburban landscape to maintain and encourage biodiversity.

The Strategy outlines key initiatives and one-off management actions to be undertaken by Council that will contribute to biodiversity knowledge, planning and species management across the municipality. Key management actions that are relevant for the Structure Plan Area include:

- Development of a canopy management policy – specific tree management guidelines
- Identification of potential extension areas of bushland regeneration – bushland expansion and regeneration to support native and indigenous species
- Working with other authorities to improve biodiversity – develop working relationships with authorities to foster positive biodiversity outcomes
- Development of a biodiversity corridors plan – map all recorded biodiversity assets and urban habitat and create linkages
- Tree planting program – replenish and improve canopy cover
- Listing biodiversity hotspots – identification and categorisation of biodiversity assets in the urban environment.

4.3.10 MONASH URBAN LANDSCAPE AND CANOPY VEGETATION STRATEGY

The *Monash Urban Landscape and Canopy Vegetation Strategy* seeks to protect and enhance the municipality's preferred future landscape character and tree canopy cover, including by responding to recognised urban character, climate change, biodiversity, public health and wellbeing and to provide a cohesive vision for landscape character across public and private land that can be implemented as updates to regulatory controls and the planning scheme.

The Strategy provides a municipal-wide analysis of landscape character and tree cover, identifies issues for residential and non-residential land, and provides further analysis on a precinct basis.

The Strategy provides guidelines that respond to stated objectives including detailed recommendations for reinforcing existing canopy character, tree retention and replanting, including increasing canopy tree cover across public and private land from 22% to 30% by 2040 to create a more liveable, sustainable and resilient city.

4.3.11 MONASH URBAN BIODIVERSITY STRATEGY 2018–2028

The *Monash Urban Biodiversity Strategy* details programs to improve biodiversity quality and habitat connectivity in the urban environment. The Strategy sets out biodiversity management directions for the next 10 years and is supported by an implementation plan. The vision for biodiversity in Monash is:

- Thriving indigenous vegetation communities
- Stable and sustainable refuges for native bird and other fauna
- Resilient ecosystems that can adapt to environmental changes
- An active and engaged community that participates in ongoing biodiversity protection.

Objectives in the Strategy to achieve the vision are:

- Increase community understanding, active engagement and appreciation of biodiversity
- Enhance biodiversity through revegetation and protection of remnant vegetation
- Collaborate with other public land managers to create broad-scale biodiversity gain
- Proactively reduce biodiversity threats
- Identify ecological baseline and indicators to monitor and assess environmental conditions
- Strengthen Biodiversity Policy and Legislation.

4.3.12 MONASH TREE MANAGEMENT POLICY

The *Tree Management Policy* provides guidance and direction to promote the planting of new trees in the City of Monash to achieve a greener city. The Policy also provides guidance on continued maintenance, management and protection of trees located on Council-managed land.

The Tree Management Policy guides decision-making on the management of trees, with a particular vision to protect and conserve the environment while balancing amenity and environmental goals and managing risks that trees can pose to people and property.

4.3.13 PLAN MELBOURNE 2017–2050

Plan Melbourne is the Victorian Government's long-term metropolitan planning strategy. Of particular relevance to the urban forest is Outcome 6 *Melbourne is a sustainable and resilient city*.

Direction 6.4 *Make Melbourne cooler and greener* seeks to create urban forests throughout the metropolitan area by:

- Assembling and disseminating spatial data on the green space network, existing tree cover and surfaces. This data will be the baseline for modelling future greening strategies and their impacts on amenity of our urban areas including cooling effects
- Working with local government to establish greening targets for each of the metropolitan regions
- Liaising with water corporations to identify opportunities for use of alternative water supply to support greening strategies

- Supporting development of municipal urban forest strategies using a coordinated approach with Department of Transport, private road operators and other public land owners and managers
- Preparing greening strategies for state-owned public land, including schools, parkland, road, rail and utility corridors, achieving an appropriate balance between asset protection and urban greening
- Investigating a targeted grants program to support innovation and actions for greening neighbourhoods
- Investigating demonstration projects including green roofs, green walls and landscapes
- Preparing new guidelines and regulations that support greening new subdivisions and developments via landscaping, green walls, green roofs and increase the percentage of permeable site areas in developments.

This requires a 'whole-of-government approach to cooling and greening Melbourne'.

Direction 6.5 *Protect and restore natural habitats* recognises that as Melbourne grows there is the potential for habitat loss and waterway degradation that can impact native flora and fauna.

Policy 6.5.1 *Create a network of green spaces that support biodiversity conservation and opportunities to connect with nature* recognises the importance of protecting existing green spaces and that new green spaces need to be created to improve landscape connectivity and resilience. By mapping the network of green spaces there is opportunity to identify where the network could be improved and support the development of the metropolitan urban forest strategy as identified above.

4.3.14 LIVING MELBOURNE

The *Living Melbourne: our metropolitan urban forest* policy was developed by Resilient Melbourne, hosted by the City of Melbourne as part of the Global Cities Resilience Network. Living Melbourne is a strategy for a greener, more liveable Melbourne to respond to urban challenges with nature.

The vision of Living Melbourne is that our urban forest protects human health, nurtures abundant nature, and strengthens natural infrastructure.

Victorian Government departments and local governments have endorsed the Living Melbourne policy.

4.3.15 PROTECTING VICTORIA'S ENVIRONMENT – BIODIVERSITY 2037

Protecting Victoria's Environment – Biodiversity 2037 is the Victorian Government's plan to stop the decline of native biodiversity and improve the natural environment.

Priorities and initiatives relevant to this assessment are:

- Increase opportunities for all Victorians to have daily connections with nature:
  - » Promote additional greening in established urban areas through broadening standards for public open-space.
- Increase opportunities for all Victorians to act to protect biodiversity:
  - » Promote programs to raise awareness to protect and care for biodiversity
  - » Implement and promote programs to increase engagement with community groups that protect biodiversity
  - » Link opportunities to connect with nature with on-the ground biodiversity management needs.
- Help to create more liveable and climate adapted communities:
  - » Implementation of Plan Melbourne.
- Deliver excellent in management of all land and waters:
  - » Better understand and respond to key threats and opportunities for biodiversity conservation (control of weeds and pest animals, fore regimes, disease, apex predators and climate change)
  - » Reduce degradation of environments through practical threat management action, informed by science

» Develop partnerships with public land managers and Traditional Owners in managing biodiversity.

5 Existing conditions

This section describes the existing conditions relevant to ecology and arboriculture in the Structure Plan Area. That is, within the Structure Plan Area and a 5km-kilometre radius around it.

5.1 Ecology

The Structure Plan Area encompasses approximately 269 hectares comprising a combination of residential, educational and industrial areas and has been heavily modified from its natural state. The majority of the Structure Plan Area comprises residential zones interspersed with some commercial and industrial infrastructure.

The Structure Plan Area includes Gardiners Creek, a rock-lined drainage channel which bisects the area from north-east to south-west, lined with planted tree species and revegetation of indigenous riparian woodlands. This corridor is considered as an important landscape feature within the Structure Plan Area, facilitating biodiversity and providing habitat opportunities for common fauna species in an urban setting.

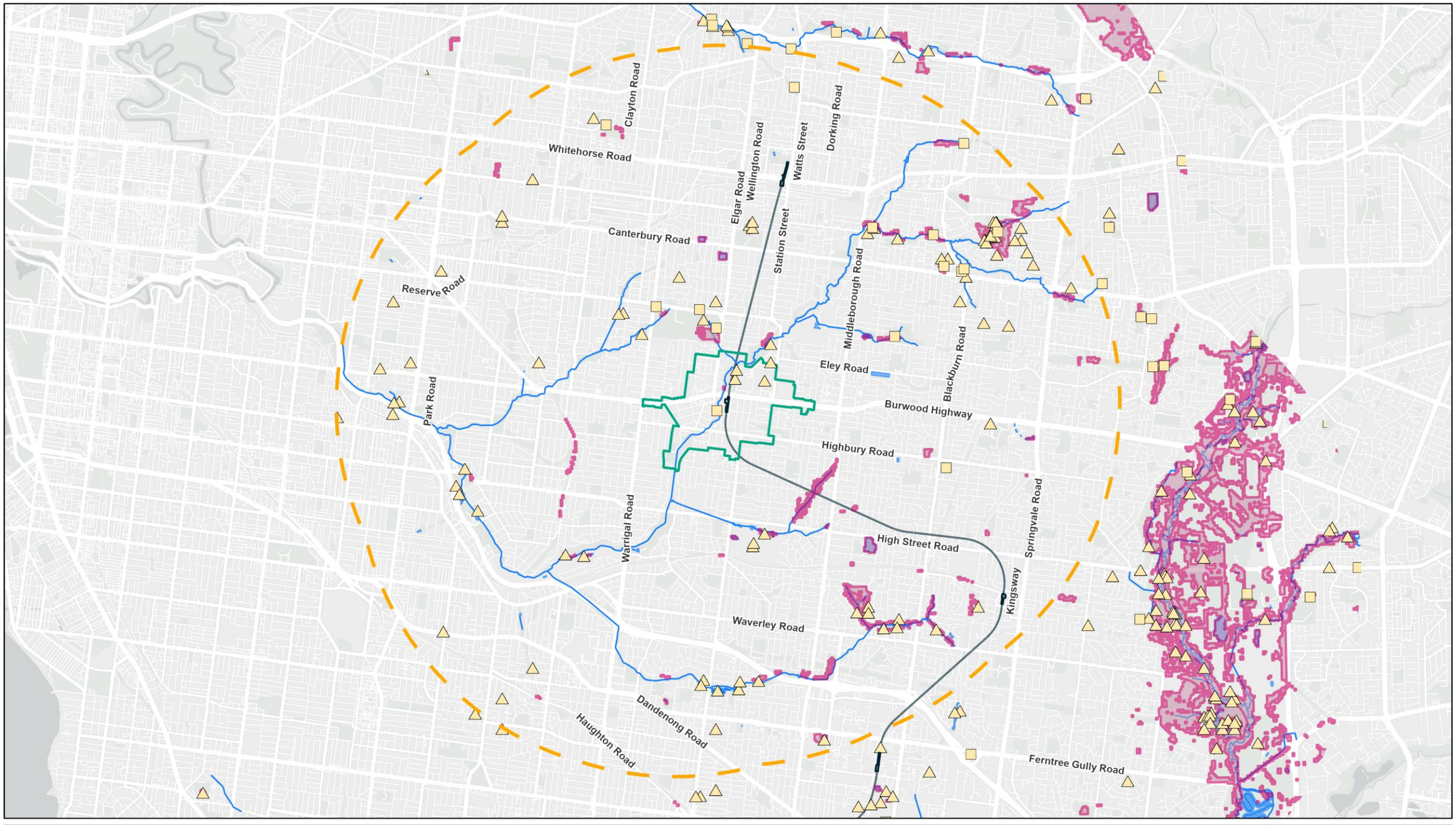
As a result of previous disturbance, the Structure Plan Area appears to have been cleared of most remnant vegetation (DEECA 2024b), with a mix of indigenous revegetation areas, planted Australian native and introduced species primarily occurring today.

Previous records for threatened species and current modelled distributed of native vegetation in the 5-kilometre search area are mapped in Figure 5.1 and discussed below.

5.1.1 NATIVE VEGETATION

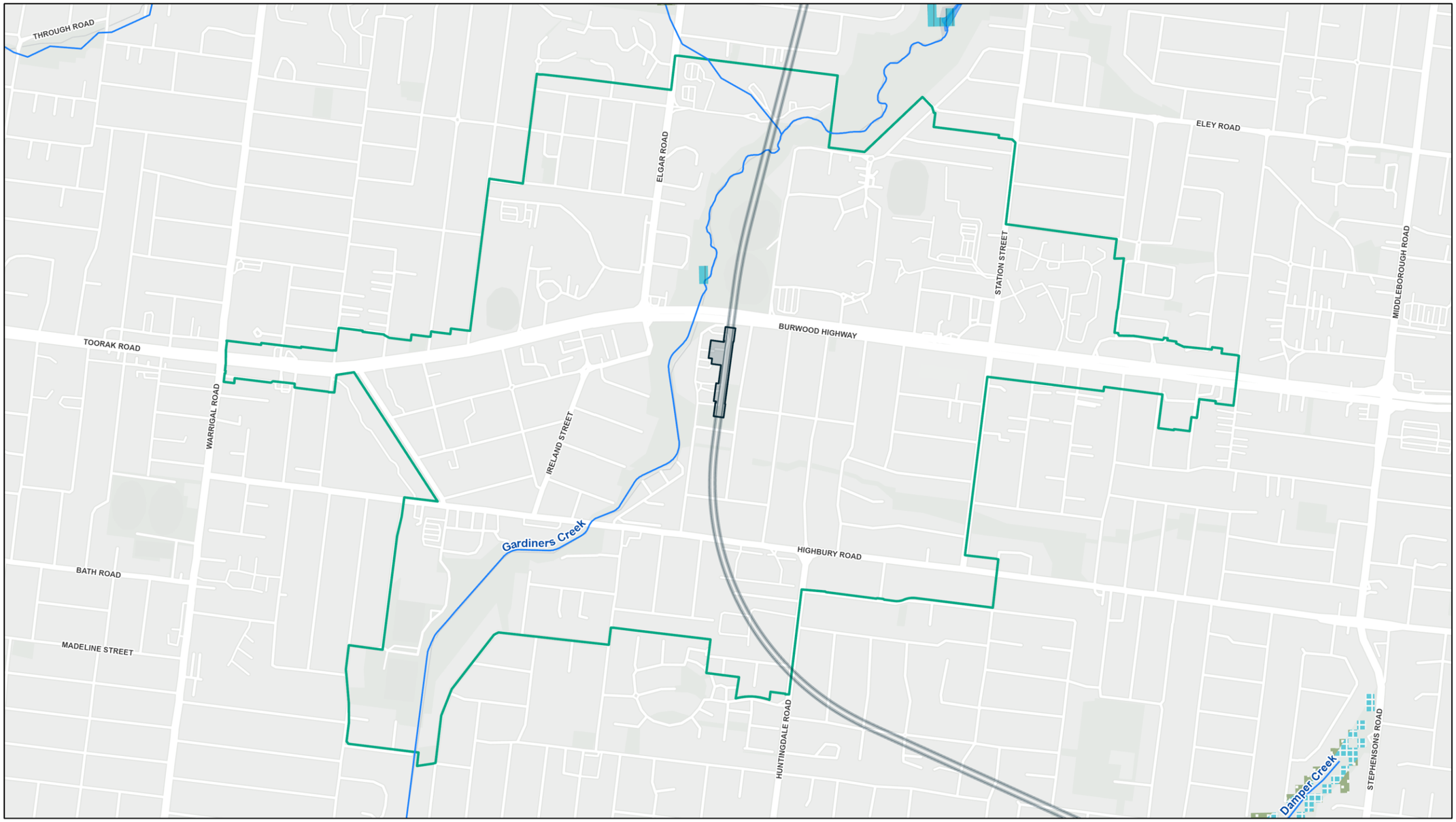
The desktop review (DEECA 2024b) showed three pre-1750 modelled vegetation communities in the Structure Plan Area which included, Valley Grassy Forest (EVC 47), Grassy Woodland (EVC 175) and Swampy Riparian Woodland (EVC 83).

The current (2005) modelled vegetation layer for the Structure Plan Area showed the site has been almost exclusively cleared of remnant native vegetation (DEECA 2024b) as shown in Figure 5.2. Aerial imagery supported this, as most of the Structure Plan Area, except for the vegetation surrounding Gardiners Creek, has been cleared of vegetation and developed. Most of the vegetation in the Structure Plan Area appears to be planted with a mix of indigenous and non-indigenous plant species in residential areas and lining the banks of Gardiners Creek.



SRL_0224_ArboricultureEcology

FIGURE 5.1 SUMMARY OF ECOLOGICAL VALUES (NATIVE VEGETATION AND LISTED THREATENED SPECIES) IN THE 5-KM SEARCH AREA FROM THE STRUCTURE PLAN AREA



SRL_0224_ArboricultureEcology

FIGURE 5.2 MODELLED NATIVE VEGETATION IN THE STRUCTURE PLAN AREA

5.1.2 THREATENED SPECIES AND COMMUNITIES

5.1.2.1 Threatened flora

The review of the relevant databases (PMST and VBA) identified 38 listed threatened flora species, 27 of which have previously been recorded in the 5-kilometre search area. Details of the habitat requirements of each species and an analysis of their likelihood of occurrence in the Structure Plan Area is provided in Appendix B. Threatened flora previously recorded in the Structure Plan Area are mapped in Figure 5.3.

Four threatened flora species were identified as occurring in the last five years within the 5-kilometre search area. This includes Spotted Gum (*Corymbia maculata*), Giant Honey Myrtle (*Melaleuca armillaris subsp. armillaris*), Mugga (*Eucalyptus sideroxylon subsp. sideroxylon*) and Snowy River Wattle (*Acacia boormanii*).

The Environment Effects Statement (EES) Ecology Existing Conditions Report (AJM-JV 2021a) confirmed two flora species listed under the FFG Act, Giant Honey-myrtle (Melaleu*ca armillaris subsp. armillaris*) and Spotted Gum (*Corymbia maculata*) were planted in the Structure Plan Area. The locations of these species were considered outside their natural range and habitat and are exempt from implications under the FFG Act due to being planted. It is considered that all threatened flora species are likely planted given location of the records outside the natural distribution of the species, in addition to the modified condition and current land use in the Structure Plan Area.

No EPBC Act or FFG Act threatened flora species are considered to have a moderate or high likelihood of occurring in the Structure Plan Area due to previous disturbance and the lack of suitable habitat features.

5.1.2.2 Threatened fauna

The review of the relevant database (PMST and VBA) identified 69 threatened and/or migratory fauna species in the 5-kilometre search area (including three amphibians, 46 birds, four fish, four invertebrates, nine mammals and three reptiles). Details of each of the habitat requirements of each species and an analysis of their likelihood of occurrence in the Structure Plan Area is provided in Appendix B.

Threatened fauna previously recorded in the Structure Plan Area are mapped in Figure 5.3.

Based on the assessment provided in Appendix B, it was determined that three EPBC Act and/or FFG Act-listed fauna species have a moderate to high likelihood of occurring in the Structure Plan Area due to potentially suitable habitat within Gardiners Creek and surrounding planted vegetation. More details of species considered as potentially occurring in the Structure Plan Area are provided in Table 5.1.

TABLE 5.1 LISTED THREATENED FAUNA SPECIES WITH A MODERATE TO HIGH LIKELIHOOD OF OCCURRENCE IN THE STRUCTURE PLAN AREA.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT		
Callocephalon fimbriatum	Gang-Gang Cockatoo	EN		During summer, the Gang-gang Cockatoo is found in tall mountain forests and woodlands, with dense shrubby understoreys. In winter, Gang-gangs will move to lower altitudes into drier, more open forests and woodlands. At this time, they may be seen by roadsides and in parks and gardens of urban areas. They require tall trees for nest hollows.	Moderate – 233 records within the 5-km search area, most recently in 2021.Urban areas and treed vegetation along Gardiners Creek may provide habitat.
Ninox strenua	Powerful Owl		Vu	Occurs in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as parks and suburban areas. Needs old growth trees to nest.	Moderate – 6 records within 5-km search area with the most recent dated 2021. Powerful Owl may occasionally use treed habitat for dispersal, foraging and resting habitat,
Pteropus poliocephalus	Grey-headed Flying-fox	VU	Vu	Requires foraging resources and roosting sites. The primary food source is blossom from Eucalyptus and related genera but commonly forages on fruit trees in urban areas. Two known Flying Fox camps occur in the greater Melbourne region including one at Yarra Bend and one at Doveton.	Moderate – 36 records within the 5-km search area, most recently in 2016. May forage on fruit trees in urban zones in the Structure Plan Area.

Legend: M= Migratory CR = critically endangered, EN = endangered, VU = vulnerable

The vegetation surrounding Gardiners Creek and intersecting a large area of the Structure Plan Area is considered to provide temporary terrestrial habitat for the Gang-gang Cockatoo and Powerful Owl as these species disperse and travel through the landscape. Based on a review of species records and previous reports describing the extent and condition of Gardiners Creek, it is unlikely that Gang-gang Cockatoo and Powerful Owl depend on or take up permanent residency within habitat adjacent to Gardiners Creek based on a lack of mature trees that would support hollows for nesting.

Similarly, The Grey-headed Flying-fox may occasionally forage or be attracted to residential fruit trees or planted Eucalypts in the Structure Plan Area. However, it is considered the species would not use this vegetated corridor as permanent habitat.

Given the limited habitat available and the highly modified and urban landscape in the Structure Plan Area, it is not considered there is any significant habitat to encourage or provide long-term breeding and/or refuge for threatened species.

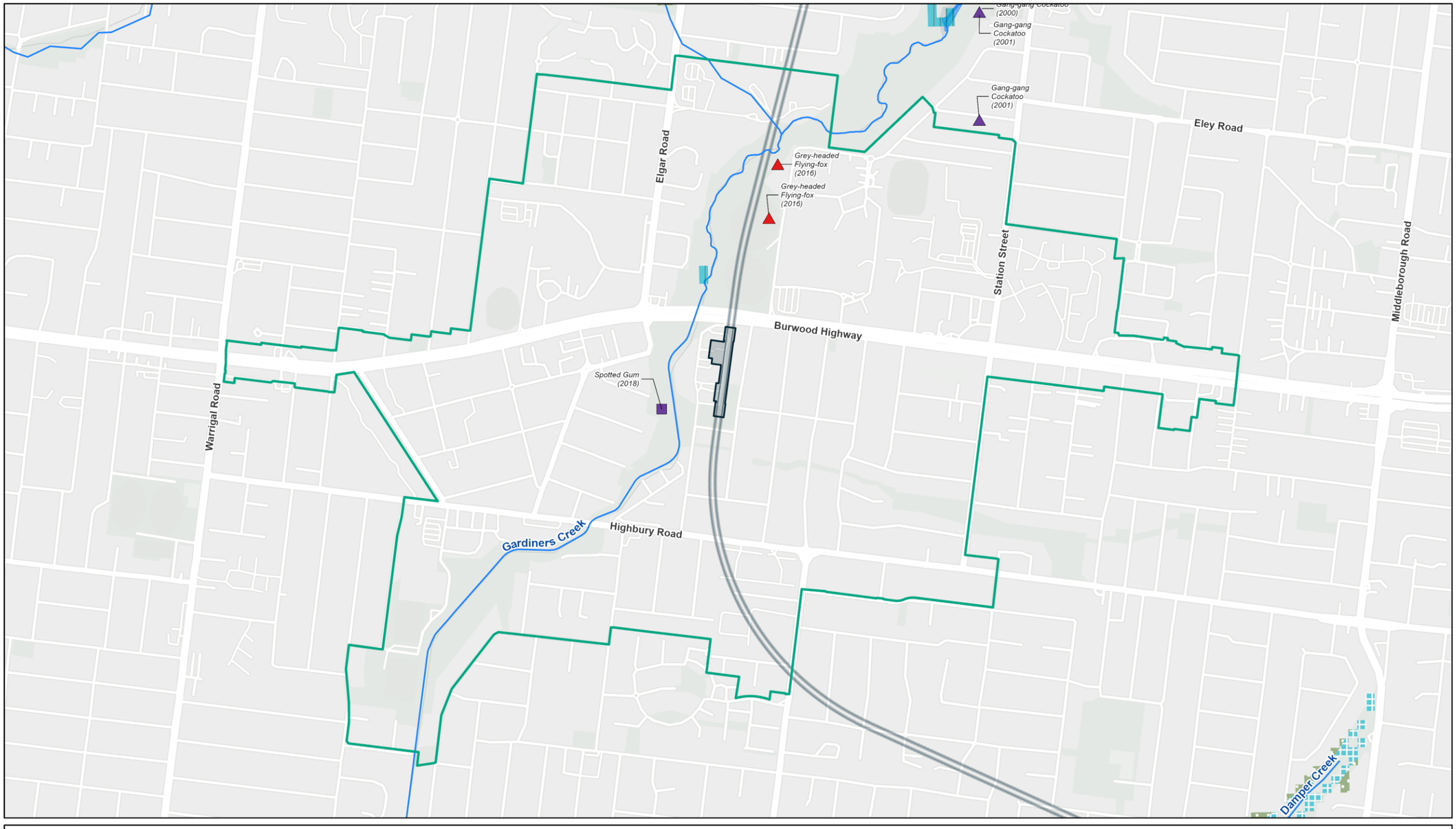


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FIGURE 5.3 THREATENED FLORA AND FAUNA RECORDED IN THE STRUCTURE PLAN AREA

5.1.2.3 Threatened ecological communities

EPBC Act listed ecological communities

Two EBPC Act-listed threatened ecological communities, Natural Damp Grassland of the Victorian Coastal Plains, and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, were listed in the PMST report (DCCEEW 2024) as potentially being present in the 5-kilometre search area. An assessment against the listing criteria for each of the EPBC Act-listed threatened ecological communities is provided in Table 5.2.

TABLE 5.2 ASSESSMENT OF LIKELIHOOD OF OCCURRENCE OF EPBC ACT-LISTED THREATENED ECOLOGICAL COMMUNITIES IN THE STRUCTURE PLAN AREA

EPBC ACT LISTED ECOLOGICAL COMMUNITY	LIKELIHOOD OF OCCURRENCE IN THE STRUCTURE PLAN AREA
Natural Damp Grassland of the Victorian Volcanic Coastal Plains – listed as Critically Endangered	This community is characterised by a native grassland ranging to an open grassy woodland on seasonally damp waterlogged soils. This community is dominated by a ground layer comprising native tussock species and herbaceous flora, with a sparse presence of trees and shrubs (DSE 2015). The desktop and aerial review of the Structure Plan Area suggests the site does not support any areas of native grassland, as most of the native vegetation has been removed and replaced with infrastructure, apart from the vegetation surrounding Gardiners Creek. These areas comprise predominantly planted trees and the grasses in these areas are most likely introduced species. As no suitable habitat features or diagnostic characteristics were noted during the desktop assessment, **this community is considered unlikely to occur in the Structure Plan Area**.
White Box-Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland – listed as Critically Endangered	This community is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and dominance of White Box, Yellow Box or Blakely's Red Gum trees (TSSC 2016). The desktop review did not identify these key species in the 5-km search area. Given the lack of historical species records, the lack of suitable modelled vegetation and the current site condition, **it is considered this community is unlikely to occur in the Structure Plan Area.**

FFG Act listed ecological communities

As the majority of the Structure Plan Area is highly modified urban landscape with little remnant native vegetation, it is considered unlikely that any FFG Act-listed ecological communities occur in the Structure Plan Area.

5.1.3 PREVIOUS REPORTS

Previous ecology assessments have been undertaken covering various portions of the Structure Plan Area. These have determined that most of the Structure Plan Area comprises a highly modified and built-up environment containing schools, residential, commercial and industrial areas. Vegetation is confined to the east and west areas alongside Gardiners Creek which has been revegetated to support areas of EVC 83: Swampy Riparian Woodland (mapped in Figure 5.4 below). These sections comprise a mature overstorey of indigenous *Eucalyptus, Acacia, Melaleuca* and *Bursaria* species interspersed with non-indigenous Eucalypts and an understory of native and introduced grass and shrub species.

As Gardiners Creek is a rocked-lined channel prone to flash flooding, it is considered unsuitable habitat to support any aquatic species (AJM-JV 2021b). No impacts to threatened aquatic fish, reptile or bird species are therefore expected. Native vegetation previously recorded in the Structure Plan Area is mapped in Figure 5.4.

Two flora species listed under the FFG Act, Giant Honey-myrtle (*Melaleuca armillaris subsp. armillaris*) and Spotted Gum (*Corymbia maculata*), were located during a field assessment (AJM-JV 2021a), which were determined to be planted in the Structure Plan Area. No threatened fauna under the EPBC or FFG Acts were identified.

All ecological assessments considering the Structure Plan Area determined that no EPBC Act MNES or FFG Act threatened species are considered to have a high likelihood of occurrence as no suitable habitat is present. It is therefore unlikely that development in SRL East Structure Plan Areas will impact them.

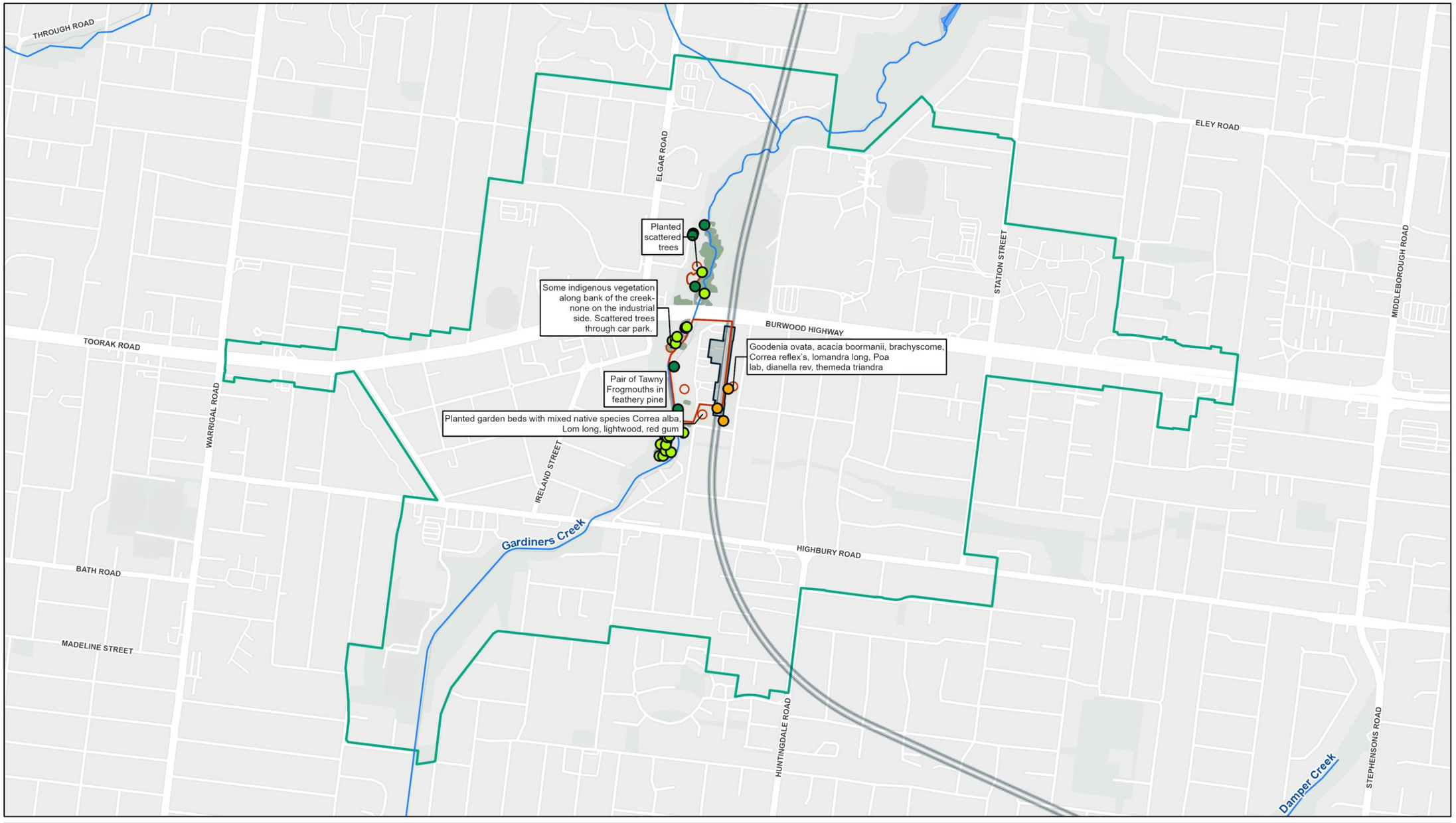

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FIGURE 5.4 NATIVE VEGETATION PREVIOUSLY RECORDED IN THE STRUCTURE PLAN AREA

5.1.4 PLANNING ZONES AND OVERLAYS

A review of the database records identified in Figure 5.2 and Figure 5.3 against planning scheme zones and overlays was completed to determine whether previously recorded ecological values are protected by local planning controls. This review is separate from the likelihood of occurrence assessment of threatened species and communities in Section 5.1.2.

Table 5.3 below identifies planning scheme zone and overlays that affect the land containing modelled native vegetation and threatened species and communities in the Structure Plan Area.

TABLE 5.3 PLANNING ZONE AND OVERLAYS FOR LAND WITH MODELLED NATIVE VEGETATION AND THREATENED SPECIES AND COMMUNITIES IN THE STRUCTURE PLAN AREA

MODELLED NATIVE VEGETATION AND THREATENED SPECIES AND COMMUNITIES	ADDRESS / NAME / OWNERSHIP	PLANNING ZONE	ENVIRONMENT AND LANDSCAPE PLANNING OVERLAYS
Swampy Riparian Woodland (EVC 83) native vegetation	175 Burwood Highway, Burwood 3125 Bennettswood Reserve	Public Park and Recreation Zone	N/A
Spotted Gum	25 Sinnott Street, Burwood 3125 Gardiners Creek	Public Park and Recreation Zone	N/A
Grey-headed Flying-fox	3 Cropley Court, Burwood 3125 Gardiners Creek	Public Park and Recreation Zone	N/A
	213-243 Burwood Highway, Box Hill South 3128 Bennettswood Reserve / Deakin University	Public Use Zone 2	N/A

Table 5.3 confirms that modelled native vegetation area and threatened species and communities are not affected by environment or landscape planning overlays that could otherwise afford vegetation/tree removal protection. As outlined in Section 4.3.6.1, Clause 52.17 is also a planning tool for protection of native vegetation. It is not uncommon for land located within a Public Park and Recreation Zone (PPRZ) to not be affected by such overlays due to the 'public' purpose of the zone. As outlined in Section 4.3.6.1, Clause 52.17 is also a planning tool for protection of native vegetation.

Land ownership details are not known at the time of this assessment.

5.2 Arboriculture

The Structure Plan Area includes extensive residential precincts in the central and eastern sections, with the well-treed, semi-natural Gardiners Creek forming a green spine from north to south across the Structure Plan Area. The curtilage of Deakin University Burwood campus occupies a large portion of the Structure Plan Area north of Burwood Highway.

5.2.1 CANOPY COVER

The Structure Plan Area supports 403,057.957 m²of tree canopy, which equates to 15 per cent tree canopy cover in the overall Structure Plan Area. Comparatively, Whitehorse has 18 per cent canopy cover (as cited in the Whitehorse Urban Forest Strategy) and Monash 22 per cent canopy cover (Monash Urban Landscape and Canopy Vegetation Strategy). The existing tree canopy of the Structure Plan Area is shown in Figure 5.5.

Comparing all land in the Structure Plan Area broadly zoned for residential use to commercial and industrial zoned land reveals the heavy reliance of residential properties and streetscapes in sustaining the greater proportion of canopy. Residential land supports 14.5 per cent of the tree canopy cover and commercial and industrial land supports 5.2 per cent. Other land uses in the Structure Plan Area, which includes parks and gardens, schools and Deakin University, support almost 23 per cent of canopy cover, with a significant portion of this in the Gardiners Creek linear reserve.

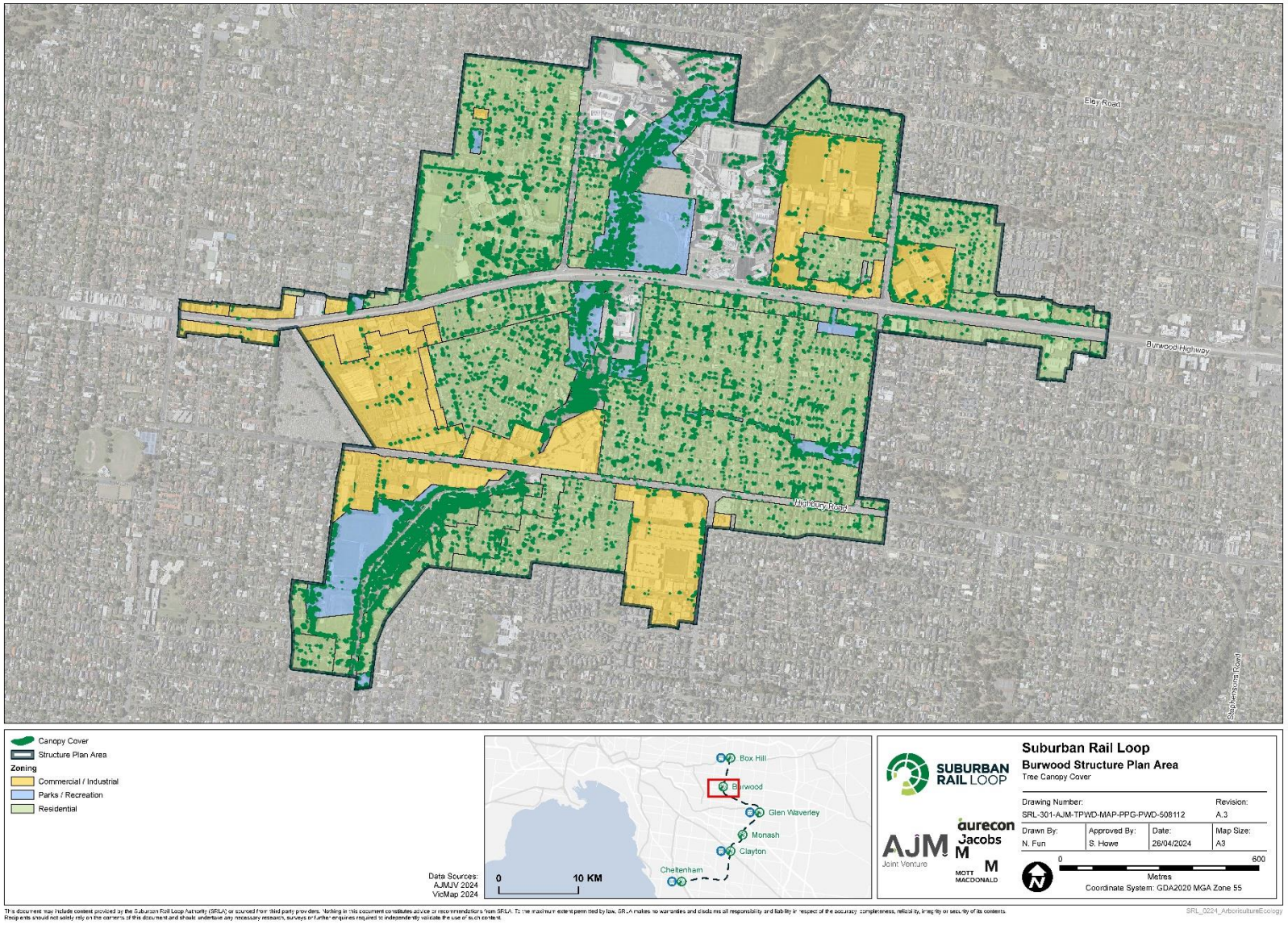

FIGURE 5.5 TREE CANOPY COVER IN STRUCTURE PLAN AREA

5.2.2 IDENTIFICATION OF SIGNIFICANT TREES

5.2.2.1 City of Whitehorse

Five parcels of land in the Whitehorse Council portion of the Structure Plan Area are subject to a VPO and contain a tree (or trees) considered significant under the Whitehorse Planning Scheme:

- One site is subject to VPO1
- Four sites are subject to VPO3.

The locations of the land parcels subject to the VPO are mapped in Figure 5.6, with significant trees listed in Table 5.4.

TABLE 5.4 SIGNIFICANT TREES IN THE SRL EAST STRUCTURE PLAN AREASUBJECT TO VPO, WHITEHORSE PLANNING SCHEME

SCHEDULE	MAP ID	TAXON	COMMON NAME	NOTES	ADDRESS
VPO1	1	*Ulmus procera*	English Elm	Two specimens	33 MCCOMAS GROVE BURWOOD 3125
VPO3	2	*Ulmus glabra* 'Camperdownii'	Weeping Elm		4 GILLARD STREET BURWOOD 3125
VPO3	3	*Corymbia citriodora*	Lemon-scented Gum		23 GILLARD STREET BURWOOD 3125
VPO3	4	*Eucalyptus grandis, Eucalyptus globulus* subsp. *bicostata*	Flooded Gum, Eurabbie	Two trees	55A STATION STREET BURWOOD 3125
VPO3	5	*Corymbia citriodora*	Lemon-scented Gum		58 STATION STREET BURWOOD 3125

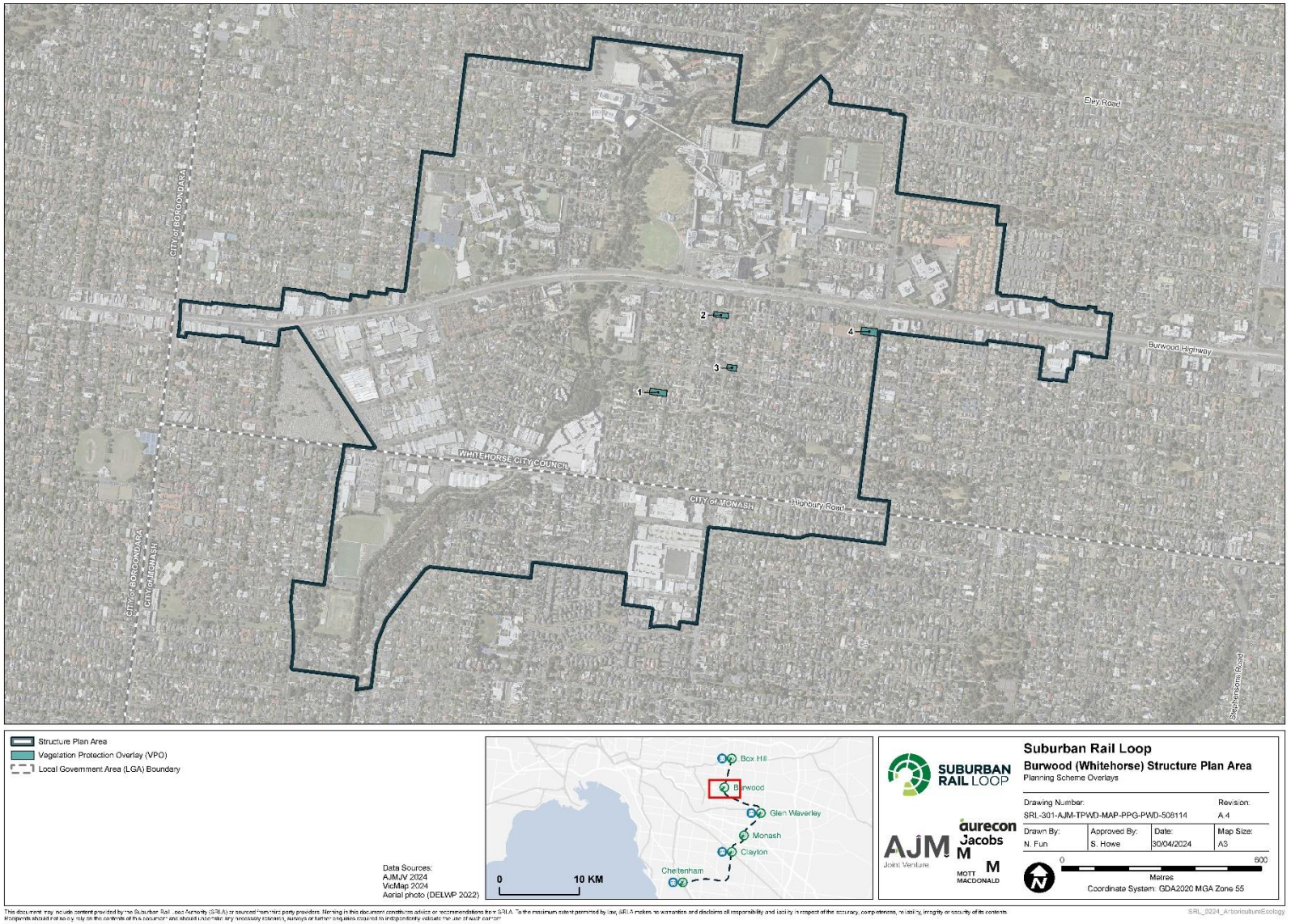

FIGURE 5.6 SITES SUBJECT TO THE VPO IN THE STRUCTURE PLAN AREA (WHITEHORSE)

5.2.2.2 City of Monash

The City of Monash does not maintain a specific significant tree register with protection under the planning scheme nor a tree protection local law. A number of trees or tree groups in the municipality are listed in the schedule to the Heritage Overlay that applies as part of the Monash planning scheme, however none of these sites lie in the Structure Plan Area.

5.2.3 NEIGHBOURHOOD CHARACTER AREAS

5.2.3.1 City of Whitehorse

A significant portion of the Structure Plan Area that lies in the City of Whitehorse is subject to protection under the interim SLO9 – *Neighbourhood Character Areas*. The extent of SLO9 is shown Figure 5.8.

This is a broad scale control that seeks to retain and enhance the canopy tree cover of the Garden and Bush Suburban Neighbourhood Character Areas by providing blanket protection to trees on private land over a certain size threshold to maintain the overall leafy garden and bushy character of Whitehorse.

5.2.4 TREE PROTECTION AREA

5.2.4.1 City of Monash

Two areas in the City of Monash are subject to protection under VPO1 that applies as part of the Monash Planning Scheme, shown in Figure 5.7.

VPO1 seeks to conserve significant treed environments and ensure that new development complements the Garden City Character of the neighbourhood by placing protection on trees over certain size thresholds and encouraging their retention as part of new development.

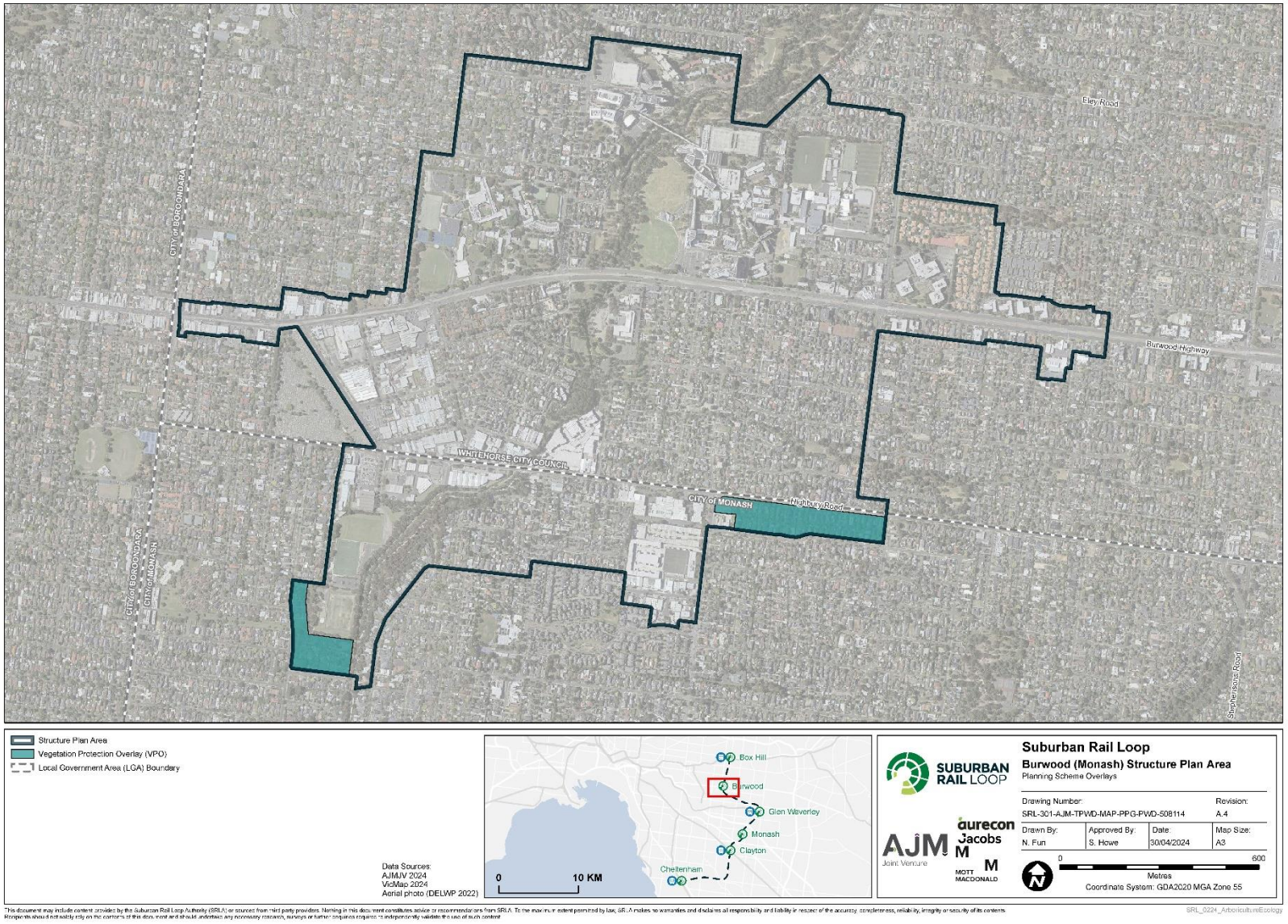

FIGURE 5.7 AREAS SUBJECT TO THE VPO1 IN THE STRUCTURE PLAN AREA (MONASH)

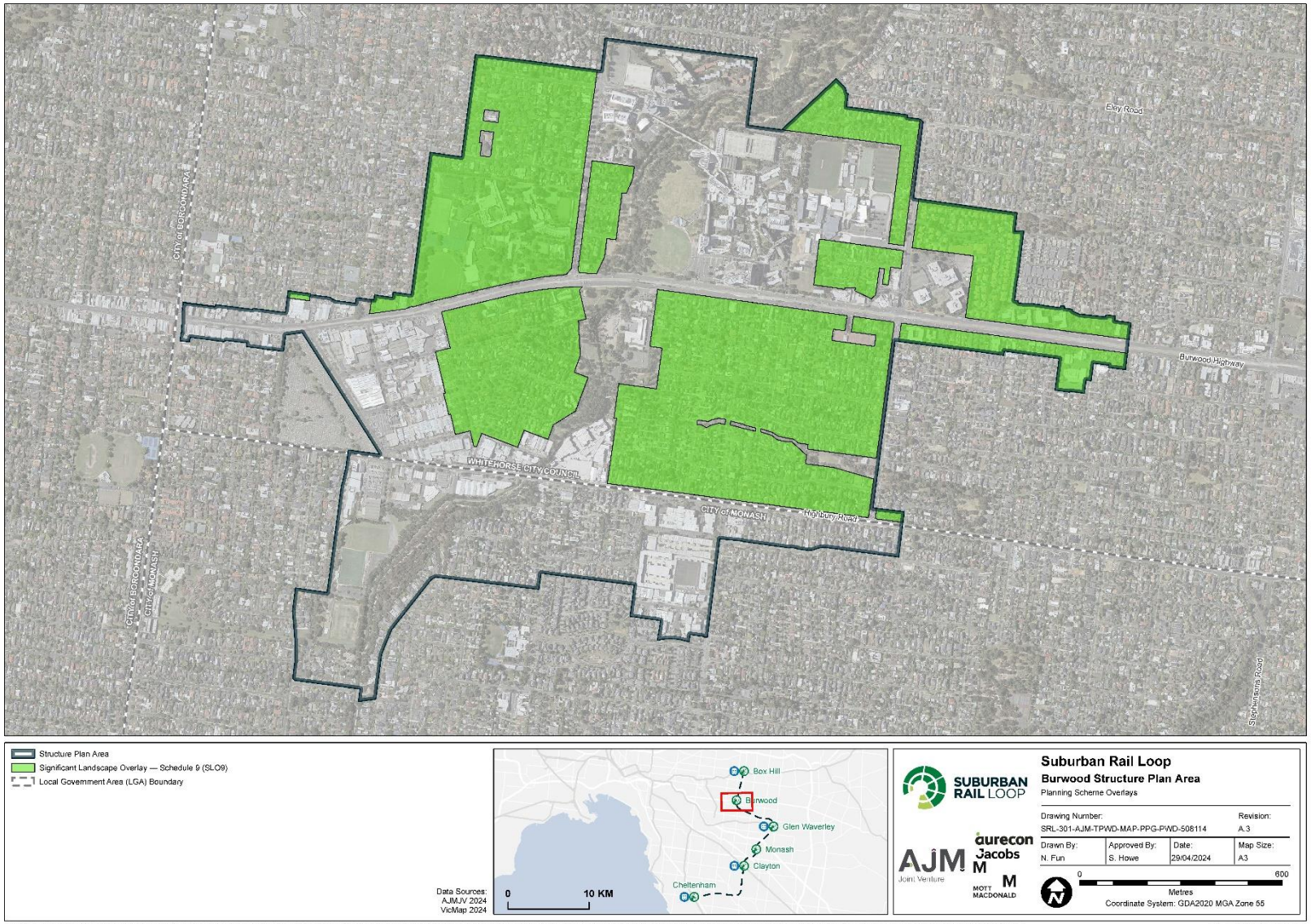

FIGURE 5.8 LAND SUBJECT TO WHITEHORSE SLO9 IN THE STRUCTURE PLAN AREA

5.2.5 OTHER NOTABLE AVENUE PLANTATIONS/PARKS AND GARDENS

5.2.5.1 City of Whitehorse

In addition to trees within SLO9 land, substantial and mature tree plantings are noted in the following locations:

- Gardiners Creek Reserve
- Bennettswood Reserve
- Deakin University
- Sinnott St Reserve
- Lundgren Chain Reserve each side of Station Street.

The central portion of Gardiners Creek to each side of Burwood Highway was assessed as part of the SRL East EES. This area of open space is indigenous in character, reflecting active revegetation works that have occurred along this section of Gardiners Creek. By contrast, assessments undertaken outside Gardiners Creek, including for early works outside the EES boundary, reveal a diverse mix of exotic and broadly Australian native trees planted as street trees throughout the Structure Plan Area.

5.2.5.2 City of Monash

Areas in the City of Monash portion of the Structure Plan Area that contain substantial and mature tree plantings are primarily located along Gardiners Creek Reserve.

5.3 Committed projects

Initial and early works underway that were subject to SRL East approved rail scope have removed trees, and further tree removals will occur as main works commence.

Environmental performance requirements (EPRs) developed for SRL East include provisions for the protection of trees proposed to be retained as part of the project (EPR AR3), as well as implementation of a tree canopy replacement plan to mitigate against loss of canopy cover (EPR AR4).

In recognition that SRL East will require some tree removal and subsequent loss of canopy cover, EPR AR4 requires that double the amount of tree canopy cover (m^2) removed in each local government area is replaced by 2050. The Tree Canopy Replacement Plan has been developed in consultation with municipal and other land managers and prioritises tree planting on Project land to provide canopy cover for pedestrian and hard paved areas.

6 Findings

This section sets out the results relating to ecology and arboriculture that impact land use planning and development in each Structure Plan Area.

- A summary of the issues for improving ecology and potential opportunities are listed in Section 6.1.
- A summary of the issues for arboriculture and potential opportunities are listed in Section 6.2.

6.1 Ecology

Based on analysis of previous reports and desktop review, the Structure Plan Area has been heavily modified from its natural state, comprising predominantly residential zones interspersed with some commercial and industrial infrastructure. The Structure Plan Area includes Gardiners Creek, a rock-lined drainage channel, which bisects the area from north-east to south-west, lined with planted tree species and revegetated with indigenous woodland vegetation. This does provide a significant local wildlife and green corridor through the centre of the Structure Plan Area.

Gardiners Creek itself is a man-made concrete channel which is prone to flash flooding and is considered unsuitable habitat to support any aquatic species (AJM-JV 2021a). The habitat around Gardiners Creek has been revegetated to support areas of EVC 83: Swampy Riparian Woodland, which provides locally important habitat for terrestrial fauna species.

The Structure Plan Area is unlikely to contain or support areas of habitat for EPBC Act and FFG Act-listed threatened species or threatened ecological communities, although mobile species such as Grey-headed Flying-fox, Gang-gang Cockatoo and Powerful Owl likely occasionally inhabit the Gardiners Creek corridor.

The existing open spaces, particularly Gardiners Creek, in conjunction with new open spaces present an opportunity to increase connectivity of green spaces. This would increase biodiversity, enhance existing ecological values and provide foraging and roosting opportunities for native fauna.

6.1.1 ISSUES

While the vegetation alongside Gardiners Creek provides a linear green corridor, it contains extensive areas of planted non-indigenous and introduced flora. Aside from Gardiners Creek, very little green spaces exist in the Structure Plan Area, which is dominated by urban infrastructure.

Challenges for increasing biodiversity and open spaces are:

- Limited space for existing natural environments, with population pressures and development reducing the availability and quality of open space for biodiversity to thrive long term.
- Heavy reliance on motor vehicles increasing the risk of road kill and injury to wildlife and limiting opportunities for wildlife corridors, particularly over busy main roads such as Burwood Highway and Highbury Road.
- Dominance of non-native and/or European street trees that do not provide adequate foraging resources for Australian native wildlife, including pollinators.
- Lack of large mature trees for breeding, habitat and refuge that are decreasing over time due to public safety risk and increased development from rezoning of the Structure Plan Area, which may impact on local council policies to protect existing tree canopy cover and biodiversity and impact the ability to further increase biodiversity and create habitat corridors.

- Removal of trees for public safety without replacing or leaving logs as habitat for wildlife.
- Further loss of trees, green spaces and biodiversity through rezoning residential land to commercial or industrial land may negatively impact council goals and objectives to increase biodiversity and native tree canopy cover and state government objectives to enhance and connect green and open spaces in urban areas.
- Ground cover primarily paved with impervious surfaces, comprising non-native plantings and/or extensive areas supporting mown grass that provides no ecological value for biodiversity.
- Limited state or local planning controls exist to protect open spaces that may be enhanced for biodiversity values and connectivity.

6.1.2 OPPORTUNITIES

Opportunities to enhance biodiversity values in the Structure Plan Area are:

- Revegetation to enhance habitat for fauna, particularly the listed threatened species Powerful Owl, Gang-gang Cockatoo and Grey-headed Flying-fox.
- New and existing open public spaces provide opportunities to meet City of Whitehorse and City of Monash Urban Biodiversity Strategies to increase biodiversity and the community's connection with nature through increasing revegetation, including native canopy trees and native understorey to provide habitat for biodiversity.
- Align with the Whitehorse Urban Biodiversity Strategy to link and utilise proposed green streets to link new open spaces and increase the amount of native vegetation in the Structure Plan Area.
- If feasible, consider improving blue infrastructure through naturalisation of waterbodies that could support aquatic species. There is an opportunity to support City of Whitehorse, City of Monash and Melbourne Water with expanding the naturalisation of Gardiners Creek within the full extent of the Burwood Structure Plan Area. Habitat corridors outside of the Structure Plan Area could improve habitat values through a greater extent of the surrounding landscape, including other nearby Structure Plan Areas (such as Box Hill).

6.2 Arboriculture

The Structure Plan Area comprises a mix of residential areas, commercial zoned land, Deakin University and the green spine of Gardiners Creek reserve, the latter supporting a very dense and well-established canopy cover. Tree canopy cover at 15 per cent is generally in line with metropolitan Melbourne.

Substantial tree cover in residential precincts in Whitehorse is protected by the interim SLO9 which recognises the importance of trees in contributing to the Garden Suburban and Bush Suburban neighbourhood character. SLO9 does not apply to commercial or industrial land in the Structure Plan Area.

In contrast, Monash's VPO1, which defines tree protection areas aiming to conserve significant treed environments and ensure that new development complements the Garden City Character of the neighbourhood is applied to only two discrete areas in the Structure Plan Area, with much of the Monash portion free of tree protection.

Individually significant trees in the Whitehorse portion of the Structure Plan Area are protected by the Vegetation Protection Overlay. Monash does not maintain a similar significant tree register through the planning scheme a local law.

Trees on Council-managed land in the City of Whitehorse, including parks and gardens and public roads are managed in accordance with the *City of Whitehorse Interim Urban Forest Policy and Tree Management Plan*.

While SLO9 also covers many local roads, removal of trees on public land or in the road reserve does not require a permit when removed by (or on behalf of) the Council. The City of Monash *Tree Management Policy* provides similar guidelines for the management of Council trees.

6.2.1 ISSUES

Potential impacts to trees and canopy cover from development in the Structure Plan Area are:

- Loss of individually listed significant trees listed in the Whitehorse Vegetation Protection Overlay
- Loss of urban tree canopy cover from re-zoning residential land to commercial or industrial uses, and intensification of land use and change in building typology for residential land (such as multi-unit developments replacing multiple single dwelling lots with the loss of trees)
- Impacts to street trees and loss of canopy cover due to works such as reconfigured road networks, infrastructure upgrades and parcel access

The risk of tree and canopy loss is greatest on private land, especially where rezoning from residential to commercial or other intensive development may occur. The applicability of Whitehorse's SLO9 in areas where rezoning may occur would become redundant, as would Monash's VPO1, which also seeks to protect treed environments and ensure that new development complements the Garden City Character of the neighbourhood.

Individually significant trees protected by Whitehorse's VPO are also at risk of removal or damage from development.

While development will unlikely change public parks and other land uses such as schools that support higher canopy cover, Council-managed trees in streetscapes may be at direct risk from works such as changes to road functional layouts and vehicle crossings, and indirectly from construction activities on private land.

The potential overall loss of trees in the private and public realms will place additional challenges for achieving Whitehorse's municipal-wide tree canopy target of 27 per cent by 2031, and 30 per cent by 2050, and Monash's target of 30 per cent tree canopy cover by 2030.

6.2.2 OPPORTUNITIES

Opportunities to protect and enhance the tree canopy and urban forest in the Structure Plan Area are:

- Consider green infrastructure, green roofs and canopy trees in private open space (where possible) and Water Sensitive Urban Design (WSUD) to support new tree growth and biophilic design in new development
- Provide for enhanced growing conditions (such as structured soils and WSUD) for trees on public land as part of new development
- Support implementation of municipal street and public open space planting strategies that seek to:
  - » Increase urban tree canopy cover to improve overall amenity and environmental values
  - » Increase species diversity in tree and plant selection to improve resilience, especially in consideration of climate change.

With loss of trees on private property, especially on residential land where the building typology may change from single dwelling to multi-unit development, there will be an increased reliance on trees in the public realm to support urban tree canopy targets. Measures to enhance public tree planting conditions, in addition to planting more trees in the public realm, will assist in compensating for loss of canopy cover on private land.

The ability to accommodate new tree plantings on private land will depend on the nature of future zoning, with intensive, high density residential and commercial development anticipated to provide limited opportunities for significant tree plantings.

7 Recommendations

Recommendations for enhancing ecology and arboricultural values when developing the Burwood Structure Plan are set out below. Recommendations include those to be considered in the Structure Planning Process (Section 7.1) and other recommendations to be considered within the Structure Plan Area (Section 7.2).

7.1 Structure planning

1. Promote the concept of habitat corridors to link new and existing open spaces within the Structure Plan Area to support Plan Melbourne 2017-2050 *Direction 6.5 and Policy 6.5.1* and local City of Whitehorse and City of Monash policies. It is recommended that habitat corridors consider the surrounding environment, including habitat connects to Gardiners Creek within the Structure Plan Area. Habitat corridors require the support of private landholders and public land managers to include private land and associated streetscapes.
    a) As depicted in Figure 7.1 below, the proposed habitat corridors have been developed based on a logical path that incorporates areas of existing and proposed open spaces, remnant vegetation and habitat corridors in proximity to the Structure Plan Area.
    b) It is recommended that in the habitat corridors are enhanced for biodiversity through the planting of native trees, particularly flowering natives, and understorey that provides a diversity of flowering plants at a variety of heights.
2. It is recommended to support State Government and local policy to explore opportunities with City of Whitehorse and Melbourne Water to protect, expand and restore the creek naturalisation of Gardiners Creek to extend habitat corridors between Gardiners Creek and Wattle Park and other open spaces within the Structure Plan Area.
3. As per Direction 6.4 of Plan Melbourne 2017-2050, to provide cooler and greener urban forests it is recommended that existing and proposed open green spaces, including along roadsides and pedestrian walkways, are enhanced with native plantings (particularly flowering trees and a diversity of nectivorous species). Refer to Table 7.1 that includes and summarises potential activities in new and existing open spaces. Open space locations are identified in Figure 7.1.
    a) Native plant selection in these areas should consider and prioritise drought-tolerant, long-lived and flowering species for their biodiversity values.
    b) Tree selection should consider the threatened species that occasionally visit the Structure Plan Area, notably Grey-headed Flying-fox and Gang-gang Cockatoo.

TABLE 7.1 RECOMMENDATIONS FOR BIODIVERSITY IN PUBLIC OPEN SPACE

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODIVERSITY IMPROVEMENTS
Lundgren Chain Linear Reserve	Existing open space	Function: Community Park Size: 14,039 m²	• Retain all trees in the open space. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Linking habitat corridor across the reserve.
Gardiners Reserve and Gardiners Creek	Existing open space	Function: Linear corridor Size: 227,737 m²	• Retain all trees in the open space.

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODIVERSITY IMPROVEMENTS
			• Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Improve blue infrastructure with naturalisation of Gardiners Creek including riparian vegetation to provide suitable natural habitat for aquatic fauna. • Overhead rope fauna crossings across main roads including Burwood Highway and Highbury Road to provide safe passage for terrestrial fauna.
Bennettswood Reserve	Existing open space	Function: Sports Park Size: 48,497 m²	• Retain all trees in the open space. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Linking habitat corridor from Bennettswood Reserve to Gardiners Creek Reserve.
Linear park connecting Sinnott St, McComas Grove and Cumming Street to connect McComas Grove and Lundgren Chain Linear Reserves with Gardiners Reserve	Proposed (New and enhanced open space)	Function: Linear corridor Size: 1800 m²	• Retain all trees in the open spaces. • Create a linking habitat corridor connecting Lundgren Chain Linear Reserves and other smaller reserves with Gardiners Reserve. • Where possible, create green streets to connect open spaces. • Plant more native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn.
Barlyn Road	Proposed (Enhanced open space)	Function: Landscape Park Size: 1554 m²	• Plant native trees that provide nectar resources for birds. • Revegetation comprising understory flowering vegetation for pollinators that replaces non-native lawn.
Roslyn Street Reserve	Proposed (Enhanced open space)	Function: Community Park Size: 2218 m2	• Retain all trees in the open space. • Provide fauna nest boxes. • Create a wildlife corridor between Roslyn Street Reserve and Gardiners Creek Reserve by using green streets along McIntyre Street and Ireland Street. • Plant native trees that provide nectar resources for birds. • Revegetate comprising understory flowering vegetation for pollinators that replaces non-native lawn.

4. It is recommended to retain and protect all remnant trees and native vegetation where possible during development, particularly along the Gardiners Creek Corridor and in existing open spaces in accordance with the Whitehorse Urban Biodiversity Strategy to conserve and maintain existing biodiversity and areas of indigenous flora and fauna.
5. To support the City of Whitehorse Biodiversity Principles and Objectives “increase the focus of replenishing and supplementing indigenous plantings”, it is recommended to enhance proposed and existing open spaces with indigenous plantings and revegetate understorey ground layer with flowering native species to promote native wildlife. Table 7.1 lists recommendations for biodiversity improvements to the open space network, including selecting native plant species that are drought-tolerant, long-lived and flowering with various heigh structures.

6. Align activities with Whitehorse Urban Biodiversity Strategy initiatives (i.e. tree planting, bushland regeneration and development of biodiversity corridors) and work with the City of Whitehorse City to improve open space, streetscapes and community areas, including with a tree planting program to improve canopy cover and planting that links habitat between open spaces enhanced for biodiversity, as well as ensuring a diversity of tree species selected for climate change resilience.
7. Support existing and new tree plantings to increase canopy cover in accordance with the Whitehorse Urban Forest Strategy 2021-2031, Monash Urban Landscape and Canopy Vegetation Strategy and Living Melbourne, endorsed by both the City of Whitehorse and the City of Monash. Ensure development includes integrated water management interventions that address green infrastructure assets, provides adequate irrigation for trees and other plantings, and optimises permeable surfaces to enhance tree growth.

7.2 Other opportunities

- As per Objective 2 of the City of Monash Urban Biodiversity Strategy 2018 – 2028, enhance and expand revegetation activities to improve degraded areas using local indigenous plants with a focus on establishing understorey species. This can be achieved by prioritising revegetation within new and existing open spaces and green streets and removing concrete and other impervious materials and replace with a suitable mixture of native vegetation.
- Consider planting more flowering native trees, shrubs and grasses along the Gardiners Creek habitat corridor to enhance the habitat for fauna, particularly Powerful Owl, Gang-gang Cockatoo and Grey-headed Flying-fox.
- Ensure significant trees protected by the Vegetation Protection Overlay in the City of Whitehorse are protected and integrated into new development.
- Support municipal street and public open space planting strategies to meet canopy coverage targets, as well as ensuring a diversity of tree species selected for climate change resilience.
- Private landholders within the mapped corridor are to be encouraged and supported in contributing native trees and understorey plantings. It is considered that the Structure Plan Area wide habitat corridor will require local government and community support. Seek to engage and obtain the support of private landholders in the adoption of habitat corridors on private land.

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FIGURE 7.1 INDICATIVE HABITAT CORRIDORS IN THE STRUCTURE PLAN AREA

References

AJM-JV 2021a Environment Effects Statement Technical Appendix G.1 Ecology Existing Conditions (Revision 01 October 2021)

AJM-JV 2021b Environment Effects Statement Technical Appendix G.2 Ecology Impact Assessment (01 October 2021)

AJM-JV 2021c Environment Effects Statement Technical Appendix D.1 Arboriculture and Urban Forest Existing Conditions (Revision 01 October 2021)

AJM-JV 2021d Environment Effects Statement Technical Appendix D.2 Arboriculture and Urban Forest Impact Assessment (Revision 01 October 2021)

AJM-JV 2025a *SRL East Draft Structure Plan - Urban Design Report – Burwood* (Revision 01 February 2025)

AJM-JV 2025b *SRL East Draft Structure Plan - Historical Heritage Technical Report* (Revision 01 February 2025)

AJM-JV 2025c *SRL East Draft Structure Plan – Integrated Water Management Strategy* (Revision 01 February 2025)

AJM-JV 2025d *SRL East Draft Structure Plan - Climate Response Plan – Burwood* (Revision 01 February 2025)

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Joint Venture

Appendix A

Protected Matters Search Tool

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-Oct-2024

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	78
Listed Migratory Species:	41

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	52
Whales and Other Cetaceans:	8
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	10
Key Ecological Features (Marine):	None
Biologically Important Areas:	4
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Historic			
HMVS Cerberus	VIC	Listed place	In buffer area only

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Edithvale-seaford wetlands	Within 10km of Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community likely to occur within area	In feature area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Breeding known to occur within area	In feature area
Aphelocephala leucopsis			
Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nannoperca obscura Yarra Pygmy Perch [26177]	Endangered	Species or species habitat may occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
FROG			
Litoria raniformis Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
INSECT			
Synemon plana Golden Sun Moth [25234]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Antechinus minimus maritimus Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In buffer area only
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dianella amoena Matted Flax-lily [64886]	Endangered	Species or species habitat likely to occur within area	In feature area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lachnagrostis adamsonii Adamson's Blown-grass, Adamson's Blowngrass [76211]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Pimelea spinescens subsp. spinescens Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea [21980]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Prasophyllum spicatum Dense Leek-orchid [55146]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pterostylis chlorogramma Green-striped Greenhood [56510]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterostylis cucullata Leafy Greenhood [15459]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In feature area
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thelymitra epipactoides Metallic Sun-orchid [11896]	Endangered	Species or species habitat may occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Lissolepis coventryi Swamp Skink, Eastern Mourning Skink [84053]	Endangered	Species or species habitat likely to occur within area	In feature area
SHARK			
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Migratory Marine Species			
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - Airport Builidng [21422]	VIC	In buffer area only
Defence - MOORABBIN AERO RESEARCH [20014]	VIC	In buffer area only
Defence - SANDRINGHAM TRAINING DEPOT [20990]	VIC	In buffer area only
Defence - SANDRINGHAM TRAINING DEPOT [20989]	VIC	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus			
Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Mammal			
Arctocephalus forsteri			
Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus			
Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only

Whales and Other Cetaceans		[Resource Information]	
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis			
Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Ricketts Point	Marine Sanctuary	VIC	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Residential Development	2003/1278	Controlled Action	Completed	In feature area
Not controlled action				
Dingley Route Freeway Construction	2001/256	Not Controlled Action	Completed	In feature area
High Street Road Upgrade	2001/268	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Port Phillip Channel Deepening Project - Trial Dredge Program	2005/2164	Not Controlled Action	Completed	In buffer area only
Redevelopment of Royal Melbourne Yacht Squadron Jetty	2006/2619	Not Controlled Action	Completed	In buffer area only
Suburban Rail Loop East	2021/9101	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
extension of a sporting facility and upgrading of associated infrastructure	2004/1325	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging	Known to occur	In buffer area only
Pelagodroma marina White-faced Storm-petrel [1016]	Foraging	Known to occur	In buffer area only
Pelecanoides urinatrix Common Diving-petrel [1018]	Foraging	Known to occur	In buffer area only
Thalassarche cauta cauta Shy Albatross [82345]	Foraging likely	Likely to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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AJM
Joint Venture

Appendix B

Likelihood of Occurance Tables

TABLE B.1 LIKELIHOOD OF OCCURRENCE FOR THREATENED FLORA IN 5 KM BURWOOD SEARCH AREA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT			
Geranium solanderi var. solanderi s.s.	Austral Crane's-bill		Endangered	An uncommon species of damp to dryish, usually sheltered sites in grassy woodlands, often along drainage lines or in seepage areas.	11/10/2004	Low – limited number of historical records and limited suitable habitat in the Structure Plan Area
Thesium australe	Austral Toad-flax	Vulnerable	Endangered	Once widespread across Victoria, but all recent collections are from highland areas in the vicinity of Wulgulmerang and it is believed to have become extinct across most of its Australian range due to loss of habitat and grazing. Grows in grasslands, woodlands and herbfields, usually in damp situations.	PMST	Negligible – no historical records and no suitable habitat in the Structure Plan Area
Lepidium hyssopifolium s.s.	Basalt Peppercress	Endangered	Endangered	Collected from scattered sites on the volcanic plain. Recent collections are from disturbed, rather weedy sites. One collection from near Port Fairy is noteworthy for its occurrence in a slightly saline estuary amongst saltmarsh and fringing sedgeland.	6/09/1977	Negligible – limited number of historical records and no suitable habitat in the Structure Plan Area
Eucalyptus cinerea subsp. victoriensis	Beechworth Silver Stringybark		Endangered	Rare, confined to hilly country to the north and north-east of Beechworth where occurring on clay loam soils derived from granite.	12/09/1989	Negligible – limited number of historical records and outside of natural range
Rutidosis leptorhynchoides	Button Wrinklewort	Endangered	Endangered	Confined to basaltic grasslands between Rokewood and Melbourne where E due to loss of habitat.	30/04/1948	Negligible – no recent historical records and no suitable habitat in the Structure Plan Area
Caladenia flavovirens	Christmas Spider-orchid		Critically Endangered	From coastal to near-coastal habitats through to low altitude mountain forest (e.g. Mt Dandenong area), formerly common near Portland where now rare and localized, and possibly extinct in the Lorne and Marlo areas. Moderately common in upland forests of north-east Victoria. Grows among shrubs in stunted coastal scrub, often in sandy soils, or in open montane forest with a grassy understorey.	01/12/1889	Negligible – no recent historical records and no suitable habitat in the Structure Plan Area
Glycine latrobeana	Clover Glycine	Vulnerable	Vulnerable	Widespread but of sporadic occurrence and rarely encountered. Grows mainly in grasslands and grassy woodlands.	PMST	Negligible – no historical records and no suitable habitat in the Structure Plan Area
Eucalyptus bosistoana	Coast Grey-box		Endangered	Occurs mostly on loamy soils east from Woodside, around the Gippsland Lakes and near the coast, extending inland further east along the Cann and Genoa River valleys.	3/03/2008	Negligible – likely planted as outside its natural range
Hakea decurrens subsp. platytaenia	Coast Needlewood		Endangered	Currently recorded only from windswept coastal heaths on Wilsons Promontory and in the Mallacoota area, but possibly more widespread in similar sites.	7/07/1995	Negligible – likely planted as outside its natural range
Acacia stictophylla	Dandenong Wattle		Endangered	Restricted to the Dandenong Ranges where it is often locally common in the riparian zone on hillsides in tall forest and open woodland.	2/10/2017	Low – The Structure Plan Area is outside the known distribution of the species.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT			
Prasophyllum spicatum	Dense Leek-orchid	Vulnerable	Critically Endangered	Grows in coastal heath and sandhills. Localised across southern Victoria in coastal heathland and near-coastal heathy forest on sandy soils. Flowers Aug.-Nov.	PMST	Negligible – no historical records and no suitable habitat in the Structure Plan Area
Melaleuca armillaris subsp. armillaris	Giant Honey-myrtle		Endangered	Mainly confined to near-coastal sandy heaths, scrubs slightly raised above saltmarsh, riparian scrubs, rocky coastlines and foothill outcrops eastwards from about Marlo. Occurrences to the west are naturalized from cultivated stock.	October 2021 survey	Confirmed (SRL EES) - Outside of natural distribution. Where present is planted and so not of conservation status.
Diuris behrii	Golden Cowslips		Endangered	Locally common in grassland and open woodland mostly in western Victoria.	28/09/1925	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Corunastylis pumila	Green Midge-orchid		Endangered	Of disjunct occurrence in southern near-coastal districts including lower Gellibrand River, Ocean Grove and South Oakleigh (where now probably extinct), French Is., Wilsons Promontory and Mallacoota-Wingan River area, usually growing in wet heathland and grass-tree plains.	01/05/1892	Negligible – the latest record is >100 years old and the Structure Plan Area does not support any suitable haitat.
Pterostylis chlorogramma	Green-striped Greenhood	Vulnerable	Endangered	Apparently localised in Victoria, but exact range uncertain due to confusion with closely allied species. Grows in moist areas of heathy and shrubby forest, on well-drained soils.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Senecio macrocarpus	Large-headed Fireweed	Vulnerable	Critically Endangered	In Victoria largely confined to remnant Kangaroo Grass grasslands on loamy clay soils derived from basalt from near Melbourne west to Skipton area. Also known from auriferous ground near Stawell.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Pterostylis cucullata	Leafy Greenhood	Vulnerable	Endangered	Usually found in protected areas of stabilized coastal sand dunes under open to closed scrub dominated by Coast Tea-tree (Leptospermum laevigatum), and/or Moonah (Melaleuca lanceolata), with an open ground stratum.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Dianella amoena	Matted Flax-lily	Endangered	Critically Endangered	Lowland grasslands, grassy woodlands, valley grassy forest and creeklines of herb-rich woodlands.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Eucalyptus leucoxylon subsp. connata	Melbourne Yellow-gum		Endangered	The main concentration is in the Brisbane Ranges between Bacchus March and Geelong, where it grows on skeletal soils. Also grows on skeletal soils at Long Forest between Bacchus Marsh and Melton, and at Studley Park at Kew (in Melbourne) where it grows on soil derived from Silurian sandstone.	11/10/2017	Low - outside of natural distribution, species likely planted
Eucalyptus sideroxylon subsp. sideroxylon	Mugga		Endangered	In Victoria confined to the Chiltern area, northern Warby Range and south of Winton, while the other ironbark, Eucalyptus tricarpa, with its 3-budded inflorescences and larger fruit is widespread.	2/01/2018	Negligible – outside of natural distribution, species likely planted
Corymbia gummifera	Red Bloodwood		Vulnerable	In Victoria on flats and low hills near the sea, east from Wingan Inlet.	2/01/2018	Low – the Structure Plan Area is well beyond the known distribution of the species.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT			
Amphibromus fluitans	River Swamp Wallaby-grass	Vulnerable		Permanent swamps, lagoons, billabongs and dams.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Acacia rupicola	Rock Wattle		Endangered	Restricted in Victoria to rocky areas around Mt Arapiles and apparently the northern parts of the Grampians.	11/10/2017	Low – the Structure Plan Area is well beyond the known distribution of the species.
Acacia boormanii	Snowy River Wattle		Endangered	Restricted mostly to open-forest on rocky slopes and along banks of the Snowy River and its tributaries, with outlying populations at Mt Typo and Gapsted in the Mytleford area. Occasionally sparingly established on roadside plantings, for example between Bungal and Mt Egerton.	19/08/2019	Low - outside of natural distribution, species likely planted
Eucalyptus globulus subsp. globulus	Southern Blue-gum		Endangered	Recent studies of variation in Southern Blue-gums (Jordan et al. 1993) suggest that populations of typical subsp. globulus occur in Victoria only in the area south of the Strzelecki Range, e.g. Port Franklin, Wilsons Promontory, and that other populations in south Gippsland and the Otway Ranges probably represent intergrades between subsp. globulus and subsp. pseudoglobulus.	3/03/2008	Low - outside of natural distribution, species likely planted
Lepidium aschersonii	Spiny Peppercress	Vulnerable	Endangered	Mostly on heavy clay soil near salt lakes on volcanic plain, but with outlying records from near Lake Omeo (in 1940 &1981) and the Grampians (in 1893).	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Corymbia maculata	Spotted Gum		Vulnerable	Only known in Victoria from the Mottle Range, south of Buchan.	October 2021 survey	Confirmed (SRL EES) - Outside of natural distribution. Where present is planted and so not of conservation status.
Acacia howittii	Sticky Wattle		Vulnerable	Endemic to Victoria. Confined to eastern Victoria from the upper Macalister River area near Mt Howitt south to near Yarram and east to near Tabberabbera. Grows in moist forest. Widely cultivated and naturalising in some areas (such as Daylesford, Greater Melbourne, Dandenong Ranges).	4/11/1992	Negligible - limited number of historical records and no suitable habitat in the Structure Plan Area
Xerochrysum palustre	Swamp Everlasting	Vulnerable	Critically Endangered	Occurs in lowland swamps, usually on black cracking clay soils, scattered from near the South Australian border north-west of Portland to Bairnsdale district, but rare due to habitat depletion.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Senecio psilocarpus	Swamp Fireweed	Vulnerable		Rare, restricted in Victoria to a few herb-rich winter-wet swamps throughout the south of the state, west from Sale, growing on volcanic clays or peaty soils.	PMST	Negligible– no historical records and no suitable habitat in the Structure Plan Area
Microtis orbicularis	Swamp Onion-orchid		Endangered	This semi-aquatic species often flowers in shallow water around the margins of swamps. It occurs in south-west Victoria (e.g. Portland, Grampians, Little Desert) and east of Melbourne on French Island, Wonthaggi area (where possibly now extinct) and Wilsons Promontory.	4/11/1992	Low - outside of natural distribution, species likely planted

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT			
Deschampsia cespitosa	Tufted Hair-grass		Endangered	Widely distributed throughout the world and largely confined to damp peaty sites at both low and high elevations. In Victoria, an uncommon grass of damp to wet alpine or subalpine grasslands (e.g. Bennison, Bogong, Dargo and Nunniong Plains, Omeo district) with a disjunct occurrences near Woodend, Colac and Dartmoor in the far south-west.	8/03/1998	Low – the Structure Plan Area does not support any damp peat or suitable habitat to support the species
Billardiera scandens s.s.	Velvet Apple-berry		Endangered	Uncommon in Victoria, occurring chiefly in dry open-forests and woodlands in the north-east (such as Beechworth, Whitfield), with isolated occurrences near Mt Macedon, Eltham-Hurstbridge area, Eildon and Orbost.	28/12/1989	Negligible – limited historical records and no suitable habitat in the Structure Plan Area
Goodia medicaginea	Western Golden-tip		Endangered	In Victoria occurs sporadically in the south-west (e.g. north of Portland, Mt Arapiles), at Long Forest west of Melbourne, in central Victoria near Eaglehawk and at Killawarra Forest, and near Suggan Buggan in the east. Favours drier sites than Goodia lotifolia.	12/09/2010	Negligible – outside of natural range and no suitable habitat in the Structure Plan Area
Geijera parviflora	Wilga		Critically Endangered	Very rare in Victoria where confined to a few isolated populations around Kenley, north-west Victoria, in dry acacia or eucalypt woodland on heavy soils.	12/09/1989	Negligible – outside of natural range and no suitable habitat in the Structure Plan Area
Caladenia oenochila	Wine-lipped Spider-orchid		Critically Endangered	Endemic to Victoria where mostly known from the foothills immediately east of Melbourne, but sporadically distributed from Yarram through to Ararat. Relatively common in moist, often grassy forest or woodland, often in shaded habitats.	01/01/1890	Negligible – the latest record is >100 yeas old and the Structure Plan Area does not support any preferred habitat
Thelymitra hiemalis	Winter Sun-orchid		Critically Endangered	Found in heathland and heathy woodland on well-drained soils.	1/03/1940	Negligible – no current historical records and no suitable habitat in the Structure Plan Area
Eucalyptus yarraensis	Yarra Gum		Critically Endangered	Endemic in Victoria. Extending west from Glengarry (near Traralgon) to Melbourne and north-west to Daylesford and Ararat. Collections of small-budded and -fruited swamp gums from east of Cavendish may be this taxon. Very small-fruited forms of the species occur in remnant stands in outer southeastern to northeastern Melbourne suburbs	01/01/1879	Negligible – the latest record is >100 yeas old and the Structure Plan Area does not support any preferred habitat

TABLE B.2 LIKELIHOOD OF OCCURRENCE FOR THREATENED FAUNA WITHIN 5KM OF THE STRUCTURE PLAN AREA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
AMPHIBIANS							
Pseudophryne bibronii	Brown Toadlet		Endangered	Lives in forests, heathlands and grasslands where it can be heard calling throughout the year	1	1/01/1967	Negligible – limited number of historical species records and no suitable habitat likely to occur in Structure Plan Area
Litoria raniformis	Growling Grass Frog	Vulnerable	Vulnerable	Persists in waterways and other aquatic habitats in the greater Melbourne region. Key habitat features for the species includes submerged vegetation for egg-laying, rocks and logs for basking, permanent freshwater lagoons for breeding and cracks, as well as debris and dense vegetation for refuge.	1	31/12/1982	Low - limited number of previous records and no suitable aquatic habitat or habitat corridors
Pseudophryne semimarmorata	Southern Toadlet		Endangered	Found at lower elevations within damp areas including leaf litter, logs and rocks. Often observed in a range of environments including forests, woodlands, heaths and grasslands.	40	1/03/1991	Low – no recent records and limited suitable habitat
BIRDS							
Botaurus poiciloptilus	Australasian Bittern	Endangered	Critically Endangered	Frequents reedbeds, and other vegetation in water such as cumbungi, lignum and sedges.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	Critically Endangered	Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Prototroctes maraena	Australian Grayling	Vulnerable	Endangered	Occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. The species is found in fresh and brackish waters of coastal lagoons.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Rostratula australis	Australian Painted-Snipe	Endangered	Critically Endangered	Inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. Also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Spatula rhynchotis	Australasian Shoveler		Vulnerable	Found in all kinds of wetlands, preferring large undisturbed heavily vegetated freshwater swamps. It is also found on open waters and occasionally along the coast.	2	25/10/1987	Low – the Structure Plan Area does not contain any suitable habitat
Falco subniger	Black Falcon		Critically Endangered	Found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas. It roosts in trees at night and often on power poles by day	1	29/03/1986	Low – although Gardiners Creek may provide potential habitat, only one record, nearly 40 years old, within 5km

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
Neophema chrysostoma	Blue-winged Parrot	Vulnerable		Inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range they favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Climacteris picumnus victoriae	Brown Treecreeper	Vulnerable		Found in the drier open forests and woodlands	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Tringa nebularia	Common Greenshank, Greenshank	Migratory	Endangered	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity, typically with large mudflats and saltmarsh, mangroves or seagrass.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Calidris ferruginea	Curlew Sandpiper	Critically Endangered/ Migratory	Critically Endangered	Intertidal mudflats in sheltered coastal areas. Non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Geopelia cuneata	Diamond Dove		Vulnerable	Diamond Doves gather in small parties or flocks in dry open savanna in mulga areas often among spinifex or grasses. They are also often in open riparian woodland (beside waterways).	1	1/03/1999	Negligible – the Structure Plan Area does not support any suitable habitat
Stagonopleura guttata	Diamond Firetail	Vulnerable	Vulnerable	Found in open grassy woodland, heath and farmland or grassland with scattered trees	1	15/04/1976	Negligible – one historical record and no suitable habitat likely to occur in the Structure Plan Area
Numenius madagascariensis	Eastern Curlew	Critically Endangered, Migratory	Critically Endangered	Largest shorebird in Australia. Breeds in Russia and north-eastern China, arrives back to Australia in August to feed on crabs and molluscs in intertidal mudflats on the coast.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Ardea alba modesta	Eastern Great Egret		Vulnerable	Distributed across mainland Australia and preferring permanent shallow waters; including damp or flooded grasslands, wetland habitat, rivers, lakes and estuarine mudflats.	6	28/05/2018	Low – few records and limited suitable habitat in the Structure Plan Area
Stictonetta naevosa	Freckled Duck		Endangered	Prefers permanent fresh water swamps and creeks with heavy growth of cumbungi (bullrushes), lignum or tea-tree.	2	14/06/2019	Low – whilst the species has the potential to occur within the Structure Plan Area, particularly within Gardiners Creek, there is limited suitable habitat likely to sustain a population
Apus pacificus	Fork-tailed Swift	Migratory		Almost exclusively aerial. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas	0	PMST	Negligible - no previous species records

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Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered		During summer, the Gang-gang Cockatoo is found in tall mountain forests and woodlands, with dense shrubby understoreys. In winter, Gang-gangs will move to lower altitudes into drier, more open forests and woodlands. At this time, they may be seen by roadsides and in parks and gardens of urban areas. They require tall trees for nest hollows.	233	1/08/2021	Moderate – plenty of records and some suitable habitat in the Structure Plan Area
Falco hypoleucos	Grey Falcon	Vulnerable	Vulnerable	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Accipiter novaehollandiae	Grey Goshawk		Endangered	Occurs in coastal areas in northern and eastern Australia, found in most forest types, especially tall closed forests, including rainforests.	1	25/03/2019	Low – one record but suitable habitat unlikely to occur in the Structure Plan Area
Synoicus chinensis	King Quail		Endangered	Inhabits dense low vegetation, including swamps, wet heathlands, shrubland, swamp scrub, grasslands and crops such as Lucerne.	2	1/01/1901	Negligible – the latest record is >100 years old and the Structure Plan Area lacks suitable habitat to support the species
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Migratory		Occurs in a range of permanent and ephemeral wetlands including freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies)	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Lewinia pectoralis	Lewin's Rail		Vulnerable	Freshwater to saline wetlands, either permanent or ephemeral.	1	1/01/1937	Negligible – historical record and the Structure Plan Area does not support any preferred species habitat
Hieraaetus morphnoides	Little Eagle		Vulnerable	Seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest.	2	21/04/2002	Low – no recent records and no suitable habitat likely to occur in the Structure Plan Area
Egretta garzetta	Little Egret		Endangered	Tidal mudflats, saltwater and freshwater wetlands, and mangroves.	1	23/04/2021	Low – one recent record but no suitable habitat likely to occur in the Structure Plan Area
Anseranas semipalmata	Magpie Goose		Vulnerable	Widespread in northern Australia, where they may congregate in huge flocks. Was once also widespread in southern Australia, but disappeared from the region largely due to drainage of breeding wetlands. Often found in floodplains and wet grasslands.	1	15/05/2008	Low – one recent record but no suitable habitat likely to occur in the Structure Plan Area
Lophochroa leadbeateri	Major Mitchell's Cockatoo	Endangered	Critically Endangered	Found across the arid and semi-arid inland from south to north-west Victoria. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water.	1	4/04/2006	Low – the Structure Plan Area is well beyond the known distribution of the species

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Biziura lobata	Musk Duck		Vulnerable	Aquatic habitats. Broadly ranging throughout Australia.	3	30/11/2018	Low – one recent record but limited suitable habitat likely to occur in the Structure Plan Area
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	Found in dry open forests and woodlands, and is strongly associated with mistletoe.	1	31/12/1899	Negligible – one very old record and no suitable habitat likely to occur in the Structure Plan Area
Calidris melanotos	Pectoral Sandpiper	Migratory		Prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Pycnoptilus floccosus	Pilotbird	Vulnerable		Found in wet and dry sclerophyll forests with dense undergrowth and woodlands occupying dry slopes and ridges	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Pedionomus torquatus	Plains-wanderer	Critically Endangered	Critically Endangered	Inhabit sparse native grasslands and are often absent from areas where grass becomes too dense or too sparse. They nest amongst native grasses and herbs, or sometimes amongst crops.	2	14/09/1972	Low – two old records and no suitable habitat likely to occur in the Structure Plan Area
Ardea intermedia plumifera	Plumed Egret		Critically Endangered	Prefers freshwater swamps, billabongs, floodplains and wet grasslands with dense aquatic vegetation, and is only occasionally seen in estuarine or intertidal habitats.	1	14/03/2010	Low – only one record and limited suitable habitat likely to occur in the Structure Plan Area
Ninox strenua	Powerful Owl		Vulnerable	Occurs in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as parks and suburban areas. Needs old growth trees to nest.	6	30/05/2021	Moderate – a few current records and suitable habitat occurs in the Structure Plan Area
Calidris canutus	Red Knot	Endangered, Migratory	Endangered	Intertidal mudflats, sandflats and sandy beaches of sheltered coasts	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	Primarily occurs in box-ironbark woodland, but also occurs in other forest types. Mainly feeds on nectar from eucalypts and mistletoes with movements governed by the flowering of select eucalypt species.	14	2/02/1990	Low – although there is a few records for this species, no recent records within 30 years
Rhipidura rufifrons	Rufous Fantail	Migratory		Inhabits wet sclerophyll forests, often in gullies dominated by tall eucalypts, usually with a dense shrubby understorey and ferns.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Myiagra cyanoleuca	Satin Flycatcher	Migratory		Inhabits heavily vegetated gullies in eucalypt-dominated forests and taller woodlands	0	PMST	Negligible - no previous species records and no suitable habitat

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							likely to occur in the Structure Plan Area
Calidris acuminata	Sharp-tailed Sandpiper	Migratory		Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Tyto tenebricosa	Sooty Owl		Endangered	Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	1	3/03/2008	Low – the Structure Plan Area does not support any rainforest or moist eucalypt forest
Melanodryas cucullata cucullata	South-eastern Hooded Robin	Endangered	Vulnerable	Lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Aphelocephala leucopsis	Southern Whiteface	Vulnerable		Dry open forests and woodland and inland scrubs of mallee, mulga and saltbush are the preferred habitat of Southern Whiteface, especially areas with fallen timber or dead trees and stumps.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Pyrrholaemus sagittatus	Speckled Warbler		Endangered	Lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies.	4	1/09/1934	Low – historical species record and the Structure Plan Area does not support any suitable landscape features or habitat
Polytelis swainsonii	Superb Parrot	Vulnerable	Endangered	Found along timbered waterways and nearby well-watered woodlands, especially in River Red Gums along the Murray and Murrumbidgee Rivers. They are usually seen in family parties or small flocks. They roost communally in trees.	2	14/08/1999	Negligible – old records and no suitable habitat likely to occur in the Structure Plan Area
Lathamus discolor	Swift Parrot	Critically Endangered	Critically Endangered	Breeds in Tasmania and overwinters in Victoria. Found in dry sclerophyll forests and woodlands, suburban parks and gardens where it feeds on the nectar of flowering eucalypts, namely Grey, Red Ironbark, Mugga Ironbark, Yellow Gum and White Box. Also feed on lerp psyllids amongst Red Gum.	34	7/05/1996	Low – many records within 5km however no recent records
Hirundapus caudacutus	White-throated Needletail	Vulnerable, Migratory	Vulnerable	Almost exclusively aerial, over a wide variety of habitats	73	20/01/2020	Low – although this species may be seen flying overhead, unlikely to use limited habitat in the Structure Plan Area
Motacilla flava	Yellow Wagtail	Migratory		Data deficient in Australia. Typically in Europe where the species favours wet meadows, marshland, grassy and muddy lakeshores. Occurs in fields and often near livestock during migration.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
FISH							
Galaxiella pusilla	Dwarf Galaxias	Vulnerable	Endangered	Slow flowing, still shallow permanent and temporary freshwater habitats.	0	PMST	Negligible - no previous species records and no suitable habitat

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							likely to occur in the Structure Plan Area
Maccullochella peelii	Murray Cod	Vulnerable	Endangered	Distributed throughout the Murray-Darling Basin.	2	11/02/1922	Low – Gardiners Creek is well removed from the Murray Darling Basin, the species is unlikely to occur within the Structure Plan Area
Bidyanus bidyanus	Silver Perch	Endangered	Endangered	Inhabits faster flowing water within the Murray-Darling system	2	1/02/1988	Low – Gardiners Creek is well removed from the Murray Darling Basin, the species is unlikely to occur within the Structure Plan Area
Nannoperca obscura	Yarra Pygmy Perch	Vulnerable	Vulnerable	Preferring slow-moving or still waters including rivers, streams and lakes. Often located within sites that contain abundant submerged and emergent aquatic vegetation and wood debris.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
INVERTEBRATES							
Paralucia pyrodiscus lucida	Eltham Copper Butterfly	Endangered	Critically Endangered	Endemic to Victoria, where it is known from three remnant areas, including the Eltham-Greenborough area of Melbourne, in the Castlemaine/Bendigo area of central Victoria, and in the Kiata-Nhill-Dimboola area in northwest Victoria.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Engaeus victoriensis	Foothill Burrowing Crayfish		Endangered	Found in large cavernous burrows in grey, clay-dominated soils in temperate, wet sclerophyll forest at the foot of the Dandenong Ranges.	2	3/04/2020	Low – Gardiners Creek is not considered to provide suitable habitat to support the species. The Structure Plan Area does not contain any wet sclerophyll forest
Temognatha sanguinipennis	Jewel Beetle		Endangered	Living in variable environments including woodlands, forests and heathland.	1	22/02/1970	Low – historical species record and limited suitable habitat within the Structure Plan Area
Synemon plana	Golden Sun Moth	Vulnerable	Vulnerable	Occurs in grassy areas in the greater Melbourne region, mainly in areas dominated by native grasses such as wallaby grass and spear grass, but also in areas of introduced grasses such as Chilean Needle-grass.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
MAMMALS							
Petauroides volans	Greater Glider (southern and central)	Endangered	Vulnerable	Greater Gliders are distributed throughout forested parts of eastern Victoria, including inland and southern falls of the Great Dividing Range, as well as the Strzelecki and Strathbogie Ranges. They are forest dependent and prefer older tree age classes in moist forest types. Typically found in highest	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area

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				abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows.			
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Vulnerable	Requires foraging resources and roosting sites. The primary food source is blossom from Eucalyptus and related genera but commonly forages on fruit trees in urban areas. Two known Flying Fox camps occur in the greater Melbourne region including one at Yarra Bend and one at Doveton.	36	14/11/2016	Moderate – recent records in the area and suitable habitat in the Structure Plan Area
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable	Endangered	Open heathlands, woodlands and dry sclerophyll forests with a heath understorey, grasslands and vegetated sand dunes	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Ornithorhynchus anatinus	Platypus		Vulnerable	Inhabits freshwater streams, ranging from alpine creeks to tropical lowland rivers; also lakes, shallow reservoirs and farm dams. Prefers areas with steep, vegetated banks in which to burrow; entrances concealed under overhangs or vegetation.	2	1/01/1948	Negligible – no recent records and no suitable habitat likely to occur in the Structure Plan Area
Isoodon obesulus obesulus	Southern Brown Bandicoot	Endangered	Endangered	Inhabits areas of dense ground cover in heathland, shrubland, sedgeland, heathy open forest and woodland. Suitable habitat includes any areas of vegetation (native or introduced) in the species range, that comprises an understorey vegetation structure with 50–80% foliage cover in the 0.2–1 m height range.	1	27/10/1959	Negligible – one old record and no suitable habitat likely to occur in the Structure Plan Area
Dasyurus maculatus maculatus	Spot-tailed Quoll	Endangered	Endangered	Temperate and subtropical rainforests in mountain areas wet schlerophyll forest lowland forests open and closed eucalypt woodlands.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Antechinus minimus maritimus	Swamp Antechinus	Vulnerable	Vulnerable	Habitat includes dense wet heathlands, tussock grasslands, sedgelands, damp gullies, swamps and some shrubby woodlands	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Petaurus australis australis	Yellow-bellied Glider	Vulnerable	Vulnerable	Found at altitudes between sea level to 1400 m above sea level and has a widespread but patchy distribution from south-eastern QLD to near the SA-Vic border in eucalypt-dominated woodlands and forests, including both wet and dry sclerophyll forests.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat		Vulnerable	Occurs in a wide range of habitats, roosts in hollow old trees.	1	1/06/1965	Negligible – one old record and very limited suitable habitat in the Structure Plan Area
REPTILES							

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Emydura macquarii	Murray River Turtle		Critically Endangered	Rivers, creeks, dams and lagoons associated with the Murray-Darling drainage systems of south east Australia.	5	5/12/2018	Low – Gardiners Creek is well removed from the Murray Darling drainage basin, the species is unlikely to occur within the Structure Plan Area
Delma impar	Striped Legless Lizard	Vulnerable	Endangered	Inhabits intact grassland habitats where it shelters in grass tussocks, under rocks and in cracks in the soil	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area
Lissolepis coventryi	Swamp Skink	Endangered	Endangered	Often restricted to densely vegetated swamps and associated watercourses, and adjacent wet heaths (Melaleuca or Leptospermum thickets), sedgelands and saltmarshes. Can occur in association with freshwater and saltmarsh environments.	0	PMST	Negligible - no previous species records and no suitable habitat likely to occur in the Structure Plan Area

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