SUBURBAN RAIL LOOP EAST

SRL East Draft Structure Plan | Glen Waverley

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 - GLEN WAVERLEY

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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 Box Hill, Burwood, Glen Waverley, Monash, Clayton and Cheltenham.

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

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

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

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

Existing Conditions

ECOLOGY

The Structure Plan Area is heavily modified and dominated by infrastructure, buildings and residential areas. A significant portion of the Structure Plan Area is exclusively concrete and hard impervious surfaces with no native vegetation, so there are limited opportunities for threatened flora and fauna.

The Structure Plan Area is considered to support a number of small patches of native vegetation, including 0.706 hectares of Valley Heathy Forest (EVC 127) and 12 scattered trees located east of the existing Glen Waverley Station.

The Structure Plan Area is unlikely to support *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Flora and Fauna Guarantee Act 1988* (FFG Act)-listed threatened ecological communities. Three FFG Act-listed threatened flora are considered to have a moderate likelihood of occurring in native vegetation patches of Valley Heathy Forest (EVC 127) at Bogong Reserve: Green-striped Greenhood, Floodplain Fireweed and Veined Spear-grass. These species are not considered to occur elsewhere in the Structure Plan Area.

No EPBC Act and FFG Act-listed threatened fauna are considered likely to occur in the Structure Plan Area. Though one FFG Act-listed species, the Powerful Owl, is considered to have a moderate likelihood of occurring in the Structure Plan Area. There are a high number of records of Powerful Owl in the surrounding area, nearly all previous records are from Shepherds Bush (approximately 1 kilometre east of the Structure Plan Area). Given the lack of suitable habitat features for these species within habitat available at Glen Waverley, it is unlikely that Powerful Owl make permanent use of the degraded habitat in the Structure Plan Area.

ARBORICULTURE

The Structure Plan Area supports 12 per cent tree canopy cover in the overall Structure Plan Area. Residential properties and streetscapes support 12 per cent of canopy cover in the Structure Plan Area and industrial land supports 5 per cent of the canopy cover.

A number of residential precincts in the north and east of the Structure Plan Area are subject to a Vegetation Protection Overlay (VPO1) of the Monash Planning Scheme, which defines tree protection areas.

Notable and mature tree plantings, generally on public land managed by the City of Monash, include areas such as Bunker Lake and Ironbark Forest in Glen Waverley, Glenallen School in Glen Waverley, Glen Waverley High School and Yanigin Drive Reserve in Glen Waverley. These sites support significant canopy cover in the Structure Plan Area.

Issues and Opportunities

ECOLOGY

Challenges for enhancing biodiversity include the large areas of paved and impervious surfaces and the small scattered open spaces. Non-native European flora and street trees dominate and there is a lack of large hollow-bearing trees, limited cover of understorey vegetation or connected habitat.

Opportunities to enhance biodiversity include planting more indigenous vegetation to support habitat and aligning any activities with the Monash *Urban Biodiversity Strategy*. Consideration should be given to improving waterways and drainage lines to recreate habitat corridors between Glen Waverley Drain and the Scotchmans Creek Trail. Opportunities to establish habitat corridors in the Structure Plan Area to improve biodiversity dispersal and movement should also be explored.

ARBORICULTURE

Development has potential to remove existing trees and reduce canopy cover, as well as reduce future opportunities to plant new trees. Rezoning land from residential to other uses will likely make Monash's VPO1, where it applies to rezoned land, redundant. Infrastructure works such as road upgrades and providing vehicle access could impact arboricultural values. This will create challenges for achieving Monash's target of 30 per cent tree canopy cover by 2030.

Opportunities to protect and enhance tree canopy and the urban forest include considering green infrastructure, green roofs and canopy trees in private open space (where possible) and Water Sensitive Urban Design to support new tree growth and biophilic design in new development. Initiatives to enhance growing conditions for trees on public land could be implemented, such as providing structured soils and incorporating Water Sensitive Urban Design features into new developments. Supporting the implementation of municipal street and public open space planting strategies could also help protect and add to the tree canopy.

Recommendations

1. Promote the concept of habitat corridors that link new and existing open spaces with known habitat corridors in the wider landscape, in accordance with Plan Melbourne 2017-2050 *Direction 6.5 and Policy 6.5.1.* For example, connecting habitat between the Glen Waverley Drain (Scotchmans Creek) and Bogong Reserve. Habitat corridors require the support of private landholders and public land managers to include private land and associated streetscapes.

    a. As depicted in the Figure 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. 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 nectivorous species). Revegetation with a diversity of flowering native trees, shrub, herb and grass species will provide a cooler urban environment whilst promoting habitat and foraging opportunities for native fauna. Refer to the Table below that includes and summarises potential activities in new and existing open spaces.

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

3. Support the City of Monash Urban Biodiversity Strategy 2018 -2028 by reducing biodiversity threats, retaining all trees and fauna habitat in proposed and existing open spaces, particularly old hollow-bearing trees and protect remnant vegetation within the Structure Plan Area.

4. Support the implementation of local government biodiversity strategies, including by implementing actions that align with the Monash *Urban Biodiversity Strategy* and its related sustainability programs such as the Green Shoots Program, Skink Link Project along Scotchmans Creek, and Gardens for Wildlife. This includes:

    a. Increasing community understanding, active engagement and appreciation of biodiversity in the local area;

    b. Enhancing biodiversity through revegetation and protection of habitat;

    c. Prioritising sites where habitat connectivity and corridors can be enhanced.

5. Support existing and new tree plantings to increase canopy cover in accordance with the *Monash Urban* Landscape *and Canopy Vegetation Strategy* and *Living Melbourne,* endorsed by 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.

RECOMMENDATIONS FOR BIODIVERSITY IN PUBLIC OPEN SPACE

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODVIERSITY IMPROVEMENTS
Around Lincoln Avenue	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Potential new open space between Myers Avenue and Fernhill Street	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Potential new open space around Clifford Street and Charlotte Street	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Bogong Reserve	Existing	Catchment: Community Function: Community Park Size: 43,423 m2	• Separate of dog friendly and dog banned sections of Bogong Reserve. • Plant native trees that provide nectar resources for birds.

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODVIERSITY IMPROVEMENTS
			• Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Consider options to extend Bogong Reserve to Scotchmans Creek Trail.
Jordan Grove Reserve	Existing	Catchment: Neighbourhood Function: Community Park Size: 2069 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Lakeview Court Reserve	Existing	Neighbourhood Function: Nature Park Size: 4781 m2	• Plant native trees that provide nectar resources for birds. • Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn.
Yanigin Drive Reserve	Existing	Neighbourhood Function: Nature Park Size: 6993 m2	• Plant native trees that provide nectar resources for birds. • Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn.

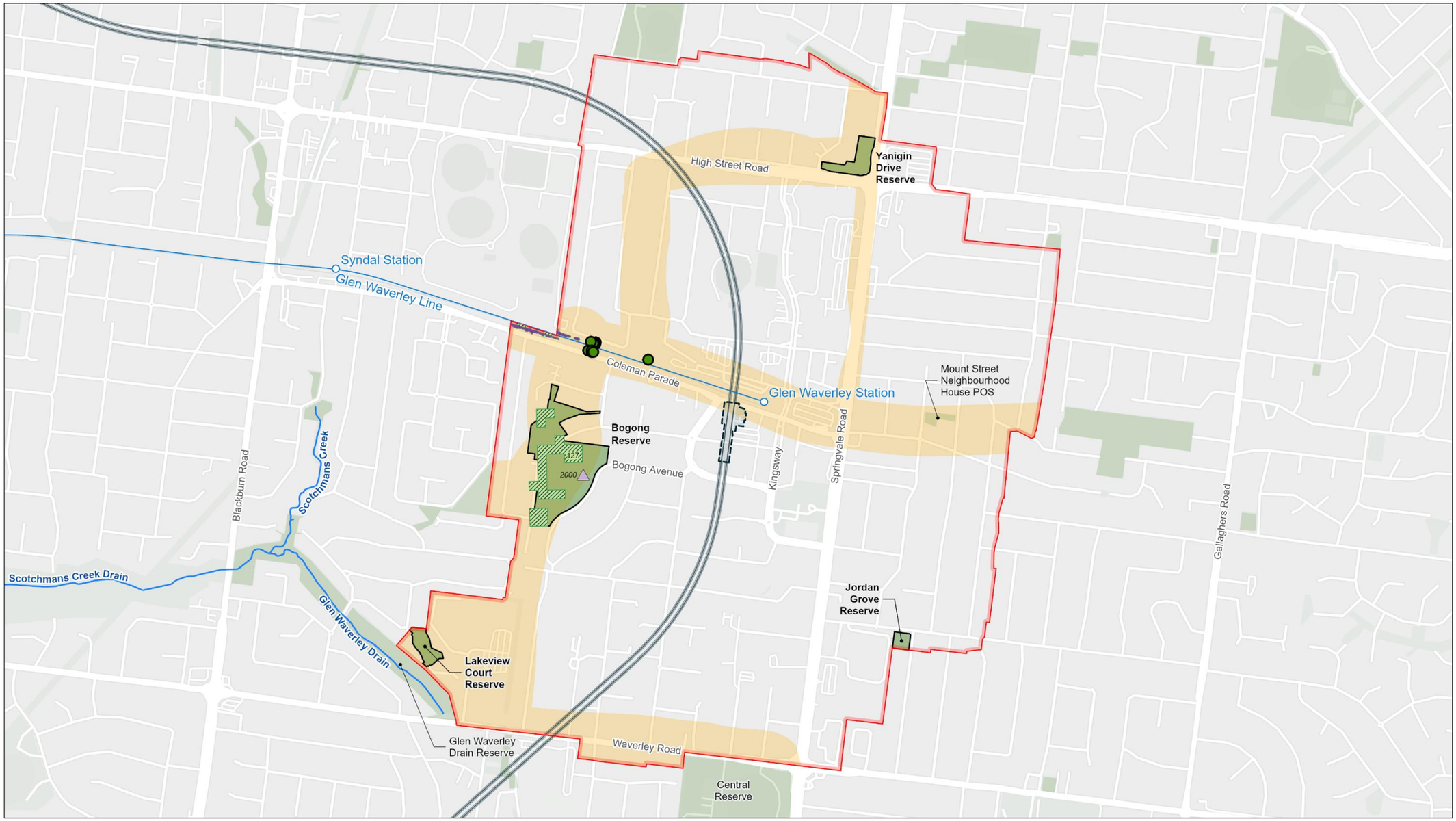
Other recommendations

- Align with *Monash Urban Biodiversity Strategy* initiatives to improve open space, streetscapes and community areas – this includes investigating potential to expand areas of bushland regeneration, working with other authorities to improve biodiversity, and contributing to the development of a Biodiversity Corridor Plan

- Consider removing non-porous surfaces and replacing with natural swales that support native vegetation and connect to the Scotchmans Creek Trail.

- Support municipal street and public open space planting strategies to meet canopy coverage targets and ensure 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.



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

Ecology Data

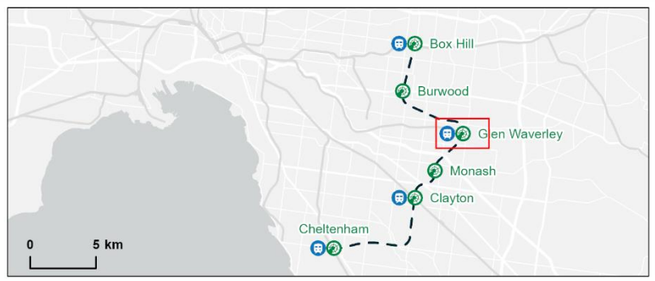
Native Patch (AJM Data)
127 Valley Heathy Forest

Native Scattered Trees (AJM Data)
Native Scattered tree

Modelled Ecological Vegetation Class (DEECA)
127 Valley Heathy Forest

Victorian Biodiversity Atlas (VBA) Threatened Fauna (DEECA)
Superb Parrot

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



Suburban Rail Loop
Glen Waverley
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 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 this report

This technical report will inform the development of the Draft Glen Waverley Structure Plan (Glen Waverley Structure Plan) to guide land use planning and development in the Structure Plan Areas of SRL East.

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 Glen Waverley 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.

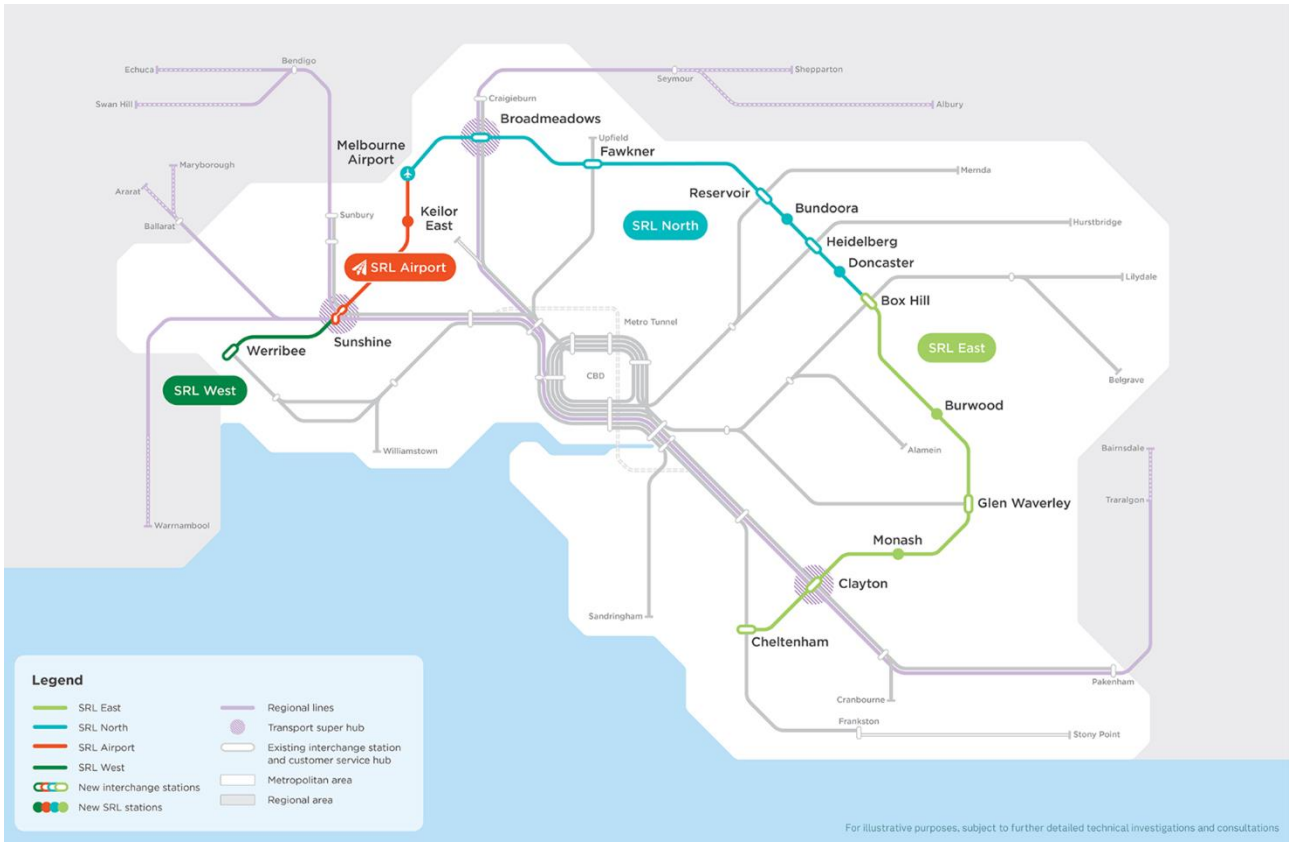

FIGURE 1.1 SRL EAST CONTEXT IN MELBOURNE'S RAIL NETWORK

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.

A planning scheme amendment will be required to implement the Glen Waverley Structure Plan into the planning scheme of the city of Monash.

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 areas for the technical assessment were 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 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 4th 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 5.1.2.

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

LIKELIHOOD OF OCCURRENCE	CRITERIA
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.
	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 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:

- Monash Planning Scheme – Schedule 1 to the Vegetation Protection Overlay

- *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:

- Information from the desktop research is limited to the time the data was obtained (4th October 2024) and so should be considered as indicative only. No field assessment was completed to verify the results of the desktop assessment.
- Victorian Biodiversity Atlas (VBA) data relating to threatened species varies depending on the number of previous surveys undertaken and the ability to readily observe species. In the case of fauna, species move around the landscape and can be in hidden or cryptic locations, so while they potentially use 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:

- 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 - Glen Waverley* (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 contained in this report consider the recommended initiatives of the *SRL East Draft Structure Plan - Urban Design Report – Glen Waverley* (AJM-JV 2025a), in 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 – Glen Waverley* (AJM-JV 2025a).

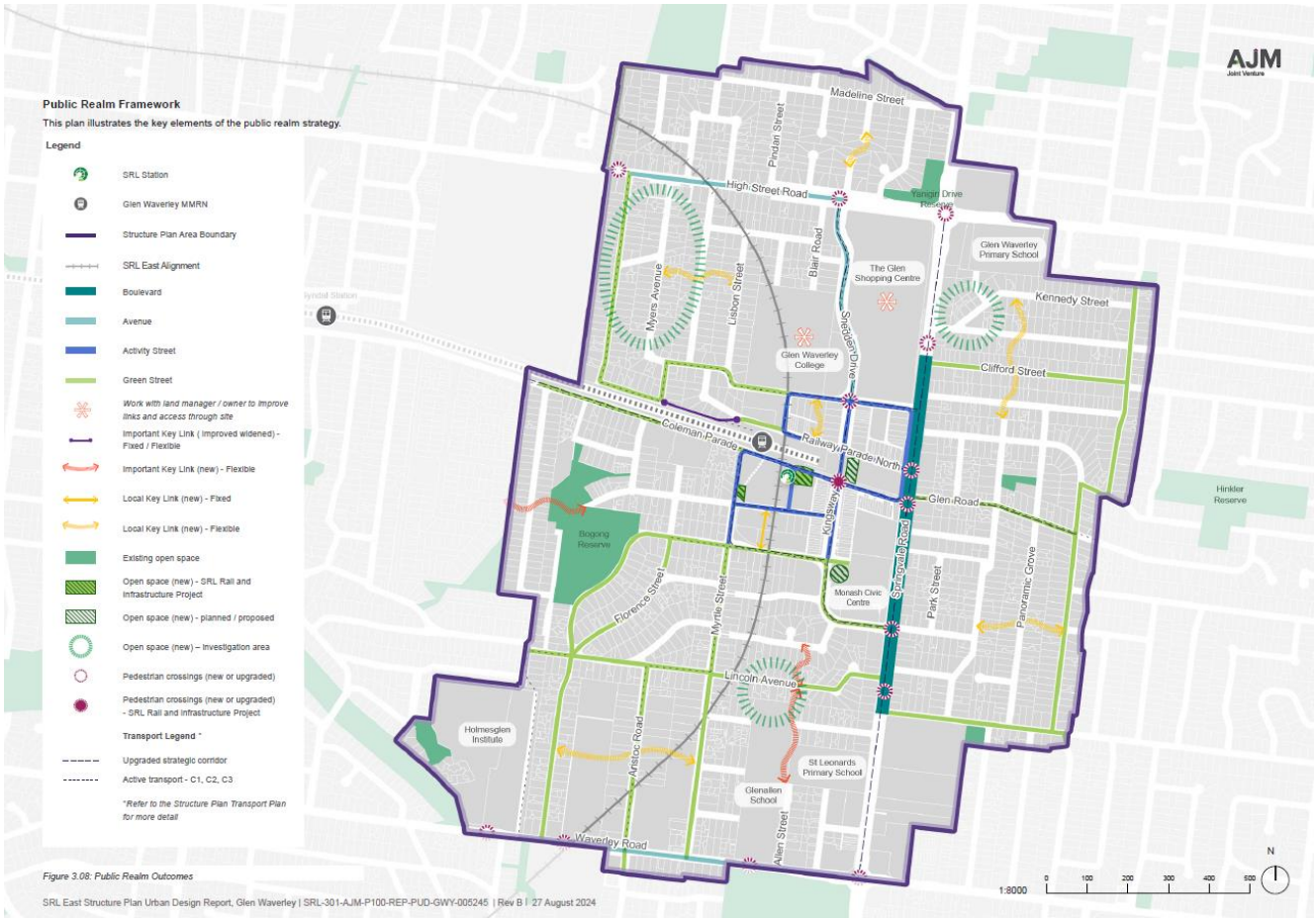

FIGURE 2.1 PUBLIC REALM FRAMEWORK SHOWING OPEN SPACE AND GREEN STREETS (AJM-JV 2025b)

2.4.2 LANDSCAPE HERITAGE

Trees subject to protection under the Heritage Overlay, including sites included on the Victorian Heritage Register, are included in the *SRL East Draft Structure Plan - Historical Heritage Technical Report* (AJM-JV 2025b). This report identifies a Large Bunya Pine (*Araucaria bidwillii*) located at 8 Mount Street, Glen Waverley (HO54) and 356 – 380 Springvale Road, Former Glen Waverley Primary School (HO73) as heritage places which include 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 considered in more detail in the *SRL East Draft Structure Plan – Integrated Water Management Strategy* (AJM-JV 2025c).

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

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

2.4.4 SUSTAINABILITY AND CLIMATE CHANGE

The *SRL East Draft Structure Plan - Climate Response Plan – Glen Waverley* (AJM-JV 2025d) notes that Glen Waverley is impacted by high heat in the Activity Centre which is corelated with low canopy cover and a lack of public open space.

The Glen Waverley 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 five public open space areas in the Structure Plan Area 59,256 m^2, all owned and managed by Monash City Council. All sites are listed in Table 2.3. Importantly, the areas of open space in the Structure Plan Area are limited and separated with barriers with little to no habitat connectivity to facilitate the movement of wildlife. Notably, these open spaces primarily include support recreational facilities, grassed areas and parks and comprise little to no native vegetation or ecological values considered to provide high quality habitat for native flora and fauna. As such, there is an opportunity to enhance and/or transform these spaces listed below to encourage and facilitate biodiversity in the Structure Plan Area.

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 STRUCTURE PLAN AREA OPEN SPACE CLASSIFICATIONS

PUBLIC OPEN SPACE	CURRENT CONDITION AND PRESENT VALUES	AREA (M2)
Bogong Reserve	Community Park supporting patches of treed vegetation, understorey shrubs and areas of open mown lawn.	43,423
Jordan Grove Reserve	Community Park with several medium sized non-native planted trees over mown lawn.	2069
Lakeview Court Reserve	Long linear Nature Park supporting dense patch of treed vegetation and understorey plants.	4781
Mount Street Neighbourhood House POS	Linear Park supporting planted street trees over mown grass.	1989
Yanigin Drive Reserve	Nature Park supporting patches of treed vegetation, understorey shrubs and areas of open mown lawn.	6993
Total		59,256

As documented in the Open Space Assessment, in addition to retaining and enhancing the current areas of open space in the Structure Plan Area, a total of five sites comprising new open spaces have the potential to provide additional biodiversity benefits. These are provided 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 Glen Waverley SRL East neighbourhood.

3.1 Glen Waverley Structure Plan Area

The Glen Waverley Structure Plan Area surrounds the SRL station at Glen Waverley in the City of Monash.

It is generally bordered by residential properties along Madeline Street to the north, Danien Street and The Outlook to the east, Waverley Road to the south and Kinnoull Grove and Rose Avenue to the west.

Coleman Parade and the existing Glen Waverley Line intersect the centre of the Structure Plan Area in an east-west alignment.

Key arterial roads include Springvale Road which intersects the Structure Plan Area in a north-south alignment, and High Street Road and Waverley Road.

The Structure Plan Area is shown in Figure 3.1.

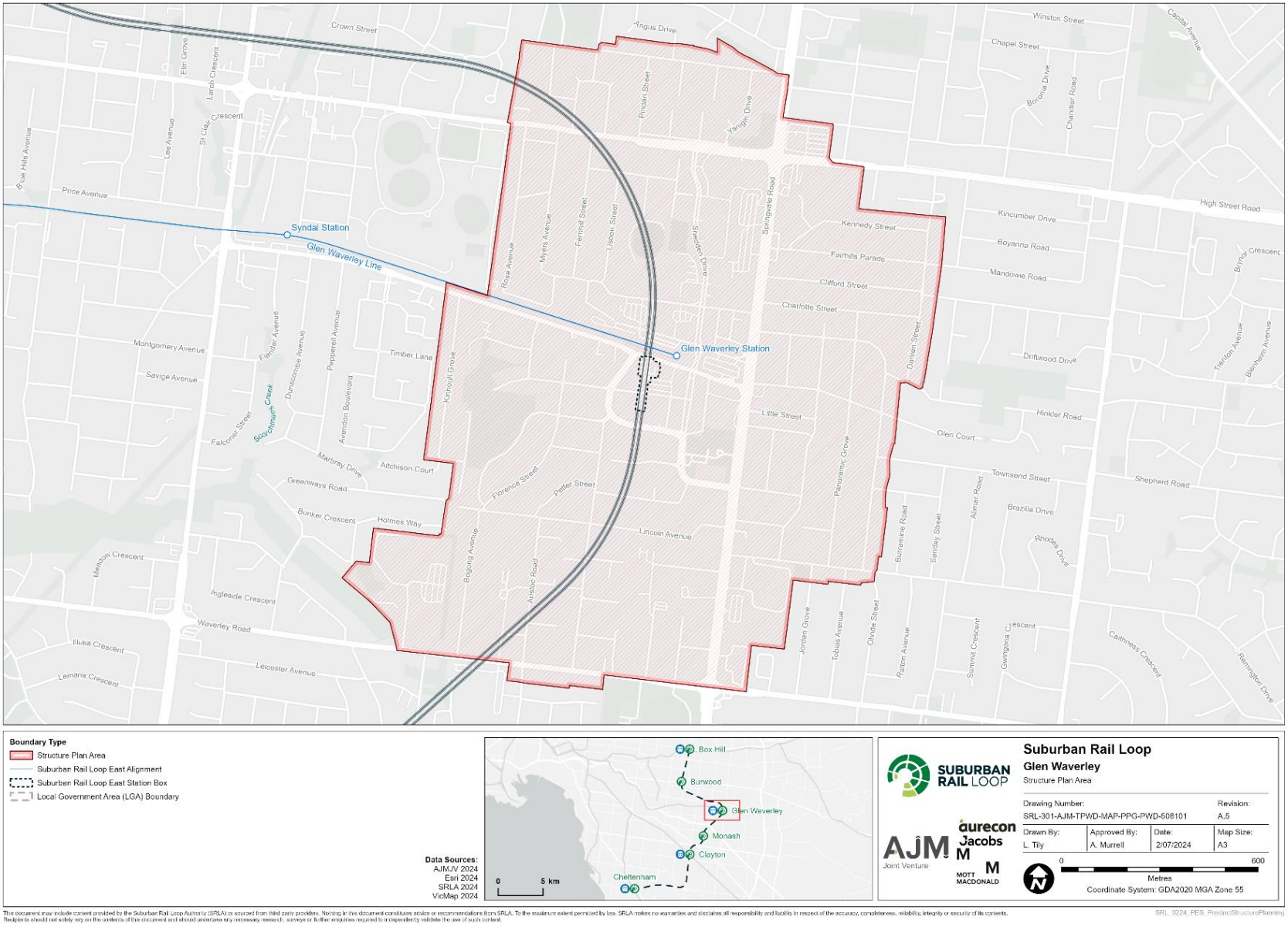

FIGURE 3.1 GLEN WAVERLEY STRUCTURE PLAN AREA

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

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 MONASH PLANNING SCHEME

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

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.

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.

4.3.1.1 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).

4.3.1.1.1 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. The occurrences of most threatened flora and fauna species mapped are located primarily within reserves zoned PPRZ. Any planning permit for buildings and works on PPRZ land must be accompanied by written consent from the public land management.

4.3.1.2 Relevant planning overlays

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

Within the City of Monash these are primarily implemented through the Vegetation Protection Overlay (VPO). Trees subject to tree controls in the schedule to the Heritage Overlay are considered in the Historical Heritage Technical Report.

4.3.1.2.1 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 (VPP Practice Note PPN07 *Vegetation protection in urban areas* (PPN07)). 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 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.

4.3.1.3 Relevant Particular Provisions

4.3.1.3.1 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.

4.3.2 MONASH URBAN LANDSCAPE AND CANOPY VEGETATION STRATEGY

The *Monash Urban Landscape and Canopy Vegetation Strategy*, through a series of strategic objectives, seeks to protect and enhance Monash's preferred future landscape character and tree canopy cover, including responding to recognised urban character, climate change, biodiversity, public health and wellbeing and 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 both 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.

4.3.3 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.

4.3.4 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.

4.3.5 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.

4.3.6 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, including the City of Monash.

4.3.7 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 400 hectares of high-density urban space. The Structure Plan Area is heavily modified from its natural state, with much of the land now occupied by The Glen Shopping Centre and the existing Glen Waverley Station, as well as main roads and residential housing in the surrounding landscape.

As a result of previous land disturbance and clearing, almost all remnant vegetation has been cleared within the Structure Plan Area. Remnant native vegetation remains along the rail corridor and at Bogong Reserve approximately 600 metres east of the existing Glen Waverley Station. This reserve comprises an isolated woodland area, providing potential but limited native fauna habitat.

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

5.1.1 NATIVE VEGETATION

Four pre-1750 modelled vegetation communities occur within and surrounding the Structure Plan Area: Grassy Woodland (EVC 175); Valley Heathy Forest (EVC 127); Swampy Riparian Complex (EVC 126); and Swampy Woodland (EVC 937).

The current (2005) modelled vegetation layer for the Structure Plan Area indicates the site is almost cleared of remnant native vegetation (DEECA 2024b), as shown in Figure 5.2. This is supported by a review of aerial imagery which confirmed the majority of the Structure Plan Area is heavily modified due to development and urbanisation. Based on current suburban and commercial land use of the Structure Plan Area, it is considered much of the vegetation identified in aerial reviews consists of non-native street plantings, rehabilitated public parks comprising indigenous and non-indigenous native plants, and well-maintained private and public gardens.

Despite the heavily modified nature of the Structure Plan Area, patches of Valley Heathy Forest (EVC 127) were identified along the rail corridor and at Bogong Reserve, east of the existing Glen Waverley Station.

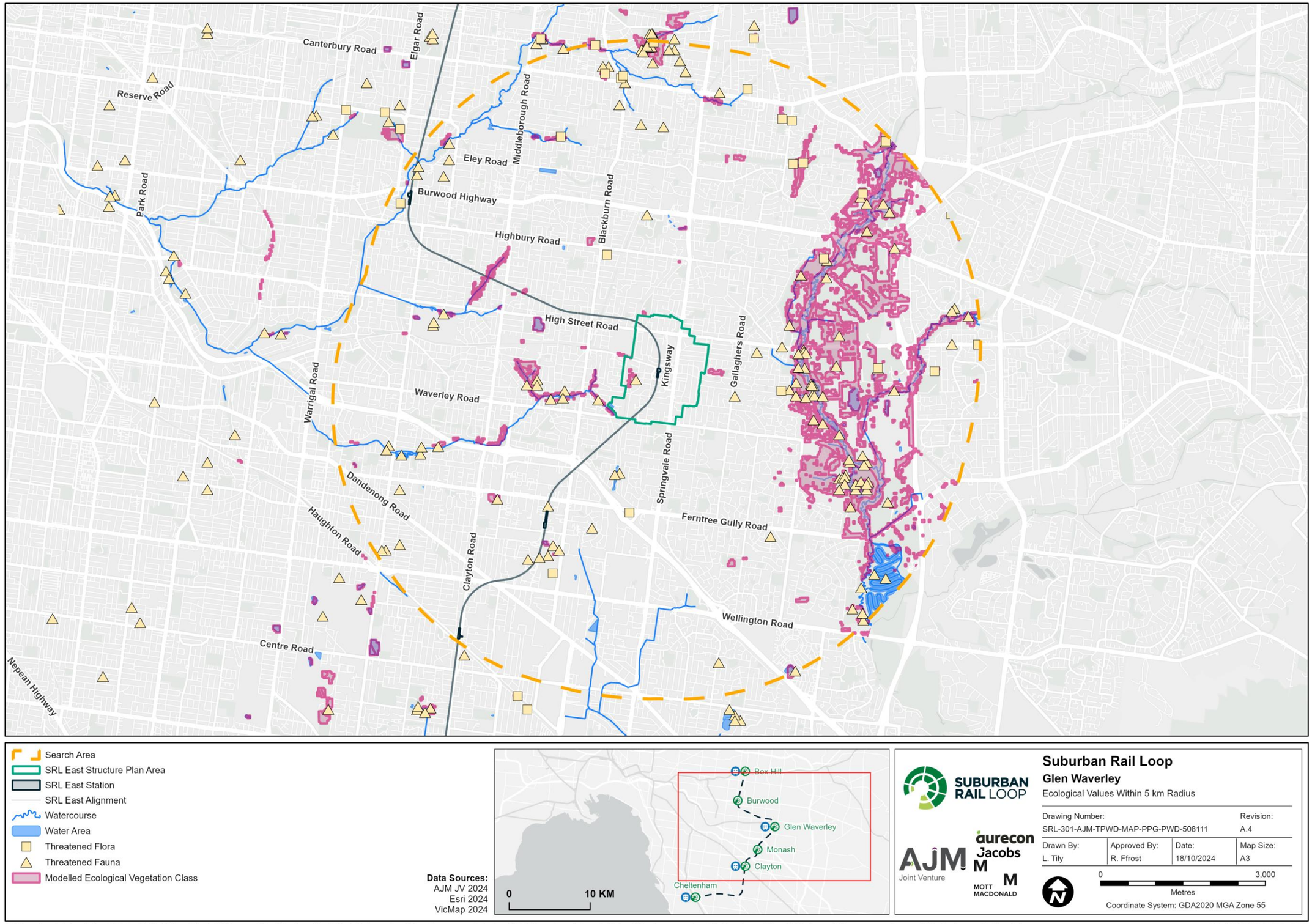

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FIGURE 5.1 SUMMARY OF ECOLOGICAL VALUES (NATIVE VEGETATION AND LISTED THREATENED SPECIES) IN 5-KM SEARCH AREA

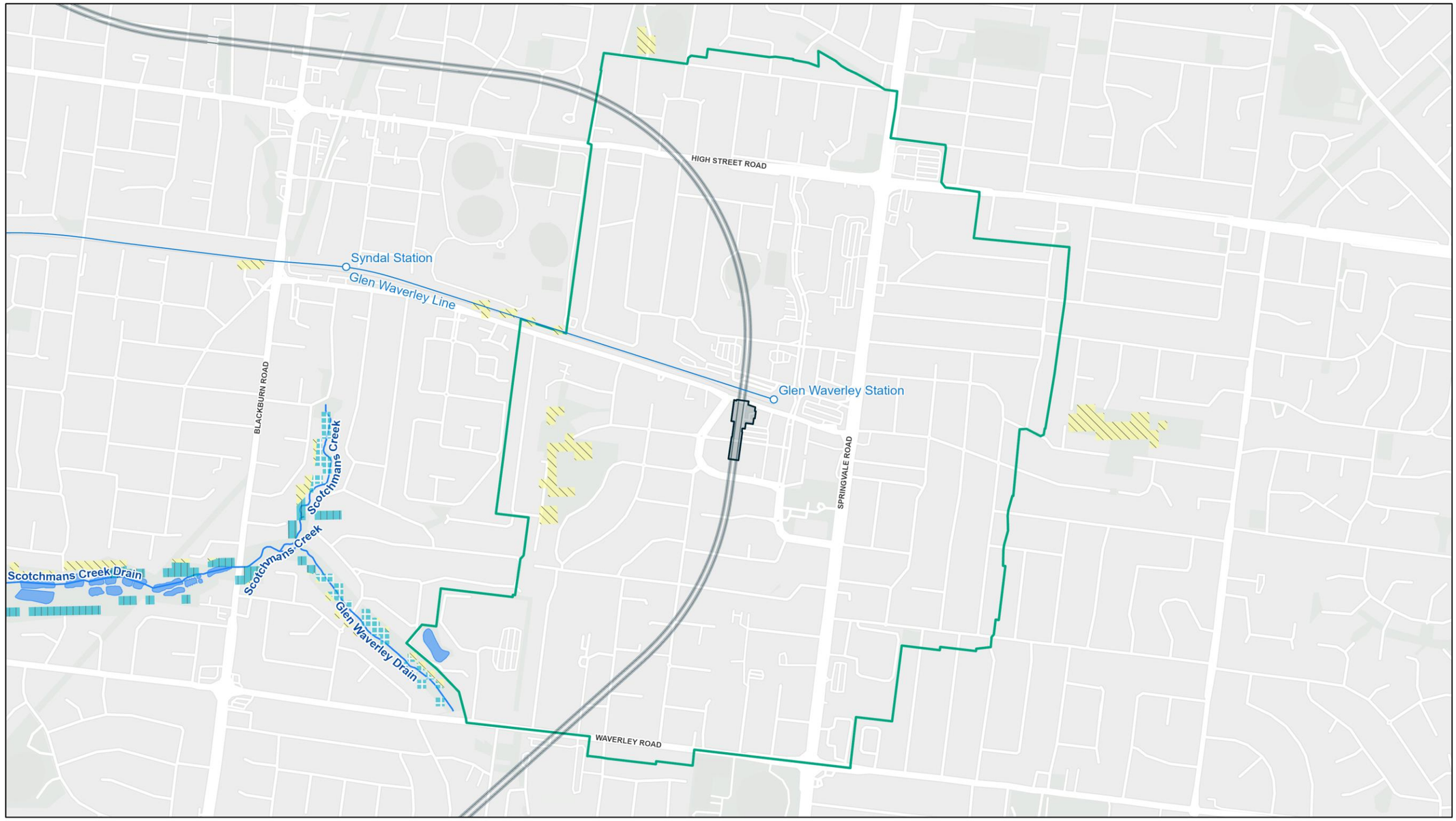

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FIGURE 5.2 MODELLED NATIVE VEGETATION IN STRUCTURE PLAN AREA

5.1.2 THREATENED SPECIES AND COMMUNITIES

5.1.2.1 Threatened flora

The review of the relevant databases (PMST and VBA) identified 40 listed threatened flora species, 26 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 occurring in the Structure Plan Area is provided in Appendix B. Threatened flora previously recorded in the Structure Plan Area is mapped in Figure 5.3.

The database search identified eight threatened flora species as occurring in the last five years and in the 5-kilometre search area. This includes Spotted Gum (*Corymbia maculata*), Giant Honey Myrtle (*Melaleuca armillaris subsp. armillaris*), Yarra Gum (*Eucalyptus yarraensis*), Snowy River Wattle (*Acacia boormanii*), Mugga (*Eucalyptus sideroxylon subsp. sideroxylon*), Veined Spear-grass (*Austrostipa rudis subsp. australis*), Floodplain Fireweed (*Senecio campylocarpus*) and Sticky Wattle (*Acacia howittii*). Most threatened flora species are likely planted given the 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.

The findings of previous ecological assessments indicated three threatened flora species having a moderate likelihood of occurring in the Structure Plan Area, each having potential habitat in mapped patches of Valley Heathy Forest (EVC 127):

- Green-striped Greenhood (*Pterostylis chlorogramma*) (Endangered)
- Floodplain Fireweed (*Senecio campylocarpus*) (Endangered)
- Veined Spear-grass (*Austrostipa rudis subsp. australis*) (Endangered).

5.1.2.2 Threatened fauna

The review of the relevant database (PMST and VBA) identified 72 threatened and/or migratory fauna species (including 47 birds, 1 crustacean, 6 fish, 2 frogs, 1 invertebrate, 10 mammals and 5 reptiles). Details of the habitat requirements of each species and an analysis of their likelihood of occurring in the Structure Plan Area is provided in Appendix B. Of the 72 threatened fauna species considered to occur in the Structure Plan Area, 46 have previously been recorded in the 5-kilometre search area.

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

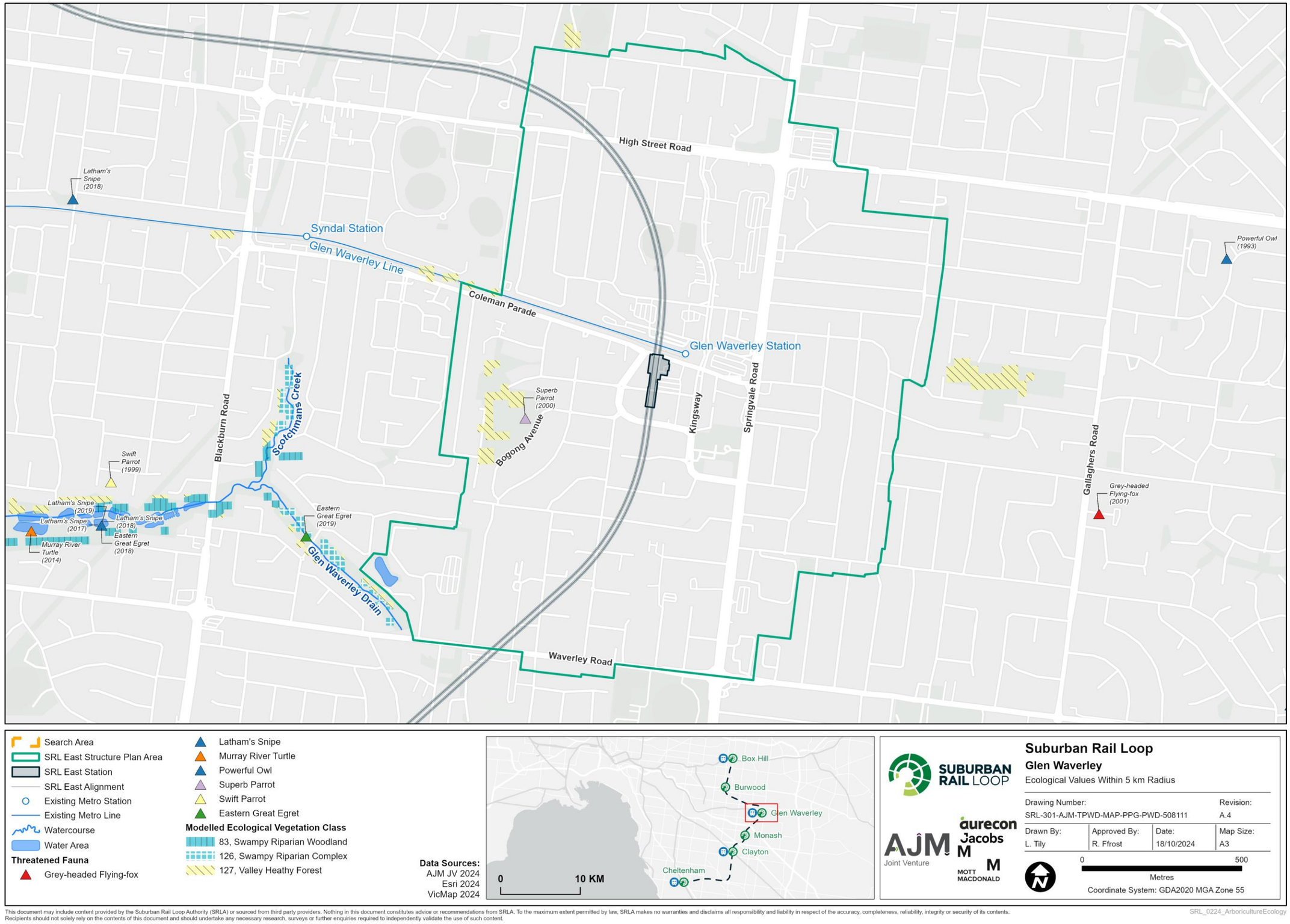
Based on the assessment provided in Appendix B, it has been determined that one EPBC Act and/or FFG Act-listed fauna species, the Powerful Owl, has a moderate to high likelihood of occurring in the Structure Plan Area due to potentially suitable habitat in Bogong Reserve, woodland vegetation in the rail reserve and surrounding planted vegetation (see 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		
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

Legend CR = critically endangered, EN = endangered, VU = vulnerable

While there are a high number of records of Powerful Owl (*Ninox strenua*) in the 5-kilometre search area, nearly all previous records are from Shepherds Bush (approximately 1 km east of the Structure Plan Area), where an adult pair are known to reside. The lack of suitable high-quality habitat features in the Structure Plan Area results in a moderate likelihood of this species occurring in the Structure Plan Area.



SRL_0224_ArboricultureEcology

FIGURE 5.3 THREATENED FLORA AND FAUNA RECORDED IN STRUCTURE PLAN AREA

5.1.2.3 Threatened ecological communities

EPBC Act-listed ecological communities

Two EPBC Act-listed threatened ecological communities were listed in the PMST as known or likely to occur in the 5-kilometre search area (DCCEEW 2024a): Natural Damp Grassland of the Victorian Volcanic Coastal Plains; and White Box-Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland. An assessment against the listing criteria for each EPBC Act-listed threatened ecological community 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 much of the ground layer at Glen Waverley has been entirely cleared of native vegetation and has been replaced by infrastructure. Areas where vegetation exists is primarily comprised of slashed fields and parks, likely dominated by introduced grasses. As no suitable habitat features or diagnostic characteristics were noted during the desktop assessment, **it is considered this community is 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). 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

Based on the heavily modified site condition and lack of modelled native vegetation within and surrounding Glen Waverley, it is considered unlikely that any FFG Act-listed ecological communities occur in the Structure Plan Area.

5.1.3 PREVIOUS REPORTS

Previous ecological field assessments limited to discrete locations in the Structure Plan Area determined a highly built-up environment comprising heavily modified streetscapes, commercial properties, hard concreted surfaces, and carparking infrastructure.

The Structure Plan Area includes many open grassy fields and parks primarily used for recreation and sporting activities, vegetation is characterised by a mix of native and non-native planted amenity trees and non-native garden beds (AJM-JV 2021d). Commonly planted specimens in the Structure Plan Area included Brush Box (*Lophostemon confertus*). Garden beds alongside paths and in carparking areas are comprised of tanbark or introduced species, including Diosma (*Coleonema pulchellum*), Dietes (*Dietes grandiflora*), Spiny-head Mat-rush and Dwarf Nandina (*Nandina domestica*).

Previous ecological assessments recorded 0.706 hectares of Valley Heathy Forest (EVC 127) and 12 scattered trees in the rail reserve east of the existing Glen Waverley Station (Figure 5.4).

One flora species listed under the FFG Act, Giant Honey-myrtle (*Melaleuca armillaris* subsp. *armillaris*) was planted in the Structure Plan Area. Where species are planted, they are exempt from the protections of the FFG Act. In addition, the location of this species in the Structure Plan Area is well outside the natural distribution of this species.

While one groundwater depending ecosystem (GDE) was identified at Callaghan Avenue, the site is considered to support minimal ecological values based on lack of remnant native vegetation and current land use (AJM-JV 2021a).

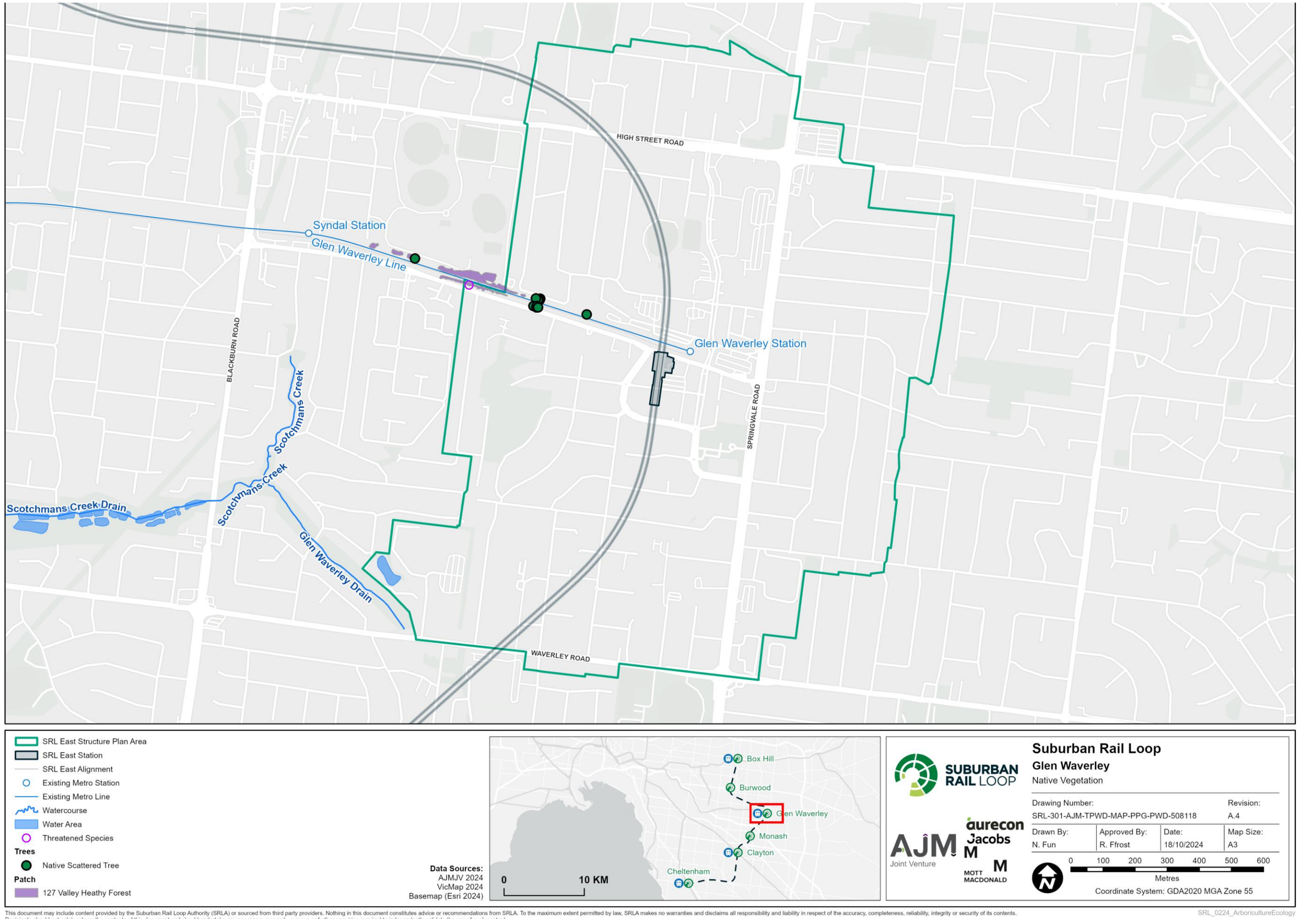


FIGURE 5.4 NATIVE VEGETATION PREVIOUSLY RECORDED IN STRUCTURE PLAN AREA

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 identifies the 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(S)	ENVIRONMENT AND LANDSCAPE PLANNING OVERLAYS
Valley Health Forest (EVC 127) native vegetation	49 to 77 Bogong Avenue, Glen Waverley 3150 Bogong Reserve	Public Park and Recreation Zone The northern patch in Bogong Reserve is on land subject to the General Residential Zone (Schedule 2)	N/A

Table 5.3 confirms the 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. It is common for land located within a Public Park and Recreation Zone to not be affected by such overlays due to the 'public' purpose of the zone. As outlined in Section 4.3.1.3.1, 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 well-treed residential precincts, with much more intensively developed and relatively sparsely treed commercial areas in the Glen Waverley Activity Centre, commercial premises on Springvale Road near Waverley Road, as well as light industrial precincts along Aristoc Road and Myrtle Street in the south of the Structure Plan Area.

5.2.1 CANOPY COVER

The Structure Plan Area supports 290,000 m^2 of tree canopy, which equates to 12 per cent tree canopy cover in the overall Structure Plan Area compared to 22 per cent canopy cover for the municipality overall, as cited in the *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 residential properties and streetscapes support over twice as much canopy cover. Residential land supports 11.9 per cent of canopy cover compared to 5 per cent for commercial and industrial land. Other land uses in the Structure Plan Area, which includes parks and gardens, schools, Holmesglen TAFE and the road zone, support 20.4 per cent canopy cover.

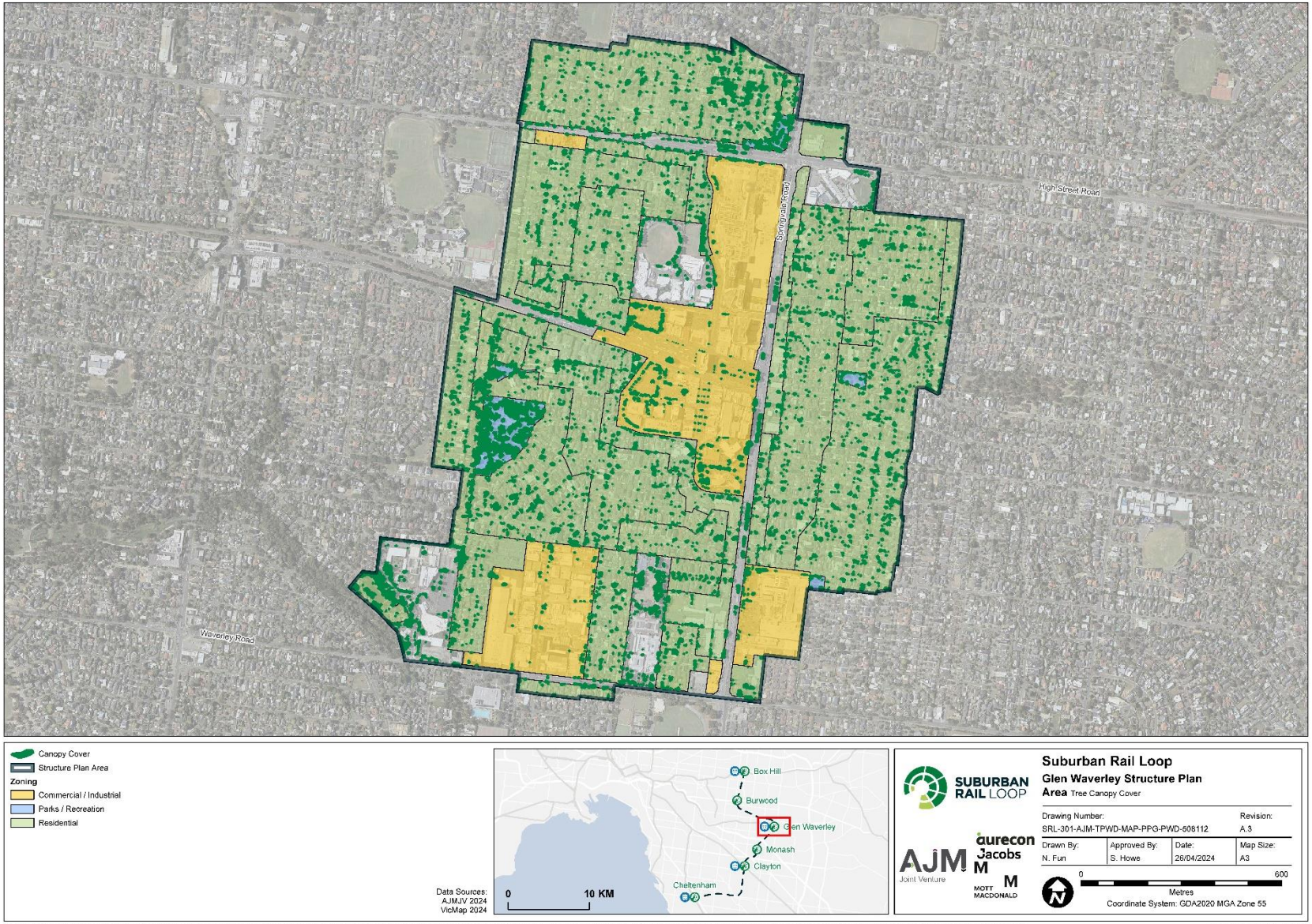


FIGURE 5.5 TREE CANOPY COVER IN STRUCTURE PLAN AREA

5.2.2 IDENTIFICATION OF SIGNIFICANT TREES

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, specifically an Araucaria (*Araucaria* sp) located at 8 Mount Street Glen Waverley (HO54) as well as other heritage sites included in the heritage overlay where tree controls apply (see Section 2.4.2).

5.2.3 TREE PROTECTION AREA

Residential precincts north of High Street Road and east of Springvale Road are subject to protection under VPO1 that applies as part of the Monash Planning Scheme. The extent of VPO1 is shown in Figure 5.6.

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.

5.2.4 OTHER NOTABLE AVENUE PLANTATIONS/PARKS AND GARDENS

In addition to trees within VPO1 land, notable and mature tree plantings are noted at the following locations:

- Bunker Lake and Ironbark Forest and adjacent residential precinct
- Glenallen School
- Glen Waverley High School
- Yanigin Drive Reserve.

Land proximal to the existing Glen Waverley Station and the Kingsway commercial precinct was assessed as part of the SRL East Environment Effects Statement (EES). Street tree plantings are comprised of Australian native and deciduous, exotic plantings of small to medium scale. Assessments undertaken for station interchange and early works outside the EES boundary, revealed similar landscape qualities, except for the Glen Waverley rail corridor, which also contained areas of indigenous trees and substantial (weedy) Monterey Pines (*Pinus radiata*).

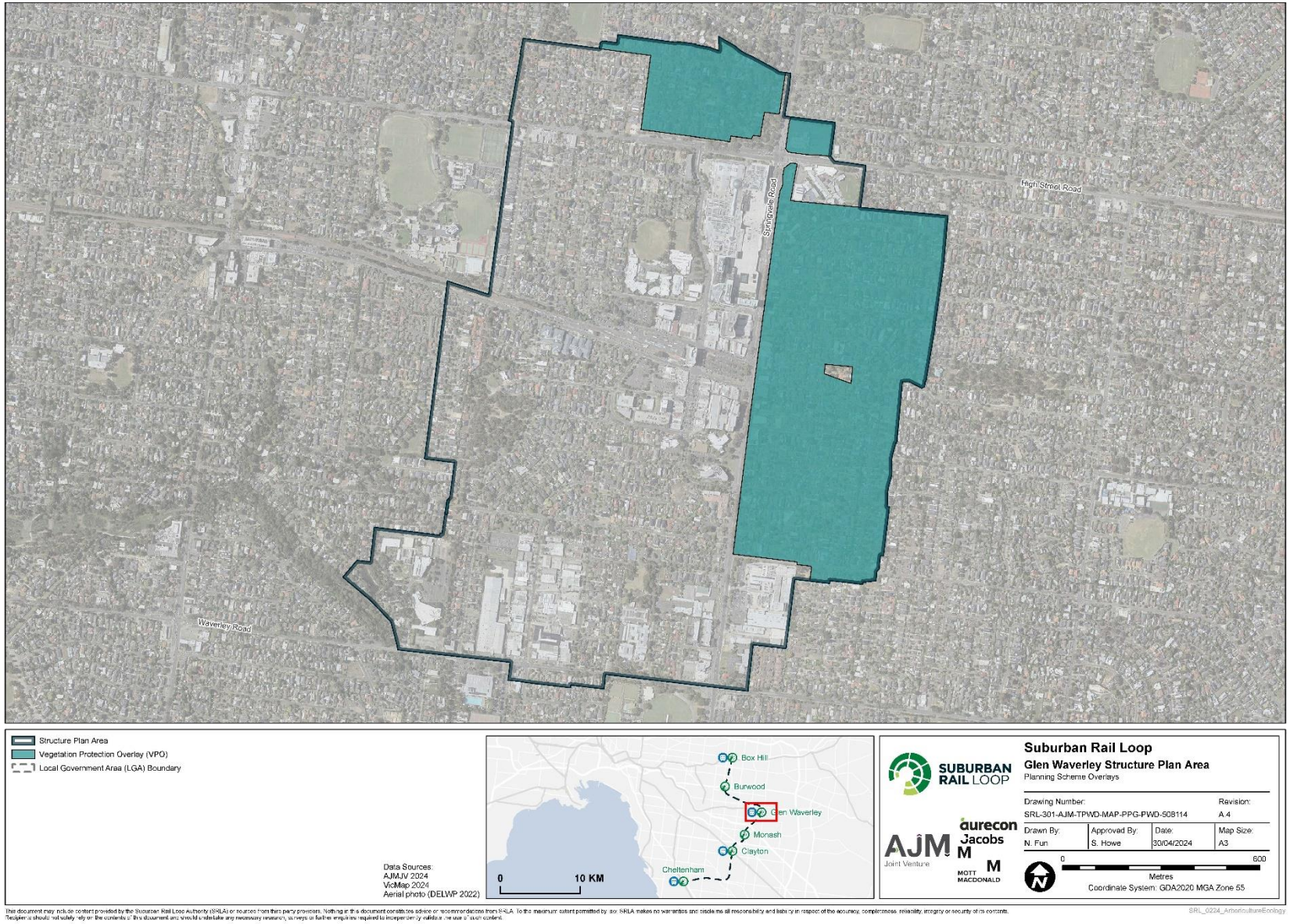


FIGURE 5.6 LAND SUBJECT TO VPO1 IN STRUCTURE PLAN AREA

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 (EPR AR3), as well as implementation of a Tree Canopy Replacement Plan to mitigate against the 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

The Structure Plan Area comprises a highly modified and developed environment, exclusively dominated by The Glen Shopping Centre, Glen Waverley Secondary College, commercial and residential areas.

The Structure Plan Area is unlikely to contain or support threatened species or threatened ecological communities, other than isolated and discrete remnants along the Glen Waverley rail corridor and Bogong Reserve. The reserves are the only two areas to have known or modelled remnant native vegetation present. These areas exist as isolated reserves in the broader developed landscape and provide habitat for foraging and refuge for native fauna.

The Structure Plan Area does not contain significant habitat corridors or linked habitat from adjacent landscapes to encourage the movement and dispersal of native fauna.

6.1.1 ISSUES

The Structure Plan Area is almost exclusively comprised of disturbed land dominated by residential housing, roads and infrastructure. It contains extensive areas of planted vegetation comprising a mix of native, non-indigenous and introduced flora. Significant urban pressures present several challenges for biodiversity occurrence and use in the Structure Plan Area. These issues include:

- Limited spaces for existing natural environments with large spaces prioritised for community and recreation uses and not considered to cater for biodiversity. Increased population pressures and development of the Structure Plan Area will further reduce the availability and quality of open space for biodiversity over the long term and impact council objectives and policies that aim to retain and enhance existing biodiversity values.
- Heavy reliance on motor vehicles increasing the risk of road kill and injury to wildlife and limiting opportunities for wildlife corridors, particularly major roads such as Springvale Road and High Street Road.
- Dominance of non-native and/or European 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.

- 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 tree canopy cover connectivity, and very limited or no understorey habitat.
- 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.
- 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:

- Existing open public spaces provide opportunities to meet Monash and State Government policy to increase biodiversity and the community's connection with nature through increasing the cover of native vegetation, including native canopy trees and native understorey to provide habitat for biodiversity.
- Proposed new open spaces recommended for the Structure Plan Area provide an opportunity to increase the cover and abundance of native trees and understorey.
- Align with *Monash Urban Biodiversity Strategy* to link new and potential open spaces through habitat corridors within the Structure Plan Area. This should include private properties that occur between open spaces, which aligns with State Government policy to increase interaction with nature.
- While not within the Structure Plan Area, Dandenong Creek provides a significant habitat corridor in the landscape. Habitat corridors within the Structure Plan Area could be aligned to the direction of Dandenong Creek and surrounding reserves. There is an opportunity to support the City of Monash to connect this landscape feature to the inner suburbs of the Structure Plan Area.

6.2 Arboriculture

The Structure Plan Area comprises a mix of residential areas and commercial zoned land around the Activity Centre, Aristoc Road and Springvale Road. Overall, the tree canopy cover is at 12 per cent in the overall Structure Plan Area compared to 22 per cent canopy cover in Monash the local government area overall.

The Monash VPO1 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 residential areas east of Springvale Road, and residential land in the north-east of the Structure Plan Area.

Trees on Council-managed land including parks and gardens and public roads are managed in accordance with the Monash Tree Management Policy.

6.2.1 ISSUES

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

- 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 and the loss of trees)

- Impacts to street trees and loss of canopy cover due to reconfigured road networks, infrastructure upgrades, parcel access as a consequence of loss of tree canopy cover.

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 the Monash VPO1 which seeks to protect treed environments and ensure that new development complements the Garden City Character of the neighbourhood would likely be redundant.

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 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 to be implemented as part of new development

- Support municipal implementation of street and public open space planting strategies that seek to:
  - » Increase urban tree canopy cover to improve the overall amenity and environmental values.
  - » Increase species diversity in tree and plant selection to improve resilience, especially in consideration of climate change.

With the 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 any urban canopy tree targets. Contributions to public tree planting conditions, in addition to planting more trees in the public realm, will assist in compensating for loss of canopy cover from private land.

The ability to accommodate new tree plantings on private land will depend on the nature of future zoning implemented as part of the Glen Waverley Structure Plan, 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 Glen Waverley 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 Plan

1. Promote the concept of habitat corridors that link new and existing open spaces with known habitat corridors in the wider landscape, in accordance with Plan Melbourne 2017-2050 *Direction 6.5 and Policy 6.5.1.* For example, connecting habitat between the Glen Waverley Drain (Scotchmans Creek) and Bogong Reserve. 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. 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 nectivorous species). Revegetation with a diversity of flowering native trees, shrub, herb and grass species will provide a cooler urban environment whilst promoting habitat and foraging opportunities for native fauna. Refer to Table 7.1 that includes and summarises potential activities in new and existing open spaces.

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

3. Support the City of Monash Urban Biodiversity Strategy 2018 -2028 by reducing biodiversity threats, retaining all trees and fauna habitat in proposed and existing open spaces, particularly old hollow-bearing trees and protect remnant vegetation within the Structure Plan Area.

4. Support the implementation of local government biodiversity strategies, including by implementing actions that align with the Monash *Urban Biodiversity Strategy* and its related sustainability programs such as the Green Shoots Program, Skink Link Project along Scotchmans Creek, and Gardens for Wildlife. This includes:

    a. Increasing community understanding, active engagement and appreciation of biodiversity in the local area;

    b. Enhancing biodiversity through revegetation and protection of habitat;

    c. Prioritising sites where habitat connectivity and corridors can be enhanced.

5. Support existing and new tree plantings to increase canopy cover in accordance with the Monash Urban Landscape and Canopy Vegetation Strategy and Living Melbourne, endorsed by 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. Examples of this outlined in the City of Monash Urban Biodiversity Strategy include wetlands, swales, litter traps, sediment traps and rain gardens to increase access to water and improve quality.

TABLE 7.1 RECOMMENDATIONS FOR BIODIVERSITY IN PUBLIC OPEN SPACE

LOCATION	STATUS	PROPOSED CLASSIFICATION AND APPROX SIZE	RECOMMENDATION FOR BIODVIERSITY IMPROVEMENTS
Around Lincoln Avenue	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Potential new open space between Myers Avenue and Fernhill Street	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Potential new open space around Clifford Street and Charlotte Street	Proposed	Catchment: Pocket Function: Community Park Size: 1000 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Bogong Reserve	Existing	Catchment: Community Function: Community Park Size: 43,423 m2	• Separate of dog friendly and dog banned sections of Bogong Reserve. • Plant native trees that provide nectar resources for birds. • Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn. • Provide fauna nest boxes. • Consider options to extend Bogong Reserve to Scotchmans Creek Trail.
Jordan Grove Reserve	Existing	Catchment: Neighbourhood Function: Community Park Size: 2069 m2	• Remove impervious and concrete surfaces. • Revegetate site to consider and plant patches of diverse native plantings. • Plant native canopy trees in the proposed open space.
Lakeview Court Reserve	Existing	Neighbourhood Function: Nature Park Size: 4781 m2	• Plant native trees that provide nectar resources for birds. • Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn.
Yanigin Drive Reserve	Existing	Neighbourhood Function: Nature Park Size: 6993 m2	• Plant native trees that provide nectar resources for birds. • Revegetate understorey flowering vegetation for pollinators that replaces non-native lawn.

7.2 Other opportunities

- Align with *Monash Urban Biodiversity Strategy* initiatives to improve open space, streetscapes and community areas – this includes investigating potential to expand areas of bushland regeneration, working with other authorities to improve biodiversity, and contributing to the development of a Biodiversity Corridor Plan.

- Consider removing non-porous surfaces and replacing with natural swales that support native vegetation and connect to the Scotchmans Creek Trail.

- Support municipal street and public open space planting strategies to meet canopy coverage targets and ensure 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.

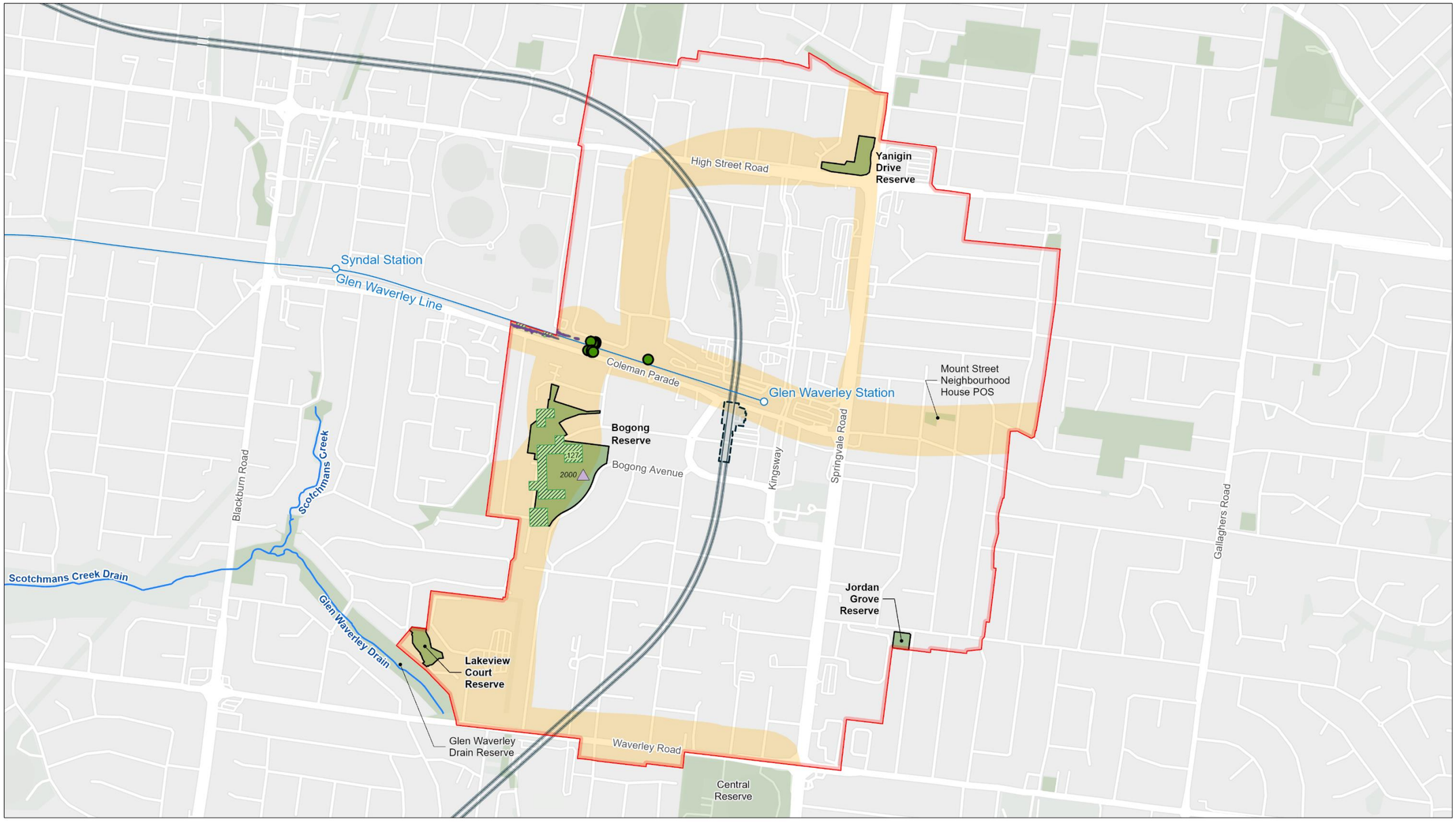


FIGURE 7.1 INDICATIVE HABITAT CORRIDORS IN THE STRUCTURE PLAN AREA

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Appendix A

Protected Matters Search Tool Report

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

Threatened Species Likelihood of Occurrence

TABLE B-1 LIKELIHOOD OF OCCURRENCE ANALYSIS FOR THREATENED FLORA IN THE 5-KM SEARCH AREA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC STATUS	FFG STATUS				
Thesium australe	Austral Toad-flax	VU	en	Although once widespread, only currently known from highland areas where associated with grasslands	0	PMST	Negligible - no previous records and lack of suitable habitat
Lepidium hyssopifolium s.s.	Basalt Peppercress	EN	en	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.	1	1977	Low – historical species record. The Structure Plan Area does not contain any preferred habitat
Caladenia flavovirens	Christmas Spider-orchid		cr	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.	1	2011	Low – the Structure Plan Area does not support any coastal scrubland
Glycine latrobeana	Clover Glycine	VU	vu	Widespread but of sporadic occurrence and rarely encountered. Grows mainly in grasslands and grassy woodlands	0	PMST	Negligible - no previous records and lack of suitable habitat
Eucalyptus bosistoana	Coast Grey-box		en	Occurs 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. Flowers Nov-Mar	1	2013	Negligible – lack of suitable habitat.
Acacia stictophylla	Dandenong Wattle		en	Restricted to the Dandenong Ranges where it is often locally common in the riparian zone on hillsides in tall forest and open woodland.	1	2017	Low – the Structure Plan does not contain any tall forest or high quality open woodland
Prasophyllum spicatum	Dense Leek-orchid	VU	cr	Localised across southern Victoria in coastal heathland and near-coastal heathy forest on sandy soils.	0	PMST	Negligible - no previous records and unlikely to occur in disturbed habitat within the Structure Plan Area
Senecio campylocarpus	Floodplain Fireweed		en	In Victoria mostly throughout central Victoria and in the north-east in loam to clay soils in forest and woodland, usually in seasonally inundated areas	1	2018	Moderate - suitable habitat occurs in the Structure Plan Area.
Caladenia robinsonii	Frankston Spider-orchid	EN	cr	Endemic to Victoria where currently known from 1 small extant population near Rosebud on the Mornington Peninsula in heathy near-coastal woodland on sandy soil.	1	1911	Negligible – the Structure Plan Area is located well

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC STATUS	FFG STATUS				
							beyond the known population of the species
Corybas fimbriatus	Fringed Helmet-orchid		en	Usually forming colonies on moist, shaded sandy soil near the coast and generally east of Western Port, but with isolated occurrences near Melbourne at Gembrook, Warrandyte and Greensborough.	1	1900	Low – the latest record is >100 years old and the Structure Plan does not contain any preferred habitat
Melaleuca armillaris subsp. armillaris	Giant Honey-myrtle		en	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. Commonly grown for ornament across Victoria, as a windbreak or street tree and sometimes giving rise to seedlings, particularly after fire	8	2020	Low - likely planted and outside natural distribution
Eucalyptus phenax subsp. phenax	Green-leaf Mallee		en	In Victoria, in mallee scrubs north from the Little Desert.	1	2001	Low - likely planted and outside natural distribution
Pterostylis chlorogramma	Green-striped Greenhood	VU	en	Apparently localized 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	0	PMST	Moderate - suitable habitat occurs in the Structure Plan Area
Thelymitra orientalis	Hoary Sun-orchid	CR		Grows in damp heathy flats and seepage areas usually in peaty white sands	0	PMST	Negligible - no previous records and lack of suitable habitat
Eucalyptus leucoxylon subsp. megalocarpa	Large-fruit Yellow-gum		cr	Coastal, from Robe to south of Mt. Gambier. Flowers May-Dec	1	2013	Low - likely planted and outside natural distribution
Senecio macrocarpus	Large-headed Fireweed	VU	cr	In Victoria largely confined to remnant Themeda grasslands on loamy clay soils derived from basalt from near Melbourne west to Skipton area. Also known from auriferous ground near Stawell. Formerly recorded from near Horsham and Casterton, but apparently long extinct from these areas }.	0	PMST	Negligible - no previous records and lack of suitable habitat
Pterostylis cucullata	Leafy Greenhood	VU		Widely distributed but disjunct, mostly occurring in small groups in coastal areas, sometimes near inland watercourses. Two subspecies have been assigned: subsp. culcutta is scattered in near coastal scrub, often on sand dunes and subsp. sylvicola is known from East Gippsland where it occurs along water courses among shrubs in tall forests, on rich loamy soils	0	PMST	Low - likely planted and outside natural distribution

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC STATUS	FFG STATUS				
Caladenia venusta	Large White Spider-orchid		en	In woodlands and heathy woodland west of Port Phillip Bay, usually coastal or subcoastal but also in the Grampians, on well-drained or moisture-retentive soils.	3	1941	Low – historical species record and the Structure Plan Area is outside the known distribution of the species.
Prasophyllum colemaniarum	Lilac Leek-orchid	VU		Known with certainty only by the type collection (1922) from grassy woodland near Bayswater, probably now extinct {Walsh, 1994, 92}.	0	PMST	Negligible - no previous records and lack of suitable habitat
Dianella amoena	Matted Flax-lily	EN	cr	Largely confined to drier grassy woodland and grassland communities south of the Dividing Range and now much depleted through its range	0	PMST	Negligible - no previous records and lack of suitable habitat
Eucalyptus leucoxylon subsp. connata	Melbourne Yellow-gum		en	The main concentration of E. leucoxylon subsp. connata 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	1	2011	Negligible – Structure Plan Area is outside known distribution
Thelymitra epipactoides	Metallic Sun-orchid	EN	en	Grows mostly in coastal heathland, grassland and woodland, but extending further inland into similar habitats in the western part of its range. Substrates may be moist or dry sandy soils. Flowers open freely on warm days Sep.–Nov .	0	PMST	Negligible - no previous records and lack of suitable habitat
Eucalyptus sideroxylon subsp. sideroxylon	Mugga		en	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	3	2018	Negligible – Structure Plan Area is well beyond the natural distribution of the species
Pterostylis pedoglossa	Prawn Greenhood		en	Scattered in coastal and near-coastal heath and grasstree plains east of Melbourne, often on moist peaty soils.	1	1931	Low – historical species record and Structure Plan Area is unlikely to support the species
Corymbia gummifera	Red Bloodwood		vu	In Victoria on flats and low hills near the sea, east from Wingan Inlet.	3	2018	Low – the Structure Plan Area is well beyond the known distribution of the species
Amphibromus fluitans	River Swamp Wallaby-grass	VU		Largely confined to permanent swamps, principally along the Murray River between Wodonga and Echuca, uncommon to rare in the south (e.g. Casterton, Moe, Yarram), probably due to historic drainage of wetlands {RBGV, 2016, 36}. Largely restricted in greater Melbourne to seasonal wetlands and mudflats of River Red Gum swamps of the	0	PMST	Negligible - no previous records and lack of suitable habitat

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC STATUS	FFG STATUS				
				Lower Yarra and Plenty/Merri volcanic plains north of Melbourne (Cam Beardsell pers. comm.).			
Acacia rupicola	Rock Wattle		en	Restricted in Victoria to rocky areas around Mt Arapiles and apparently the northern parts of the Grampians.	2	2017	Low – the Structure Plan Area is well outside the known distribution of the species
Pterostylis X ingens	Sharp Greenhood		vu	Favours moist areas around swamps and stream banks on heavy soils.	2	1946	Low – historical species record, no suitable habitat within the Structure Plan Area
Acacia boormanii	Snowy River Wattle		en	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 Myrtleford area. Occasionally sparingly established on roadside plantings, for example between Bungal and Mt Egerton. Plants previously regarded as a slow-growing dwarf variant of this species from the upper catchment of Little River near Wulgulmerang are now regarded to be a distinct species, A. infecunda	2	2019	Low - likely planted and outside natural distribution
Lepidium aschersonii	Spiny Peppercress	VU	en	Sprouts annually from perennial, relatively short-lived underground rootstock at periodically wet sites such as gilgai depressions and the margins of freshwater and saline marshes and shallow lakes, usually on heavy clay soils.	0	PMST	Low - likely planted and outside natural distribution
Corymbia maculata	Spotted Gum		vu	Grows naturally only in far east Gippsland within Victoria - Commonly planted street tree. Flowers Jul.–Sep	7	2020	Low - likely planted and outside natural distribution
Acacia howittii	Sticky Wattle		vu	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 (e.g. Daylesford, Greater Melbourne, Dandenong Ranges etc.) .	4	2018	Negligible – specimens likely planted
Eucalyptus X studleyensis	Studley Park Gum		cr	A naturally occurring hybrid found in Studley Park/Yarra Bend and along the Yarra Valley.	1	2001	Low - likely planted and outside natural distribution
Xerochrysum palustre	Swamp Everlasting	VU	cr	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	0	PMST	Negligible - no previous records and lack of suitable habitat
Senecio psilocarpus	Swamp Fireweed	VU		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 }.	0	PMST	Low - likely planted and outside natural distribution

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC STATUS	FFG STATUS				
Deschampsia cespitosa	Tufted Hair-grass		en	In Victoria, an uncommon grass of damp to wet alpine or subalpine grasslands with disjunct occurrences near Woodend, Colac and Dartmoor in the far south-west {RBGV, 2017, 37}.	1	1998	Low - likely planted and outside natural distribution
Austrostipa rudis subsp. australis	Veined Spear-grass		en	Uncommon, mostly in cool areas of southern Victoria. Usually at moderate altitude, in open-forest on sandy or sandstone-derived soils {RBGV, 2020, 524}.	2	2019	Moderate - suitable habitat occurs in the Structure Plan Area
Billardiera scandens s.s.	Velvet Apple-berry		en	Apparently uncommon in Victoria, occurring chiefly in dry open-forests and woodlands in the north-east (Beechworth, Whitfield etc.), with isolated occurrences near Mt Macedon, Eltham-Hurstbridge area, Eildon and Orbost {RBGV, 2019, 177}. Database records of this taxon apparently confounded due to difficulty separating from B. mutabilis.	2	1989	Low - likely planted and outside natural distribution
Westringia glabra	Violet Westringia		en	Disjunctly distributed in Victoria, in the northern Grampians, Lerderderg Gorge, and more commonly in East Gippsland. Frequently occurring in skeletal soils, often on steep rocky slopes, and often associated with river gorges. {RBGV, 2018, 38}.	1	2017	Low - likely planted and outside natural distribution
Eucalyptus yarraensis	Yarra Gum		cr	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 (e.g. Scoresby, Wantirna, Yan Yean).	16	2019	Negligible – specimens likely planted

TABLE B-2 LIKELIHOOOD OF OCCURRENCE ANALYSIS FOR THRETENED FAUNA IN THE 5-KM SEARCH AREA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
BIRD							
Botaurus poiciloptilus	Australasian Bittern	EN	cr	Narrow habitat preferences, preferring shallow, vegetated freshwater or brackish swamps	5	1908	Negligible – historical records and limited habitat suitability
Spatula rhynchotis	Australasian Shoveler		vu	Larger waters, fresh and saline lakes, well-vegetated freshwater wetlands, coastal inlets, sewage ponds, floodwaters	1	2019	Negligible - limited habitat suitability
Ixobrychus dubius	Australian Little Bittern		en	Dense reedbeds in freshwater swamps, lakes and rivers; tussocks in wetland areas	8	1994	Negligible - limited habitat suitability
Rostratula australis	Australian Painted-snipe	EN	cr	Well-vegetated shallows and margins of wetlands, dams, sewage ponds; wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, open timber	2	PMST	Negligible – limited habitat suitability
Falco subniger	Black Falcon		cr	Plains, grasslands, foothills, timbered watercourses, wetland environs; crops; occasionally over towns and cities	1	2021	Low – limited habitat suitability
Oxyura australis	Blue-billed Duck		vu	Found on temperate, fresh to saline, terrestrial wetlands including sewerage ponds, rivers, salt lakes and saltpans. Preferring deep, permanent open water within or near dense vegetation}.	0	2019	Low – limited habitat suitability
Neophema chrysostoma	Blue-winged Parrot	VU		The Blue-winged Parrot 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. Blue-winged Parrots can also be seen in altered environments such as airfields, golf-courses and paddocks	2	1977	Low – historical species records and limited habitat suitability
Climacteris picumnus	Brown Treecreeper	VU		Drier forests/woodlands/scrubs, with fallen branches; particularly River Red Gum lined water courses	2	2010	Negligible – limited habitat suitability
Hydroprogne caspia	Caspian Tern		vu	Coastal, offshore waters, beaches, mudflats, estuaries, larger rivers, reservoirs and lakes	0	1998	Negligible - limited number of historical species records and no suitable habitat likely to occur in Structure Plan Area
Tringa nebularia	Common Greenshank	EN	en	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity, typically with large mudflats and saltmarsh, mangroves or seagrass.	1	2003	Low - the Structure Plan Area lacks suitable habtiat
Calidris ferruginea	Curlew Sandpiper	CR	cr	Tidal mudlfats; saltmarsh, saltfields; fresh, brackish or saline wetlands; sewage ponds	4	PMST	Negligible - limited number of historical species records and no suitable habitat likely to occur in Structure Plan Area

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
Geopelia cuneata	Diamond Dove		vu	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	1999	Low - the Structure Plan Area lacks suitable habitat
Stagonopleura guttata	Diamond Firetail	VU	vu	Open Eucalypt forests/woodlands; River Red Gum, Mallee, Buloke, Cypress Pine	0	PMST	Negligible - no previous records and lack of suitable habitat
Numenius madagascariensis	Eastern Curlew	CR	cr	Estuaries, tidal mudflats, sandspits, saltmarshes, mangroves; occasionally fresh or brackish lakes; bare grasslands near water	1	PMST	Low – limited habitat suitability
Ardea alba modesta	Eastern Great Egret		vu	Shallows of rivers, estuaries, tidal mudflats, freshwater wetlands; sewage ponds, irrigation areas, larger dams etc	0	2019	Negligible - limited habitat suitability
Sternula nereis	Fairy Tern	VU	cr	Coastal waters, bays, inlets, saline or brackish lakes, saltfields, sewerage ponds near coast. Breeds Sept-Jan in single pairs to large colonies on beaches, islands, rock platforms from north of Broome to eastern Victoria/NSW border; much lesser numbers in south	32	PMST	Low – limited habitat suitability
Stictonetta naevosa	Freckled Duck		en	Large, well vegetated swamps; in dry periods moves to open lakes	1	2019	Negligible - limited habitat suitability
Callocephalon fimbriatum	Gang-gang Cockatoo	EN	en	During summer months, Gang-gang Cockatoos primarily inhabit mature, wet sclerophyll forests, but also may occur across a broad range of forests and woodlands. During winter months, Gang-gang Cockatoos tend to range beyond montane forests to inhabit open eucalypt assemblages at lower, drier altitudes, including suburban areas of cities and coastal heathlands and thickets, including ornamental trees, shrubs, and hedges. Breeding requires stands of suitable hollow-bearing trees	4	2021	Low - species is likely to utilize available treed habitat for temporary foraging
Falco hypoleucos	Grey Falcon	VU	vu	Lightly treed inland plains, gibber deserts, sandridges, pastoral lands, timber watercourses; seldom in driest deserts	1	PMST	Negligible – historical species records and limited habitat suitability
Accipiter novaehollandiae	Grey Goshawk		en	Rainforests, forests; forest gullies and valleys; taller woodlands, timber on watercourses, open country in Autumn dispersal	2	2021	Negligible – no habitat suitability
Pomatostomus temporalis	Grey-crowned Babbler		vu	The Grey-crowned Babbler is found in open forests and woodlands, favouring inland plains with an open shrub layer, little ground cover and plenty of fallen timber and leaf litter. May be seen along roadsides and around farms.	1	1965	Low - the Structure Plan Area lacks suitable habtiat

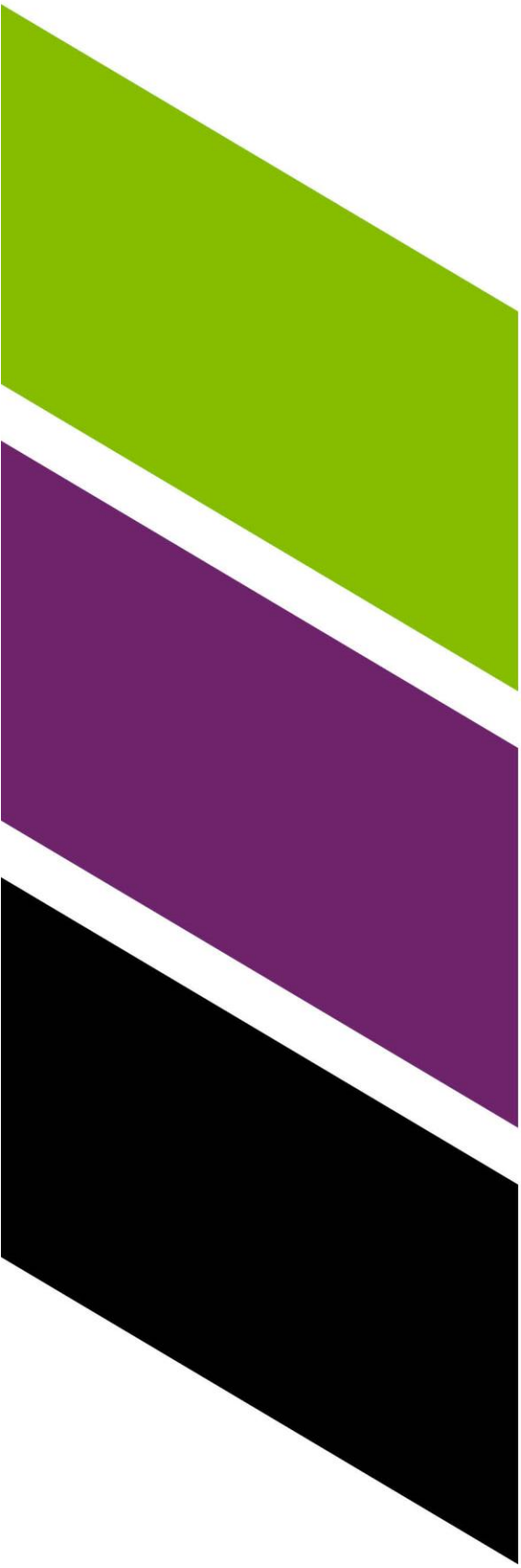
SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
Aythya australis	Hardhead		vu	Deep, permanent wetlands, large open waters, brackish coastal swamps, farm dams, ornamental lakes , sewage ponds}.	4	2021	Negligible - limited habitat suitability
Melanodryas cucullata	Hooded Robin	EN	vu	Drier Eucalypt forests, woodlands, scrubs with fallen logs, debris, mallee, Casuarina, cypress pine, mulga, cleared paddocks, Banksia dominated coastal scrubs	33	PMST	Low – limited habitat suitability and known records of the species
Synoicus chinensis	King Quail		en	Inhabits dense low vegetation, including swamps, wet heathlands, shrubland, swamp scrub, grasslands and crops such as Lucerne.	2	1901	Negligible - latest record is >100 years old and the Structure Plan Area does not support any preferred habitat
Gallinago hardwickii	Latham's Snipe	VU		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)	240	2020	Low - the Structure Plan Area lacks suitable habitat
Lewinia pectoralis	Lewin's Rail		vu	Swamp woodlands, rushes, reeds, rank grass in swamps, creeks, paddocks; wet heaths	0	1982	Negligible – no habitat suitability
Hieraaetus morphnoides	Little Eagle		vu	Plains, foothills, open forests, woodlands and scrublands; river red gums on watercourses and lakes	0	2010	Negligible – no habitat suitability
Egretta garzetta	Little Egret		en	Tidal mudflats, saltmarshes, mangroves, freshwater wetlands, sewage ponds	1	2019	Negligible - limited habitat suitability
Lophochroa leadbeateri	Major Mitchell's Cockatoo	EN	cr	Near water on timbered water courses, surrounding grasslands, gibber, saltbush, mulga and other acacias, stands of native cypress, casuarinas, larger mallee eucalypts with suitable nest hollows and mallee associated with riverine woodlands }.	15	2006	Low – Structure Plan Area is well beyond the species known range
Tringa stagnatilis	Marsh Sandpiper		en	Commonly seen singly, or in small to large flocks in fresh or brackish (slightly salty) wetlands such as rivers, water meadows, sewage farms, drains, lagoons and swamps.	1	2018	Low - the Structure Plan Area lacks suitable habitat
Biziura lobata	Musk Duck		vu	Well-vegetated swamps, wetlands, both brackish and fresh, lakes, reservoirs, shallow bays, inlets; occasionally at sea	1	2020	Low – limited habitat suitability
Grantiella picta	Painted Honeyeater	VU	vu	Mistletoes in eucalypt forests/woodlands; black box on watercourses; box-ironbark-yellow gum woodlands; paperbarks, Casuarinas; mulga, other acacias; trees on farmland; gardens	0	PMST	Negligible - no previous records and lack of suitable habitat
Pycnoptilus floccosus	Pilotbird	VU	vu	The pilotbird is found from the Wollemi National Park and Blue Mountains National Park in New South Wales through to the Dandenong Ranges, near Melbourne in Victoria. Its natural habitat is temperate wet sclerophyll forests and occasionally temperate rainforest, where	1	PMST	Negligible – historical species records and limited habitat suitability

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
				there is dense undergrowth with abundant debris It is sedentary and common.			
Pedionomus torquatus	Plains-wanderer	CR	cr	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.	0	PMST	Negligible - no previous records and lack of suitable habitat
Ardea intermedia plumifera	Plumed Egret		cr	Freshwater wetlands, pastures and croplands, tidal mudflats, floodplains.	0	2020	Negligible - limited habitat suitability
Ninox strenua	Powerful Owl		vu	Pairs occupy a large, probably permanent, home range in mountain forests, gullies and forest margins, sparser hilly woodlands, coastal forests, woodlands, scrubs, exotic pine plantations, large trees in private/public gardens, some in cities	326	2021	Moderate - Despite recent species records, the Structure Plan Area is unlikely to contain suitable long-term habitat for the species
Calidris canutus	Red Knot	EN	en	Tidal mudflats, sandflats, beaches, saltmarshes, flooded pastures, ploughed lands	15	PMST	Low – limited habitat suitability
Anthochaera phrygia	Regent Honeyeater	CR	cr	Dry open forest, woodlands, or red ironbark, yellow box, white and yellow gum, mistletoe on river she-oaks, trees in farmlands, streets, gardens	4	1977	Negligible – historical species records and limited habitat suitability
Calidris acuminata	Sharp-tailed Sandpiper	VU		Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	2	2018	Low - the Structure Plan Area lacks suitable habtiat
Tyto tenebricosa	Sooty Owl		en	Tall, wet forests in sheltered east and south east facing mountain gullies with dense understorey layer	0	2008	Negligible – limited habitat suitability
Aphelocephala leucopsis	Southern Whiteface	VU		Live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey and litter cover. Generally sedentary but may move to wetter areas during drought years. Nest in hollows, crevices and sometimes bushes	11	PMST	Low – limited habitat suitability
Pyrrholaemus sagittatus	Speckled Warbler		en	Lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies.	3	1934	Negligible - the Structure Plan Area does not support any preferred habitat characteristics
Polytelis swainsonii	Superb Parrot	VU	en	River red gums, black box, yellow box, river oak, mostly near rivers; mallee, stubbles, pastures, gardens	1	2000	Negligible – limited habitat suitability

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
Lathamus discolor	Swift Parrot	CR	cr	Open grassy woodland, with dead trees, near permanent water and forested hills, coastal heaths, pastures with exotic grasses, weeds, roadsides, orchards	0	2019	Negligible – limited habitat suitability to sustain a long term population in the Structure Plan Area
Haliaeetus leucogaster	White-bellied Sea-Eagle		en	Coasts, islands, estuaries, inlets, large rivers, inland lakes, reservoirs	3	2021	Low – species may occasionally fly over the Structure Plan Area but are unlikely to make permanent use of the Structure Plan Area
Hirundapus caudacutus	White-throated Needletail	VU	vu	Airspace over forests, woodlands, farmlands, plains, lakes, coasts, towns, feeding companies frequency patrol back and forward along favoured hilltops and timbered ranges	1	2020	Low – species is exclusively aerial and unlikely to utilise planted vegetation in the Structure Plan Area
Tringa glareola	Wood Sandpiper		en	Muddy margins of wetlands; tidal mangroves; margins of tidal mudflats; saltmarshes, sewerage ponds	0	2018	Negligible - limited number of historical species records and no suitable habitat likely to occur in Structure Plan Area
FISH							
Prototroctes maraena	Australian Grayling	VU	en	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 records and lack of suitable habitat
Galaxiella pusilla	Dwarf Galaxias	VU	en	Slow flowing, still shallow permanent and temporary freshwater habitats.	0	PMST	Negligible - no previous records and lack of suitable habitat
Macquaria australasica	Macquarie Perch	EN	en	Across the Murray-Darling Basin and in an east coast catchment, within small and geographically separated populations	1	1938	Negligible - the Structure Plan Area does not support any major river systems that would contain the species
Maccullochella peelii	Murray Cod	VU	en	Distributed throughout the Murray-Darling Basin.	2	1922	Negligible – historical records and limited habitat suitability
Bidyanus bidyanus	Silver Perch	CR	en	Inhabits faster flowing water in the Murray-Darling system	2	1988	Negligible – historical records and limited habitat suitability
Nannoperca obscura	Yarra Pygmy Perch	VU	en	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 records and lack of suitable habitat
FROG							
Litoria raniformis	Growling Grass Frog	VU	vu	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	2	1988	Low – historical records and limited habitat suitability

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
				lagoons for breeding and cracks, as well as debris and dense vegetation for refuge.			
Pseudophryne semimarmorata	Southern Toadlet		en	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.	2	1988	Low – historical records and limited habitat suitability
INVERTEBRATE							
Engaeus victoriensis	Foothill Burrowing Crayfish		en	Found in large cavernous burrows in grey, clay-dominated soils in temperate, wet sclerophyll forest at the foot of the Dandenong Ranges.	1	2020	Low - the Structure Plan Area lacks suitable habtiat
Synemon plana	Golden Sun Moth	VU	vu	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 records and lack of suitable habitat
MAMMAL							
Mastacomys fuscus mordicus	Broad-toothed Rat	EN	vu	Occurs in a range of habitat types, from alpine habitats to swamps. Habitat suitability largely determined by the availability of cover and food (grasses).	0	PMST	Negligible - no previous records and lack of suitable 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.	18	2017	Low – recent species records. Habitat suitability in the form of street trees and planted trees provide temporary habitat for the species
Pseudomys novaehollandiae	New Holland Mouse	VU	en	Open heathlands, woodlands and dry sclerophyll forests with a heath understorey, grasslands and vegetated sand dunes	0	PMST	Negligible - no previous records and lack of suitable habitat
Ornithorhynchus anatinus	Platypus		vu	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	2021	Negligible – limited habitat suitability
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN	en	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.	0	PMST	Negligible - no previous records and lack of suitable habitat

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		HABITAT PREFERENCE	COUNT OF SIGHTINGS	LAST RECORD	LIKELIHOOD OF OCCURRENCE
		EPBC ACT	FFG ACT				
Petauroides volans	Southern Greater Glider	EN	en	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. Greater Gliders are forest dependent and prefer older tree age classes in moist forest types. Typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows.	0	PMST	Negligible - no previous records and lack of suitable habitat
Dasyurus maculatus maculatus	Spot-tailed Quoll	EN	en	Temperate and subtropical rainforests in mountain areas wet schlerophyll forest lowland forests open and closed eucalypt woodlands.	0	PMST	Negligible - no previous records and lack of suitable habitat
Antechinus minimus maritimus	Swamp Antechinus	VU	vu	Habitat includes dense wet heathlands, tussock grasslands, sedgelands, damp gullies, swamps and some shrubby woodlands	0	PMST	Negligible - no previous records and lack of suitable habitat
Petaurus australis australis	Yellow-bellied Glider	VU	vu	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 records and lack of suitable habitat
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat		vu	Occurs in a wide range of habitats, roosts in hollow old trees.	1	1965	Low - the Structure Plan Area lacks an abundance of remnant hollow bearing trees.
REPTILE							
Pseudemoia rawlinsoni	Glossy Grass Skink	VU	en	Confined to humid microhabitats such as marshlands and the margins of creeks, swamps and lakes	1	1988	Negligible – limited habitat suitability
Emydura macquarii	Murray River Turtle		cr	Rivers, creeks, dams and lagoons associated with the Murray-Darling drainage systems of south east Australia.	1	2014	Low – Limited habitat in the Structure Plan Area.
Aprasia parapulchella	Pink-tailed Worm-lizard	VU	en	Habitat includes rocky outcrops or scattered partly buried rocks in grassland and woodland in south-east Australia.	0	PMST	Negligible - no previous records and lack of suitable habitat
Delma impar	Striped Legless Lizard	VU	vu	Inhabits intact grassland habitats where it shelters in grass tussocks, under rocks and in cracks in the soil	0	PMST	Negligible - no previous records and lack of suitable habitat
Lissolepis coventryi	Swamp Skink	EN	en	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 records and lack of suitable habitat



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VICTORIA'S BIG BUILD

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