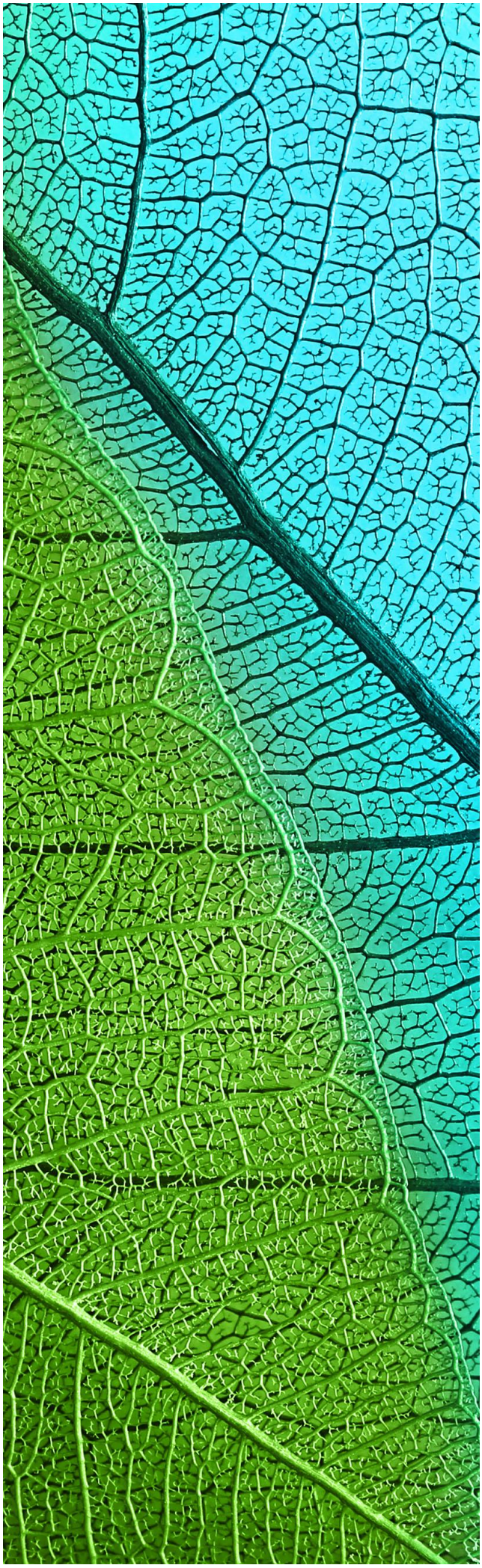

Parcel 5, Ballan Framework Plan

Flora and Fauna Assessment

Prepared for Wel.Co

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1. Executive summary

Wel.Co engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of an 97-hectare area of land in Ballan. The specific area investigated, referred to herein as the 'study area', comprised Parcel 5 of the Ballan Framework Plan and 6 adjacent private properties as well as roadside reserves along the east side of Geelong-Ballan Road and the north side of Old Melbourne Road adjacent to Parcel 5. Rezoning for development is proposed for the study area.

The investigation included a desktop assessment of Parcel 5, the five adjoining properties to the southwest and the one to the southeast along with a site survey of only Parcel 5 and adjacent roadsides along Geelong-Ballan Road and Old Melbourne Road.

The study area comprised primarily of paddocks of exotic pasture species, commonly including Toowoomba Canary-grass, Brown-top Bent, Yorkshire Fog and Panic Veldt-grass and planted private gardens. These paddocks and gardens were fringed by planted treed vegetation — some of which was associated with revegetation works in the study area's eastern riparian zone. Native remnant vegetation occurred in the form of Riparian Woodland (EVC 641) fringing Werribee River. Remnant patches were typically dominated by Tall Sedge and Common Tussock-grass, with species such as Austral Rush, Tall Rush and Bidgee-widgee interspersed.

Roadside vegetation consisted of a mix of remnant native and planted native and non-indigenous native species with a high overall cover of exotic species. Native vegetation was dominated by a ground layer of Wallaby Grass, Common Grass-sedge and Bidgee-Widgee, a mid-story of Blackwood and an overstory of Swamp Gum and Manna Gum. Canopy cover was concentrated into patches connected by open grassland vegetation and drainage lines supporting native vegetation There is evidence within roadside native vegetation of planted native indigenous vegetation and remnant vegetation, therefore the origin of some of these species is unknown and as such they have been treated as native vegetation and are recommended to be retained.

While the 6 properties adjacent to Parcel 5 were not subject to a site assessment, their land use history along with examination of aerial and street photography and available information suggest it is unlikely that any native ground flora is present. It appears that all trees within the 6 properties are planted.

Fauna habitat comprised grazing paddocks (being low quality habitat), native treed vegetation and aquatic habitat. Mainly adjacent to the Werribee River, native treed vegetation supported a few large remnant trees with hollows but mainly comprised recently planted eucalypts of locally indigenous species that had yet to mature to provide hollows for fauna. Some wattles and Banksia were also present, and some indigenous ground cover such as Spiny-headed Mat-rush had been planted. In damper areas, Common Tussock-grass and Tall Sedge were prevalent in the absence of trees. There were also planted trees in the road reserve at the north-western end of the study area (providing low to moderate quality habitat). Finally, there was aquatic habitat comprising the Werribee River itself (immediately adjacent to the study area) and a farm dam not far from the Werribee River in the east of the study area. The Werribee River watercourse forms a useful fauna movement corridor and provides moderate quality habitat but the remainder of the aquatic habitats are small and isolated and consequently are of low quality for fauna.

No listed fauna species were observed during the field visit. However, nine listed fauna species — Fork-tailed Swift, Gang-gang Cockatoo, Growling Grass Frog, Little Eagle, Platypus, Rufous Fantail, Satin Flycatcher, Tussock Skink and White-throated Needletail — were likely or had potential to occur. For all of these species, except Little Eagle and Fork-tailed Swift, the most important habitat

is in or adjacent to the Werribee River, east of the area currently fenced off to regular grazing of stock.

The following native vegetation was recorded within the study area:

- Nine patches of native vegetation, totalling 6.851 hectares (including six large trees in patches); and
- 13 scattered trees (namely 13 large scattered trees and no small scattered trees).

The following four listed flora species are likely to occur or have the potential to occur:

- Swamp Everlasting – Vulnerable (EPBC Act); Critically Endangered (FFG Act)
- River Swamp Wallaby-grass – Vulnerable (EPBC Act)
- Adamson's Blown-grass – Endangered (EPBC Act); Endangered (FFG Act)

The proponent proposes to remove 0.383 hectares of native vegetation requiring a permit to remove under Clause 52.17, comprising:

- A total of 0.173 hectares of native vegetation in patches; and
- Three large scattered trees.

The proposal must be assessed under the **Intermediate** assessment pathway. This **would not** trigger a referral to the Department of Energy, Environment and Climate Action (DEECA).

A *Native Vegetation Removal* (NVR) report for this proposal is provided in Appendix 9.

Offsets required to compensate for the proposed removal of native vegetation from the study area are:

- 0.088 general habitat units, with following offset attribute requirements:
  - A minimum strategic biodiversity value (SBV) of 0.398
  - Located within the Melbourne Water and Corangamite CMA boundaries or the Moorabool Shire municipal district.
  - Include protection of at least 3 large trees.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

Under the *Environmental Significance Overlay – Schedule 1 (ESO1),* a permit is required to construct a building or construct or carry out works, as well as subdivide land.

A planning permit under Clause 52.17 of the Moorabool Planning Scheme is required for the removal of native vegetation.

Efforts to avoid and minimise impacts to native vegetation will be required for future developments.

Impacts on EPBC-listed values are dependent upon the determination of a development footprint. The following values may be affected by development of the study area:

- Swamp Everlasting – Vulnerable (EPBC Act)
- River Swamp Wallaby-grass – Vulnerable (EPBC Act)
- Adamson's Blown-grass – Endangered (EPBC Act)

Targeted surveys may be required to determine the status of these values in the study area and to assess any potential impacts on these values.

The land addressed in this assessment is private land; therefore, a Protected Flora Licence or Permit under the FFG Act would not be required for the current proposal.

In accordance with the *Catchment and Land Protection Act 1994*, the noxious weed species listed below, which were recorded in the study area, must be controlled.

- Spear Thistle
- Blackberry
- Hawthorn
- Gorse

Additional recommendations to mitigate impacts to vegetation, in response to any planned development, are provided below:

- Where possible avoid impacts to patches of native vegetation, scattered trees and the riparian corridor along the Werribee River.
- Establish appropriate vegetation protection zones around areas of native vegetation to be retained prior to works.
- Establish appropriate tree protection zones around scattered native trees to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside vegetation/tree protection zones.
- A suitably qualified zoologist should undertake a pre-clearance survey of planted trees to be removed in the week prior to removal to identify the presence of any nests or hollows.
- If considered necessary based on the results of the pre-clearance survey, a suitably qualified zoologist should be on site during any tree removal works to capture and relocate any misplaced fauna that may be present.

The table below summarises the compliance of the information in this report with the application requirements of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a).

	Application requirement	Response
1.	Information about the native vegetation to be removed	Section 5.2
2.	Topographic and land information relating to the native vegetation to be removed	Section 5.1
3.	Recent, dated photographs of the native vegetation to be removed	Appendix 6
4.	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five-year period before the application for a permit is lodged	N/A
5.	An avoid and minimise statement	Section 7.2.1
6.	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed	N/A
7.	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This statement is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A
8.	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations (at decision guideline 8).	N/A
9.	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines	N/A

2. Introduction

Wel.Co engaged Nature Advisory Pty Ltd to conduct a flora and fauna assessment of a 97-hectare area of land in Ballan. The specific area investigated, referred to herein as the 'study area', comprised Parcel 5 of the Ballan Framework Plan as well as 6 adjacent private properties at 5600-5570 Geelong-Ballan Road, 462 and 400 Old Melbourne Road and adjacent roadside reserves along the east side of Geelong-Ballan Road and the north side of Old Melbourne Road. Rezoning for development is proposed for the study area.

This investigation was commissioned to provide information on the extent and condition of native vegetation in the study area according to Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a), herein referred to as 'the Guidelines', as well as any potential impacts on flora and fauna matters listed under the state *Flora and Fauna Guarantee Act 1988* (FFG Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This report outlines any implications under relevant national, state and local legislation and policy frameworks.

The investigation included a desktop assessment of Parcel 5, the five adjoining properties to the southwest and the one to the southeast along with a site survey of only Parcel 5 and adjacent roadsides along Geelong-Ballan Road and Old Melbourne Road.Specifically, the scope of the investigation included:

- The existing information regarding the flora, fauna and native vegetation of the study area and surrounds was reviewed. The information reviewed included:
  - *Victorian Biodiversity Atlas* administered by the Department of Energy, Environment and Climate Action (DEECA) (DEEECA 2023d);
  - The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) *Protected Matters Search Tool*; and
  - DEEECA's *Native Vegetation Information Management* system (NVIM) (DEECA 2023c).
  - NatureKit (DEECA 2023b); and
  - Protected Matters Search Tool (DAWE 2023a).
- A site survey of Parcel 5 was undertaken and involved the following:
  - Characterisation and mapping of native vegetation on the site, as defined in Victoria's *Guidelines for the removal, destruction or lopping of native vegetation* (the 'Guidelines');
  - Assessment of native vegetation in accordance with the Guidelines;
  - Compilation of flora and fauna species lists for the site;
  - Assessment of the nature and quality of native fauna habitat; and
  - Assessment of the likelihood of occurrence of *EPBC Act*- and *Flora and Fauna Guarantee Act 1988* (*FFG Act*)-listed flora, fauna and communities on the site.
- A report was prepared that included the following:
  - A statement of the methods used and sources of information consulted for the investigation, including any limitations, where applicable;

- Results of the review of existing information and site survey, documenting native vegetation and fauna habitat on the site;
- A map of the site showing results of the assessment based on aerial photographs obtained through *NearMap*;
- Discussion of implications of the findings for the proposed use of the land, specifically addressing relevant legislative and policy requirements; and
- Recommendations for mitigation and management strategies, and any further investigation required.

This investigation was undertaken by a team from Nature Advisory comprising Arend Kwak (Botanist), Merinda Day-Smith (Botanist & Project manager), Peter Lansley (Zoologist), Alan Brennan (Director) and Emma Wagner (GIS Analyst).

3. Planning and legislative considerations

This investigation and report address the application on the site of relevant legislation and planning policies that protect biodiversity. Local, state and Commonwealth controls are summarised below.

3.1. Local planning provisions

The study area is located within the Moorabool local government area and is currently zoned Rural Living (RLZ) in the Moorabool Planning Scheme.

The study area is located within a Bushfire-prone Area.

Local planning provisions apply under the *Victorian Planning and Environment Act 1987*.

3.2. Overlays

The study area is subject to the following three overlays in the Moorabool Planning Scheme:

- *Design and Development Overlay – Schedule 2 (DDO2)* – This overlay is considered to be irrelevant to the current investigation).
- *Environmental Significance Overlay – Schedule 1 (ESO1)* – aims to provide for appropriate development of land within water catchments.
- *Land Subject to Inundation Overlay (LSIO)* – This overlay is considered to be irrelevant to the current investigation).

3.3. State planning provisions

State planning provisions are established under the *Victorian Planning and Environment Act 1987*.

Clause 52.17 of all Victorian Planning Schemes states that:

A permit is required to remove, destroy or lop native vegetation, including dead native vegetation.

A permit is not required if:

- An exemption in Table 52.17-7 specifically states that a permit is not required.
- A native vegetation precinct plan corresponding to the land is incorporated into the planning scheme and listed in the schedule to Clause 52.16.
- The native vegetation is specified in a schedule to Clause 52.17.

3.3.1. Exemptions

Exemptions listed in Table 52.17-7 relevant to the study area include:

- *Dead native vegetation:* Native vegetation that is dead is exempt and does not require a planning permit. This does not apply to a standing dead tree with a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level. As such, any dead trees with DBH of 40 centimetres or more have been included in the tree data collected for this investigation.
- *Planted vegetation:* Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding. This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity.

- *Regrowth:* Native vegetation that is to be removed, destroyed or lopped that has naturally established or regenerated on land lawfully cleared of naturally established native vegetation, and is:
  - Less than 10 years old; or
  - Austral Bracken (*Pteridium esculentum*); or
  - Within the boundary of a timber production plantation, as indicated on a Plantation Development Notice or other documented record, and has established after the plantation; or
  - Less than ten years old at the time of a property vegetation plan being signed by the Secretary to the Department of Environment, Land, Water and Planning (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*), and is shown on that plan as being 'certified regrowth'; and on land that is to be used or maintained for cultivation or pasture during the term of that plan.

This exemption does not apply to land where native vegetation has been destroyed or otherwise damaged as a result of flood, fire or other natural disaster.

3.3.2. Application requirements

Any application to remove, destroy or lop native vegetation must comply with the application requirements specified in the Guidelines (DELWP 2017a).

When assessing an application, Responsible Authorities are also obligated to refer to Clause 12.01-2 (Native vegetation management) in the Planning Scheme which in addition to the Guidelines, refers to the following:

- *Assessor's handbook – applications to remove, destroy or lop native vegetation* (Version 1.1) (DELWP 2018a).
- Statewide biodiversity information maintained by DELWP.

The application of the Guidelines (DELWP 2017a) are explained further in

Appendix **1:**.

3.3.3. Referral to DELWP

Clause 66.02-2 of the planning scheme determines the role of DELWP in the assessment of native vegetation removal permit applications. If an application is referred, DELWP may make certain recommendations to the responsible authority in relation to the permit application.

Any application to remove, destroy or lop native vegetation must be referred to DELWP if:

- The impacts to native vegetation are in the Detailed Assessment Pathway;
- A property vegetation plan applies to the site; or
- The native vegetation is on Crown land which is occupied or managed by the responsible authority.

3.4. EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects a number of threatened species and ecological communities that are considered to be of national

conservation significance. Any significant impacts on these species require the approval of the Australian Minister for the Environment.

If there is a possibility of a significant impact on nationally threatened species or communities or listed migratory species, a Referral under the EPBC Act should be considered. The Minister will decide after 20 business days whether the project will be a 'controlled action' under the EPBC Act, in which case it cannot be undertaken without the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

Implications under the EPBC Act for the current proposal are discussed in Section 7.3.

3.5. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) lists threatened and protected species and ecological communities (DELWP 2018b, DELWP 2017b). Any removal of protected flora, which includes threatened flora species and the plants that make up threatened communities, listed under the FFG Act from public land requires a Protected Flora Licence or Permit under the Act, obtained from DELWP.

The FFG Act only applies to private land where a license is required to remove grass trees, tree ferns and sphagnum moss for sale, or where an Interim Conservation Order has been made to protect critical habitat for a threatened species or community. As no such habitat has ever been declared, this mechanism under the FFG Act has never been implemented.

Implications under the FFG Act for the current proposal are discussed in Section 7.4.

3.6. EE Act

One or a combination of a number of criteria may trigger a requirement for a Referral to the Victorian Minister for Planning who will determine if an Environmental Effects Statement (EES) is required according to the *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (DSE 2006).

The criteria related to flora, fauna and native vegetation which trigger a Referral are outlined below.

<u>One or more</u> of the following would trigger a Referral:

- Potential clearing of 10 hectares or more of native vegetation from an area that:
  - Is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or
  - Is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and
  - Is not authorised under an approved Forest Management Plan or Fire Protection Plan
- Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria
- Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'
- Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term

Two or more of the following would also trigger a Referral:

- Potential clearing of 10 hectares or more of native vegetation, unless authorised under an approved Forest Management Plan or Fire Protection Plan
- Matters listed under the Flora and Fauna Guarantee Act 1988:
  - Potential loss of a significant area of a listed ecological community; or
  - Potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or
  - Potential loss of critical habitat; or

Potential significant effects on habitat values of a wetland supporting migratory bird species.

Implications under the *Environment Effects Act 1978* (EE Act) for the current proposal are discussed in Section 7.5.

3.7. CaLP Act

The *Catchment and Land Protection Act 1994* (CaLP Act) requires that landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Weed species listed on the CaLP Act that have been recorded in the study area are discussed in Section 7.6.

4. Existing information and methods

4.1. Existing information

Existing information used for this investigation is described below.

4.1.1. Existing reporting and documentation

The existing documentation below, relating to the study area was reviewed.

- Moorabool Planning Scheme

4.1.2. Native vegetation

Pre-1750 (pre-European settlement) vegetation mapping administered by DELWP was reviewed to determine the type of native vegetation likely to occur in the study area and surrounds. Information on Ecological Vegetation Classes (EVCs) was obtained from published EVC benchmarks. These sources included:

- Relevant EVC benchmarks for the Victorian Volcanic Plain bioregion[1] (DSE 2004a);
- *NatureKit* (DELWP 2020a).

4.1.3. Listed matters

Existing flora and fauna species records and information about the potential occurrence of listed matters was obtained from an area termed the 'search region', defined here as an area with a radius of ten kilometres from the approximate centre point of the study area (coordinates: latitude 37˚ 35' 38.15" S and longitude 144˚ 12' 38.74" E).

A list of the flora and fauna species recorded in the search region was obtained from the *Victorian Biodiversity Atlas* (VBA), a database administered by DELWP.

The online EPBC Act *Protected Matters Search Tool* (DAWE 2020a) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

4.2. Desktop assessment

A desktop assessment (and no site assessment) was conducted on 6 private dwelling adjacent to parcel 5 of the Ballan Framework Plan, specifically 5600-5570 Geelong-Ballan Road, 462 and 400 Old Melbourne Road. This assessment is required to inform proposed rezoning of the properties for development. Specifically, the scope of this assessment was to review existing information on the flora, fauna and native vegetation of the study area and surrounds.

The scope of this assessment was to review existing information on the flora, fauna and native vegetation of the study area and surrounds using the following existing information:

- Moorabool Planning Scheme;
- Aerial imagery (provided by Nearmap); and

[1] A bioregion is defined as "a geographic region that captures the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values". In general bioregions reflect underlying environmental features of the landscape (DNRE 1997).

- Aerial and Street View imagery (provided by Google).
- *Native Vegetation Information Management system (NVIM)* (DELWP 2020a);
- *NatureKit* (DELWP 2020b);
- *Victorian Biodiversity Atlas* (DELWP 2020d); and
- *Protected Matters Search Tool* (DAWE 2020a).

4.2.1. Methods

Existing flora and fauna species records and information about the potential occurrence of listed matters was obtained from an area termed the 'search region', defined here as an area with a radius of ten kilometres from the boundaries of the study area.

A list of the flora and fauna species recorded in the search region was obtained from the *Victorian Biodiversity Atlas* (VBA), a database administered by DELWP (2022d).

The online EPBC Act *Protected Matters Search Tool* (DEE 2022a) was consulted to determine whether nationally listed species or communities potentially occurred in the search region based on habitat modelling.

4.2.2. Limitation of the desktop assessment

This assessment of the 6 adjacent properties has been undertaken on a desktop review basis only. No site visit associated with this investigation has been undertaken. Therefore, this assessment relies on the accuracy of published information. A site survey would be required to confirm the presence or otherwise of native vegetation and habitat suitable for listed threatened species.

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of the presence of native vegetation or the occurrence of matters listed under the EPBC Act or FFG Act. That is, where insufficient evidence was available on the potential occurrence of native vegetation or the occurrence of listed matters, it is assumed that these could be present.

4.3. Field methods

The field assessment of parcel 5 was conducted on the 24th March, 2022 and of adjacent roadsides on 5th June 2023. During this assessment, the study area was surveyed initially by vehicle and areas supporting native vegetation and/or fauna habitat were inspected in more detail on foot.

Sites in the study area found to support native vegetation or with potential to support listed matters were mapped through a combination of aerial photograph interpretation and ground-truthing using a hand-held GPS (accurate to approximately five metres). Species and ecological communities listed as threatened under the EPBC Act or FFG Act were also mapped using the same method.

4.3.1. Native vegetation

Native vegetation is currently defined in Clause 73.01 of all Victorian planning schemes as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. The Guidelines (DELWP 2017a) further classify native vegetation as belonging to two categories:

- Patch; or
- Scattered tree.

The definitions of these categories are provided below, along with the prescribed DELWP methods to assess them. Further details on definitions of patches and scattered trees are provided in Appendix 1.

Patch

A patch of native vegetation is either:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- Any area with three or more native canopy trees[2] where the drip line[3] of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- Any mapped wetland included in the *Current wetlands map*, available at *MapShareVic* (DELWP 2020b).

Patch condition is assessed using the habitat hectare method (Parkes *et al.* 2003; DSE 2004b) whereby components of the patch (e.g. tree canopy, understorey and ground cover) are assessed against an EVC benchmark. The score effectively measures the percentage resemblance of the vegetation to its original condition.

The *Native Vegetation Information Management* (NVIM) system (DELWP 2020c) provides modelled condition scores for native vegetation to be used in certain circumstances.

Scattered tree

A scattered tree is:

- A native canopy tree[2] that does not form part of a patch.

Scattered trees are counted and mapped, the species identified and their circumference at 1.3 m above the ground is recorded.

4.3.2. Flora species and habitats

Records of flora species were made in conjunction with sampling methods used to undertake habitat hectare assessments of native vegetation described above. Specimens requiring identification using laboratory techniques were collected.

Species protected under the FFG Act were determined by crosschecking against the FFG Act *Protected Flora List* (DELWP 2017b).

The potential for habitats to support listed flora species was assessed based on the criteria outlined below:

- The presence of suitable habitat for flora species such as soil type, floristic associations and landscape context; and
- The level of disturbance of suitable habitats by anthropogenic disturbances and invasions by pest plants and animals.

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence or flora listed under the EPBC Act and/or FFG Act. That is, where insufficient evidence was available on the potential occurrence of a listed species, it is assumed that it could be in an area of suitable habitat.

[2] A native canopy tree is a mature tree (i.e. it is able to flower) that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type.
[3] The drip line is the outermost boundary of a tree canopy (leaves and/or branches) where the water drips on to the ground.

4.3.3. Fauna species and habitats

The techniques below were used to detect fauna species utilising the study area.

- Incidental searches for mammal scats, tracks and signs (e.g. diggings, signs of feeding and nests/burrows).
- Turning over logs/rocks and other ground debris for reptiles, frogs and mammals.
- Daytime bird observations.
- General searches for reptiles and frogs; including identification of frog calls in seasonally wet areas.
- General searches for bat habitat including waterbodies and potential roosting sites such as dead trees with hollows and underneath bark of trees.

Fauna habitats are described using habitat components that include old-growth trees, fallen timber, leaf litter and surface rocks.

The study area's habitat connectivity (i.e. degree of isolation/fragmentation), including linkages to other habitats in the region, was determined using field observations, recent aerial photography and *NatureKit* (DELWP 2020a).

Wherever appropriate, a precautionary approach was adopted in determining the likelihood of occurrence or fauna listed under the EPBC Act and FFG Act. That is, where insufficient evidence was available on the potential occurrence of a listed species, it is assumed that it could be in an area of suitable habitat.

4.3.4. Threatened ecological communities

The likelihood of listed threatened ecological communities occurring in the study area was determined by checking general field observations against published descriptions of relevant listed ecological communities modelled to potentially occur in the study area.

Reviewed ecological community descriptions comprised identification criteria and condition thresholds from listing advice for EPBC Act communities as well as FFG Act-listed community descriptions (SAC 2015).

4.4. Limitations of field assessment

The site assessment was carried out in autumn/winter. The short duration and seasonal timing of field assessments can result in some species not being detected when they may occur at other times. Additionally, some flora species and life-forms may be undetectable at the time of the survey or unidentifiable due to a lack of flowers or fruit. Additionally, the density of vegetation in the site's riparian zone may also have limited the detection of some flora species.

The timing of the survey and condition of vegetation was otherwise considered suitable to ascertain the extent and condition of native vegetation and fauna habitats.

These limitations were not considered to compromise the validity of the current investigation, which was designed to address the relevant policies and decision guidelines.

Identification of EVCs considers vegetation types which would have naturally occupied the landscape prior to European impacts. Significant past alteration of the study area's land form, hydrology and soil composition as well as past vegetation clearance has resulted in the emergence of an artificial site ecology and the reestablishment of vegetation that is likely to be notably different

to what would have naturally occupied the study area. Identification of EVCs in altered areas was therefore based upon consideration of:

- Modelled EVC mapping (DELWP 2020a);
- Observations of adjacent landforms that had not been significantly altered;
- Observations of nearby natural vegetation;
- Any observed indigenous flora species that are useful for determining EVCs; and
- Relevant published EVC benchmark descriptions.

If the above information was not sufficient to allow for a reasonable conclusion to be made on which EVC would have naturally occurred and the observed vegetation resembled an EVC which is likely to have naturally occurred in the region, EVC identification was based upon the structure and floristic composition of current observed vegetation.

5. Assessment results

5.1. Site description

The study area for this investigation (Figure 1) was approximately 97 hectares of private land and adjacent roadsides located at Ballan, approximately 30.80 kilometres east of Ballarat and 69.74 kilometres north-west of the Melbourne CBD. The site is bordered by the Western Freeway to the north, the Werribee River to the east, Old Melbourne Road to the south and Geelong-Ballan Road to the west.

The study area supported loamy soils on a gently undulating landscape, which declined towards Werribee River to the east. Additionally, an artificial drainage channel ran in a north-south direction in the west of the study area.

The study area has historically supported agricultural purposes, such as stock grazing and hay production. Surrounding land predominantly supported similar agricultural functions and semi-rural dwellings.

Vegetation in the study area predominantly consisted of paddocks of exotic pasture species and planted trees and shrubbery. Paddocks typically comprised Toowoomba Canary-grass, Brown-top Bent, Panic Veldt-grass and Yorkshire Fog, with herbaceous Flatweed, Spear Thistle, Ribwort and Dock commonly interspersed. Planted treed vegetation fringed the study area and included exotic Monterey Pine, Oak, Hawthorn and Golden Cypress Pine. Native vegetation had also been planted in the study area's eastern riparian zone and included Swamp Gum, Manna Gum, Black Wattle, Banksia and Callistemon. Remnant native vegetation was primarily restricted to the eastern border of the study area, adjacent to Werribee River. Tall Sedge and Common Tussock-grass were the dominant native groundcover, with a lesser occurrence of Bidgee-Widgee, Austral Rush, Tall Rush, Pithy Sword-sedge and Annual Fireweed. Roadside vegetation consisted of a mix of remnant native and planted native and non-indigenous native species with a high overall cover of exotic species. Native vegetation was dominated by a ground layer of Wallaby Grass, Common Grass-sedge and Bidgee-Widgee, a mid-story of Blackwood and an overstory of Swamp Gum and Manna Gum. Canopy cover was concentrated into patches connected by open grassland vegetation and drainage lines supporting native vegetation. Native vegetation patches were found along the north section of Geelong-Ballan Road and in the west along Old Melbourne Road. There is evidence within roadside native vegetation of planted native indigenous vegetation and remnant vegetation, therefore the origin of some of these species is unknown and as such they have been treated as native vegetation and are recommended to be retained.

Fauna habitat comprised grazing paddocks (low quality), native treed vegetation and aquatic. Mainly adjacent to the Werribee River, native treed vegetation had a few large remnant trees with hollows but mainly comprised recently planted eucalypts of locally indigenous species that had yet to mature to provide hollows for fauna. Some wattles and Banksia were also present, and some indigenous ground cover such as Spiny-headed Mat-rush had been planted. In damper areas, Common Tussock-grass and Tall Sedge were prevalent in the absence of trees. There were also grassy woodland habitats in the road reserve at the north-western end of the study area (low to moderate quality). Finally, there was aquatic habitat comprising the Werribee River itself (immediately adjacent to the study area, a farm dam not far from the Werribee River in the east of the study area and drainage lines in the adjacent road reserves. The Werribee River watercourse forms a useful fauna movement corridor, is moderate quality but the remainder of aquatic habitats are small and isolated and consequently, low quality for fauna.

The following key fauna habitat areas occurred within the region:

- Wombat State Forest and Lerderderg State Park and situated 8.5 and 6.5 km north and north-east respectively and support native forest. Native vegetation in the study area was tenuously connected to this habitat via the Werribee River corridor, which is partly cleared of native vegetation. Bungal State Forest is a smaller forest block 5 km southwest of the study area. It is separated from the study area by agricultural land.
- Aquatic habitats nearby comprise the artificial water bodies of Pykes Creek Reservoir (7.5km east) and the Bostock Reservoir (3 km southwest). There are few natural wetlands in the area and connectivity is poor, except for aquatic species along the Werribee River itself.

Desktop assessment

Examination of historical aerial imagery indicates the 6 properties adjacent to Parcel 5 have undergone significant disturbance in the past. Therefore, it is unlikely that any remnant native ground flora has persisted, with recent and ongoing management of grass in a mown condition, and high potential for invasion of weedy grass species.

The treed vegetation within the 6 smaller properties appears to be planted. A mixture of indigenous and non-indigenous Australian native trees is present, largely in the form of wind breaks. However, some treed patches may be older, appearing in aerial photography from 1985. These have the potential to be remnant or to consist of re-established native vegetation.

Modelling of native vegetation extent in NVIM (Appendix 7), classifies approximately half of study area as “Native vegetation”, with several areas of “Exotic tree cover”. Upon investigation using street map it was determined that recognised “native vegetation” is in fact planted tree hedges and gardens. No DELWP mapped wetlands occur in the study area.

The study area lies within the Victorian Volcanic Plain bioregion and falls within the Port Phillip and Westernport and Corangamite catchment management areas.

5.2. Native vegetation

5.2.1. Patches of native vegetation

Pre–European EVC mapping (DELWP 2020a) indicated that the study area and surrounds would have supported Plains Grassy Woodland (EVC 55), Plains Grassy Wetland (EVC 125) and Riparian Woodland (EVC 641) prior to European settlement based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

Evidence on site, including floristic composition and soil characteristics, suggested that Riparian Woodland (EVC 641) was present in the east of the study area and Plains Grassy Woodland (EVC 55_61) along adjacent roadsides (Figure 1). A description of theses EVCs are provided within the EVC benchmarks in Appendix 8.

Nine patches (referred to herein as habitat zones) comprising the abovementioned EVCs, were identified in the study area (Table 1). This totalled an area of 6.851 hectares of native vegetation in patches and included six large trees.

Table 1: Description of habitat zones in the study area

Habitat Zone	EVC	Description
A	Riparian Woodland (EVC 641)	This habitat zone was characterized by dense growth of Tall Sedge, with a lesser occurrence of Tall Rush, Austral Rush, Common Tussock-grass, Pithy Sword-sedge and Bidgee-Widgee. The edges of the habitat zone were also fringed by Kangaroo Grass and Spiny-head Mat-rush. Two large hollow-bearing Swamp Gums were present in the east of the study area; one being of moderate health and the other being dead. Weed cover was moderate-high (50%) and primarily attributed to high-threat perennial grasses. Notable weed species included Toowoomba Canary-grass, Brown-top Bent, Willow, Spear Thistle and Blackberry. Bryophytes and soil crust were absent. Litter cover was high (45%) and of exotic origin.
B	Riparian Woodland (EVC 641)	This species-depauperate habitat zone consisted of Tall Sedge, Common Tussock-grass and Annual Fireweed. Canopy and large tree components were absent. Native groundcover was overlayed by planted treed vegetation and shrubbery, consisting of species such as Manna Gum, Swamp Gum, Bottlebrush and Black Wattle. Weed cover was moderate (35%) and mostly attributed to high-threat Brown-top Bent and Toowoomba Canary-grass, with Spear Thistle, Ribwort and Sweet Vernal interspersed. Bryophytes and soil crust were absent. Litter cover was very high (80%) and native in origin – originating from planted vegetation.
C	Riparian Woodland (EVC 641)	This habitat zone comprised Swamp Gum and Manna Gum, overlying a groundcover dominated by Tall Sedge and Common Tussock-grass. Common Reed, Common Spike-rush, Austral Rush, Tall Rush and Jointed Rush were also present and typically fringed the adjacent Werribee River and a farm dam. Canopy and large tree components were absent. Weed cover was moderate-high (50%) and mostly attributed to high-threat weeds. Weed species notably included Hawthorn, Toowoomba Canary-grass, Brown-top Bent, Gorse and Spear Thistle. Bryophytes and soil crust were absent. Litter cover was high (45%) and exotic in origin.
D	Riparian Woodland (EVC 641)	This small, species-poor patch supported Tall Sedge and Common Tussock-grass. Canopy and large tree components were absent. Weed cover was moderate-high (50%) and attributed to high-threat perennial grasses such as Toowoomba Canary-grass, Yorkshire Fog and Brown-top Bent. Bryophytes and soil crust were absent. Litter cover was high (45%) and of exotic origin.

Habitat Zone	EVC	Description
E (A)	Plains Grassy Woodland (EVC 55_61)	This habitat zone was of moderate quality and comprised a canopy of Swamp Gum with a midlayer dominated by Blackwood and Black Wattle which were adequately recruiting and a grassy understory of Wallaby Grass, Common Tussock-grass and Common Grass-sedge and low cover of native herbs. This zone contained patches of treed vegetation and more open grassy areas. Drainage lines were present within the zone and these areas were dominated by sedges and rushes as well as Bidgee Widgee. Weed cover was high throughout the zone (60%) and dominated by high-threat perennial grasses such as Brown-top Bent, Sweet Vernal and Paspalum. Bryophyte and litter cover were both moderate (20%), litter was dominated by natives.
F (B)	Plains Grassy Woodland (EVC 55_61)	This habitat zone was of low-moderate quality dominated by a Swamp Gum canopy and a grassy understory dominated by high-threat perennial grasses such as Brown-top Bent, Sweet Vernal and Paspalum (70%). Moderate cover of native grasses such as Wallaby Grass and Common Tussock-grass was also present. Bryophyte cover and native dominated litter were both moderate (15-20%).
G (C)	Plains Grassy Woodland (EVC 55_61)	This habitat zone was dominated by a Manna Gum canopy and an understory of Blackwood trees and a grassy layer dominated by high-threat perennial grasses such as Brown-top Bent, Sweet Vernal and Paspalum (70%). Moderate cover of native grasses such as Wallaby Grass and Common Tussock-grass was also present. Bryophyte cover and native dominated litter were both moderate (15%). This habitat zone was of low-moderate quality
H (D)	Plains Grassy Woodland (EVC 55_61)	This low-quality habitat zone was dominated by exotic cypress trees and high threat grassy weeds such as Brown-top Bent, Sweet Vernal and Paspalum (70%). Native species such as Wallaby Grass, Jersey Cudweed and Nodding Saltbush were present in the understory but no mid or canopy native elements were present. Litter was dominated by exotics (25%) and bryophytes were present at moderate levels (20%).
I (E)	Plains Grassy Woodland (EVC 55_61)	This habitat zone was of low-moderate quality and dominated by a mostly exotic understory (70%) of high threat weeds including Blackberry, Sweet Pittosporum, Oak, Sweet Vernal and Yorkshire Fog. Native understory components were a grassy ground layer of Wallaby Grass, Common Tussock-grass and Common Grass-sedge as well as herbs such as Bidgee Widgee. Blackwood . was present and adequately recruiting Litter was dominated by exotics (30%) and bryophytes were present at moderate levels (20%).

The habitat hectare assessment results for these habitat zones are provided in Table 2 More detailed habitat scoring results are presented in Appendix 2. Details of large trees in patches are provided in Appendix 3.

Table 2: Summary of habitat hectare assessment results

Habitat Zone	EVC	Area (ha)	Condition score (out of 100)	No. of Large Trees in HZ
A	Riparian Woodland (EVC 641)	0.934	13	2
B	Riparian Woodland (EVC 641)	0.267	14	0
C	Riparian Woodland (EVC 641)	4.266	17	0
D	Riparian Woodland (EVC 641)	0.094	11	0
E	Plains Grassy Woodland (EVC 55_61)	0.788	32	4
F	Plains Grassy Woodland (EVC 55_61)	0.115	13	0
G	Plains Grassy Woodland (EVC 55_61)	0.134	15	0
H	Plains Grassy Woodland (EVC 55_61)	0.12	11	0
I	Plains Grassy Woodland (EVC 55_61)	0.134	18	0
Total		**6.851**		**6**

Figure 1: Study area and native vegetation

Project: Parcel 5, Ballan Framework Plan **Client**: Wel.Co **Date**: 8/06/2023

- Study area
- Large tree in patch
- Large scattered tree
- Riparian Woodland (EVC 641)
- Plains Grassy Woodland (EVC 55)

N

Metres
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5.2.2. Scattered trees

Scattered trees recorded in the study area would have once comprised the canopy component of Plains Grassy Woodland (EVC 55) and Riparian Woodland (EVC 641).

13 scattered trees occurred in the study area (Figure 1), including:

- 13 large scattered trees (≥ 80-centimetre DBH); and
- No small scattered trees (< 80-centimetre DBH).

Details of all scattered trees recorded are listed in Appendix 3.

5.3. Flora species

5.3.1. Species recorded

During the field assessment 68 plant species were recorded. Of these, 33 (49%) were indigenous and 35 (41%) were introduced or non-indigenous native in origin (Appendix 4).

5.3.2. Listed species

VBA records (DEECA 2023d) and the EPBC Protected Matters Search Tool (DAWE 2023a) indicated that within the search region there were records of, or there occurred potential suitable habitat for, 17 species listed under the Commonwealth EPBC Act and 23 listed under the state FFG Act, including 14 listed under both Acts. No flora species listed under the EPBC Act were recorded during the field survey.

The likelihood of occurrence in the study area of species listed under the EPBC Act and FFG Act is addressed in Table 3. Species considered 'likely to occur' are those that have a very high chance of being in the study area based on numerous records in the search region and suitable habitat in the study area. Species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce.

This analysis indicates that the following four listed flora species are likely to occur or have the potential to occur:

- Swamp Everlasting – Vulnerable (EPBC Act); Critically Endangered (FFG Act)
- River Swamp Wallaby-grass – Vulnerable (EPBC Act)
- Adamson's Blown-grass – Endangered (EPBC Act); Endangered (FFG Act)

Table 3: Listed flora species and the likelihood of their occurrence in the study area

Common Name	Scientific name	EPBC	FFG	FFG-prot	Habitat	Number of records	Date of last record	Likelihood of occurrence
Rough Wattle	*Acacia aspera subsp. parviceps*		Endangered	p	Apparently confined to northern Brisbane Ranges (Mt Wallace - Bacchus Marsh areas), with an outlying occurrence just S of Beaufort (Maslin 2001); Usually occurs on ranges in shallow stony or gravelly soil in eucaltptus open forest communities (Entwisle et al. 1996)	2	2/03/2011	Outside range, no suitable habitat present, few nearby recent records – **Unlikely to occur**
Sticky Wattle	*Acacia howittii*		Vulnerable	p	Moist forest in eastern Victoria. Widely planted	1	8/06/2007	No suitable habitat present, minimal nearby recent records – **Unlikely to occur**
River Swamp Wallaby-grass	*Amphibromus fluitans*	Vulnerable			River Swamp Wallaby-grass grows mostly in permanent swamps and also lagoons, billabongs, dams and roadside ditches. The species requires moderately fertile soils with some bare ground; conditions that are caused by seasonally-fluctuating water levels (DAWE 2020).	None	N/A	Suitable habitat present within river corridor and intact native vegetation – **Potential to occur**
Ornate Pink-fingers	*Caladenia ornata*	Vulnerable	Endangered	p	Heathy forest and among shrubs on seasonally moist sandy loams (Jones 2006).	None	N/A	No suitable habitat present, no nearby recent records – **Unlikely to occur**
Matted Flax-lily	*Dianella amoena*	Endangered	Critically Endangered	P	Lowland grassland and grassy woodlands on well-drained to seasonally waterlogged fertile sandy loams to heavy cracking soils derived from sedimentary or volcanic Geology. It is widely distributed from eastern to south-western Victoria (DAWE 2020).	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**
Trailing Hop-bush	*Dodonaea procumbens*	Vulnerable			Grows in low lying, often winter wet areas in woodland, low open-forest heathland and grasslands on sands and clays. Largely confined to SW of Victoria (DAWE 2020).	None	N/A	Outside typical range, habitat highly modified, no nearby recent records – **Unlikely to occur**
Black Gum	*Eucalyptus aggregata*	Vulnerable	Vulnerable	P	Very restricted in Vic. to the Gisborne- Woodend region (Brooker & Slee 1996).	None	N/A	Outside typical range, no nearby recent records – **Unlikely to occur**
Buxton Gum	*Eucalyptus crenulata*	Endangered	Endangered	P	Known from only two natural populations that are about 64 km apart, and separated by the Great Dividing Range. Yering: Low-lying, wet/swampy habitats that are seasonally cold with deep alluvial loams and a generally flat topography with scattered, periodically inundated depressions. Buxton: poorly drained hollow on the alluvial terraces adjacent to the Acheron River.	1	4/02/2010	Outside typical range, few nearby recent records – **Unlikely to occur**
Southern Blue-gum	*Eucalyptus globulus subsp. globulus*		Endangered			1	31/01/2007	Habitat suboptimal, minimal nearby recent records – **Unlikely to occur**
Melbourne Yellow-gum	*Eucalyptus leucoxylon subsp. connata*		Endangered		Limited to the outer areas of Melbourne and Geelong on hilly, well drained slopes of sandstone origin. Extremely common in the Brisbane Ranges and also in small pockets near Torquay and Anglesea, and in the north-east metropolitan Melbourne and Sunbury area.	1	2/03/2011	No suitable habitat present, minimal nearby recent records – **Unlikely to occur**
Yarra Gum	*Eucalyptus yarraensis*		Critically Endangered		River flats and floodplains of valley sclerophyll forest (Gray & Knight 1993)	8	27/11/2000	Suitable habitat present, nearby recent records present. However, **was not recorded** during assessment.
Clover Glycine	*Glycine latrobeana*	Vulnerable	Vulnerable	P	Found across south-eastern Australia in native grasslands, dry sclerophyll forests, woodlands and low open woodlands with a grassy ground layer. In Victoria, populations occur in lowland grasslands, grassy woodlands and sometimes in grassy heath (DAWE 2020).	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**

Common Name	Scientific name	EPBC	FFG	FFG-prot	Habitat	Number of records	Date of last record	Likelihood of occurrence
Adamson's Blown-grass	*Lachnagrostis adamsonii*	Endangered	Endangered	P	Confined to slow moving creeks, swamps, flats, depressions or drainage lines that are seasonally inundated or waterlogged and usually moderately to highly saline. Appear to favour sites that have some shelter from the wind (DAWE 2020).	None	N/A	Suitable habitat present within river corridor and intact native vegetation – **Potential to occur**
Spiny Peppercress	*Lepidium aschersonii*	Vulnerable	Endangered	P	The Spiny Peppercress occurs in periodically wet sites such as gilgai depressions and the margins of freshwater and saline marshes and shallow lakes, usually on heavy clay soil. Almost all sites receive some degree of soil waterlogging or seasonal flooding.	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**
Basalt Peppercress	*Lepidium hyssopifolium s.s.*	Endangered	Endangered	p	Known to establish on open, bare ground with limited competition from other plants. Previously recorded from Eucalypt woodland with a grassy ground cover, low open Casuarina woodland with a grassy ground cover and tussock grassland. Now generally found amongst exotic pasture grasses and beneath exotic trees (DAWE 2020).	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**
White Sunray	*Leucochrysum albicans subsp. tricolor*	Endangered	Endangered	p	Occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. Plants can be found in natural or semi-natural vegetation and grazed or ungrazed habitat. Bare ground is required for germination. The unpalatability of this species is likely to protect it in heavily grazed areas where patches of bare ground are likely to develop, favouring recruitment (DAWE 2020).	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**
Austral Tobacco	*Nicotiana suaveolens*		Endangered		Drier inland areas often in rocky places, especially escarpments (Jeanes 1996).	1	8/11/2002	Habitat highly modified, minimal nearby recent records – **Unlikely to occur**
Forked Rice-flower	*Pimelea hewardiana*		Endangered		Rocky Habitats west of Melbourne (Entwisle 1996).	1	1/10/1980	Habitat highly modified, minimal nearby recent records – **Unlikely to occur**
Spiny Rice-flower	*Pimelea spinescens subsp. spinescens*	Critically Endangered	Critically Endangered	p	Occurs in grassland or open shrubland on basalt derived soils, usually comprising black or grey clays. Plants from more northerly populations occur on red clay complexes, while plants from southern populations occur on heavy grey-black clay loams. Topography is generally flat but populations may occur on slight rises or in slightly wettish depressions.	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**
Green-striped Greenhood	*Pterostylis chlorogramma*	Vulnerable	Endangered	p	Occurs in mixed Box-Stringybark forest with a shrubby understorey, often with Pteridium esculentum as a major component on sandy or clay loam soils (Duncan et al. 2009).	None	N/A	No suitable habitat present, no nearby recent records – **Unlikely to occur**
Wombat Bush-pea	*Pultenaea reflexifolia*		Vulnerable			4	19/01/2007	No suitable habitat present, minimal nearby recent records – **Unlikely to occur**
Fragrant Saltbush	*Rhagodia parabolica*		Vulnerable		Steep rocky and broad ridges between Sunbury and Geelong, but can be locally common (Walsh 1996).	5	17/06/2020	No suitable habitat present, minimal nearby recent records – **Unlikely to occur**
Button Wrinklewort	*Rutidosis leptorhynchoides*	Endangered	Endangered	p	In Victoria restricted to open stands of plains grassland and grassy woodlands, on fertile clays to clay loams, usually in areas where the grass cover is more open, either as a result of recurrent fires or grazing by native macropods or stock. It also occurs on low rises with shallow, stony soils at less than 100 m above sea level.	None	N/A	Habitat highly modified, no nearby recent records – **Unlikely to occur**

Common Name	Scientific name	EPBC	FFG	FFG-prot	Habitat	Number of records	Date of last record	Likelihood of occurrence
Large-headed Fireweed	*Senecio macrocarpus*	Vulnerable	Critically Endangered	p	In Victoria, Large-fruit Fireweed occurs most commonly in grasslands on red-brown earth soils. It may also occur in grassy woodlands and open woodlands predominantly in the Western (Basalt) Plains grassland on red brown earth soils found on recent Quaternary (basalt) deposits (DAWE 2020).	None	N/A	No suitable habitat present, no nearby recent records – **Unlikely to occur**
Swamp Fireweed	*Senecio psilocarpus*	Vulnerable		p	Herb-rich winter-wet swamps on volcanic clays or peaty soils (Walsh 1999). Known from approximately 10 sites between Wallan, about 45 km north of Melbourne, and Honans Scrub in south-eastern South Australia (TSSC 2008).	1	11/02/1996	Outside typical range, habitat highly modified, minimal nearby recent records – **Unlikely to occur**
Swamp Everlasting	*Xerochrysum palustre*	Vulnerable	Critically Endangered	p	Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. Commonly associated genera include *Amphibromus, Baumea, Carex, Chorizandra, Craspedia, Eleocharis, Isolepis, Lachnagrostis, Lepidosperma, Myriophyllum, Phragmites australis, Themea triandra* and *Villarsia* (DAWE 2020).	None	N/A	Suitable habitat present, commonly associated genera present in remnant patches – **Potential to occur**

Notes: EPBC = threatened species status under EPBC Act; **FFG** = threatened species status under the FFG Act; **FFG-Prot =** protected species under the FFG Act (applies to public land)

5.4. Fauna habitats

The study area supported three fauna habitat types.

- Native treed vegetation;
- Grazing and cropping paddocks; and
- Aquatic habitat;

Native Treed Vegetation: The main areas of this habitat were in the north-west corner near the corner of Geelong-Ballan Road and Western Freeway – planted eucalypts in the road reserve, together with some Blackwood and Black Wattle. The second and main wooded habitat was along the Werribee River corridor at the eastern end of the study area. This area comprised a few remnant River Red-gums, some with hollows useful for fauna breeding and roosting sites, and a large number of planted eucalypts, wattles, banksia, and the like. Some remnant ground cover of sedges (*Lepidosperma*, *Lomandra* and *Carex* spp., and rushes *Juncus* spp. were also present. Weeds remained prevalent, such as Willow *Salix* spp., Curled Dock, and various grasses including Sweet Vernal—grass and Yorkshire Fog. There was a paucity of ground cover such as fallen timber, rocks etc. The corridor along Werribee River is fenced but native grazers and browsers, as well as Rabbits are present. Some connectivity in a narrow riparian band along the river would serve as a useful connecting link for mobile species like birds and bats.

Photo 1: Werribee River corridor, showing planted trees (right), sedgeland (centre), mixed grassland of break of slope (foreground) and remnant canopy trees (left). Looking to the east.

Grazing and cropping paddocks: This habitat covered the majority (*c.* 90%) of the study area. There were several large old trees with hollows scattered around the site. These were Swamp Gum and River Red-

gum. A small amount of fallen timber remained under the remnant trees, and a pile of collected rock that was observed near the edge one paddock provided potential habitat for reptiles. These paddocks have long been used for grazing domestic stock and as such offer few opportunities to native fauna. The hollow-bearing trees had potential as breeding or sheltering habitat for birds (pardalotes, parrots, cockatoos, bats and possums.) Raptors may potentially also use them as breeding sites.

Aquatic: This habitat comprised one dam and a (dry) drain. The dam was fringed with Cumbungi and Common Spike-rush, with no floating or emergent vegetation. The drain had a concrete base and was channelised. Other associated habitat elements like fallen timber, rocks etc., were absent. The Werribee River forms the eastern border to the study area and is a slow flowing narrow river, lined with mixed vegetation Aquatic habitats occupied a very small proportion of the study area and were not well connected to larger waterbodies in the surrounding region. They were assessed as low quality for native fauna.

Photo 2: Farm dam in the east of the study area, looking east.

5.5. Fauna species

5.5.1. Species recorded

During the field assessment 27 fauna species were recorded. This included 22 bird (1 introduced), 4 mammal (2 introduced), and 1 frog species (Appendix 5).

5.5.2. Listed species

The review of existing information (including VBA records (DELWP 2022d) and the results of the EPBC Protected Matters Search Tool (DAWE 2022)) indicated that within the search region there were records of, or there occurred potential suitable habitat for, 45 fauna species listed under the Commonwealth EPBC Act and the state FFG Act. The likelihood of occurrence of these species in the study area was assessed and the results are presented in Table 4.

This analysis of potential occurrence of listed fauna species excludes:

- Marine fauna given that the study area is inland
- Migratory oceanic bird species (such as albatrosses and petrels) and migratory shorebirds given that the study area is inland.

Species considered 'likely to occur' are those that have a very high chance of being in the study area given the existence of numerous records in the search region and suitable habitat in the study area. Using the precautionary approach, species considered to have the 'potential to occur' are those for which suitable habitat exists, but recent records are scarce. This analysis indicates that nine listed fauna species are likely to occur or have the potential to occur. These species are:

- Fork-tailed Swift (EPBC Act: Migratory (JAMBA, CAMBA, ROKAMBA))
- Gang-gang Cockatoo (EPBC Act: Endangered)
- Growling Grass Frog (EPBC Act: Vulnerable, FFG Act: Vulnerable).
- Little Eagle (FFG Act: vulnerable).
- Platypus (FFG Act: Vulnerable).
- Rufous Fantail (EPBC Act: Migratory (Bonn (A2H))
- Satin Flycatcher ((EPBC Act: Migratory (Bonn (A2H))
- Tussock Skink (FFG Act: Endangered).
- White-throated Needletail (EPBC Act: Vulnerable, Migratory (JAMBA, CAMBA, ROKAMBA))

The susceptibility of these species to impacts from development is discussed in Section 5.5.3.

Table 4: Listed fauna species and the likelihood of their occurrence in the study area

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Birds								
Australasian Bittern	*Botaurus poiciloptilus*	Endangered		Critically Endangered	Terrestrial wetlands, including a range of wetland types but prefers permanent water bodies with tall dense vegetation, particularly those dominated by sedges, rush, reeds or cutting grass (Marchant & Higgins 1990).	None	N/A	Little or no suitable habitat and no recent or nearby records. **Unlikely to occur.**
Australasian Shoveler	*Spatula rhynchotis*			Vulnerable	Large and deep permanent bodies of water and aquatic flora abundant. Also occurs on billabongs, watercourses and flood waters on alluvial plains, freshwater meadows, shallow swamps, reed swamps, wooded lakes, sewage farms and farm dams (Marchant & Higgins 1990).	1	26/9/04	Little or no suitable habitat and few recent or nearby records. Prefers more open, extensive freshwater to brackish wetlands rather than narrow, vegetated river courses. **Unlikely to occur.**
Australian Painted-snipe	*Rostratula australis*	Endangered		Critically Endangered	Generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of *Lignum muehlenbeckia* or canegrass or sometimes tea-tree (Melaleuca). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (DAWE 2020).	None	N/A	Little or no habitat and no recent or nearby records. **Unlikely to occur**.
Barking Owl	*Ninox connivens*			Critically Endangered	Eucalyptus dominated forests and woodlands, commonly near water-bodies, such as streams and rivers, and requires hollow trees for nesting and trees with dense foliage for roosting (Higgins 1999).	2	1/1/95	Habitat exists but likely to be suboptimal (a few large trees with hollows in agricultural landscape). Few recent records. **Unlikely to occur regularly.**
Brolga	*Grus rubicunda*			Endangered	Wetlands that include permanent open water and deep freshwater marsh. Between 500 and 700 Brolgas are known to occur in southwestern Victoria (Marchant & Higgins 1993).	1	26/9/04	Little or no habitat and few recent or nearby records. **Unlikely to occur**.
Common Greenshank	*Tringa nebularia*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Endangered	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Common Sandpiper	*Actitis hypoleucos*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Vulnerable	Inhabits a wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands. In Victoria, mostly found Westernport and Port Phillip Bay (Higgins & Davies 1996).	1	5/11/18	No suitable habitat. **Unlikely to occur.**
Curlew Sandpiper	*Calidris ferruginea*	Critically Endangered	M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)	Critically Endangered	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Diamond Firetail	*Stagonopleura guttata*			Vulnerable	Commonly found in box-ironbark forests and woodlands and also occurs along watercourses and in farmland areas. Widespread but scattered. Forages on a wide range of seeds, which in some cases a large portion can be derived from weed species (Read 1994). Populations had declined in Victoria since the 1950s (Emison et al. 1987; Tzaros 2005).	3	31/1/96	Very little suitable habitat (grassy woodland) and few recent or nearby records. **Unlikely to occur**.
Eastern Curlew	*Numenius madagascariensis*	Critically Endangered	M (Bonn A1, ROKAMBA, JAMBA, CAMBA)	Critically Endangered	Inhabits sheltered coasts, especially estuaries, embayment, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats, often with beds of sea grass (Higgins & Davies 1996).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Fork-tailed Swift	*Apus pacificus*		M (CAMBA, ROKAMBA, JAMBA)		The species can occur in wet sclerophyll forest but mainly prefers open forest or plains. It is almost exclusively aerial and feeds up to hundreds on metres above the ground, but can feed among open forest canopy. The species breeds internationally and seldom roosts in trees (Higgins 1999).	None	N/A	Habitat exists. **Potential to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Endangered			In summer generally in tall mountain forests and woodlands, particularly in heavily timbered, mature wet sclerophyll forests and woodlands. Prefer Eucalyptus dominated assemblages. Also occurs in subalpine snow gum woodlands and occasionally in temperate rainforests and regenerating forests. In winter occur at lower altitudes in drier, more open Eucalyptus woodland (Higgins 1999).	10	27/2/01	Some habitat exists that may be visited in autumn-winter (large eucalypts along Werribee River corridor; Hawthorn trees). **Potential to occur.**
Grey Falcon	*Falco hypoleucos*	Vulnerable		Vulnerable	Inhabits arid and semi-arid zones; mainly on sandy and stony plains of inland drainage systems, lightly timbered with acacia. Hunt far into open areas, over spinifex, tussock grasslands and low shrublands. In Victoria, few records mostly in north and northwestern regions (Marchant & Higgins 1993).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Grey Goshawk	*Accipiter novaehollandiae*			Endangered	Inhabit rainforests, open forests, swamp forests, woodlands and plantations; most abundant where forest or woodland provide cover for hunting from perches. In Vic., most common in Otway ranges (Marchant & Higgins 1993).	2	26/8/95	Habitat unsuitable for breeding and limited potential for supporting species outside breeding season. Few recent or nearby records. **Unlikely to occur regularly.**
Hardhead	*Aythya australis*			Vulnerable	Inhabits large, deep waters where vegetation is abundant; particularly deep swamps and lakes, pools and creeks. Also occur on freshwater meadows, seasonal swamps with abundant aquatic flora, reed swamps, wooded lakes and swamps, rice fields, and sewage ponds (Marchant & Higgins 1990).	3	10/11/18	Little or no suitable habitat and few recent or nearby records. Prefers deeper, more open, extensive freshwater wetlands rather than narrow, vegetated river courses. **Unlikely to occur.**
King Quail	*Synoicus chinensis*			Endangered	Inhabits dense swampy low-lying heath mixed with grass, or low treeless heath within moist depressions. Breed, roost and feed on ground (Marchant & Higgins 1993).	2	1/1/95	Little or no suitable habitat and few recent or nearby records. **Unlikely to occur.**
Latham's Snipe	*Gallinago hardwickii*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)		Occurs in wide variety of permanent and ephemeral wetlands; it prefers open freshwater wetlands with dense cover nearby, such as the edges of rivers and creeks, bogs, swamps, waterholes. The species is wide spread in southeast Australia and most of its population occurs in Victoria, except in the northwest of the state (Naarding 1983; Higgins & Davies 1996).	4	20/9/18	Possible habitat exists along Werribee River corridor, although no large wetlands close by. **Unlikely to occur regularly.**
Little Eagle	*Hieraaetus morphnoides*			Vulnerable	Over wooded and forested lands and open country of Aust. Range extending into arid zone. Most abundant in open forest and woodland (Marchant & Higgins 1993).	2	1/1/95	Habitat is suitable. **Likely to occur**.
Masked Owl	*Tyto novaehollandiae*			Critically Endangered	Open woodlands and forests that provide dense and tall tree cover, and adjoining open habitats such as cleared farmlands. In Victoria, most widespread in E. Gippsland (Higgins 1999).	2	1/1/95	Habitat could be suitable (a few large hollow trees in agricultural landscape) but few recent or nearby records. **Unlikely to occur.**
Osprey	*Pandion cristatus*		M (Bonn A2S)		Rare vagrant to Victoria (Marchant & Higgins 1993). Littoral and coastal habitats and terrestrial wetlands. They are mostly found in coastal areas but occasionally travel inland along major rivers (Johnstone & Storr 1998; Marchant & Higgins 1993; Olsen 1995). They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Painted Honeyeater	*Grantiella picta*	Vulnerable		Vulnerable	Inhabits box-ironbark forests and woodlands and mainly feeds on the fruits of mistletoe. Strongly associated with mistletoe around the margins of open forests and woodlands. Can also be found in farmland containing remnant treed vegetation. Occurs at few localities. Uncommon breeding migrant from further north, arriving in	None	N/A	Little or no suitable habitat (mistletoe) and no recent or nearby records. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
					October and leaving in February (Higgins et al. 2001; Tzaros 2005).			
Pectoral Sandpiper	*Calidris melanotos*		M (Bonn A2H, ROKAMBA, JAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Plains-wanderer	*Pedionomus torquatus*	Critically Endangered		Critically Endangered	This species is highly sensitive to changes in grassland cover and density. Typically inhabits treeless native grasslands with sparse cover, with a preference for grasslands composed of wallaby grass and spear grass (Marchant & Higgins 1993). Habitat becomes unsuitable when grassland becomes dense (CA 2016). Evidence suggests it avoids areas of tree cover, with no records of the species within 300m of trees (>10m high) in their strongholds in New South Wales or Victoria (CA 2016).	None	N/A	Little or no suitable habitat and no recent or nearby records. **Unlikely to occur.**
Powerful Owl	*Ninox strenua*			Vulnerable	Found in open and tall wet sclerophyll forests with sheltered gullies and old growth forest with dense understorey. They are also found in dry forests with box and ironbark eucalypts and River Red Gum. Large old trees with hollows are required by this species for nesting. In Victoria, the Powerful Owl is widespread, having been recorded from most of the state. However, throughout its range it is uncommon and occurs in low densities (Higgins 1999). Also occurs in highly urbanised areas, such as metropolitan Melbourne, where they are heavily reliant upon various forms of movement corridors (riparian strips, roadside vegetation and recreational reserves) to both hunt within and navigate throughout the landscape (Carter et al. 2019).	15	23/2/21	Habitat likely to be suboptimal (a few mature trees with hollows along Werribee River corridor). **Unlikely to occur regularly.**
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered		Critically Endangered	Inhabits dry box-ironbark eucalypt forests near rivers and creeks on inland slopes of the Great Dividing Range. Can also occur in small remnant patches or in mature trees in farmland or partly cleared agricultural land (Higgins et al. 2001).	None	N/A	Habitat suboptimal (few large old eucalypts that would flower profusely) and no recent or nearby records. **Unlikely to occur.**
Rufous Fantail	*Rhipidura rufifrons*		M (Bonn A2H)		In east and south-east Australia, mainly inhabits tall wet sclerophyll forests, often in gullies. When on passage in warmer months, they are sometimes recorded in drier sclerophyll forests and woodlands, as well as parks and gardens (Higgins et al. 2006). Virtually absent from south-eastern Australia during winter (Higgins et al. 2006).	3	15/1/02	Habitat is sub-optimal but could occur in wooded areas (Werribee River corridor) on migration. **Potential to occur.**
Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn A2H)		Mostly found in eucalypt forest, particularly tall wet forests and woodland within gullies (Higgins et al. 2006). Also inhabits eucalypt woodland comprising an open understorey and a grassy ground layer (Higgins et al. 2006). Generally absent from rainforest (Higgins et al. 2006).	15	28/11/08	Habitat is sub-optimal but could occur in wooded areas (Werribee River corridor) on migration. **Potential to occur.**
Sharp-tailed Sandpiper	*Calidris acuminata*		M (Bonn A2H, ROKAMBA, JAMBA, CAMBA)		Inhabit shallow fresh to saline wetlands, usually coastal to near-coastal, but occasionally farther inland. Wetlands often have open fringing mudflats and low emergent or fringing vegetation (Higgins & Davies 1996).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Swift Parrot	*Lathamus discolor*	Critically Endangered		Critically Endangered	Prefers a select range of eucalypts in Victoria, including Yellow Gum, Grey Box, White Box, Red Ironbark and Yellow Box, as well as River Red-gum when this species supports abundant 'lerp' (Saunders & Tzaros 2011). The species is also known to forage within planted stands of Spotted Gum and Sugar Gum (Nature Advisory; unpublished data). Breeds in Tasmania and migrates to the mainland of Australia for the autumn, winter and early spring months. It lives mostly north of the Great Dividing Range, passing through two areas of Victoria on migration: the Port Phillip district and Gippsland (Emison et al. 1987; Higgins 1999; Kennedy & Tzaros 2005). Though it is also not uncommonly sighted in urban areas (Nature Advisory; unpublished data). Occurrence of this species on the mainland can substantially change from year to year depending on food availability, giving potential for this species to occur almost anywhere throughout its range (Emison et al. 1987).	None	N/A	Habitat is limited and sub-optimal (a few scattered and planted Swamp Gum and River Red-gum). **Unlikely to occur regularly.**
White-throated Needletail	*Hirundapus caudacutus*	Vulnerable	M (CAMBA, ROKAMBA, JAMBA)	Vulnerable	Aerial, over all habitats, but probably more over wooded areas, including open forest and rainforest. Often over heathland and less often above treeless areas such as grassland and swamps or farmland (Higgins 1999).	5	18/1/19	Habitat is suitable. **Likely to occur** (flying over).
Yellow Wagtail	*Motacilla flava*		M (CAMBA, JAMBA, ROKAMBA)		Regular non-breeding visitor in northern Australia mainly spring-summer, vagrant to the south. Occupies a wide range of habitats, usually open areas with low vegetation such as crop, grassland and even parkland. Often recorded near water (Higgins, Peter & Cowling 2006)	None	N/A	No suitable habitat and no recent or nearby records. Vagrant to Victoria. **Unlikely to occur.**
Mammals								
Brush-tailed Phascogale	*Phascogale tapoatafa*			Vulnerable	Dry forest and woodland in association with box, ironbark and stringybark eucalypts (Menkhorst 1995). Closely associated with remnant vegetation, this species occupies large home ranges of woodland habitat (M=100Ha; F=20-70Ha) (Menkhorst 1995).	12	1/3/20	Habitat is unsuitable (little or no contiguous remnant forest or woodland). Nearby population are associated with larger forest blocks. **Unlikely to occur.**
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable		Vulnerable	Brisbane, Newcastle, Sydney and Melbourne are occupied continuously. Elsewhere, during spring, they are uncommon south of Nowra and widespread in other areas of their range. Roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas (DAWE 2022b).	None	N/A	Limited habitat (flowering eucalypts and fruit-bearing planted trees) and no recent or nearby records. **Unlikely to occur regularly.**
Platypus	*Ornithorhynchus anatinus*			Vulnerable	Inhabits freshwater streams, ranging from alpine creeks to tropical lowland rivers; also lakes, shallow reservoirs and farm dams (Menkhorst and Knight 2001).	4	29/3/06	Suitable habitat exists. A few recent or nearby records. **Potential to occur** (along Werribee River.)
Southern Greater Glider	*Petauroides volans*	Vulnerable		Vulnerable	In Victoria, this species inhabits forest habitats dominated by peppermint, stringybark, ash and gum eucalypts (Menkhorst 1995). Restricted to the central highlands and eastern Victoria, and common in areas of high rainfall. Rare in dry stringybark-box and Snow Gum forest, and does not occur in the box-ironbark or River Red-gum dominated riverina regions (Menkhorst 1995).	57	17/3/21	Habitat suboptimal (not a continuous large block or remnant eucalypt forest). Numerous records in forested country to the north, but no recent records (since 1933) in cleared country surrounding Ballan. **Unlikely to occur.**
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered		Endangered	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	1	25/3/15	Habitat is suitable but few recent or nearby records. Species occurs at very low densities, mainly in large forest blocks in Victoria. **Unlikely to occur regularly**

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Yellow-bellied Glider	*Petaurus australis*	Vulnerable			Patchily distributed in higher-rainfall forest of southern and mountain districts in Victoria, extending to NSW and to Mackay area of Queensland along the coast and ranges (Menkhorst 1995; Menkhorst & Knight 2001).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Reptiles								
Pink-tailed Worm-Lizard	*Aprasia parapulchella*	Vulnerable		Endangered	Sites where the species is found generally include rocky outcrops or scattered partly buried rocks. This species is diurnal and largely fossorial, sheltering under rocks and vegetation, and in the burrow passages of small ants and termites within grassland and woodland habitats of south-eastern Australia (Robertson & Coventry 2019). It feeds primarily on the larvae and eggs of ants. In Victoria, the species is largely restricted to box-ironbark woodland in the greater Bendigo region, though it may also persist elsewhere in the state (Robertson & Coventry 2019).	None	N/A	No suitable habitat and no recent or nearby records. **Unlikely to occur**.
Striped Legless Lizard	*Delma impar*	Vulnerable		Endangered	Grassland specialist. Known to occur in some areas dominated by introduced species such as Harding Grass *Phalaris aquatica*, Serated Tussock *Nasella trichotoma* and Flatweed *Hypocharis radicata* and at sites with a history of grazing and pasture improvement. shelter in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows, and under ground debris such as timber. The majority of sites in Victoria and NSW occur on cracking clay soils with some surface rock which provide shelter for the species (DAWE 2020).	None	N/A	Small area of potentially suitable habitat. However, few records in elevated section of volcanic plain between Melton and Ballarat, closest to site is at Lerderderg River valley 23 km to the east (DELWP 2022 NatureKit). **Unlikely to occur**.
Tussock Skink	*Pseudemoia pagenstecheri*			Endangered	Tussock grasslands with few or no trees (Wilson & Swan (2003).	15	15/2/08	Small area of potentially suitable habitat. **Potential to occur**.
Fish								
Australian Grayling	*Prototroctes maraena*	Vulnerable		Endangered	Large and small coastal streams and rivers with cool, clear waters with a gravel substrate and altering pools and riffles (Cadwallader & Backhouse 1983).	None	N/A	There appear to be no records in the Werribee River catchment (DELWP 2022). **Unlikely to occur**.
Dwarf Galaxias / Little Galaxias	*Galaxiella pusilla / toourtkoourt*	Vulnerable		Endangered	In Victoria, this species complex ranges from the far west of the state through to the Mitchell River basin in central Gippsland. Species has been split with western Victorian populations known as Little Galaxias *Galaxiella toourtkoourt*. Vegetated margins of still water, ditches, swamps and backwaters of creeks, both ephemeral and permanent (Allen et al. 2002). Some wetlands where it occurs may partially or completely dry up during summer, with such wetlands reliant on seasonal flooding plus linkages to other sites where the species occurs, for habitat and population replenishment (Saddlier, Jackson & Hammer 2010). Dwarf Galaxias is also often found in association with burrowing freshwater crayfish (*Engaeus spp*.), with the crayfish burrows reportedly providing refuge from predators and dry conditions for the species (Saddlier, Jackson & Hammer 2010).	None	N/A	There appear to be no records of either taxon in the Werribee River catchment (DELWP 2022). **Unlikely to occur.**
Yarra Pygmy Perch	*Nannoperca obscura*	Vulnerable		Vulnerable	Streams and small lakes, prefers flowing water with abundant aquatic vegetation (Allen et al. 2002).	None	N/A	There appear to be no records in the Werribee River catchment (DELWP 2022). **Unlikely to occur**.

Common Name	Scientific name	EPBC-T	EPBC-M	FFG	Habitat	Number of records	Date of last record	Likelihood of occurrence
Invertebrates								
Golden Sun Moth	*Synemon plana*	Vulnerable		Vulnerable	Areas that are, or have been native grasslands or grassy woodlands. It is known to inhabit degraded grasslands with introduced grasses being dominant, with a preference for the native wallaby grass being present (DEWHA 2009). Also known to be closely associated with exotic grass species, with populations found in grassland almost entirely composed of Chilean needlegrass (Richter et al. 2013).	None	N/A	Little or no suitable habitat; no recent or nearby records. **Unlikely to occur**.
Frogs								
Growling Grass Frog	*Litoria raniformis*	Vulnerable		Vulnerable	Permanent, still or slow flowing water with fringing and emergent vegetation in streams, swamps, lagoons and artificial wetlands such as farm dams and abandoned quarries (Clemann & Gillespie 2004).	1	15/3/10	Potential habitat exists, although apparent paucity of wintering habitat of rocks or logs along the Werribee River corridor). **Potential to occur**.

Notes: EPBC-T = threatened species status under EPBC Act; **EPBC-M**: migratory status under the EPBC Act (M = listed migratory taxa; Bonn Convention (A2H) - Convention on the Conservation of Migratory Species of Wild Animals – listed as a member of a family; Bonn Convention (A2S) - Convention on the Conservation of Migratory Species of Wild Animals - species listed explicitly; CAMBA - China- Australia Migratory Birds Agreement; JAMBA - Japan-Australia Migratory Birds Agreement; ROKAMBA - Republic of Korea Australia Migratory Birds Agreement); **FFG =** listed as threatened under the FFG Act.

5.5.3. Susceptibility of listed fauna to impacts

The following analysis identifies the susceptibility to development of listed fauna species which may utilise the study area. This analysis includes consideration of the factors below.

- The mobility of the species
- The availability and extent of other suitable habitat in the region and the degree to which each species may rely on habitat in the study area

Targeted surveys will be required to determine the presence or absence of any listed fauna species considered to be susceptible to impacts from development.

Birds (non-migratory)

One listed non-migratory bird species are considered to have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

- Gang-gang Cockatoo (EPBC Act: Endangered)

This species although uncommon in the district (Thomas and Wheeler, 1983), may use the Werribee River riparian corridor as a dispersal route from forested areas in spring-summer to more open areas in autumn-winter. There are potential foraging resources (e.g. introduced Hawthorn *Crataegus monogyna*) in the study area so the species may be expected to occur, although it would not depend on this habitat. There is ample alternative habitat in the surrounding district to cater for this species' requirements. Provided that the vegetation along the Werribee River corridor remains largely intact such that its role as a fauna movement corridor in retained or enhanced, there should be **little or no adverse impact** upon regional Gang-gang Cockatoo populations.

- Little Eagle (FFG Act: Vulnerable)

This species although uncommon to rare in the wider district (Thomas and Wheeler, 1983), may transit the study area or traverse the site for short periods during foraging or dispersal. In view of this species' large home range and low density population, it is probable that the small extent of habitat loss would **have a minimal impact** on regional and overall populations of Little Eagle.

Migratory Birds

Four listed migratory bird species (excluding oceanic species and shorebirds) have the potential to occur in the study area. The susceptibility of these species to possible impacts from any development in the study area is discussed below.

- Fork-tailed Swift (EPBC Act: Migratory (JAMBA, CAMBA, ROKAMBA))

The Fork-tailed Swift migrates to Australia from east Asia to spend the period October to March. In Victoria it is usually present during a short period generally in summer and early autumn. It is aerial forager feeding on flying insects, usually occurring over open country (Emison et al. 1987; Higgins 1999). As such any impacts from development of the study area are likely to be **minimal**.

- Rufous Fantail (EPBC Act: Migratory (Bonn (A2H))

Rufous Fantails breed in southern and mountain districts of Victoria (and coast and ranges of NSW and Queensland) where they inhabit shady gullies in higher-rainfall forests and feed on insects. They are present from October to late March or early April, after which they move to tropical Australia and southern New Guinea (Emison et al. 1987; Higgins et al. 2006). The loss of a very small amount of habitat in the

study area is expected to have **negligible impact** of Rufous Fantail populations. Any impact could be avoided by retaining the native treed vegetation adjacent to the Werribee River.

- Satin Flycatcher ((EPBC Act: Migratory (Bonn (A2H))

The Satin Flycatcher breeds in southern and mountain districts of Victoria, Tasmania and as far north as the Blue Mountains NSW, where they inhabit wet and dry sclerophyll forests and feed on insects. They are present from September to late March, after which they move to southern New Guinea for the duration of the winter (Emison et al. 1987; Higgins et al. 2006). The small amount of habitat to be affected in the study area is expected to have **negligible impact** of Satin Flycatcher populations. Any impact could be avoided by retaining the native treed vegetation adjacent to the Werribee River

- White-throated Needletail (EPBC Act: Vulnerable, Migratory (JAMBA, CAMBA, ROKAMBA))

The White-throated Needletail migrates to Australia from east Asia to spend the period September to March. It is an aerial forager of flying insects. In Victoria it generally occurs over forested country of the highlands and coasts, less commonly inland or over open country or urban areas. Peak numbers are usually recorded in late summer and early autumn in Victoria ((Emison et al. 1987; Higgins 1999). As such any impacts from development of the study area are likely to be **minimal**.

Mammals

One listed mammal species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

- Platypus (FFG Act: Vulnerable).

The Platypus could occur along the channel of the Werribee River but is unlikely to depend on the study area *per se* for its requirements. Mitigation measures that should result in minimal adverse impact upon the regional Platypus population are the retention or enhancement of vegetation along the Werribee River corridor to maintain its integrity as a fauna movement corridor, and controls to prevent sedimentation and pollution of the river during construction.

Reptiles

One listed reptile species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

- Tussock Skink (FFG Act: Endangered).

The Tussock Skink may occur in the dense grassy slopes leading down to the Werribee River at the north-eastern end of the study area (in the area currently fenced off from the main stock grazing parts of the site). Provided this corridor is retained or enhanced, there should be little direct impact on any Tussock Skink population that may be present.

Frogs

One listed frog species is considered to have the potential to occur in the study area. The susceptibility of this species to possible impacts from any development in the study area is discussed below.

- Growling Grass Frog (GGF) (EPBC Act: Vulnerable, FFG Act: Vulnerable).

Although there are few recent nearby records (DELWP 2022), this species could reach the study area along the Werribee River corridor. The one farm dam provides suboptimal habitat – although it has fringing vegetation, it lacks floating and emergent vegetation and nearby wintering cover (rocks or logs) that would suit Growling Grass Frog. Nonetheless the occurrence of GGF in the study area cannot be

excluded. Provided the vegetation and aquatic habitats of the Werribee River corridor are retained and/or enhanced, there should be no adverse impact of any GGF populations at the regional level that may arise from this development. Sedimentation and pollutions controls should be applied during the construction phase of the development and consideration given to retention and enhancement of the dam to become a wetland suitable for frogs including GGF.

Fish

No listed fish species is considered to have the potential to occur in the study area.

Invertebrates

No listed invertebrate species is considered to have the potential to occur in the study area.

5.6. Listed ecological communities

The EPBC Protected Matters Search Tool (DAWE 2022) indicated that five ecological communities listed under the EPBC Act had the potential to occur in the search region (Table 5). Their occurrence in the study area was determined based on an assessment of the native vegetation present against published descriptions and condition thresholds for these communities.

Table 5: EPBC Act listed ecological communities and likelihood of occurrence in the study area

Ecological Community	EPBC Status	Occurrence in the study area
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	CR	Patches were remnants of a riverine system, rather than being associated with plains supporting cracking clay soils. Occurrence of canopy species was associated with a riverine environment, which is contra-indicative of this community. Roadside patches have been highly modified and canopies are likely to contain a number of planted individuals among sparse remnant trees. Kangaroo Grass, characteristically the dominant or co-dominant ground-layer species, was absent or of negligible occurrence in patches. **Does not occur.**
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	EN	The characteristic canopy species (Grey Box) was absent in remnant patches, and given historical mapping of EVCs, did not exhibit prior dominance or co-dominance. **Does not occur.**
Natural Temperate Grassland of the Victorian Volcanic Plain	CR	Patches were remnants of historically treed Riparian or Plains Grassy Woodland (EVC 641, 55_61), which is contra-indicative of grassland habitat. Patches lacked cracking clay soils, semi-arid elements, and characteristic herbs. **Does not occur.**

Ecological Community	EPBC Status	Occurrence in the study area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	CR	Patches were remnants of historically treed Riparian or Plains Grassy Woodland (EVC 641, 55_61), which is contra-indicative of this wetland community. Remnant patches were associated with a riverine system, rather than seasonally inundated plains. Hydrology is likely influenced by overbank flooding of the Werribee River, rather than rainfall. This is contra-indicative of this community's hydrology. **Does not occur.**
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CR	Characteristic canopy species were absent in remnant patches, and given historical mapping of EVCs, did not exhibit prior dominance or co-dominance. **Does not occur.**

Notes: EPBC = status under the EPBC Act (CR = Critically Endangered; EN = Endangered; VU = Vulnerable).

6. Assessment of impacts

6.1. Proposed development

The current proposal will involve rezoning for development purposes, with the exception of a conservation reserve along the Werribee Creek corridor in the. This reserve retains Habitat Zones A, B and C, as well as the majority of roadside vegetation as shown in Fig 2.

6.2. Design recommendations

The following design recommendations are provided to avoid/minimise impacts on native vegetation, and flora and fauna habitats:

- If the land is developed following rezoning, the development footprint should avoid native vegetation adjacent to Werribee River. This could be incorporated into a development as an adjacent nature reserve, which will allow for the preservation of environmental values.
- Scattered remnant trees should be incorporated into future developments where possible. As many large trees were found to support hollows, their preservation will also support valuable fauna nesting and roosting opportunities.

Further mitigation recommendations to mitigate impacts to native vegetation during construction are provided in Section 7.7.

6.2.1. Native vegetation

The proposed development will result in the following impacts to native vegetation:

- 0.173 hectares of native vegetation in patches; and
- Three large scattered trees, equating to an area loss of 0.21 hectares.

To determine impacts to native vegetation, the proposed development plan was overlaid with the native vegetation mapped as part of this investigation. Where mapped native vegetation intersects with the development layout, this was considered to be impacted. Trees are deemed impacted when the development footprint encroaches on the Tree Protection Zone (TPZ)[4]. In addition to this, the following instances of consequential removal were accounted for:

- Native vegetation within 10 metres of all proposed building envelopes.
- Native vegetation within 2 metres on either side of all proposed lot boundaries (to address the future *Fences* exemption as (per Cl. 52.17-7).
- Native vegetation required to be removed to establish defendable space.
- Trees with the more than 10% of their TPZ encroached OR deemed lost by Arboricultural Impact Assessment report.

[4] In accordance with the *Assessor's Handbook* (DELWP 2018a), a tree is deemed lost when earthworks encroach on more than 10% of the Tree Protection Zone (TPZ), unless deemed otherwise by an arborist. However, trees which form part of a 'patch' of native vegetation are not required to be individually mapped in accordance with the habitat hectare assessment method, unless they meet the minimum DBH of a large tree under the relevant EVC Benchmark.

- For subdivisions Native vegetation on new lots with an area of less than 0.4 hectares (to account for future *Site area* exemption from the requirement for a permit application as per Cl. 52.17-7or52.16-8).
- Native vegetation occurring with a 2 metre construction buffer from the outermost extent of earthworks

Photographs of native vegetation and other site values are provided in Appendix 6.

6.2.2. Listed flora species

The analysis of the likelihood of occurrence of listed flora species presented in Section 5.3.2 identified that the following are likely to occur or have the potential to occur:

- Swamp Everlasting – Vulnerable (EPBC Act); Critically Endangered (FFG Act)
- River Swamp Wallaby-grass – Vulnerable (EPBC Act)
- Adamson's Blown-grass – Endangered (EPBC Act); Endangered (FFG Act)

Targeted surveys during a seasonally appropriate time would be required to confirm the occurrence of these species within the study area and subsequently the potential impacts from the proposal. Table 6 below provides a timeline of suitable months to conduct targeted surveys for each of these species. This is based on when each species is readily identifiable.

Table 6: Listed flora species and suitable timing for targeted surveys

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Swamp Everlasting	X	X	X								X	X
River Swamp Wallaby-grass	X	X	X								X	X
Adamson's Blown-grass	X	X									X	X

Implications under the EPBC Act are discussed in Section 7.3 while implications under the FFG Act are detailed in Section 7.4.

Determination of impacts are dependent upon a development footprint. **Native vegetation adjacent to Werribee River should be avoided, as this has the potential to support the aforementioned listed species.**

6.2.3. Fauna habitat

A few large hollow-bearing trees are expected to be removed from grazing paddocks. These provide valuable habitat as breeding and roosting sites for common native fauna. If removal of these large paddock trees can be avoided or minimised, fauna outcomes from the development would be maximised.

6.2.4. Listed fauna species

The analysis of susceptibility of listed fauna species to impacts presented in Section 5.5.3 identified that the following species could be impacted by any development in the study area:

- Growling Grass Frog (EPBC Act: Vulnerable, FFG Act: Vulnerable).

This species, if present in the study area, may suffer from sedimentation and pollution from uncontrolled runoff of storm water into the channel of the Werribee River arising from the proposed development. However, it is anticipated that the use of standard sediment controls will mitigate such impacts.

- Platypus (FFG Act: Vulnerable).

This species, if present in the study area, may suffer from sedimentation and pollution from uncontrolled runoff of storm water into the channel of the Werribee River arising from the proposed development. However, it is anticipated that the use of standard sediment controls will mitigate such impacts.

- Tussock Skink (FFG Act: Endangered).

This species, if present in the study area, may suffer from loss of habitat during construction in close proximity to the proposed development. It is recommended that adequate buffers be fenced off from construction plant and equipment to prevent this inadvertent loss of potential habitat.

It is considered that the residual impacts of the proposal on fauna habitat could impact the following species:

- Tussock Skink (FFG Act: Endangered).

This species, if present in the study area, may suffer indirect effects from predation by cats and deterioration of its habitat by rubbish dumping and weed intrusion and direct human disturbance, due to close proximity of the proposed development.

6.2.5. Threatened ecological communities

The likelihood of occurrence analysis indicated that the study area is unlikely to support any EPBC or FFG listed communities (Table 5). Therefore, there are no anticipated impacts to listed communities from the proposal.

7. Implications under legislation and policy

7.1. Summary of planning implications

Under the *Environmental Significance Overlay – Schedule 1 (ESO1),* a permit is required to construct a building or construct or carry out works, as well as subdivide land.

The following application requirements apply to an application for a permit under Clause 42.01, in addition to those specified elsewhere in the scheme and must accompany an application to the satisfaction of the responsible authority:

- Details of slope, soil type and vegetation.
- Details of any excavation proposed, and any vegetation proposed to be removed, destroyed or lopped.
- An application to construct buildings or to carry out or construct works must be accompanied by a report which demonstrates the following:
  - The land is capable of absorbing sewage and sullage effluent generated on the lot.
  - The design of any wastewater treatment facility will ensure that wastewater will not enter any waterway, dam or wetland.
  - Any excavation will be carried out and maintained to prevent erosion and the siltation of any waterway or wetland.
  - Any removal, destruction or lopping of vegetation will not compromise the quality of water within proclaimed catchment areas.
  - The siting of buildings and wastewater treatment systems will not compromise the quality of water within proclaimed catchment areas.

A planning permit under Clause 52.17 of the Moorabool Planning Scheme is required for the removal of native vegetation.

7.2. Implications under the Guidelines

7.2.1. Impacts to native vegetation

The proposed development will result in the loss of a total extent of 0.383 hectares of native vegetation under the Guidelines as represented in Figure 2 and documented in the Native Vegetation Removal (NVR) report provided by DEECA (Appendix 9).

This comprised the following:

- 0.173 hectares of native vegetation in patches; and
- Three large scattered trees, equating to an area loss of 0.21 hectares.

The native vegetation to be removed is in an area mapped as an endangered Ecological Vegetation Class.

Photographs of native vegetation proposed for removal are provided in Appendix 6.

7.2.1. Avoid and minimise statement

In accordance with the Guidelines, all applications to remove native vegetation must provide an avoid and minimise statement that describes any efforts undertaken to avoid the removal of, and minimise the impacts to biodiversity and other values of native vegetation, and how these efforts were focused on

areas of native vegetation with the highest value. Efforts to avoid and minimise impacts to native vegetation in the current application are presented as follows:

- Strategic level planning – The development has incorporated a conservation area along the Werribee River corridor. It will incorporate revegetation and landscape management. This conservation are will strategically link and enhance habitat along the corridor and for native flora and fauna.
- Site level planning –development has been designed to avoid and minimise impacts to native vegetation where possible. Most trees within the layout area are being retained, only those necessary are proposed for removal. Vegetation removed along the roadside corridor is limited to one required access point.

7.2.2. Modelled species important habitat

The current proposal footprint will not have a significant impact on habitat for any rare or threatened species as determined in the NVR Report (Appendix 9).

7.2.3. Assessment pathway

The assessment pathway is determined by the location category and extent of native vegetation as detailed for the study area as follows:

- **Location Category:** Location 2
- **Extent of native vegetation:** A total of 0.383 hectares of native vegetation (including 3 large trees).

Based on the extent of native vegetation removal being <0.5 hectares, including at least one large tree, and being in Location 2, the Guidelines stipulate that the proposal is to be assessed under the **Intermediate** assessment pathway, as determined by the following matrix:

Table 7: Assessment pathway matrix

Extent of native vegetation	Location Category		
	Location 1	Location 2	Location 3
< 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
< 0.5 hectares and including one or more large trees	Intermediate	**Intermediate**	Detailed
≥ 0.5 hectares	Detailed	Detailed	Detailed

This proposal **would not** trigger a referral to DEECA based on the above criteria.

7.2.4. Offset requirements

Offsets required to compensate for the proposed removal of native vegetation from the study area are as follows:

- 0.088 general habitat units and must include the following offset attribute requirements:
    - Minimum strategic biodiversity value (SBV) of 0.398.
    - Occur within the Melbourne Water or Corangamite CMA boundaries or the Moorabool Shire municipal district.
    - Include protection of at least 3 large trees.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

7.2.5. Offset statement

The offset target for the current proposal will be achieved via a third-party offset.

An online search of the Native Vegetation Credit Register (NVCR) has shown that the required offset is currently available for purchase from a native vegetation credit owner (DEECA 2023d).

Evidence that the required offset is available is provided in Appendix 10. The required offset would be secured following approval of the application to remove native vegetation.

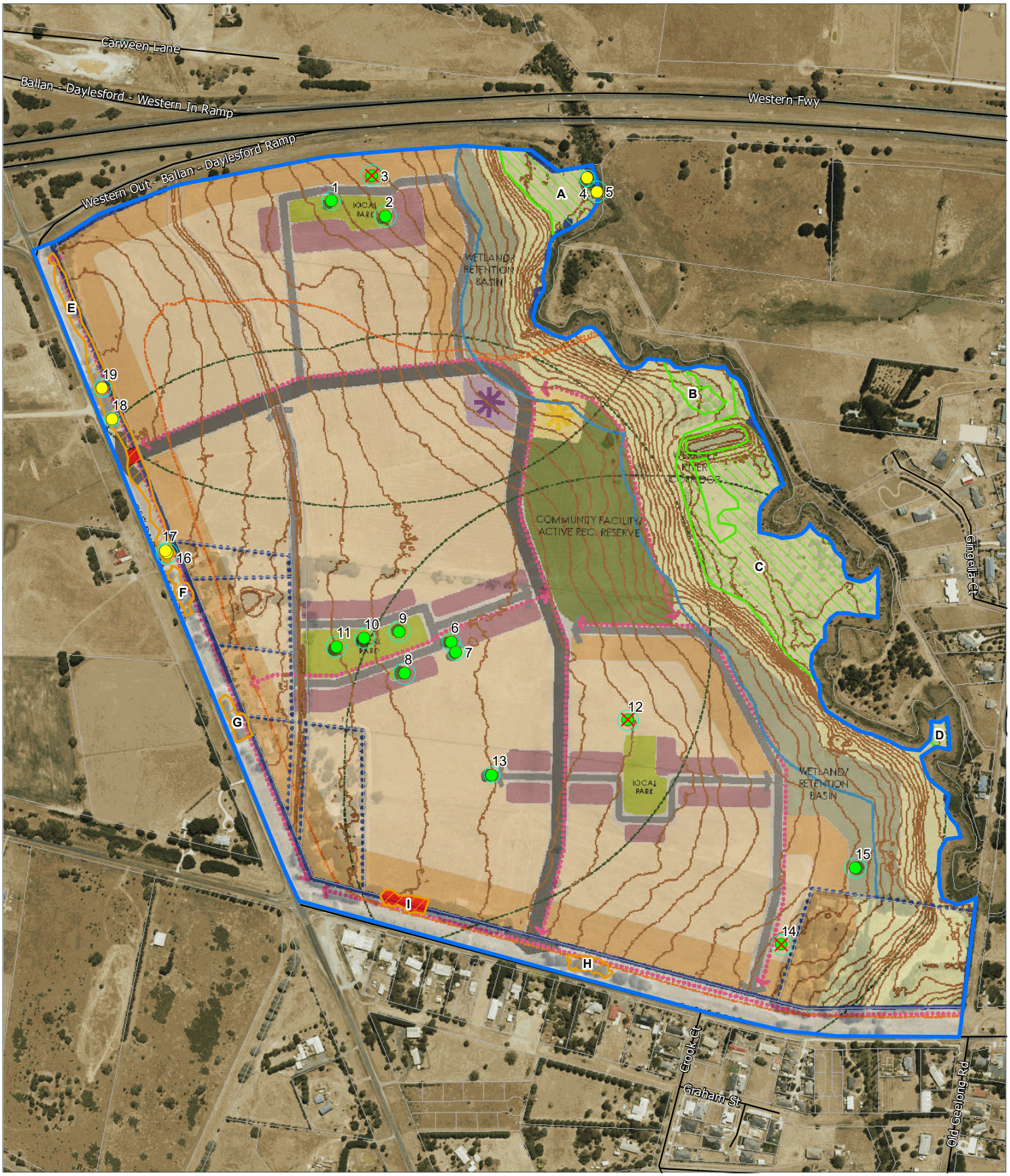

Figure 2: Native vegetation to be removed

Project: Parcel 5, Ballan Framework Plan **Client**: Wel.Co **Date**: 3/07/2023

- Study area
- Large tree in patch
- Large scattered tree
- Riparian Woodland (EVC 641)
- Plains Grassy Woodland (EVC 55)
- Tree to be removed
- Native vegetation to be removed

N

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7.3. EPBC Act

The EPBC Act protects a number of threatened species and ecological communities that are considered to be of national conservation significance. Any significant impacts on these species require the approval of the Australian Minister for the Environment.

Impacts on EPBC-listed values are dependent upon the determination of a development footprint. The following values may be affected by development of the study area:

- Swamp Everlasting – Vulnerable (EPBC Act)
- River Swamp Wallaby-grass – Vulnerable (EPBC Act)
- Adamson's Blown-grass – Endangered (EPBC Act)

Targeted surveys may be required to determine the status of these values if development was to occur in potential habitat areas.

7.4. FFG Act

The Victorian FFG Act lists threatened and protected species and ecological communities (DELWP 2018b, DELWP 2017b). Any removal of threatened flora species or communities (or protected flora) listed under the FFG Act from public land requires a Protected Flora Permit under the Act, obtained from DELWP.

The FFG Act only applies to private land in relation to the commercial collection of grasstrees, tree-ferns and sphagnum moss.

The following FFG Act values listed as threatened or protected are susceptible to impacts from the proposed development within the road reserves on public land;

- Jersey Cudweed
- Cotton Fireweed
- Black Wattle
- Blackwood
- Narrow-leaf Wattle

The adjacent roadside reserves addressed in this assessment is public land; therefore, a Protected Flora Licence or Permit under the FFG Act would be required for the current proposal, if it involves removal of the above species from public land.

7.5. EE Act

The *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (DSE 2006), identifies criteria which trigger a Referral to the State Minister for Planning.

Based on the relevant criteria, a Referral to the state Minister for Planning will not be required under the EE Act for the aspects covered by the current investigation.

7.6. CaLP Act

The *Catchment and Land Protection Act 1994* (CaLP Act) requires that landowners (or a third party to whom responsibilities have been legally transferred) must eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds.

Property owners who do not eradicate Regionally prohibited weeds or prevent the growth and spread of Regionally controlled weeds for which they are responsible, may be issued with a Land Management Notice or Directions Notice that requires specific control work to be undertaken.

In accordance with the *Catchment and Land Protection Act 1994*, the noxious weed species listed below, which were recorded in the study area, must be controlled.

- Spear Thistle
- Blackberry
- Hawthorn
- Gorse

Precision control methods that minimise off-target kills (e.g. spot spraying) should be used in environmentally sensitive areas (e.g. within or near native vegetation, waterways, etc.).

7.7. Construction mitigation recommendations

Additional recommendations to mitigate impacts to vegetation, in response to any planned development, are provided below:

- Where possible avoid impacts to patches of native vegetation, scattered trees and the riparian corridor along the Werribee River.
- Establish appropriate vegetation protection zones around areas of native vegetation to be retained prior to works.
- Establish appropriate tree protection zones around scattered native trees to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside vegetation/tree protection zones.
- A suitably qualified zoologist should undertake a pre-clearance survey of planted trees to be removed in the week prior to removal to identify the presence of any nests or hollows.
- If considered necessary based on the results of the pre-clearance survey, a suitably qualified zoologist should be on site during any tree removal works to capture and relocate any misplaced fauna that may be present.

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Appendix 1:Details of the assessment process in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017a)

Purpose and objective

Policies and strategies relating to the protection and management of native vegetation in Victoria are defined in the State Planning Policy Framework (SPPF). The objective identified in Clause 12.01 of all Victorian Planning Schemes is 'To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation'.

This is to be achieved through the following three-step approach, as detailed in the Guidelines:

1. Avoid the removal, destruction or lopping of native vegetation.
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Note: While a planning permit may still be required, if native vegetation does not meet the definition of either a patch or a scattered tree, an offset under the Guidelines is not required.

Assessment pathways

The first step in determining the type of assessment required for any site in Victoria is to determine the assessment pathway for the proposed native vegetation removal. The three possible assessment pathways for applications to remove native vegetation in Victoria are:

- Basic;
- Intermediate; or
- Detailed.

This assessment pathway is determined by two factors:

- **Location Category**, as determined using the states' Location Map. The location category indicates the potential risk to biodiversity from removing a small amount of native vegetation. The three location categories are defined as:
  - Location 1 – shown in light blue-green on the Location Map; occurring over most of Victoria.
  - Location 2 – shown in dark blue-green on the Location Map; includes areas mapped as endangered EVCs and/or sensitive wetlands and coastal areas.
  - Location 3 – shown in brown on the Location Map; includes areas where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for rare and threatened species.
- **Extent of native vegetation** – The extent of any patches and scattered trees proposed to be removed (as well as the extent of any past native vegetation removal), with consideration as to whether the proposed removal includes any large trees. Extent of native vegetation is determined as follows:
  - **Patch** – the area of the patch in hectares.
  - **Scattered Tree** – the extent of a scattered tree is dependent on whether the scattered tree is small or large. A tree is considered to be a large tree if it is greater or equal to the large tree benchmark diameter at breast height (DBH) for the relevant bioregional EVC. Any scattered

tree that is not a large tree is a small scattered tree. The extent of large and small scattered trees is determined as follows:

Large scattered tree – the area of a circle with a 15-metre radius, with the trunk of the tree at the centre.

Small scattered tree – the area of a circle with a ten-metre radius, with the trunk of the tree at the centre.

The assessment pathway for assessing an application to remove native vegetation is then determined as detailed in the following matrix table:

Extent of native vegetation	Location Category		
	Location 1	Location 2	Location 3
< 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
< 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
≥ 0.5 hectares	Detailed	Detailed	Detailed

Note: If the native vegetation to be removed includes more than one location category, the higher location category is used to determine the assessment pathway.

Landscape scale information – strategic biodiversity value

The strategic biodiversity value (SBV) is a measure of a location's importance to Victoria's biodiversity, relative to other locations across the state. It is represented as a score between 0 and 1 and determined from the Strategic biodiversity value map, available from *NVIM* (DELWP 2020c).

Landscape scale information – habitat for rare or threatened species

Habitat importance for rare or threatened species is a measure of the importance of a location in the landscape as habitat for a particular rare or threatened species, in relation to other habitat available for that species. It is represented as a score between 0 and 1 and is determined from the Habitat importance maps, administered by DELWP.

This includes two groups of habitat:

- **Highly localised habitats** – Limited in area and considered to be equally important, therefore having the same habitat importance score.
- **Dispersed habitats** – Less limited in are and based on habitat distribution models.

Habitat for rare or threatened species is used to determine the type of offset required in the detailed assessment pathway.

Biodiversity value

A combination of site-based and landscape scale information is used to calculate the biodiversity value of native vegetation to be removed. Biodiversity value is represented by a general or species habitat score, detailed as follows.

Firstly, the extent and condition of native vegetation to be removed are combined to determine the habitat hectares as follows:

Habitat hectares = extent of native vegetation x condition score

Secondly, the habitat hectare score is combined with a landscape factor to obtain an overall measure of biodiversity value. Two landscape factors exist as follows:

- **General landscape factor** – determined using an adjusted strategic biodiversity score, and relevant when no habitat importance scores are applicable;
- **Species landscape factor** – determined using an adjusted habitat importance score for each rare or threatened species habitat mapped at a site in the Habitat importance map.

These factors are then used as follows to determine the biodiversity value of a site:

General habitat score = habitat hectares x general landscape factor

Species habitat score = habitat hectares x species landscape factor

Offset requirements

A native vegetation offset is required for the approved removal of native vegetation. Offsets conform to one of two types and each type incorporates a multiplier to address the risk of offset:

- A **general offset** is required when the removal of native vegetation does not have a significant impact on any habitat for rare or threatened species (i.e. the proportional impact is below the species offset threshold). In this case a multiplier of 1.5 applies to determine the general offset amount.

General offset (amount of general habitat units) = general habitat score x 1.5

- A **species offset** is required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species (i.e. the proportional impact is above the species offset threshold). In this case a multiplier of 2 applies to determine the species offset amount.

Species offset (amount of species habitat units) = Species habitat score x 2

Note: if native vegetation does not meet the definition of either a patch or scattered tree an offset is not required.

Offset attributes

Offsets must meet the following attribute requirements, as relevant:

- General offsets

- **Offset amount** – general offset = general habitat score x 1.5
- **Strategic biodiversity value (SBV)** – the offset has at least 80% of the SBV of the native vegetation removed
- **Vicinity** – the offset is in the same CMA boundary or municipal district as the native vegetation removed
- Habitat for rare and threatened species – N/A
- **Large trees** – the offset include the protection of at least one large tree for every large tree to be removed

- Species offsets
  - **Offset amount** – species offset = species habitat score x 2
  - Strategic biodiversity value (SBV): N/A
  - Vicinity: N/A
  - **Habitat for rare and threatened species** – the offset comprises mapped habitat according to the Habitat importance map for the relevant species
  - **Large trees** – the offset include the protection of at least one large tree for every large tree to be removed

Appendix 2: Detailed habitat hectare assessment results

Habitat Zone			A	B	C	D	E	F	G	H	I
Bioregion			VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP	VVP
EVC Number			641	641	641	641	55	55	55	55	55
Total area of Habitat Zone (ha)			0.943	0.267	4.266	0.094	0.788	0.115	0.134	0.12	0.134
Site Condition	Large Old Trees	/10	2	0	0	0	5	0	0	0	0
	No. large trees in habitat zone		2	0	0	0	4	0	0	0	0
	Tree Canopy Cover	/5	0	0	0	0	4	3	3	0	4
	Lack of Weeds	/15	0	4	0	0	0	0	0	0	0
	Understorey	/25	5	5	5	5	15	5	5	5	5
	Recruitment	/10	0	0	5	0	3	0	0	0	3
	Organic Matter	/5	4	3	4	4	3	3	5	2	2
	Logs	/5	0	0	0	0	0	0	0	2	2
	Site condition standardising multiplier*		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Site Condition subtotal		*11*	*12*	*14*	9	*30*	*11*	*13*	9	*16*
Landscape Context	Patch Size	/10	1	1	2	1	1	1	1	1	1
	Neighbourhood	/10	0	0	0	0	0	0	0	0	0
	Distance to Core	/5	1	1	1	1	1	1	1	1	1
Total Condition Score		**/100**	**13**	**14**	**17**	**11**	**32**	**13**	**15**	**11**	**18**

Appendix 3: Large trees in patches and scattered trees recorded in the study area

Tree no.	Common Name	Scientific Name	DBH (cm)	Habitat Category	Radius of TPZ (m)	Remove/Retain	Notes
1	Swamp Gum	*Eucalyptus ovata*	109	Large scattered tree	13.08	Retain	-
2	River Red-gum	*Eucalyptus camaldulensis*	150	Large scattered tree	18	Retain	Numerous hollows
3	Swamp Gum	*Eucalyptus ovata*	131	Large scattered tree	15.72	Retain	-
4	Swamp Gum	*Eucalyptus ovata*	92	Large tree in patch	11.04	Retain	-
5	Swamp Gum	*Eucalyptus ovata*	160	Large tree in patch	19.2	Retain	Numerous hollows
6	Swamp Gum	*Eucalyptus ovata*	109	Large scattered tree	13.08	Retain	-
7	Swamp Gum	*Eucalyptus ovata*	105	Large scattered tree	12.6	Retain	-
8	Swamp Gum	*Eucalyptus ovata*	127	Large scattered tree	15.24	Retain	-
9	Swamp Gum	*Eucalyptus ovata*	145	Large scattered tree	17.4	Retain	-
10	Swamp Gum	*Eucalyptus ovata*	151	Large scattered tree	18.12	Retain	-
11	Swamp Gum	*Eucalyptus ovata*	156	Large scattered tree	18.72	Retain	-
12	Swamp Gum	*Eucalyptus ovata*	142	Large scattered tree	17.04	Retain	-
13	Swamp Gum	*Eucalyptus ovata*	95	Large scattered tree	11.4	Retain	-
14	Swamp Gum	*Eucalyptus ovata*	150	Large scattered tree	18	Retain	-
15	Swamp Gum	*Eucalyptus ovata*	124	Large scattered tree	14.88	Retain	-
16	Swamp Gum	*Eucalyptus ovata*	146	Large tree in patch	15	Retain	Numerous hollows

Tree no.	Common Name	Scientific Name	DBH (cm)	Habitat Category	Radius of TPZ (m)	Remove/Retain	Notes
17	Swamp Gum	*Eucalyptus ovata*	81	Large tree in patch	9.72	Retain	-
18	Swamp Gum	*Eucalyptus ovata*	84	Large tree in patch	10.08	Retain	-
19	Swamp Gum	*Eucalyptus ovata*	103	Large tree in patch	12.36	Retain	Numerous hollows

Notes: DBH = Diameter at breast height (130 cm from the ground); **TPZ =** Tree Protection Zone.

Appendix 4: Flora species recorded in the study area

Origin	Common Name	Scientific Name	EPBC	FFG-T	FFG-P	CaLP Act
	Black Wattle	*Acacia mearnsii*			P	
	Blackwood	*Acacia melanoxylon*			P	
	Narrow-leaf Wattle	*Acacia mucronata*			P	
	Bidgee-widgee	*Acaena novae-zelandiae*				
*	Brown-top Bent	*Agrostis capillaris*				
*	Sweet Vernal-grass	*Anthoxanthum odoratum*				
	Spear Grass	*Austrostipa sp.*				
#	Banksia	*Banksia sp.*				
*	Brassica	*Brassica sp.*				
	Bottlebrush	*Callistemon sp.*				
	Common Grass-sedge	*Carex breviculmis*				
	Tall Sedge	*Carex appressa*				
*	White Goosefoot	*Chenopodium album*				
*	Spear Thistle	*Cirsium vulgare*				C/R
*	Velvet Cotoneaster	*Cotoneaster pannosus*				
*	Hawthorn	*Crataegus monogyna*				C/R
*	Golden Cypress-pine	*Cupressus semipervirens*				
*	Couch	*Cynodon dactylon var. dactylon*				
	Flat-sedge	*Cyperus sp.*				
*	Drain Flat-sedge	*Cyperus eragrostis*				
*	Cocksfoot	*Dactylis glomerata*				
*	Panic Veldt-grass	*Ehrharta erecta*				
	Saloop	*Einadia hastata*				
	Nodding Saltbush	*Einadia nutans*				
	Common Spike-sedge	*Eleocharis acuta*				
	Variable Willow-herb	*Epilobium billardiereanum*				
	River Red-gum	*Eucalyptus camaldulensis*				
	Red Stringybark	*Eucalyptus macrorhyncha*				
	Swamp Gum	*Eucalyptus ovata*				
	Red Box	*Eucalyptus polyanthemos*				
	Manna-gum	*Eucalyptus viminalis*				
	Ironbark	*Eucalyptus tricarpa*				
	Crane's Bill	*Geranium sp.*				
*	Yorkshire Fog	*Holcus lanatus*				
*	Flatweed	*Hypochaeris radicata*				
	Jointed Rush	*Juncus articulatus*				
	Austral Rush	*Juncus australis*				

Origin	Common Name	Scientific Name	EPBC	FFG-T	FFG-P	CaLP Act
	Tall Rush	*Juncus procerus*				
	Jersey Cudweed	*Laphangium luteoalbum*			P	
	Pithy Sword-sedge	*Lepidosperma longitudinale*				
*	Perennial Rye-grass	*Lolium perenne*				
	Spiny-headed Mat-rush	*Lomandra longifolia*				
	Wattle Mat-rush	*Lomandra filiformis*				
*	Spotted Medic	*Medicago arabica*				
*	Wood Sorrel	*Oxalis sp.*				
*	Paspalum	*Paspalum dilatatum*				
	Common Reed	*Phragmites australis*				
*	Monterey Pine	*Pinus radiata*				
*	Sweet Pittosporum	*Pittosporum undulatum*				
*	Ribwort	*Plantago lanceolata*				
	Common Tussock-grass	*Poa labillardierei*				
*	Wireweed	*Polygonum erectum*				
*	Oak	*Quercus sp.*				
*	Blackberry	*Rubus fruticosus spp. agg.*				C
*	Sheep Sorrel	*Rumex acetosella*				
*	Dock	*Rumex sp.*				
	Wallaby Grass	*Rytidosperma sp.*				
*	Willow	*Salix sp.*				
	Annual Fireweed	*Senecio glomeratus*			P	
	Cotton Fireweed	*Senecio quadridentatus*			P	
*	Black Nightshade	*Solanum nigrum s.s.*				
*	Rough Sow-thistle	*Sonchus asper*				
*	Common Sow-thistle	*Sonchus oleraceus*				
	Kangaroo Grass	*Themeda triandra*				
*	White Clover	*Trifolium repens*				
*	Cumbungi	*Typha sp.*				
*	Gorse	*Ulex europaeus*				C
*	Common Nettle	*Urtica dioica*				

Notes: EPBC = threatened species status under the EPBC Act (EX = presumed extinct in the wild; CR = critically endangered; EN = endangered; VU = vulnerable); **FFG-T** = listed as threatened (L) under the FFG Act; **FFG-P**: listed as protected (P) under the FFG Act; **CaLP Act**: declared noxious weeds under the CaLP Act (S = State Prohibited Weeds [any infestations are to be reported to DELWP. DELWP is responsible for control of State Prohibited Weeds]; P = Regionally Prohibited Weeds [Land owners must take all reasonable steps to eradicate regionally prohibited weeds on their land]; C = Regionally Controlled Weeds [Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally controlled weeds on their land]; R = Restricted Weeds [Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials is prohibited].

The study area occupies two CMA's, therefore weeds may be assigned multiple CaLP ratings.

* = introduced to Victoria # = Victorian native taxa occurring outside their natural range

Appendix 5: Fauna species recorded in the study area

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
Birds						
	Australasian Darter	*Anhinga novaehollandiae*				
	Australasian Grebe	*Tachybaptus novaehollandiae*				
	Australasian Shoveler	*Spatula rhynchotis*			Vulnerable	
	Australasian Swamphen	*Porphyrio melanotus*				
	Australian Hobby	*Falco longipennis*				
	Australian King-Parrot	*Alisterus scapularis*				
	Australian Magpie	*Gymnorhina tibicen*				X
	Australian Owlet-nightjar	*Aegotheles cristatus*				
	Australian Pelican	*Pelecanus conspicillatus*				
	Australian Pipit	*Anthus australis*				
	Australian Raven	*Corvus coronoides*				
	Australian Shelduck	*Tadorna tadornoides*				
	Australian White Ibis	*Threskiornis molucca*				
	Australian Wood Duck	*Chenonetta jubata*				
	Azure Kingfisher	*Ceyx azureus*				
	Banded Lapwing	*Vanellus tricolor*				
	Barking Owl	*Ninox connivens*			Critically Endangered	
	Barn Owl	*Tyto alba*				
	Bassian Thrush	*Zoothera lunulata*				
	Black Kite	*Milvus migrans*				
	Black Swan	*Cygnus atratus*				
	Black-chinned Honeyeater	*Melithreptus gularis*				
	Black-faced Cuckoo-shrike	*Coracina novaehollandiae*				
	Black-fronted Dotterel	*Elseyornis melanops*				
	Black-shouldered Kite	*Elanus axillaris*				
	Blue-winged Parrot	*Neophema chrysostoma*				
	Brolga	*Antigone rubicunda*			Endangered	
	Brown Falcon	*Falco berigora*				X
	Brown Goshawk	*Accipiter fasciatus*				
	Brown Thornbill	*Acanthiza pusilla*				X
	Brown-headed Honeyeater	*Melithreptus brevirostris*				

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Brush Cuckoo	*Cacomantis variolosus*				
	Buff-rumped Thornbill	*Acanthiza reguloides*				
	Chestnut Teal	*Anas castanea*				
	Collared Sparrowhawk	*Accipiter cirrocephalus*				
*	Common Blackbird	*Turdus merula*				
	Common Bronzewing	*Phaps chalcoptera*				
*	Common Myna	*Acridotheres tristis*				
	Common Sandpiper	*Actitis hypoleucos*		M (JAMBA, CAMBA, ROKAMBA)	Vulnerable	
*	Common Starling	*Sturnus vulgaris*				
	Crescent Honeyeater	*Phylidonyris pyrrhopterus*				
	Crested Pigeon	*Ocyphaps lophotes*				
	Crimson Rosella	*Platycercus elegans*				X
	Diamond Firetail	*Stagonopleura guttata*			Vulnerable	
*	Domestic Pigeon	*Columba livia*				
	Dusky Moorhen	*Gallinula tenebrosa*				
	Dusky Woodswallow	*Artamus cyanopterus*				
	Eastern Cattle Egret	*Bubulcus coromandus*				
	Eastern Great Egret	*Ardea alba modesta*			Vulnerable	
	Eastern Rosella	*Platycercus eximius*				
	Eastern Shrike-tit	*Falcunculus frontatus*				
	Eastern Spinebill	*Acanthorhynchus tenuirostris*				
	Eastern Yellow Robin	*Eopsaltria australis*				
	Eurasian Coot	*Fulica atra*				
*	Eurasian Skylark	*Alauda arvensis*				
*	Eurasian Tree Sparrow	*Passer montanus*				
*	European Goldfinch	*Carduelis carduelis*				X
*	European Greenfinch	*Chloris chloris*				
	Fairy Martin	*Petrochelidon ariel*				
	Fan-tailed Cuckoo	*Cacomantis flabelliformis*				
	Flame Robin	*Petroica phoenicea*				

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Fuscous Honeyeater	*Ptilotula fusca*				
	Galah	*Eolophus roseicapilla*				
	Gang-gang Cockatoo	*Callocephalon fimbriatum*	Endangered			
	Golden Whistler	*Pachycephala pectoralis*				
	Golden-headed Cisticola	*Cisticola exilis*				X
	Great Cormorant	*Phalacrocorax carbo*				
	Great Egret	*Ardea alba*				
	Grey Butcherbird	*Cracticus torquatus*				
	Grey Currawong	*Strepera versicolor*				
	Grey Fantail	*Rhipidura albiscapa*				
	Grey Goshawk	*Accipiter novaehollandiae*			Endangered	
	Grey Shrike-thrush	*Colluricincla harmonica*				X
	Grey Teal	*Anas gracilis*				
	Hardhead	*Aythya australis*			Vulnerable	
	Hoary-headed Grebe	*Poliocephalus poliocephalus*				
	Horsfield's Bronze-Cuckoo	*Chrysococcyx basalis*				
*	House Sparrow	*Passer domesticus*				
	Jacky Winter	*Microeca fascinans*				
	King Quail	*Synoicus chinensis*			Endangered	
	Latham's Snipe	*Gallinago hardwickii*				
	Laughing Kookaburra	*Dacelo novaeguineae*				
	Leaden Flycatcher	*Myiagra rubecula*				
	Little Black Cormorant	*Phalacrocorax sulcirostris*				
	Little Corella	*Cacatua sanguinea*				
	Little Eagle	*Hieraaetus morphnoides*			Vulnerable	
	Little Grassbird	*Poodytes gramineus*				
	Little Pied Cormorant	*Microcarbo melanoleucos*				
	Little Raven	*Corvus mellori*				X
	Long-billed Corella	*Cacatua tenuirostris*				
	Magpie-lark	*Grallina cyanoleuca*				
	Masked Lapwing	*Vanellus miles*				X

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Masked Owl	*Tyto novaehollandiae*			Critically Endangered	
	Mistletoebird	*Dicaeum hirundinaceum*				
	Musk Duck	*Biziura lobata*			Vulnerable	
	Musk Lorikeet	*Glossopsitta concinna*				
	Nankeen Kestrel	*Falco cenchroides*				
	Nankeen Night-Heron	*Nycticorax caledonicus*				
	New Holland Honeyeater	*Phylidonyris novaehollandiae*				X
	Noisy Miner	*Manorina melanocephala*				
	Olive Whistler	*Pachycephala olivacea*				
	Olive-backed Oriole	*Oriolus sagittatus*				
	Pacific Black Duck	*Anas superciliosa*				
	Painted Button-quail	*Turnix varius*				
	Pallid Cuckoo	*Cacomantis pallidus*				
	Peregrine Falcon	*Falco peregrinus*				
	Pied Cormorant	*Phalacrocorax varius*				
	Pied Currawong	*Strepera graculina*				
	Pink Robin	*Petroica rodinogaster*				
	Powerful Owl	*Ninox strenua*			Vulnerable	
	Rainbow Bee-eater	*Merops ornatus*				
	Red Wattlebird	*Anthochaera carunculata*				X
	Red-browed Finch	*Neochmia temporalis*				
	Red-browed Treecreeper	*Climacteris erythrops*				
	Red-rumped Parrot	*Psephotus haematonotus*				
	Reed-Warbler	*Acrocephalus australis*				
	Restless Flycatcher	*Myiagra inquieta*				
	Rose Robin	*Petroica rosea*				
	Royal Spoonbill	*Platalea regia*				
	Rufous Fantail	*Rhipidura rufifrons*		M (Bonn (A2H)		
	Rufous Whistler	*Pachycephala rufiventris*				
	Sacred Kingfisher	*Todiramphus sanctus*				
	Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn (A2H)		
	Scarlet Robin	*Petroica boodang*				

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Shining Bronze-Cuckoo	*Chrysococcyx lucidus*				
	Silver Gull	*Chroicocephalus novaehollandiae*				
	Silvereye	*Zosterops lateralis*				X
	Southern Boobook	*Ninox boobook*				
	Speckled Warbler	*Pyrrholaemus sagittatus*			Endangered	
*	Spotted Dove	*Spilopelia chinensis*				
	Spotted Pardalote	*Pardalotus punctatus*				X
	Spotted Quail-thrush	*Cinclosoma punctatum*				
	Straw-necked Ibis	*Threskiornis spinicollis*				
	Striated Pardalote	*Pardalotus striatus*				X
	Striated Thornbill	*Acanthiza lineata*				
	Sulphur-crested Cockatoo	*Cacatua galerita*				X
	Superb Fairy-wren	*Malurus cyaneus*				X
	Swamp Harrier	*Circus approximans*				
	Swift Parrot	*Lathamus discolor*	Critically Endangered		Critically Endangered	
	Tawny Frogmouth	*Podargus strigoides*				
	Tree Martin	*Petrochelidon nigricans*				
	Varied Sittella	*Daphoenositta chrysoptera*				
	Wedge-tailed Eagle	*Aquila audax*				X
	Weebill	*Smicrornis brevirostris*				
	Welcome Swallow	*Hirundo neoxena*				X
	Whiskered Tern	*Chlidonias hybrida*				
	White-browed Scrubwren	*Sericornis frontalis*				X
	White-browed Woodswallow	*Artamus superciliosus*				
	White-eared Honeyeater	*Nesoptilotis leucotis*				
	White-faced Heron	*Egretta novaehollandiae*				
	White-fronted Chat	*Epthianura albifrons*				
	White-naped Honeyeater	*Melithreptus lunatus*				
	White-necked Heron	*Ardea pacifica*				X
	White-plumed Honeyeater	*Ptilotula penicillata*				X

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	White-throated Needletail	*Hirundapus caudacutus*	Vulnerable	M (JAMBA, CAMBA, ROKAMBA)	Vulnerable	
	White-throated Treecreeper	*Cormobates leucophaea*				
	White-winged Chough	*Corcorax melanorhamphos*				
	Willie Wagtail	*Rhipidura leucophrys*				
	Yellow Thornbill	*Acanthiza nana*				
	Yellow-billed Spoonbill	*Platalea flavipes*				
	Yellow-faced Honeyeater	*Caligavis chrysops*				X
	Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*				
	Yellow-tailed Black-Cockatoo	*Calyptorhynchus funereus*				
	Zebra Finch	*Taeniopygia guttata*				
Mammals						
	Agile Antechinus	*Antechinus agilis*				
	Bare-nosed Wombat	*Vombatus ursinus*				
*	Black Rat	*Rattus rattus*				
	Black-tailed Wallaby	*Wallabia bicolor*				X
	Brush-tailed Phascogale	*Phascogale tapoatafa*			Vulnerable	
	Bush Rat	*Rattus fuscipes*				
	Chocolate Wattled Bat	*Chalinolobus morio*				
	Common Brush-tailed Possum	*Trichosurus vulpecula*				
*	Domestic Cat (feral)	*Felis catus*				
	Eastern False Pipistrelle	*Falsistrellus tasmaniensis*				
	Eastern Grey Kangaroo	*Macropus giganteus*				X
	Eastern Ring-tailed Possum	*Pseudocheirus peregrinus*				
*	European Brown Hare	*Lepus europaeus*				X
*	European Rabbit	*Oryctolagus cuniculus*				X
*	Fallow Deer	*Dama dama*				
*	Ferret	*Mustela furo*				
*	Goat (feral)	*Capra hircus*				
	Gould's Long-eared Bat	*Nyctophilus gouldi*				
	Gould's Wattled Bat	*Chalinolobus gouldii*				
*	House Mouse	*Mus musculus*				

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Koala	*Phascolarctos cinereus*				
	Large Forest Bat	*Vespadelus darlingtoni*				
	Lesser Long-eared Bat	*Nyctophilus geoffroyi*				
	Little Red Flying-fox	*Pteropus scapulatus*				
	Mainland Dusky Antechinus	*Antechinus mimetes*				
	Mountain Brush-tailed Possum	*Trichosurus cunninghami*				
	Platypus	*Ornithorhynchus anatinus*			Vulnerable	
*	Red Fox	*Vulpes vulpes*				
	Red-necked Wallaby	*Notamacropus rufogriseus banksianus*				
	Short-beaked Echidna	*Tachyglossus aculeatus*				
	Southern Forest Bat	*Vespadelus regulus*				
	Southern Greater Glider	*Petauroides volans*	Vulnerable		Vulnerable	
	Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered		Endangered	
	Sugar Glider	*Petaurus breviceps*				
	White-striped Free-tailed Bat	*Austronomus australis*				
Reptiles						
	Blotched Blue-tongued Lizard	*Tiliqua nigrolutea*				
	Bougainville's Skink	*Lerista bougainvillii*				
	Eastern Brown Snake	*Pseudonaja textilis*				
	Eastern Three-lined Skink	*Acritoscincus duperreyi*				
	Garden Skink	*Lampropholis guichenoti*				
	Little Whip Snake	*Parasuta flagellum*				
	Lowland Copperhead	*Austrelaps superbus*				
	Tiger Snake	*Notechis scutatus*				
	Tree Dragon	*Amphibolurus muricatus*				
	Tussock Skink	*Pseudemoia pagenstecheri*			Endangered	
Frogs						
	Brown Treecreeper	*Climacteris picumnus*				
	Common Froglet	*Crinia signifera*				X

Origin	Common name	Scientific name	EPBC-T	EPBC-M	FFG-T	Recorded
	Eastern Sign-bearing Froglet	*Crinia parinsignifera*				
	Growling Grass Frog	*Litoria raniformis*	Vulnerable		Vulnerable	
	Pobblebonk Frog	*Limnodynastes dumerilii insularis*				
	Southern Brown Tree Frog	*Litoria ewingii*				
	Southern Bullfrog (ssp. unknown)	*Limnodynastes dumerilii*				
	Spotted Marsh Frog (race unknown)	*Limnodynastes tasmaniensis*				
	Spotted Marsh Frog SCR	*Limnodynastes tasmaniensis SCR*				
	Striped Marsh Frog	*Limnodynastes peronii*				
	Victorian Smooth Froglet	*Geocrinia victoriana*				
	White's Skink	*Liopholis whitii GROUP*				
Fish						
	Australian Smelt	*Retropinna semoni*				
*	Brown Trout	*Salmo trutta*				
	Common Galaxias	*Galaxias maculatus*				
*	Eastern Gambusia	*Gambusia holbrooki*				
*	European Carp	*Cyprinus carpio*				
*	Goldfish	*Carassius auratus*				
	Ornate Galaxias	*Galaxias ornatus*				
*	Redfin	*Perca fluviatilis*				
*	Roach	*Rutilus rutilus*				
	Southern Pygmy Perch	*Nannoperca australis*				
	Southern Shortfin Eel	*Anguilla australis*				
*	Tench	*Tinca tinca*				

Notes: EPBC-T = threatened species status under EPBC Act; **EPBC-M**: migratory status under the EPBC Act (M = listed migratory taxa; Bonn Convention (A2H) - Convention on the Conservation of Migratory Species of Wild Animals – listed as a member of a family; Bonn Convention (A2S) - Convention on the Conservation of Migratory Species of Wild Animals - species listed explicitly; CAMBA - China- Australia Migratory Birds Agreement; JAMBA - Japan-Australia Migratory Birds Agreement; ROKAMBA - Republic of Korea Australia Migratory Birds Agreement); **FFG:** status under the FFG Act.

* = introduced to Victoria

Appendix 6: Photographs of the native vegetation to be removed

Photo 1: The predominating vegetation of the site, consisting of paddocks of exotic pasture species (taken 25 March 2022).

Photo 2: Revegetation adjacent to Werribee River (taken 25 March 2022).

Photo 3: Riparian Woodland (EVC 641), with Swamp Gum overlying Common Tussock-grass and Tall Sedge (taken 25 March 2022).

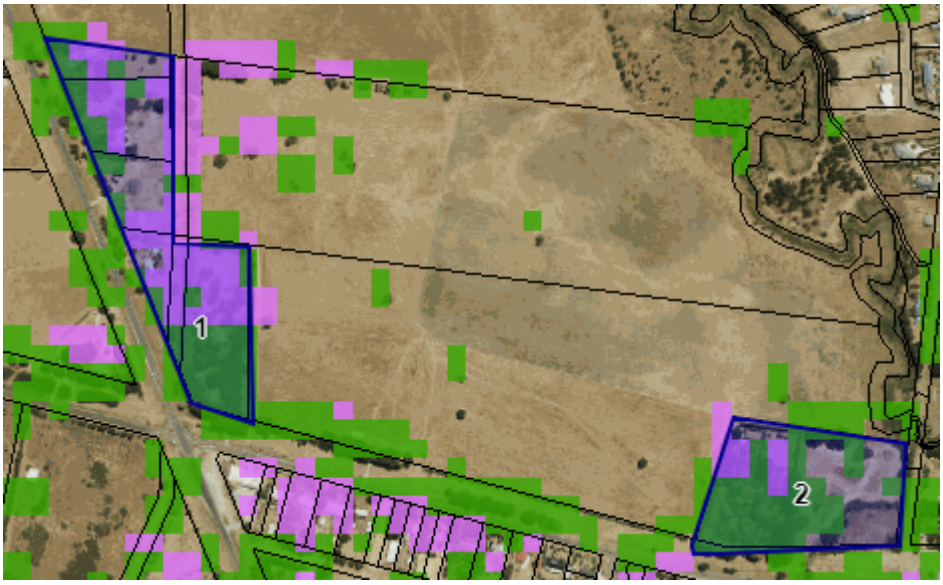
Photo 4: Example of non-native hedge within study area (Google, 2022)

Photo 5: Moderate quality Plains Grassy Woodland vegetation (Habitat Zone E) (taken 5 June 2023).

Photo 6: Low-Moderate quality Plains Grassy Woodland vegetation (Habitat Zone F) (taken 5 June 2023).

Photo 7: Low quality Plains Grassy Woodland vegetation (Habitat Zone H) (taken 5 June 2023).

Appendix 7: Vegetation of the 6 private properties at 5600-5570 Geelong-Ballan Road, 462 and 400 Old Melbourne Road mapped by DELWP (NVIM)



Appendix 8: EVC benchmarks

Riparian Woodland (EVC 641) - Victorian Volcanic PlainPlains

Grassy Woodland (EVC 55_61) - Victorian Volcanic Plain

Department of Sustainability and Environment

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 641: Riparian Woodland

Description:
Occurs beside permanent streams, typically on narrow alluvial deposits. Woodland to 15 m tall generally dominated by *Eucalyptus camaldulensis* over a tussock grass-dominated understorey. Tall shrubs may be present and amphibious herbs may occur in occasional ponds and beside creeks. While flooding may be common, sites are rarely inundated for lengthy periods.

Large trees:

Species	DBH(cm)	# / ha
Eucalyptus spp.	80 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
20%	*Eucalyptus camaldulensis*	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	2	10%	T
Medium Shrub	2	10%	MS
Small Shrub	1	5%	SS
Large Herb	4	15%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb	1	5%	SH
Large Tufted Graminoid	3	10%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	4	20%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Scrambler or Climber	1	5%	SC
Bryophytes/Lichens	na	10%	BL

LF Code	Species typical of at least part of EVC range	Common Name
T	*Acacia melanoxylon*	Blackwood
MS	*Bursaria spinosa* ssp. *spinosa*	Sweet Bursaria
MS	*Viminaria juncea*	Golden Spray
SS	*Rubus parvifolius*	Small-leaf Bramble
LH	*Wahlenbergia gracilis* s.s.	Sprawling Bluebell
LH	*Senecio quadridentatus*	Cottony Fireweed
LH	*Myriophyllum crispatum*	Upright Water-milfoil
MH	*Rumex brownii*	Slender Dock
MH	*Oxalis perennans*	Grassland Wood-sorrel
MH	*Mentha australis*	River Mint
MH	*Acaena novae-zelandiae*	Bidgee-widgee
SH	*Dichondra repens*	Kidneyweed
LTG	*Poa labillardierei*	Common Tussock-grass
LTG	*Carex appressa*	Tall Sedge
LNG	*Phragmites australis*	Common Reed
MTG	*Lachnagrostis filiformis* var. *filiformis*	Common Blown-grass
MTG	*Triglochin procerum* s.l.	Water-ribbons
MNG	*Eleocharis acuta*	Common Spike-sedge
SC	*Calystegia sepium*	Large Bindweed

Recruitment:
Continuous

Organic Litter:
30% cover

Logs:
20m / 0.1 ha

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	*Rosa rubiginosa*	Sweet Briar	high	high
LH	*Sonchus oleraceus*	Common Sow-thistle	high	low
LH	*Cirsium vulgare*	Spear Thistle	high	high
LH	*Plantago lanceolata*	Ribwort	high	low
LH	*Helminthotheca echioides*	Ox-tongue	high	low
LH	*Rumex crispus*	Curled Dock	high	low
LH	*Aster subulatus*	Aster-weed	high	low
LH	*Rorippa palustris*	Marsh Yellow-cress	high	high
MH	*Leontodon taraxacoides* ssp. *taraxacoides*	Hairy Hawkbit	high	low
MH	*Hypochoeris radicata*	Cat's Ear	high	low
LTG	*Phalaris aquatica*	Toowoomba Canary-grass	high	high
LNG	*Holcus lanatus*	Yorkshire Fog	high	high
MTG	*Bromus hordeaceus* ssp. *hordeaceus*	Soft Brome	high	low
MTG	*Anthoxanthum odoratum*	Sweet Vernal-grass	high	high
MNG	*Paspalum distichum*	Water Couch	high	high
SC	*Galium aparine*	Cleavers	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 55_61: Plains Grassy Woodland

Description:
An open, eucalypt woodland to 15 m tall. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This variant occupies areas receiving approximately 500 – 700 mm annual rainfall.

Large trees:

Species	DBH(cm)	#/ha
Eucalyptus spp.	80 cm	8 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	*Eucalyptus camaldulensis*	River Red Gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	2	1%	SS
Prostrate Shrub	1	1%	PS
Large Herb	3	5%	LH
Medium Herb	8	15%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	12	45%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
MS	*Acacia pycnantha*	Golden Wattle
MS	*Acacia paradoxa*	Hedge Wattle
SS	*Pimelea humilis*	Common Rice-flower
PS	*Astroloma humifusum*	Cranberry Heath
PS	*Bossiaea prostrata*	Creeping Bossiaea
MH	*Oxalis perennans*	Grassland Wood-sorrel
MH	*Gonocarpus tetragynus*	Common Raspwort
MH	*Acaena echinata*	Sheep's Burr
SH	*Dichondra repens*	Kidney-weed
SH	*Hydrocotyle laxiflora*	Stinking Pennywort
LTG	*Austrostipa mollis*	Supple Spear-grass
LTG	*Austrostipa bigeniculata*	Kneed Spear-grass
MTG	*Themeda triandra*	Kangaroo Grass
MTG	*Elymus scaber* var. *scaber*	Common Wheat-grass
MTG	*Austrodanthonia setacea*	Bristly Wallaby-grass
MTG	*Austrodanthonia racemosa* var. *racemosa*	Stiped Wallaby-grass
MNG	*Microlaena stipoides* var. *stipoides*	Weeping Grass

Recruitment:
Continuous

Organic Litter:
10 % cover

Logs:
10 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	*Lycium ferocissimum*	African Box-thorn	high	high
LH	*Cirsium vulgare*	Spear Thistle	high	high
LH	*Sonchus oleraceus*	Common Sow-thistle	high	low
LH	*Plantago lanceolata*	Ribwort	high	low
MH	*Hypochoeris radicata*	Cat's Ear	high	low
LNG	*Holcus lanatus*	Yorkshire Fog	high	high
MTG	*Vulpia bromoides*	Squirrel-tail Fescue	high	low
MTG	*Romulea rosea*	Onion Grass	high	low
MTG	*Briza minor*	Lesser Quaking-grass	high	low
MTG	*Briza maxima*	Large Quaking-grass	high	low

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Appendix 9: Native Vegetation Removal (NVR) report

Scenario test – native vegetation removal

This report provides offset requirements for internal testing of different proposals to remove native vegetation. **This report DOES NOT support an application to remove, destroy or lop native vegetation under Clause 52.16 or 52.17 of planning schemes in Victoria.** A report must be obtained from the Department of Environment, Land, Water and Planning (DELWP).

Date of issue: **04/07/2023**
Time of issue: **8:41 am**

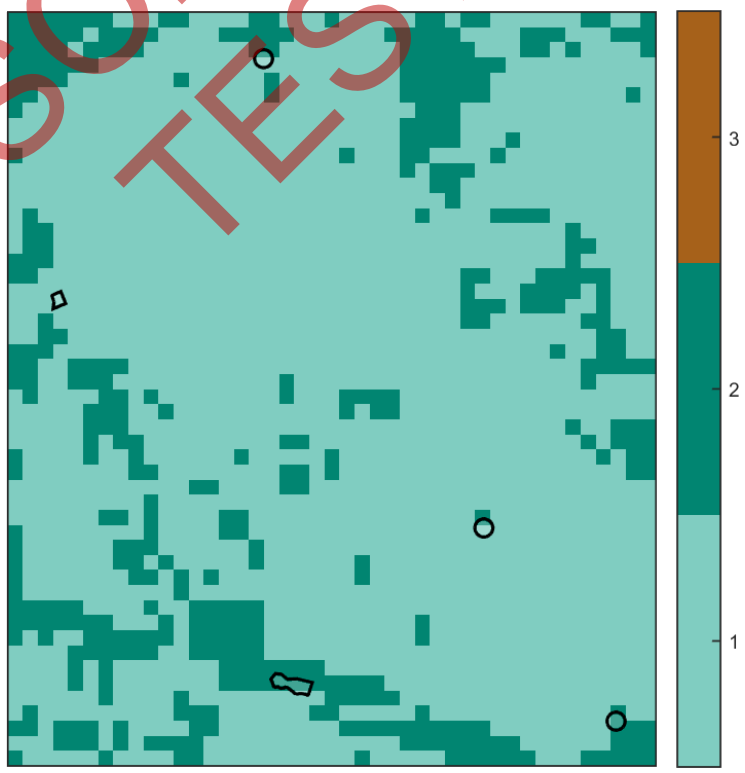
Report ID: Scenario Testing

Project ID	22024_Parcel5_Ballan_rem_230703

Assessment pathway

Assessment pathway	**Intermediate Assessment Pathway**
Extent including past and proposed	0.383 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.383 ha
No. Large trees proposed to be removed	3
Location category of proposed removal	Location 2 The native vegetation is in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map). Removal of less than 0.5 hectares of native vegetation in this location will not have a significant impact on any habitat for a rare or threatened species.

1. Location map



Scenario test – native vegetation removal

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount[1]	0.088 general habitat units
Vicinity	Corangamite, Port Phillip and Westernport Catchment Management Authority (CMA) or Moorabool Shire Council
Minimum strategic biodiversity value score[2]	0.398
Large trees	3 large trees

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

1 The general offset amount required is the sum of all general habitat units in Appendix 1.

2 Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Scenario test – native vegetation removal

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Intermediate Assessment Pathway and it will be assessed under the Intermediate Assessment Pathway.

This report DOES NOT support an application to remove, destroy or lop native vegetation under Clause 52.16 or 52.17 of planning schemes in Victoria.

If you wish to remove the mapped native vegetation you must submit the related shapefiles to the Department of Environment, Land, Water and Planning (DELWP) for processing, by email to ensymnvrtool.support@delwp.vic.gov.au. DELWP will provide a *Native vegetation removal report* that is required to meet the permit application requirements in accordance with *Guidelines for the removal, destruction or lopping of native vegetation* (Guidelines).

Appendix 1: Description of native vegetation to be removed

All zones require a general offset, the general habitat units each zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition x general landscape factor x 1.5, where the general landscape factor = 0.5 + (strategic biodiversity value score/2)

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

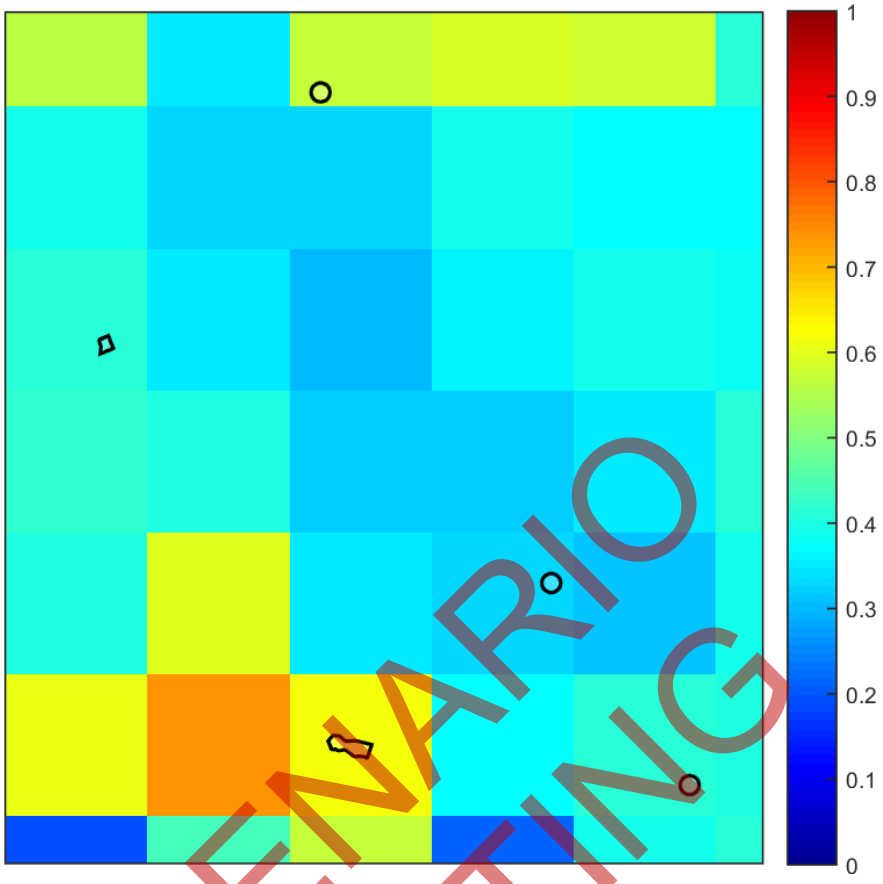
Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	**Type**	**BioEVC**	**BioEVC conservation status**	**Large tree(s)**	**Partial removal**	**Condition score**	**Polygon Extent**	**Extent without overlap**	**SBV score**	**HI score**	**Habitat units**	**Offset type**
1-E	Patch	vvp_0055_61	Endangered	0	no	0.320	0.039	0.039	0.410		0.013	General
1-3	Scattered Tree	vvp_0055_61	Endangered	1	no	0.200	0.070	0.070	0.570		0.017	General
1-12	Scattered Tree	vvp_0055_61	Endangered	1	no	0.200	0.070	0.070	0.330		0.014	General
1-14	Scattered Tree	vvp_0055_61	Endangered	1	no	0.200	0.070	0.070	0.410		0.015	General
1-I	Patch	vvp_0055_61	Endangered	0	no	0.180	0.134	0.134	0.620		0.029	General

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This is not applicable in the Intermediate Assessment Pathway.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



Appendix 10: Evidence that native vegetation offset requirement is available

Report of available native vegetation credits

This report lists native vegetation credits available to purchase through the Native Vegetation Credit Register.

This report is **not evidence** that an offset has been secured. An offset is only secured when the units have been purchased and allocated to a permit or other approval and an allocated credit extract is provided by the Native Vegetation Credit Register.

Date and time: 10/07/2023 09:20 **Report ID: 19772**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.088	0.398	3	CMA	Corangamite
			or CMA	Port Phillip and Westernport
			or LGA	Moorabool Shire

Details of available native vegetation credits on 10 July 2023 09:20

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0114	0.545	180	Corangamite	Colac Otway Shire	Yes	Yes	No	VegLink
BBA-0277	3.695	453	Port Phillip and Westernport	Mornington Peninsula Shire	No	Yes	No	Abezco, Ethos, VegLink
BBA-0670	17.706	141	Port Phillip and Westernport	Cardinia Shire	No	Yes	No	Abezco, VegLink
BBA-0677	13.010	1470	Port Phillip and Westernport	Whittlesea City	No	Yes	No	Abezco, VegLink
BBA-0678	44.587	2612	Port Phillip and Westernport	Nillumbik Shire	No	Yes	No	VegLink
BBA-0678_2	0.388	59	Port Phillip and Westernport	Nillumbik Shire	No	Yes	No	VegLink
BBA-2789	1.317	14	Port Phillip and Westernport	Baw Baw Shire	Yes	Yes	No	Contact NVOR
BBA-2790	2.911	116	Port Phillip and Westernport	Baw Baw Shire	Yes	Yes	No	Contact NVOR
BBA-2870	2.544	431	Port Phillip and Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
BBA-2871	16.335	1668	Port Phillip and Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
TFN-C0140	0.292	30	Corangamite	Greater Geelong City	Yes	Yes	No	TFN
TFN-C1636	0.445	115	Port Phillip and Westernport	Yarra Ranges Shire	Yes	Yes	No	Yarra Ranges SC
TFN-C1664	1.521	61	Port Phillip and Westernport	Yarra Ranges Shire	Yes	Yes	No	Yarra Ranges SC

TFN-C1962	0.089	8	Goulburn Broken, Port Phillip and Westernport	Macedon Ranges Shire	No	Yes	No	Contact NVOR
VC_CFL-0838_01	0.209	697	Port Phillip And Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3080_01	6.019	101	Corangamite	Golden Plains Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3084_01	0.092	47	Port Phillip And Westernport	Cardinia Shire	Yes	Yes	No	VegLink
VC_CFL-3687_01	0.278	61	Port Phillip And Westernport	Baw Baw Shire	Yes	Yes	No	Baw Baw SC
VC_CFL-3699_01	1.834	45	Corangamite	Colac Otway Shire	Yes	Yes	No	Contact NVOR
VC_CFL-3709_01	0.139	395	Port Phillip And Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3710_01	7.606	322	Port Phillip And Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3718_01	9.363	915	Corangamite	Corangamite Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3739_01	5.766	279	Corangamite	Colac Otway Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3740_01	0.877	90	Port Phillip And Westernport	Cardinia Shire, Yarra Ranges Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3740_01	0.318	16	Port Phillip And Westernport	Yarra Ranges Shire	Yes	Yes	No	Bio Offsets
VC_CFL-3744_01	1.336	364	Port Phillip And Westernport	Macedon Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3762_01	0.120	85	Port Phillip And Westernport	Moorabool Shire	Yes	Yes	No	VegLink
VC_CFL-3764_01	5.541	35	Port Phillip And Westernport	Yarra Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3786_01	3.412	609	Corangamite	Corangamite Shire	Yes	Yes	No	VegLink
VC_CFL-3787_01	9.579	895	Corangamite	Colac Otway Shire	Yes	Yes	No	VegLink

These sites meet your requirements using alternative arrangements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-0126	0.760	6	Corangamite	Moorabool Shire	Yes	Yes	No	Contact NVOR

These potential sites are not yet available, land owners may finalise them once a buyer is confirmed.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL_3798_01	2.368	232	Corangamite	Colac Otway Shire	Yes	Yes	No	Contact NVOR
VC_CFL-3746_01	4.962	563	Port Phillip And Westernport	Macedon Ranges Shire	Yes	Yes	No	VegLink
VC_CFL-3781_01	5.568	24	Port Phillip And Westernport	Moorabool Shire	Yes	Yes	No	VegLink

LT - Large Trees *CMA - Catchment Management Authority* *LGA - Municipal District or Local Government Authority*

Next steps

If applying for approval to remove native vegetation
Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation
Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@delwp.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not avaliable
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

For more information contact the DELWP Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au