

**Biodiversity Assessment,
40 Macsfield Road, Wallan, Victoria**



Prepared for:

**Frasers Property
Australia**

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Report title	Biodiversity Assessment, 40 Macsfield Road, Wallan, Victoria
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Mapping	Stuart Cooney
File name	1561_Biodiversity_Assessment_Macsfield_Rd_Wallan_Report_24092018

Cover Photograph

A photograph of the study area taken during the current assessment.

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Executive Summary

Ecolink Consulting was engaged by Frasers Property Australia to undertake a Biodiversity (Flora and Fauna) Assessment at 40 Macsfield Road, Wallan, Victoria. The study area is approximately 90 hectares in size and relatively flat, but rises in the approximate middle of the study area, where a stony knoll emerges from the landscape. The lower areas of the study area were wet at time of the current assessment, and, in one location, surface water was pooling. It is among rural properties to the west, east and south, with a sewage farm on the eastern boundary of the study area. Phase 1 of the Wallara Waters Estate adjoins the northern boundary of the study area, beyond Taylors Creek. The study area is zoned Mixed Use Zone within the Mitchell Shire Council Planning Scheme.

The study area is dominated by exotic grasses including Toowoomba Canary-grass *Phalaris aquatica*, Perennial Rye Grass *Lolium perenne*, Cocksfoot *Dactylis glomerata*, Couch *Cynodon dactylon* var. *dactylon* and Annual Meadow Grass *Poa annua*. Other widespread exotic plants and environmental weeds included Ribwort *Plantago lanceolata*, Spear Thistle *Cirsium vulgare* and Flatweed *Hypochaeris radicata* (front cover). Low-lying areas appeared dominated by the exotic Spiny Rush *Juncus acutus* (Plate 3). It appears that Gorse *Ulex europeaus* and probably other woody weeds and trees were present, however these have been removed and stockpiled within the study area.

No patches of native vegetation or scattered indigenous trees were present.

Twelve fauna species were recorded within the study area during the current assessment (Table A2, Appendix 1). This included six native and three introduced bird, one native and one introduced mammal and one native amphibian species. All of the species recorded during the current assessment are common species within the landscape. More species would be expected with greater time spent on site.

No threatened flora or fauna species were recorded during the current assessment. It is unlikely to provide any habitat to threatened flora and fauna species, and does not include any threatened flora or fauna communities.

In this context, and based on the relevant legislation and policies, the following recommendations are made:

- Ensure all noxious weeds are removed during the development and landscaping of the study area. If any remain after construction has been finalised, these species should be targeted and controlled;
- Avoid indirect impacts to Taylors Creek that may arise through development of the study area;
- Prepare a Construction Environmental Management Plan that includes the following management actions prior, during and post construction:
 - Vehicle hygiene and vehicle wash-down areas;
 - The use of clean fill to raise the level of the study area, where required;
 - Soil containment, sediment and erosion measures;
 - Weed management prescriptions, targeting noxious weeds; and,
- Taking due care to avoid impacts to native wildlife including to prepare a Kangaroo Management Plan if one does not already exist for the broader development.

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Introduction

Ecolink Consulting was engaged by Frasers Property Australia to undertake a Biodiversity (Flora and Fauna) Assessment, at 40 Macsfield Road, Wallan, south of Taylors Creek (the study area: Figure 1). It is understood that this 90 hectare area is to be developed as Phase 2 of the Wallara Waters Estate and that the current assessment will support a planning permit application for the subdivision of the property.

The Biodiversity Assessment is required to determine the ecological values of the study area, the presence, location and extent of native vegetation (if any) should the applicant develop the site. The assessment addresses the requirements of Clause 52.17 of the Planning Scheme by mapping and assessing the location, extent and quality of native vegetation, under the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment Land Water and Planning 2017). The Biodiversity Assessment also recommends mitigation measures and offset requirements based on relevant legislation and policies.

Therefore, the scope of the Biodiversity Assessment is to:

- Determine the ecological values of the study area;
- Evaluate any impacts that are likely to occur to any ecological values as a result of the potential loss of vegetation at the study area;
- Evaluate the extent and quality of native vegetation within the study area, required under the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment Land Water and Planning 2017); and,
- Make recommendations to minimise or mitigate impacts to these ecological values, based on relevant legislation and policies.

Methods

Desktop Assessment

In order to determine the ecological values that have previously been recorded within the study area, and its vicinity, the following databases and literature were consulted:

- Planning Schemes Online (Department of Environment Land Water and Planning 2018d) to identify the planning zones and overlays relating to environmental matters e.g. Vegetation Protection Overlays, or Environmental Significance Overlays;
- The NatureKit webpage from the Department of Environment, Land, Water and Planning (DELWP) to identify the historic and current Ecological Vegetation Classes (EVCs) (Department of Environment Land Water and Planning 2018c);
- The Victorian Biodiversity Atlas (Department of Environment Land Water and Planning 2018e) for records of threatened¹ flora and fauna within 3 kilometres of the study area;

¹ Threatened flora and fauna includes species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the Victorian *Flora and Fauna Guarantee Act 1988* and the DSE Advisory Lists (Department of Environment and Primary Industries (2009; 2013; 2014a).

- The Native Vegetation Information Management System (NVIM) to determine biodiversity offset requirements (Department of Environment Land Water and Planning 2018b);
- The 'Weeds of National Significance' database (Department of the Environment and Energy 2018b);
- The Protected Matters Search Tool from the Department of the Environment and Energy (DOEE) (Department of the Environment and Energy 2018a) to identify Matters of National Environmental Significance that may occur within five kilometres of the study area; and,
- Relevant legislation and policies (as required).

Field Assessment

Flora and Fauna Assessment

The study area was assessed by Principal Ecologists, Dr Stuart Cooney and Simon Scott, on 13 September 2018. Both ecologists are suitably experienced at undertaking flora and fauna assessments and Simon holds a Vegetation Quality Assessors Accreditation from DELWP (No. 0015).

All flora species observed within the study area were recorded, with the exception of planted vegetation that was not considered a 'weed' (i.e. planted vegetation that was not spreading or reproducing). Where a species was not able to be confidently identified in the field, a sample was collected and later identified. Plants were identified to species level wherever possible, however, some plants that were planted, cultivars, hybrids, or plants that did not contain suitable fertile material used for identification were recorded to genus level.

Vegetation communities such as EVCs and nationally significant vegetation communities were recorded (if observed) and compared with their corresponding benchmarks or thresholds to ensure that they were accurately assigned.

A list of all fauna species observed within, and immediately surrounding, the study area was produced. This list consists of species seen, heard, or identified by other evidence of their presence (e.g. feathers, scats). Leica 12 X 50 binoculars and call mimicry/playback were used to assist in the identification species.

The presence of fauna habitat was noted, particularly in relation to potential habitats for threatened species. The greatest amount of time was spent surveying potential fauna habitats (e.g. trees, water bodies, crevices or under ground debris) during the assessment.

Biological features such as threatened flora and fauna species, vegetation communities, scattered indigenous trees, fauna habitats, or threatened species habitats were recorded onto an iPad mini tablet that has an internal Global Positioning System (GPS) and the GIS Pro application (accuracy +/- five metres).

Guidelines for the removal, destruction or lopping of native vegetation

The *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) (Department of Environment Land Water and Planning 2017) are required to be addressed under Clause 52.17 of the Planning Scheme. The Guidelines require that information regarding the biodiversity values of the site were obtained though:

- Site-based information that was measured or observed at a site, including:

- Extent of native vegetation patches;
 - Large trees;
 - Native vegetation condition assessed in accordance with the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004);
 - Ecological Vegetation Classes (EVC); and
 - Sensitive wetlands and coastal areas.
- Landscape scale information that cannot be measured or observed at the site and includes maps and models procured from DELWP.

The Guidelines require a Habitat Hectare assessment in instances where the impact is to be assessed under the Detailed Assessment Pathway. It was not possible to determine the risk-based pathway for the loss of native vegetation, and we therefore opted to complete the Habitat Hectare assessment in accordance with the methodology prescribed within the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004) at patches² of vegetation. All indigenous vegetation was assessed, and then assigned a quality rating based on the Habitat Hectare score (Department of Sustainability and Environment 2004).

To determine offsets, the location and species of indigenous ‘scattered trees’³, and any ‘large trees’⁴ within patches were mapped. Details of the location, extent of native vegetation (patches, scattered trees and large trees) that are proposed for removal was provided to DELWP who produced a Native Vegetation Removal report which details the required offsets for impacts to native vegetation patches, Large Trees and scattered trees.

Limitations and Qualifications

The following limitations and qualifications apply to this report:

- The results of the desktop assessment are reliant on data obtained from various databases and other reports. The accuracy of these historical data and some of the results provided within these reports cannot be verified.
- Some flora and fauna species may only be recorded during certain times or seasons (e.g. plants that only contain above-ground biomass and are only visible annually, nocturnal mammals and birds, migratory birds, or fauna identified through seasonal breeding calls such as some frog species). The author has made an informed decision about the likely presence of threatened species that may be present, or that may utilise habitats within the study area, based on a detailed desktop assessment, a review of the species’ biology, an understanding of the ecological values of the local area, and an assessment of flora and fauna as well as their habitats.
- As with all ecological assessments, a greater survey effort is likely to yield additional flora and fauna records. Where these additional flora and fauna records may alter the

² A ‘patch’ is defined as an area with at least 25% cover abundance of perennial native vegetation, or a group (i.e. three or more) trees forming a continuous canopy.

³ Scattered trees are defined as a native canopy tree that does not form a patch

⁴ Large trees are defined as meeting the size threshold specified in the bioregional EVC Benchmark

recommendations made within this report, (e.g. where additional threatened species may utilise habitats within the study area, or where threatened species may be impacted by the proposed development), further assessment may be recommended, depending on the implications of relevant policies and legislation.

Despite these limitations to the assessment, the results gained by both a desktop and a field assessments are adequate to address the purpose of this report.

Results

Study Area

The study area is located at 40 Macsfield Road, Wallan, approximately 42 kilometres north of Melbourne. The study area is approximately 90 hectares in size (Figure 1). The study area is relatively flat, but rises in the approximate middle of the study area, where a stony knoll emerges from the landscape. The lower areas of the study area were wet at time of the current assessment, and, in one location, surface water was pooling.

The study area is south of Wallan east of the Hume Freeway. The study area is surrounded by rural properties to the west, east and south, with a sewage farm on the eastern boundary of the study area. Phase 1 of the Wallara Waters Estate adjoins the northern boundary of the study area, beyond Taylors Creek.

The study area has been largely cleared of native vegetation through a long history of agricultural development. A house was previously located on the stony knoll, however this has been removed. Native vegetation has been replaced by exotic pasture grasses and environmental weeds. Some of these weeds have been removed with piles of excavated Gorse *Ulex europaeus* near the former houses site (Plate 1). Parts of the study area have been 'de-rocked' with piles of rock and stone walls evidence of these works (Plate 2).

North of the study area, Stage 1 of Wallara Waters is under construction, with existing dwellings established and additional houses at various stages of construction. Between the study area and this development Taylors Creek flows in an easterly direction. Parts of this creek have been cleared of environmental weeds, such as Gorse, however other parts retain native vegetation and retain some native vegetation and aquatic habitats (although this area is located beyond the study area and it was not assessed in detail). Development of the study area should ensure that indirect impacts to this creek do not occur.

Flora

Flora Species

The vegetation within the study area was heavily modified due to the historic disturbances of the property, and is now improved pasture. A total of 56 flora species were recorded during the current assessment. This comprised 10 indigenous species, 46 exotic plant species (Table A1).

The study area is dominated by exotic grasses including Toowoomba Canary-grass *Phalaris aquatica*, Perennial Rye Grass *Lolium perenne*, Cocksfoot *Dactylis glomerata*, Couch *Cynodon dactylon* var. *dactylon* and Annual Meadow Grass *Poa annua*. Other widespread exotic plants and environmental weeds included Ribwort *Plantago lanceolata*, Spear Thistle *Cirsium vulgare* and Flatweed *Hypochaeris radicata* (front cover).

Low-lying areas appeared dominated by the exotic Spiny Rush *Juncus acutus* (Plate 3). It appears that Gorse *Ulex europaeus* and probably other woody weeds and trees were present, however these have been removed and stockpiled within the study area (Plate 1).

Indigenous species comprised very low cover abundance throughout the study area (<1%) with the exception of a rocky knoll in the south-western portion of the study area. This knoll contained some indigenous tussock grasses including Common Wallaby-grass *Rytidosperma caespitosum*, Bristly Wallaby-grass *Rytidosperma setaceum* and Weeping Grass *Microlaena stipoides* var. *stipoides* although the cover did not exceed approximately 5% cover, and this area did not qualify as a patch of native vegetation (Plate 3). No indigenous shrubs or trees were present

Flora Habitat/Vegetation Communities

The vegetation within the study area was required to be assessed and classified against the policy and legislation stipulated by three tiers of government:

- *Local* – where various overlays and policies may apply pursuant to the Mitchell Shire Council Planning Scheme (Department of Environment Land Water and Planning 2018d);
- *State* – which includes DELWP’s EVC mapping of vegetation communities (Department of Environment Land Water and Planning 2018a) and consideration under the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017); and,
- *Commonwealth* – where vegetation may meet ‘thresholds’ to be classified as a federally listed community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Department of Sustainability Environment Water Population and Communities 2011).

Local

The study area is located within the Mitchell Shire Council municipality and it is zoned Mixed Use Zone (Department of Environment Land Water and Planning 2018d). A Vegetation Protection Overlay – Schedule 2 applies to the vegetation along the western boundary of the study area. This overlay is to protect native vegetation within freeway reservations, as they provide habitat corridors for native wildlife and visual amenity for the municipality. No other Environmental Significance Overlays (ESO), or Significant Landscape Overlays (SLO) are applicable to the study area.

State

The study area falls within the Victorian Volcanic Plain bioregion of Victoria. Investigation of DELWP’s EVC mapping identified that the historic vegetation within the study area is likely to have been EVC 55: Plains Grassy Woodland in the south and west of the study area, but a mosaic of Riparian Scrub or Swampy Scrubs and Woodlands, throughout the majority of the remainder of the study area. These EVCs are described as:

- EVC 55: Plains Grassy Woodland is described as an ‘open, eucalypt woodland to 15 m tall. [It] 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’;
- EVC 191: Riparian Scrub which is described as “a dense shrubland to 6 m tall growing on waterlogged substrates often with a peaty surface horizon. Emergent eucalypts may be occasionally present. The understorey typically consists of sedges tolerant of seasonal waterlogging. Occurs along creeks and minor stream tributaries of the lowland plains”; and,

- ECV 83: Swampy Riparian Woodland which is described as a “Woodland to 15 m tall generally occupying low energy streams of the foothills and plains. The lower strata are variously locally dominated by a range of large and medium shrub species on the stream levees in combination with large tussock grasses and sedges in the ground layer” (Department of Environment Land Water and Planning 2018a).

Current modelling by DELWP suggests that little of this vegetation remains, and the current assessment generally confirmed this modelling with only scattered occurrences of native flora species, none of which were abundant enough to be classified as a patch of native vegetation.

Commonwealth

Department of Energy and the Environment (2018a) modelling suggests that that five nationally significant vegetation communities may also occur within the study area:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain;
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia;
- Natural Temperate Grassland of the Victorian Volcanic Plain;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains; and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

The vegetation within the study area is highly modified and not representative of any of these ecological communities. It is therefore extremely unlikely that any of these threatened ecological communities remain within the study area.

Threatened Flora Species

Nine threatened flora species have previously been recorded within three kilometres of the study area (Figure 2). A further 11 species are predicted to occur within the study area based on the Protected Matters Search Tool (Department of the Environment and Energy 2018a). A consolidated list of these threatened flora species as well as their conservation status, preferred habitats and likelihood of occurrence for each species is provided in Table A3.

No threatened flora species have previously been recorded within the study area. No threatened flora species were recorded during the current assessment. Most of the records of threatened flora species come from the road reserve of Station Street South, east of the study area, where ecological investigations were undertaken to facilitate residential development to the west of Station Street South in 2013 and 2014 (Department of Environment Land Water and Planning 2018e). The study area, however, has experienced a much greater degree of disturbance than this location and it is therefore unlikely that the study area provides significant habitat to any threatened flora species.

Habitat Hectare Assessment

The study area does not contain any patches of native vegetation.

Scattered Tree Assessment

The study area does not contain any indigenous scattered trees.

Fauna

Fauna Species

Twelve fauna species were recorded within the study area during the current assessment (Table A2, Appendix 1). This included six native and three introduced bird, one native and one introduced mammal and one native amphibian species. It is expected that a greater diversity of fauna species would be recorded with a greater amount of time on-site.

All of these species observed are abundant, and/or pest animal species, in the local area. No snakes or lizards were recorded during the assessment, although it is likely that some common species would occur within the study area when moving between areas of more preferred habitats. Further discussion on species that may occur within the various fauna habitats is provided below.

Fauna Habitats

The habitats for native wildlife are generally highly modified and disturbed. The study area contains open pasture grasslands. Pastures provide limited fauna habitat, but are expected to provide foraging habitat for a range of birds, such as those observed during the current assessment. This includes species such as Australian Magpie *Cracticus tibicen*, Common Starling *Sturnus vulgaris*, Eurasian Skylark *Alauda arvensis* and European Goldfinch *Carduelis carduelis*. Eastern Grey Kangaroos *Macropus giganteus* were also abundant during the current assessment, with more than 120 individuals counted within the study area.

Threatened Fauna Species and Communities

A consolidated list of the 15 threatened fauna species previously recorded on, or within the vicinity of, the study area, as well as a further 14 species that may occur within the study area is provided in Table A4 (see also Figure 2). The conservation status, preferred habitats and likelihood of occurrence for each species is provided within this table.

Two threatened species have previously been recorded within the study area. Brown Toadlet *Pseudophryne bibronii* was recorded on 15 occasions, between 1967 and 1968 within 1,800 metres of the north-eastern corner of the study area (Department of Environment Land Water and Planning 2018e). This species appears to have been widely distributed around the study area at this time. However there are no recent records of the species, since 1972 and there is no suitable habitat for the species within the study area, which suggests that the reports are from an area outside the study area, or that the habitats within the study area are now significantly different from those in the late 1960s.

A single Tussock Skink *Pseudemoia pagenstecheri*, was recorded in the south-eastern corner of the study area in 1988. The location of this observation is "Hern's Swamp: 2 km. N. of Beveridge Railway Station", with the accuracy of the location given as 900 metres (Department of Environment Land Water and Planning 2018e). It is therefore not certain that the record is from within the study area, and if it, the current assessment suggest that the vegetation within the study area has substantially degraded in the 30 years since that observation was made.

Other observations are associated with waterbodies within the landscape, which do not occur within the study area.

Therefore, none of the other threatened species modelled to occur near the study area have significant habitat within the study area, none were recorded during the current assessment, and none are likely to occur. No fauna communities listed under the Victorian *Flora and Fauna Guarantee Act 1988* were recorded within the study area.

Discussion

A detailed summary of the legislation that was considered when preparing this report is provided in Appendix 2. The discussion presented in this section of the report does not re-iterate information provided in Appendix 2, but summarises the results and recommendations arising from the interpretation of this legislation.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The desktop assessment identified 15 threatened flora and 19 threatened fauna species, as well as five vegetation communities, listed under the EPBC Act that may occur within the study area. None of these species have previously been recorded within the study area and preferred habitat for these species does not occur within the study area. This is largely attributed to the historic disturbance of the study area that resulted in the removal of native vegetation from the study area. The vegetation that remains within the study area is not characteristic of any of the threatened vegetation communities, and none are likely to occur within the study area.

A referral under the EPBC Act is not likely to be required for the development of the study area.

Flora and Fauna Guarantee Act 1988 (Vic)

The desktop assessment identified 17 flora and 11 fauna species listed under the FFG Act that may occur within the study area (Tables A3 and A4). None of the species listed as threatened under the FFG Act are likely to occur within the study area.

In addition, the FFG Act also lists 'protected flora'. Protected flora includes whole families or genera, not just plant species, such as daisies, heaths, orchids, and most Acacias. These species and genera are not necessarily regarded as threatened, but require an approved 'protected flora licence or permit' from DELWP prior to their removal from *public* land. The proposed development will be undertaken on private land, so a protected flora licence will not be required.

Planning and Environment Act 1987 (Vic)

The proposed development will require a planning permit from the Mitchell Shire Council under Clause 52.17 prior to the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2018d). Biodiversity offsets will be required for any such impacts (discussed below).

Catchment and Land Protection Act 1994 (Vic)

The primary considerations of the *Catchment and Land Protection Act 1994* (Vic) relate to soil and water conservation, as well as the management of pest plants and animals.

Seven weed species that are listed as 'noxious' within the Port Phillip and Westernport Catchment Management Area were present within the study area (Table A1). These included Artichoke Thistle *Cynara cardunculus*, Gorse, Paterson's Curse *Echium plantagineum*, Spear Thistle, Spiny Rush and Variegated Thistle *Silybum marianum* which are listed as 'Regionally Controlled' within the catchment, as well as Chilean Needle-grass *Nassella neesiana* which is listed as 'Regionally Restricted' within the catchment. The proponent is required to 'control the spread' of all

‘regionally controlled’ species from their property, and there are limitations on taking and trading ‘restricted’ species (Melville 2008). Chilean Needle-grass and Grose are also listed as a ‘Weed of National Significance’, although there are no additional legislative obligations to manage weeds under this listing.

The proposed development should aim to remove these plants when construction commences, and ensure they are removed during the future the landscaping and maintenance of the study area. It is expected that weed management would form part of a Construction Environment Management Plan (or equivalent). As a minimum, this should include:

- Maintain vehicle hygiene and vehicle wash-down areas;
- Using clean fill (if required);
- Manage noxious that may establish post-construction through spraying with herbicide or hand-removal;
- Avoiding the use of noxious species during any landscaping of the property;
- Manage off-site impacts, particularly to Taylors Creek, through appropriate sediment fencing and erosion control measures.

Wildlife Act 1975 (Vic)

It is likely that some locally common species of fauna will be displaced by the proposed development. All native vertebrate wildlife is protected under the *Wildlife Act 1975* (Vic), and therefore contractors must use due care when removing vegetation from the study area.

A Kangaroo Management Plan is generally required within Melbourne’s growth areas. Due to the high prevalence of Eastern Grey Kangaroos within the study area, and the potential for them to become a nuisance, injured, or ushered towards roads, it is recommended that a KMP is prepared if one does not already exist for the current development.

Guidelines for the removal, destruction or lopping of native vegetation

No native vegetation was recorded within the study area, and therefore no additional recommendations are made based on the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment Land Water and Planning 2017).

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Figures

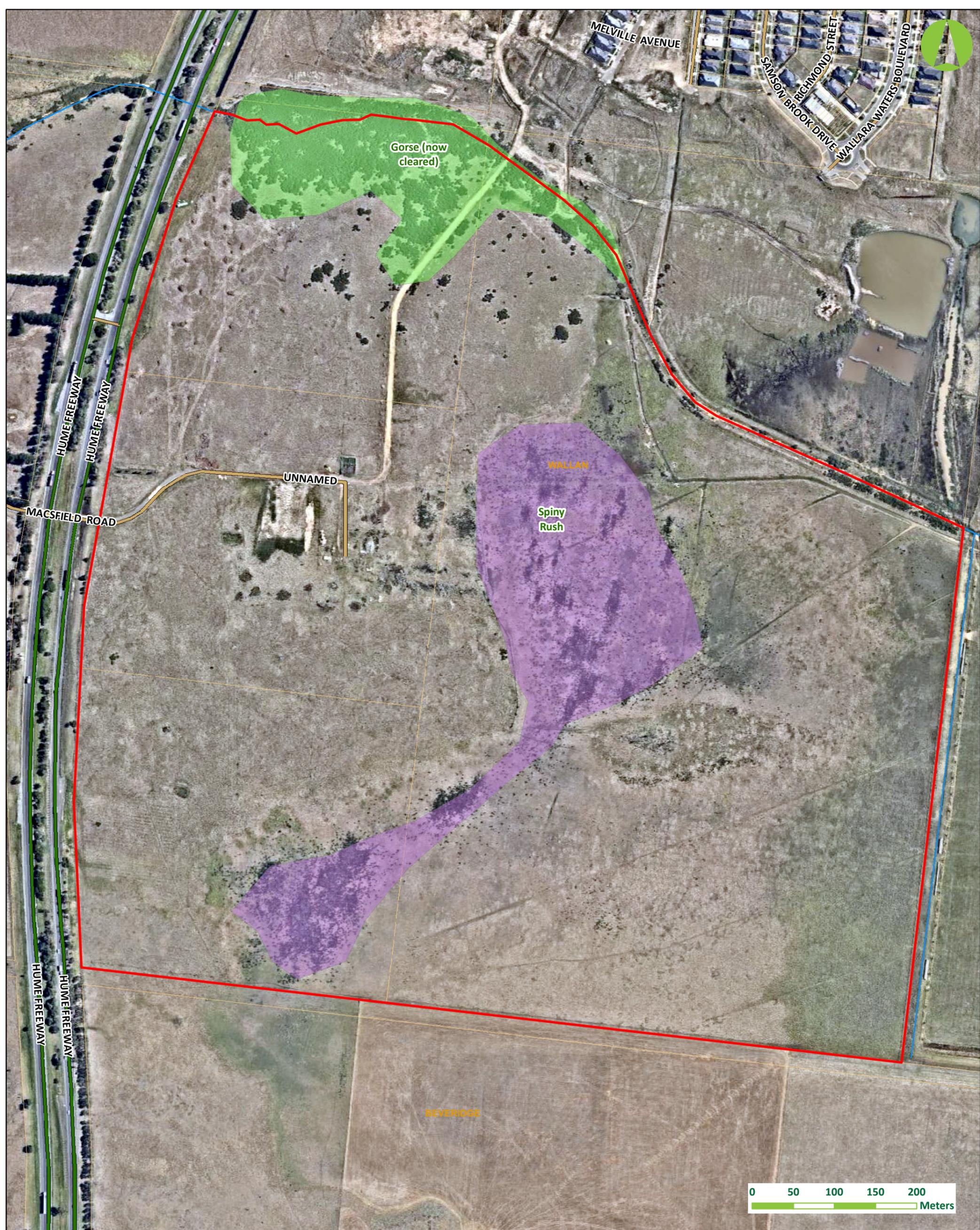


Figure 1: Results of the current assessment

40 Macsfield Road, Wallan, Victoria

Legend

- Dominant vegetation**
- Gorse (now cleared)
 - Spiny Rush



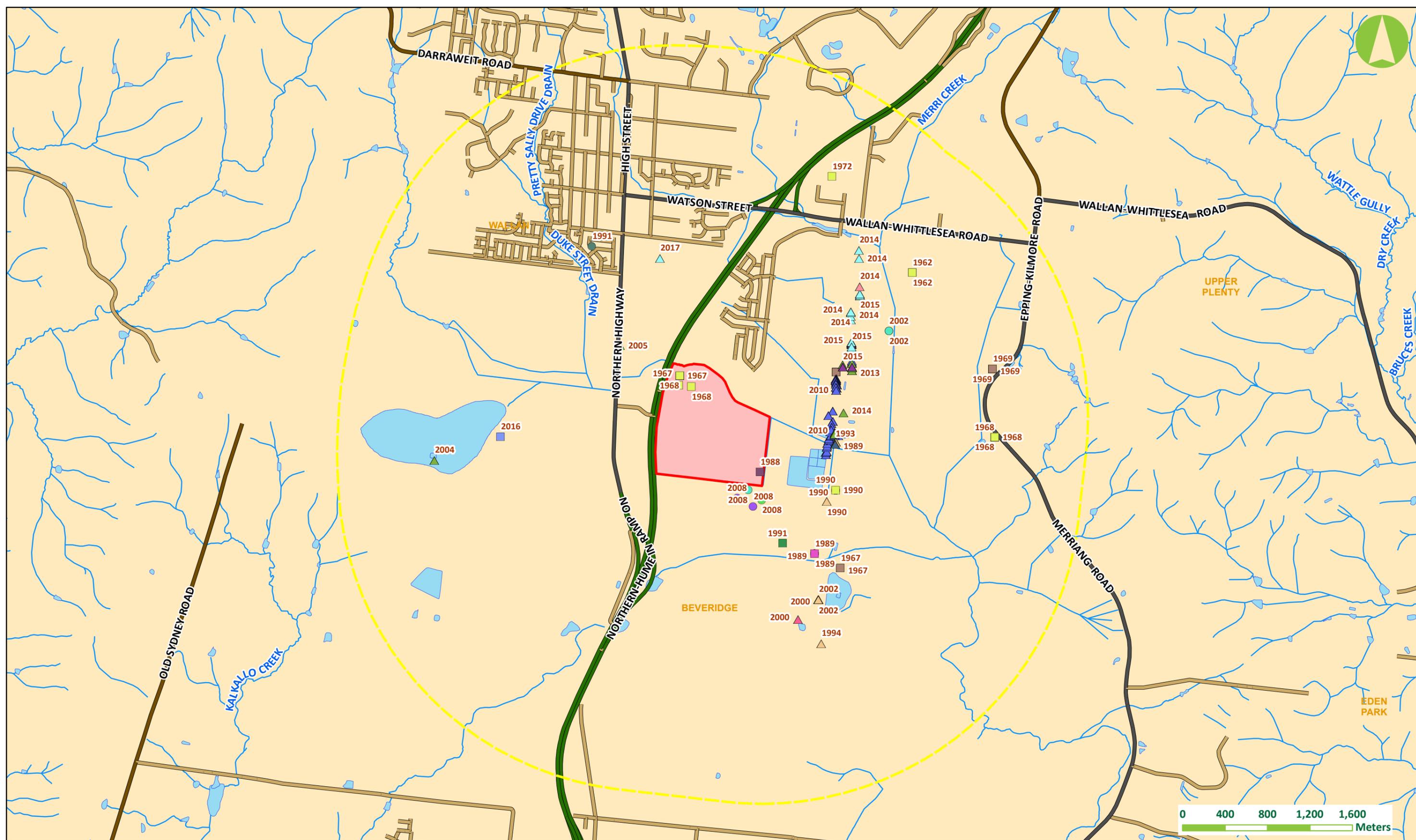


Figure 2: Threatened flora and fauna within 3kms of the study area

40 Macsfield Roa, Wallan, Victoria

Legend

- | | | | | | | |
|---|--|--|---|--|--|--|
| Study Area | Australasian Shoveler | Latham's Snipe | Swift Parrot | Gwonging Grass Frog | Floodplain Fireweed | Small Scurf-pea |
| 3km Study Area Buffer | Black Falcon | Musk Duck | Striped Legless Lizard | Southern Toadlet | Matted Flax-lily | Small-flower Wallaby-gr. |
| Common Name | Eastern Great Egret | Royal Spoonbill | Tussock Skink | Golden Sun Moth | Pale Swamp Everlasting | Swamp Everlasting |
| Australasian Bittern | Hardhead | Spotted Harrier | Brown Toadlet | Arching Flax-lily | Plains Yam-daisy | Swamp Fireweed |



Plates



Plate 1. Stockpiled gorse that has been removed from the study area



Plate 2. Stockpiled rocks within the study area



Plate 3. An exotic Spiny Rush infestation in the low-lying portion of the study area



Plate 3. A low cover abundance (<5%) of indigenous plants remains on a stony rise in the south-western portion of the study area, although insufficient cover to qualify as a patch of antive vegetation

Appendices

Appendix 1. Flora and Fauna Tables

Table A1. Flora recorded within the study area

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Annual Meadow-grass	<i>Poa annua</i>	-	-
*	Artichoke Thistle	<i>Cynara cardunculus</i>	-	Regionally controlled
*	Barley Grass	<i>Hordeum spp.</i>	-	-
*	Barley-grass	<i>Hordeum leporinum</i>	-	-
*	Bearded Oat	<i>Avena barbata</i>	-	-
*	Big Heron's-bill	<i>Erodium botrys</i>	-	-
	Bristly Wallaby-grass	<i>Rytidosperma setaceum</i>	-	-
*	Brown-top Bent	<i>Agrostis capillaris</i>	-	-
*	Buck's-horn Plantain	<i>Plantago coronopus</i>	-	-
*	Burr Medic	<i>Medicago polymorpha</i>	-	-
*	Capeweed	<i>Arctotheca calendula</i>	-	-
*	Chilean Needle-grass	<i>Nassella neesiana</i>	Yes	Regionally restricted
*	Cluster Clover	<i>Trifolium glomeratum</i>	-	-
*	Clustered Dock	<i>Rumex conglomeratus</i>	-	-
*	Cocksfoot	<i>Dactylis glomerata</i>	-	-
*	Common Sow-thistle	<i>Sonchus oleraceus</i>	-	-
*	Common Storksbill	<i>Erodium ciliatum</i>	-	-
	Common Tussock-grass	<i>Poa labillardierei</i>	-	-
*	Common Vetch	<i>Vicia sativa</i>	-	-
	Common Wallaby-grass	<i>Rytidosperma caespitosum</i>	-	-
*	Couch	<i>Cynodon dactylon</i> var. <i>dactylon</i>	-	-
*	Curled Dock	<i>Rumex crispus</i>	-	-
	Finger Rush	<i>Juncus subsecundus</i>	-	-
*	Flatweed	<i>Hypochaeris radicata</i>	-	-
*	Flaxleaf Fleabane	<i>Erigeron bonariensis</i>	-	-
*	Gorse	<i>Ulex europaeus</i>	Yes	Regionally controlled
*	Hair Grass	<i>Aira spp.</i>	-	-
	Hairy Willow-herb	<i>Epilobium hirtigerum</i>	-	-
*	Narrow-leaf Clover	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	-	-

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Onion Grass	<i>Romulea rosea</i>	-	-
*	Ox-tongue	<i>Helminthotheca echioides</i>	-	-
*	Panic Veldt-grass	<i>Ehrharta erecta</i> var. <i>erecta</i>	-	-
*	Paspalum	<i>Paspalum dilatatum</i>	-	-
*	Paterson's Curse	<i>Echium plantagineum</i>	-	Regionally controlled
*	Perennial Rye-grass	<i>Lolium perenne</i>	-	-
*	Ribwort	<i>Plantago lanceolata</i>	-	-
*	Rough Sow-thistle	<i>Sonchus asper</i> s.l.	-	-
*	Sheep Sorrel	<i>Acetosella vulgaris</i>	-	-
	Slender Wallaby-grass	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	-	-
	Small Loosestrife	<i>Lythrum hyssopifolia</i>	-	-
*	Small Nettle	<i>Urtica urens</i>	-	-
*	Small-flower Mallow	<i>Malva parviflora</i>	-	-
*	Soft Brome	<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	-	-
	Spear Grass	<i>Austrostipa</i> spp.	-	-
*	Spear Thistle	<i>Cirsium vulgare</i>	-	Regionally controlled
*	Spiny Rush	<i>Juncus acutus</i> subsp. <i>acutus</i>	-	Regionally controlled
*	Squirrel-tail Fescue	<i>Vulpia bromoides</i>	-	-
*	Subterranean Clover	<i>Trifolium subterraneum</i>	-	-
*	Suckling Clover	<i>Trifolium dubium</i>	-	-
	Toad Rush	<i>Juncus bufonius</i>	-	-
*	Toowoomba Canary-grass	<i>Phalaris aquatica</i>	-	-
*	Variiegated Thistle	<i>Silybum marianum</i>	-	Regionally controlled
*	Water Couch	<i>Paspalum distichum</i>	-	-
	Weeping Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-
*	White Clover	<i>Trifolium repens</i> var. <i>repens</i>	-	-
*	Yorkshire Fog	<i>Holcus lanatus</i>	-	-

Table Notes:

* - Exotic p – Planted # - Some records naturalised

This table does not include ornamental plants, trees or shrubs that were not spreading or reproducing beyond where they were planted.

Table A2. Fauna recorded species within the study area during the current assessment

Origin	Common Name	Species Name
Birds		
	Pacific Black Duck	<i>Anas superciliosa</i>
	Little Pied Cormorant	<i>Microcarbo melanoleucos</i>
	Magpie-lark	<i>Grallina cyanoleuca</i>
	Little Raven	<i>Corvus mellori</i>
	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>
	Australian Magpie	<i>Cracticus tibicen</i>
*	Common Starling	<i>Sturnus vulgaris</i>
*	Eurasian Skylark	<i>Alauda arvensis</i>
*	European Goldfinch	<i>Carduelis carduelis</i>
Mammals		
*	Rabbit	<i>Oryctolagus cuniculus</i>
	Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Amphibians		
	Common Eastern Froglet	<i>Crinia signifera</i>

Definitions

* - Introduced species

Table A3. Threatened flora that has previously been recorded within, or in the vicinity of the study area (Department of Environment Land Water and Planning 2018e), or that has habitat that may occur within the vicinity of the study area (Department of the Environment and Energy 2018a).

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Sighting	Habitat Present With Study Area	Likelihood of Presence
Adamson's Blown-grass	<i>Lachnagrostis adamsonii</i>	Endangered	Vulnerable FFG Listed	Slow moving creeks, wetlands, depressions and drains on poorly drained soils	NPR	No	Unlikely
Arching Flax-lily	<i>Dianella</i> spp. aff. <i>longifolia</i> (Benambra)	-	Vulnerable	Lowland grasslands, grassy woodlands and grassy wetlands	2014	No	Unlikely
Button Wrinklewort	<i>Rutidosis leptorhynchoides</i>	Endangered	Endangered FFG Listed	Basaltic grasslands, plains grassland, grassy wetlands.	NPR	No	Unlikely
Clover Glycine	<i>Glycine latrobeana</i>	Vulnerable	Vulnerable FFG Listed	Grassy woodland; plains grassland; box woodland; dry sclerophyll forest.	NPR	No	Unlikely
Floodplain Fireweed	<i>Senecio campylocarpus</i>	-	Vulnerable	Dry and valley sclerophyll forest	1993	No	Unlikely
Green-striped Greenhood	<i>Pterostylis chlorogramma</i>	Vulnerable	Vulnerable	Open forest and woodland	NPR	No	Unlikely
Hoary Sunray	<i>Leucochrysum albicans</i> var. <i>tricolor</i>	Endangered	Endangered FFG Listed	Amongst rocks in dry sclerophyll forests	NPR	No	Unlikely
Maroon Leek-orchid	<i>Prasophyllum frenchii</i>	Endangered	Endangered FFG Listed	Tea-tree heath; wattle tea-tree scrub; valley sclerophyll forest. Predominantly in or near coastal swamps. Rarely occupies sites more than 10 km inland	NPR	No	Unlikely
Matted Flax-lily	<i>Dianella amoena</i>	Endangered	Endangered FFG Listed	Grassy Wetland; Red Gum woodland; plains grassland; grassy woodlands.	2017	No	Unlikely

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Sighting	Habitat Present With Study Area	Likelihood of Presence
Pale Swamp Everlasting	<i>Coronidium gunnianum</i>	-	Vulnerable	Tea tree heath, sclerophyll woodland, dry sclerophyll forest	2014	No	Unlikely
Plains Yam Daisy	<i>Microseris sp. 1</i>	-	Vulnerable	Grows in a wide range of habitats including woodlands, depressions, stream banks and the margins of salt lakes and samphire flats	2015	No	Unlikely
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	Vulnerable	-	Beside swamps in grassy low open forest, riparian scrub. Required moist soils, tolerates inundation.	NPR	No	Unlikely
Round-leaf Pomaderris	<i>Pomaderris vacciniifolia</i>	Critically Endangered	Endangered FFG Listed	Valley sclerophyll forest	NPR	No	Unlikely
Small-flower Wallaby-grass	<i>Austrodanthonia monticola</i>	-	Rare	Dry sclerophyll forest	2005	No	Unlikely
Small Scurf-pea	<i>Cullen parvum</i>	Endangered	Endangered FFG Listed	Grassland or grassy woodland	2000	No	Unlikely
Spiny Rice-flower	<i>Pimelea spinescens</i> subsp. <i>spinescens</i>	Critically Endangered	Vulnerable FFG Listed	Grassland or open shrubland on basalt-derived soils west of Melbourne.	NPR	No	Unlikely
Spiral Sun-orchid	<i>Thelymitra matthewsii</i>	Vulnerable	Vulnerable FFG Listed	Open forests and woodlands in well-drained sand and clay loams	NPR	No	Unlikely
Swamp Everlasting	<i>Xerochrysum palustre</i>	Vulnerable	Vulnerable FFG Listed	Seasonal or permanent wetlands	2014	No	Unlikely
Swamp Fireweed	<i>Senecio psilocarpus</i>	Vulnerable	Vulnerable	High-quality herb-rich wetlands on plains	1990	No	Unlikely
Trailing Hop-bush	<i>Dodonaea procumbens</i>	Vulnerable	Vulnerable	Low lying areas in eucalypt woodlands and forests in sandy and clay soil. Often waterlogged	NPR	No	Unlikely

*** Likelihood of Presence Definitions:**

Unlikely – Site does not contain habitat and/or it is outside the species' known, current distribution.

Low – Site contains some marginal habitat, but the species was not observed and has not been recently recorded in previous surveys in the area.

Moderate – Site contains preferred habitat that may support a population of the species. However, other factors, such as fragmentation, disturbance or predators may be impacting any local population.

High - Site contains the preferred habitat which is likely to support the species.

Present – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded at the site.

NPR – No previous record, modelled presence only under the EPBC Protected Matters Search results (Department of the Environment and Energy 2018a).

Threatened status based on the Advisory List of Rare or Threatened Plants in Victoria (Department of Environment and Primary Industries 2014).

Table A4. Threatened fauna that has previously been recorded within, or in the vicinity of the study site (Department of Environment Land Water and Planning 2018e), or that has habitat that may occur within the vicinity of the site (Department of the Environment and Energy 2018a).

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Record	Habitat Present Within Study Area	Likelihood of Presence
Birds							
Musk Duck	<i>Biziura lobata</i>	-	Vulnerable	Permanent swamps with dense vegetation, more open waters in non-breeding season.	2008	No	Unlikely
Australasian Shoveler	<i>Anas rhynchotis</i>	-	Vulnerable	Heavily vegetated swamps and floodwaters.	2008	No	Unlikely
Hardhead	<i>Aythya australis</i>	-	Vulnerable	Deep, vegetated swamps, open water.	2008	No	Unlikely
Royal Spoonbill	<i>Platalea regia</i>	-	Near Threatened	Larger shallow waters (inland and coastal), well-vegetated shallow freshwater wetlands, floodplains, billabongs, sewage ponds, irrigation storages, tidal mudflats, estuaries, salt marshes, salt fields, mangroves, islands.	1990	No	Unlikely
Australasian Bittern	<i>Botaurus poiciloptilus</i>	Endangered	Endangered	Reed beds, dense vegetation of freshwater swamps and creeks.	1990	No	Unlikely
Spotted Harrier	<i>Circus assimilis</i>	-	Near Threatened	Open Plains and grasslands.	1999	No	Unlikely
Black Falcon	<i>Falco subniger</i>	-	Vulnerable	Woodland, scrub, shrubland and grassland types in arid and semi-arid zones.	1990	No	Unlikely
Australian Painted-Snipe	<i>Rostratula australis</i>	Vulnerable	Critically Endangered, FFG Listed	Uncommon summer migrant to Victoria. Lowlands on shallow freshwater swamps with emergent	NPR	No	Unlikely

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Record	Habitat Present Within Study Area	Likelihood of Presence
				vegetation, and flooded salt marshes.			
Eastern Curlew	<i>Numenius madagascariensis</i>	Critically Endangered	Vulnerable, FFG Listed	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Curlew Sandpiper	<i>Calidris ferruginea</i>	Critically Endangered	Endangered, FFG Listed	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Latham's Snipe	<i>Gallinago hardwickii</i>	-	Near Threatened	Wet grasslands, open and wooded swamps.	1990	No	Unlikely
Swift Parrot	<i>Lathamus discolor</i>	Endangered	Endangered, FFG Listed	Winter migrant from Tasmania. Generally prefers Box-Ironbark forests and woodlands inland of the Great Dividing Range during winter.	1991	No	Unlikely
Regent Honeyeater	<i>Anthochaera phrygia</i>	Endangered	Critically Endangered, FFG Listed	Depends on nectar and insects from Box-Ironbark Eucalypt forests. Only breeding habitat lies in Northeast Victoria and central coast of NSW	NPR	No	Unlikely
Painted Honeyeater	<i>Grantiella picta</i>	Vulnerable	Vulnerable, FFG Listed	Open box-ironbark forests and woodlands, particularly where trees are infested with mistletoe.	NPR	No	Unlikely
Mammals							
Spotted-tail Quoll	<i>Dasyurus maculatus maculatus</i>	Vulnerable	Endangered, FFG Listed	Forests including large intact areas of vegetation for foraging.	NPR	No	Unlikely
Long-nosed Potoroo	<i>Potorous tridactylus tridactylus</i>	Vulnerable	Near Threatened, FFG Listed	Heathy woodland	NPR	No	Unlikely
Greater Glider	<i>Petauroides volans</i>	Vulnerable	Vulnerable	Wet sclerophyll forests, requires large tree hollows for nesting	NPR	No	Unlikely
Grey-headed Flying-	<i>Pteropus</i>	Vulnerable	Vulnerable,	Roost sites commonly occur in gullies,	NPR	No	Unlikely

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Record	Habitat Present Within Study Area	Likelihood of Presence
fox	<i>poliocephalus</i>		FFG Listed	in vegetation with dense canopy cover and close to water.			
Smoky Mouse	<i>Pseudomys fumeus</i>	Endangered	Endangered, FFG Listed	Dry sclerophyll forests with tussocky understorey	NPR	No	Unlikely
Frogs							
Growling Grass Frog	<i>Litoria raniformis</i>	Vulnerable	Endangered, FFG Listed	Permanent lakes, swamps, dams and lagoons.	1989	No	Unlikely
Brown Toadlet	<i>Pseudophryne bibronii</i>	-	Endangered, FFG Listed	Forests, woodlands, shrublands, grassland and heaths, sheltering under moist leaf litter and other debris in boggy soaks and depressions.	1990	No	Unlikely
Southern Toadlet	<i>Pseudophryne semimarmorata</i>	-	Vulnerable	Dry forest, woodland, grassland and heath in moist soaks and depressions; uses leaf litter for shelter.	1969	No	Unlikely
Reptiles							
Striped Legless Lizard	<i>Delma impar</i>	Vulnerable	Endangered, FFG Listed	Lowland native grasslands, typically dominated by native tussock forming grasses. Typically occurs on deep cracking clay soils.	1991	No	Unlikely
Tussock Skink	<i>Pseudemoia pagenstecheri</i>	-	Vulnerable	Tussock grasslands with few or no trees.	1988	No	Unlikely
Fish							
Australian Grayling	<i>Prototroctes maraena</i>	Vulnerable	Vulnerable, FFG Listed	Clear gravelly streams; deep slow flowing pools.	NPR	No	Unlikely
Dwarf Galaxias	<i>Galaxiella pusilla</i>	Vulnerable	Vulnerable, FFG Listed	Slow moving waters, including ephemeral drains.	NPR	No	Unlikely
Flathead Galaxias	<i>Galaxias rostratus</i>	Critically	Vulnerable	Still or slow moving water bodies such	NPR	No	Unlikely

Common Name	Species Name	National Status	Victorian Status	Habitat Preferences	Most Recent Record	Habitat Present Within Study Area	Likelihood of Presence
		Endangered		as wetlands and lowland streams. They have been associated with a range of habitats including rock and sandy bottoms and aquatic vegetation.			
Macquarie Perch	<i>Macquaria australasica</i>	Endangered	Endangered, FFG Listed	Deep, rocky holes with considerable cover and flowing water over unsilted cobble and gravel substrate.	NPR	No	Unlikely
Invertebrates							
Golden Sun Moth	<i>Synemon plana</i>	Critically Endangered	Endangered, FFG Listed	Tussock grasslands preferably dominated by Wallaby Grasses and Spear Grasses.	2009	No	Unlikely

Table Notes:

This table excludes species listed exclusively as ‘migratory’ or ‘marine’ under the EPBC Protected Matters Search results (Department of the Environment and Energy 2018a).

*** Likelihood of Presence Definitions:**

Unlikely – Site does not contain habitat and/or it is outside the species’ known, current distribution. Birds and bats may fly over.

Low –Site contains some marginal habitat, but the species was not observed and has not been recorded in previous recent surveys in the area. Birds and bats may fly over.

Moderate – Site contains preferred habitat that may support a population of the species. Birds and bats may opportunistically or seasonally forage at the site.

High – Site contains preferred habitat which is likely to support the species. Birds and bats are likely to regularly (at least seasonally) forage or roost at the site.

Present – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded on the site.

NPR – No previous record, modelled presence only under the EPBC Protected Matters Search results (Department of the Environment and Energy 2018a).

Threatened status based on the Advisory List of Threatened Vertebrate Fauna in Victoria (Department of Sustainability and Environment 2013) and the Advisory List of Threatened Invertebrate Fauna in Victoria (Department of Sustainability and Environment 2009).

Appendix 2. Legislation

Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is to provide for the conservation of 'Matters of National Environmental Significance'. The Act defines nine Matters of National Environmental Significance:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- Nuclear actions; and
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the Act, actions that are likely to have a significant impact upon Matters of National Environmental Significance require approval from the Federal Environment Minister. This approval is sought through a referral process for a particular action. An action includes any project, development, undertaking, activity or series of activities. Consideration of the requirement for an 'EPBC Referral' to the Minister has been made within this report.

State Legislation

Flora and Fauna Guarantee Act 1988 (Vic)

The *Flora and Fauna Guarantee Act 1998* (Vic) (FFG Act) provides a legal framework for enabling and promoting the conservation of all Victoria's native flora and fauna, and to enable management of potentially threatening processes on public land. The Act lists native species, communities, and processes that threaten native flora and fauna, under Schedules of the Act. This enables the assessor and regulators to establish management measures to mitigate impacts on listed values within Victoria.

A 'Protected Flora and Fauna Licence or Permit' from DSE is required to 'take' listed flora species that are members of listed communities or protected flora from public land. 'Taking' flora is defined as any action which results in the removal or death of a native plant. A permit is not required under the FFG Act for private land, unless listed species are present and the land is declared 'critical habitat' for the species.

An evaluation of the likelihood of the presence of significant flora and fauna species on the subject site, including those listed under the FFG Act that have previously been recorded in the vicinity of the site, has been undertaken.

Planning and Environment Act 1987 (Vic)

The *Planning and Environment Act 1987* (Vic) (P&E Act), later amended by the *Planning and Environment (Planning Schemes) Act 1996* (Vic) provides the foundation of planning schemes in Victoria. Planning schemes set out policies and provisions for the development and protection of land within each municipality in Victoria.

The *Planning and Environment (Planning Schemes) Act 1996* provides for the Minister for Planning to prepare a set of standard provisions for planning schemes called the Victoria Planning Provisions (VPP). The VPP is a state-wide reference document or template from which planning schemes are sourced and constructed. Incorporation of references such as the *Guidelines for the Removal, Destruction or Lopping of native vegetation* into Section 12 of the VPP ensures that all municipalities must consider this policy. Local zones and overlays, such as Environmental Significance Overlays, may be incorporated into Section 30 and 40 of the planning provisions by each Council, but only remain relevant within that municipality.

The objectives of the P&E Act are to integrate local land use, development planning and development policy with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels through a set of planning schemes. The Act also establishes a clear procedure for public participation in decision making in amending planning schemes.

Some important sections of the planning scheme, in relation to the ecological values of a site, include:

- Section 12 of the State Planning Policy Framework, which identifies, and aims to protect, key biodiversity assets from inappropriate development;
- Clause 52.17 which identifies where native vegetation removal is exempt from requiring a planning permit; and
- Clause 66 which identifies all of the mandatory referral authorities. In particular, the Victorian Department of Environment, Land Water and Planning is identified as the recommending referral authority if a proponent proposes:
 - *To remove, destroy or lop native vegetation in the Detailed Assessment Pathway as defined in the Guidelines for the removal, destruction or lopping of native vegetation;*
 - *To remove, destroy or lop native vegetation if a property vegetation plan applies to the site; and*
 - *To remove, destroy or lop native vegetation on Crown land which is occupied or managed by the responsible authority* (Department of Environment Land Water and Planning 2018d).

Catchment and Land Protection Act 1994 (Vic)

The *Catchment and Land Protection Act 1994* (Vic) (CALP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under this Act, landowners have a responsibility to avoid causing or contributing to land degradation. Where possible, landowners are required to conserve soil, protect water resources, eradicate 'regionally prohibited' weeds, prevent

the growth and spread of 'regionally controlled' weeds and control pest animals. The CALP Act lists the species that are considered weeds and pest animals.

Wildlife Act 1975 (Vic)

Victoria's *Wildlife Act 1975 (Vic)* and the *Wildlife Regulations 2002 (Vic)* protect all indigenous vertebrate fauna, some non-indigenous vertebrate fauna, and some invertebrate fauna listed as 'threatened' under the FFG Act. The *Wildlife Act 1975 (Vic)* prevents intentional injury to wildlife, and stipulates that a licence should be granted where there is a possibility that wildlife are injured, or where wildlife is to be kept, relocated or traded.

In most cases, where the proponent is planning to develop a site, a planning permit approval provides this licencing approval, however, this report advises if an additional permit is required. Circumstances where this legislation may not be relevant is where fish are involved, on public land where additional regulatory approval is required, or where other permits are required (such as where fauna are required to undergo invasive procedures or installation of telemetry systems).

Fisheries Act 1995 (Vic)

The *Fisheries Act 1995 (Vic)* provides the legislative framework for the regulation, management conservation of Victorian fish species and their habitats. As with the Victorian *Wildlife Act 1975* described above, the key method to ensure compliance is through licencing. Where fish, or their habitats, are likely to be impacted, this report will identify additional requirements.

Other relevant policy

Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017b)

The *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment Land Water and Planning 2017) were released by DELWP in December 2017. These guidelines supersede the Biodiversity Assessment Guidelines (Department of Environment and Primary Industries 2013).

A permit to remove native vegetation under clause 52.16 and 52.17 of the Victoria Planning Provisions is required unless:

- The table of exemptions to this clause specifically states that a permit is not required;
- It is native vegetation or an area specified in the schedule to the clause;
- A Native Vegetation Precinct Plan corresponding to the land is incorporated into the relevant planning scheme; or
- Bushfire exemptions apply in bushfire prone areas (Department of Environment Land Water and Planning 2017).

The Guidelines describe the permitting process for applications to remove native vegetation on private and public property within Victoria. A key strategy of the State Planning Policy Framework, relating to biodiversity, 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 achieved through iteratively applying the three-step approach:

1. Avoiding the removal, destruction or lopping of native vegetation.
2. Minimising impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Providing an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017; p. 4).

Native vegetation is defined in the Victoria Planning Provisions as ‘plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses’ (Department of Environment Land Water and Planning 2017).

Native vegetation is further classified into two categories (Department of Environment Land Water and Planning 2017):

- A remnant patch of native vegetation (measured in hectares) 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 where the drip line 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 in DELWP systems and tools.

OR

- A scattered tree (measured in number of trees), is a native canopy tree that does not form a patch (Department of Environment Land Water and Planning 2017).

In addition, a canopy tree with a Diameter at Breast Height (DBH) greater than or equal to the large tree benchmark for the relevant bioregional EVC is defined as a large tree. Large trees can be either a large scattered tree or a large tree within a patch.

The contribution that is made by native vegetation to the biodiversity values of Victoria is determined through an assessment of both site-based information and landscape scale information.

At a site-based level, the contribution is determined through an assessment of:

- The extent of native vegetation;
- The number of large trees (either within a patch or scattered trees), relative to the appropriate EVC benchmark;
- The native vegetation condition, which is determined through a Habitat Hectare assessment
- The conservation status of the Ecological Vegetation Class (EVC) to which the vegetation can be classified; and,
- The presence of sensitive wetlands and coastal areas.

At a landscape scale, the value of the vegetation is determined with reference to its strategic context in the Victorian landscape (Department of Environment and Primary Industries 2013). This is determined by the vegetation’s ‘Strategic Biodiversity Score’ (SBS) and its ‘Habitat Importance Score’

(HIS) for its value to rare and threatened species (Department of Environment Land Water and Planning 2017).

All native vegetation within Victoria has a SBS that has been determined through spatial modelling, based on its rarity, level of depletion, species habitats, and condition and connectivity (Department of Environment Land Water and Planning 2017). SBS scores are between 0 and 1 and are used to determine the offset required for the loss of that vegetation. Native vegetation only has a HIS score if it is habitat for a particular rare or threatened species⁵ (Department of Environment Land Water and Planning 2017). There are two types of rare or threatened species habitats that may be provided by native vegetation:

- **Highly localised habitats for rare or threatened species** – where impact to this particular patch of native vegetation could result in a significant biodiversity impact, such as a breeding colony or species with a limited geographic extent.
- **Dispersed rare or threatened species habitats** – where habitat for the threatened species has become depleted or fragmented over time (Department of Environment Land Water and Planning 2017).

The HIS is used to apply the decision guidelines in relation to the removal of a patch of native vegetation and to determine offset requirements (Department of Environment Land Water and Planning 2017).

Applications to remove native vegetation are categorised against one of three assessment pathways. These pathways are categorised as:

- Basic – limited impacts on biodiversity.
- Intermediate – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas.
- Detailed – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas, and could significantly impact on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

This is initially determined in two ways, based on the 'location map' and the extent risk of the vegetation proposed to be removed. The location risk is determined with reference to the *Native Vegetation Location Risk* map available on DELWP's website (Department of Environment Land Water and Planning 2018b). This map shows whether native vegetation is classified as Location 1, 2 or 3.

⁵ Rare or threatened species are species listed in:

- DELWP's Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014a) as 'endangered', 'vulnerable', or 'rare', but does not include the 'poorly known' category.
- DELWP's Advisory List of Threatened Vertebrate Fauna in Victoria (DEPI 2013) as 'critically endangered', 'endangered' or 'vulnerable', but does not include 'near threatened' or 'data deficient' categories
- DELWP's Advisory List of Threatened Invertebrate Fauna in Victoria (DEPI 2009) as 'critically endangered', 'endangered' or 'vulnerable', but does not include 'near threatened' or 'data deficient' categories.

The extent risk is determined based on the amount of native vegetation that is proposed for removal and includes the area (in hectares) of impact to native vegetation, the number of scattered trees, and the number of large trees (Table A5).

Table A5. Assessment pathways for removal of remnant patches of native vegetation (Department of Environment Land Water and Planning 2017).

Extent	Location		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

All applications to remove native vegetation must include the following information:

1. Information about the native vegetation to be removed, including:
 - a. The assessment pathway and reason for the assessment pathway;
 - b. A description of the native vegetation to be removed;
 - c. Maps showing the native vegetation and property in context;
 - d. The offset requirement, determined in accordance with section 5 of the Guidelines that will apply if the native vegetation is approved to be removed.
2. Topographic and land information relating to the native vegetation to be removed;
3. Recent, dated photographs of the native vegetation to be removed;
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;
5. An 'Avoid and Minimise' statement;
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* (Vic) that applies to the native vegetation to be removed;
7. Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary;
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, and
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 (Department of Environment Land Water and Planning 2017; p. 20-21).

If the application will be assessed under the Detailed Assessment Methodology, the following additional requirements apply:

10. A site assessment report of the native vegetation to be removed, including:
 - a. A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status.
 - b. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches.
 - c. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.
11. Information about impacts on rare or threatened species habitat, including:
 - a. The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset.
 - b. For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: - the species' conservation status - the proportional impact of the removal of native vegetation on the total habitat for that species - whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat (Department of Environment Land Water and Planning 2017; p. 22).

Ten decisions guidelines are identified within the Guidelines that the responsible or referral authority must consider when deciding on an application to remove native vegetation. These are summarised as follows:

1. The degree to which the application avoids and minimises impacts to native vegetation, and where vegetation is proposed to be removed, the highest quality vegetation is avoided;
2. The role that the vegetation to be removed has in relation to landscape services such as erosion control, ground-water quality, waterway quality;
3. The role of the vegetation in the preservation of landscape features;
4. Whether any part of the native vegetation to be removed, destroyed or lopped is protected under the *Aboriginal Heritage Act 2006* (Vic);
5. The need to remove, destroy or lop native vegetation to create defensible space to reduce the risk of bushfire to life and property, having regard to other available bushfire risk mitigation measures;
6. Whether the native vegetation to be removed is in accordance with any Property Vegetation Plan that applies to the site;
7. Whether 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;
8. Whether the application is consistent with a Native Vegetation Precinct Plan (where relevant);
9. For applications in both the Intermediate and Detailed Assessment Pathway only, the impacts on biodiversity values that would occur as a result of vegetation removal; and,
10. For applications in the Detailed Assessment Pathway only, the impacts on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

Offset requirements

In all cases where native vegetation is approved for removal, the proponent is liable for the security of an offset site that meets the requirements under the Guidelines. An offset can be either a:

- First party offset – on the same property as the proposed removal of native vegetation, or on another property owned or managed (in the case of Crown land) by the party requiring the offset, or
- Third party offset – on another party’s property. Third party offsets are traded as native vegetation credits.

In most cases a third party offset is the simplest and most cost effective means of securing the required offset.

There are three components to offset requirements:

1. Offset type (general or species).
2. Offset amount (measured in general or species habitat units).
3. Offset attributes.

Two types of offset are identified: General Offsets and Specific Offsets. Specific Offsets may only be required if the native vegetation to be removed is habitat for rare or threatened species that are identified in an Intermediate or Detailed Assessment Pathway application (Department of Environment Land Water and Planning 2017). To determine this, a ‘Specific Biodiversity Equivalence Score’ is calculated by multiplying the habitat hectares with the HIS for each species that may be impacted. For each of the species, this figure is divided by the sum of all the Specific Biodiversity Value Scores calculated for the remaining vegetation under investigation to give a specific offset threshold for each species. If the amount of vegetation removed exceeds this threshold, then a Specific Offset is required. If it does not exceed the threshold, then only a General Habitat Offset is required (Table A6)(Department of Environment Land Water and Planning 2017).

Table A6 summarises the offset requirements for each of the Assessment Pathways and offset types.

Table A6. Offset requirements for the removal of native vegetation

Assessment Pathway	Offset Type	Offset amount		Offset attributes	
		Risk Adjusted Biodiversity Equivalence	Species Habitat Requirement	Vicinity	Strategic Biodiversity Score
Basic Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score ¹ of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
Intermediate or Detailed Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
	Specific offset	For each species impacted, 2 times the specific biodiversity equivalence score of the native vegetation to be removed.	Likely habitat for each rare or threatened species that a specific offset is required for, according to the specific-general offset test.	No restrictions.	No restrictions.

¹ The general biodiversity equivalence score is determined by multiplying the vegetation’s habitat hectare score by its SBS.