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 **RE Future**

Swansons Lane Wind Farm

Application for Planning Permit

Appendix D – Ecological Assessment

May 2025

Final Report

Ecological Assessment for the Proposed Swansons Lane Wind Farm: Garvoc, Victoria

Prepared for
RE Future Pty Ltd

May 2025

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Ecology and Heritage Partners Pty Ltd

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Acknowledgements

We thank the following people for their contribution to the project:

- Severin Staalesen (RE Future Pty Ltd) for project and site information;
- The landowners who provided access to the Project Area and historical information on the property.
- The Victorian Department of Energy, Environment and Climate Action (DEECA), formerly the Department of Environment, Land, Water and Planning (DELWP), for access to ecological databases.

🇦🇺 Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.

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EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by RE Future Pty Ltd to undertake an Ecological Assessment for the proposed Swansons Lane Wind Farm.

RE Future Pty Ltd is proposing to develop a five turbine wind farm at Garvoc, located approximately eight kilometres south-west of the township of Terang.

The assessment was undertaken to identify and characterise the vegetation on-site, determine the presence (or likelihood thereof) of any significant flora and fauna species and/or ecological communities, and address any implications under Commonwealth and State environmental legislation and policy.

Methods

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the Project Area.

The flora assessments were undertaken in November 2021 and March 2023. The field assessments sought primarily to assess the extent and condition of native vegetation communities and potential flora and fauna habitat, with particular consideration given to significant ecological communities and species of conservation concern, such as threatened species. The survey program was designed to optimise the survey timing, methods and frequency to enable sampling of those flora and fauna species which occur seasonally.

Fauna surveys included:

- Bird Utilisation Surveys
- Microbat surveys using Anabat detector and Songmeter units; and,
- Level 1 Brolga *Antigone rubicunda* assessment to address the potential risk posed to the species by the proposed Wind Farm.

Results

The Project Area is highly modified due to its use as an operating dairy farm. The Assessment Area is generally comprised of pasture paddocks, bordered by planted windrows, and intersected by constructed farm tracks.

Flora

Native vegetation in the Project Area is representative of three EVCs: Plains Grassland (EVC 132), Plains Grassy Wetland (EVC 125), and Plains Grassy Woodland (EVC 55).

The presence of these EVCs is generally consistent with the modelled pre-1750s and extant (2005) modelled native vegetation mapping.

Aside from planted specimens, no national or State significant flora species or vegetation communities were recorded, or are considered to occur within the Assessment Area.

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Fauna

No Brolga records (sighting, breeding, or flocking) exist within online biological databases within the 10-kilometre buffer of the Wind Farm boundary. Further, no breeding or flocking records were identified through the community consultation process. Based on the results of the Level 1 Brolga Assessment, the proposed development does not trigger a Level 2 Brolga Assessment.

A total of 48 bird species were recorded, consisting of 1,787 individuals, during the fixed-point bird utilisation surveys. A total of 94% of bird observations made during the point counts were of individuals that were either on the ground or flying below the Rotor Swept Area (RSA = 64 metres – 252 metres). A further 6% did not have their height recorded as they were obscured from vision, while less than 1% of birds were recorded flying in or above the Rotor Swept Area.

Legislative and Policy Implications

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act - Commonwealth)

The proposed action is highly unlikely to have a significant impact on any matter of NES considered in this report. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.

It is noted that investigations associated with the nationally significant Southern Bent-wing Bat are being undertaken by another consultant, with implications under the EPBC Act for this species provided separately.

Flora and Fauna Guarantee Act 1988 (FFG Act - Victoria)

Permits under the FFG Act for impacts to protected flora species removed for construction related activities on public land are only required for members of the Orchidaceae family, due to being declared general protected flora. No orchids were recorded as part of the assessment.

A small remnant of the FFG Act Western (Basalt) Plains Grassland ecological community is present (PG1a; PG1b – Figure 2a), with 0.001 hectares proposed to be impacted.

Planning and Environment Act 1987

In accordance with Clause 61.01 of the Corangamite Shire and Moyne Shire Planning Schemes, the Minister for Planning is the Responsible Authority for the use and development of land for a Wind Energy Facility or Solar Facility.

A permit is required under Clause 52.32 of the Corangamite Shire and Moyne Shire Planning Schemes to use and develop a wind energy facility. This report satisfies the relevant ecological application requirements listed in Clause 52.32-4.

A planning permit from the Corangamite Shire, Moyne Shire and Glenelg Shire Council is required to remove, destroy or lop any native vegetation under Clause 52.17.

The impact area is within Location 2, with 0.136 hectares of native vegetation proposed to be removed overall. As such, the permit application falls under the Intermediate assessment pathway.

As vegetation impacts are proposed across two Council boundaries, the offset implications have been split per municipality.

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SUMMARY OF CLAUSE 52.17 APPLICATION REQUIREMENTS

Table S1. Application requirements for a permit to remove native vegetation (Victoria Planning Provisions Clause 52.17; DELWP 2017)

No.	Application Requirement	Response
Application requirements under the Intermediate Assessment Pathway		
1	Information about the native vegetation to be removed, including: <ul style="list-style-type: none"> The assessment pathway and reason for the assessment pathway; A description of the native vegetation to be removed; Maps showing the native vegetation and property in context; and The offset requirement that will apply if the native vegetation is approved to be removed. 	Refer to Section 3.1, Section 3.2, 3.4 and Appendix 3
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Refer to Section 1.3 and Figure 2.
3	Recent dated photographs of the native vegetation to be removed.	Refer to Section 2
4	Details of any other native vegetation that was permitted to be removed on the same property with the same ownership as the native vegetation to be removed, where the removal occurred in the five year period before the application to remove native vegetation is lodged.	No removal of native vegetation has been removed by the proponent within the property within the past five years
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Refer to Section 6.1
6	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the <i>Conservation, Forests and Lands Act 1987</i> that applies to the native vegetation to be removed.	Not applicable
7	Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary. This statement must have regard to other available bushfire risk mitigation measures. This statement is not required when the creation of defensible space is in conjunction with an application under the Bushfire Management Overlay.	Not applicable as the vegetation clearance is not for defensible space
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.	Not applicable as the application responds to Clause 52.17
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.	Refer to Section 3.4.1.

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1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by RE Future Pty Ltd to undertake an Ecological Assessment for the proposed Swansons Lane Wind Farm, Garvoc, Victoria.

RE Future Pty Ltd is proposing to develop a five turbine wind farm at Garvoc, located approximately eight kilometres south-west of the township of Terang. The wind farm development boundary is located across several land parcels located between Coyles Road to the north, Sisters-Garvoc Road to the west, and the Princes Highway to the south and east (Figure 1).

The purpose of this assessment was to identify the extent and type of native vegetation present within the wind farm development boundary, determine the likely presence of significant flora and fauna species and/or ecological communities.

This report presents the results of the assessments undertaken to date and discusses the potential ecological and legislative implications associated with the proposed action.

1.2 Objectives

The objectives of the ecological assessments were to:

- Identify flora and fauna values within the Assessment Area of the proposed wind farm;
- Review the relevant flora and fauna data to which any available literature;
- Conduct field assessments to identify the extent and quality of native vegetation within the wind farm development boundary;
- Provide maps showing any areas of native vegetation and locations of any significant flora and fauna species, and/or fauna habitat (if present);
- Classify any flora and fauna species, and vegetation communities identified or considered likely to occur within the wind farm development boundary in accordance with Commonwealth and State legislation;
- Document relevant environmental legislation and policy; and,
- Document any opportunities and constraints associated with the proposed works.

Where areas of native vegetation were present, the following tasks were completed to address requirements under the 'Guidelines for the removal, destruction or lopping of native vegetation' (Guidelines) (DELWP 2017):

- A habitat hectare assessment of any areas of remnant native vegetation within the wind farm development boundary;
- Recommendations to address requirements under the Guidelines to minimise impacts to native vegetation; and,

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- Provision of offset targets for any native vegetation proposed to be lost because of the proposed works.

1.3 Wind Farm Study Area Definitions

1.3.1 Project Area

The wind farm development boundary (Project Area) is located across two private properties currently used for agricultural purposes, with dairy farming being the predominant agricultural use.

Fauna surveys focused on values present within the broader Project Area. The extent of the Project Area is shown in Figure 1.

The Project Area is generally flat and/or gently undulating, with a slight fall towards the south-west, no ridges, crests or waterways within or immediately adjacent to the development footprint. The Project Area contains several minor drainage lines that intersect the development footprint. However, many of these appear to be artificially constructed, and were dry at the time of the field assessments (Figure 2).

Surrounding land use is consistent with the Project Area, being predominately agricultural, with scattered dams, sheds and rural dwellings present. Several immature timber plantations are located on adjacent parcels to the north. Yaloke Swamp is approximately two kilometres west of the Project Area, however this area was dry at the time of the site assessments and appeared to be drained for agricultural purposes.

According to the Victorian Department of Energy, Environment and Climate Action (DEECA) NatureKit Map (DEECA 2024a), the Project Area is located within the Victorian Volcanic Plain bioregion, Glenelg Hopkins Catchment Management Authority (CMA) and Corangamite Shire, Moyie Shire and Glenelg Shire Council municipalities.

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1.3.2 Assessment Area

The assessment area is defined as the on-ground area assessed as part of the vegetation assessments. Specifically, the Assessment area comprises:

- All areas within 100 metres of the proposed turbine locations, 25 metres either side of access tracks and reticulation, and 25 metres from all other areas of infrastructure.
- The location of swept path intersections, specifically:
 - Sisters-Garvoc Road and the Princes Highway – Figure 2g;
 - The entrance point to the Project Area from Sisters-Garvoc Road (Figure 2f).

1.4 Wind Farm Turbine Specifications

The project is basing the application on four turbine model configurations, namely the V162 HH150 and HH166 and V172 HH150 and HH166. For the purpose of this report and potential impact investigations; the shortest and tallest RSA heights are V172 HH150 (bottom RSA of 64 metres) and V172 HH166 (upper RSA of 252 metres).

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2 METHODS

2.1 Relevant Commonwealth and State Legislation

Throughout the assessment process, consideration has been given to the following Commonwealth and Victorian environmental policy and legislation.

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- *Environmental Effects Act 1978* (EE Act);
- *Flora and Fauna Guarantee Act 1988* (FFG Act);
- *Planning and Environment Act 1987* (P&E Act);
 - The Guidelines for the removal, destruction and lopping of native vegetation (DELWP 2017);
- Development of Wind Energy Facilities in Victoria: Policy and Planning Guidelines (DELWP 2021);
- Interim Guidelines for the Assessment, Avoidance, Mitigation and Offsetting of Potential Wind Farm Impacts on the Victorian Brolga Population (DSE 2012);
- Corangamite Shire and Moyne Shire Planning Schemes, including,
 - Clause 52.17 Native Vegetation; and,
 - Clause 52.32 Wind Energy Facility.
- *Wildlife Act 1975* (Wildlife Act); and,
- *Catchment and Land Protection Act 1994* (CaLP Act).

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2.2 Desktop Assessment

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the Project Area. The following information sources were reviewed:

- The DEECA NatureKit Map (DEECA 2024a) and Native Vegetation Regulation (NVR) Map (DEECA 2024b) for:
 - Modelled data for location risk, native vegetation patches, scattered trees and habitat for rare or threatened species; and,
 - The extent of historic and current Ecological Vegetation Classes (EVCs).
- EVC benchmarks (DEECA 2024c) for descriptions of EVCs within the relevant bioregion;
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DEECA 2024d);
- Birdlife New Atlas Bird Data for additional Brolga records within 10 kilometres of the wind farm development boundary (BirdLife Australia 2024);

- South West Brolga Flocking Database (Sheldon 2004);
- AusWEA (2005) Wind Farms and Birds: Interim Standards for Risk Assessment;
- Atlas of Living Australia (ALA) for Brolga records within 10 kilometres of the wind farm development boundary (ALA 2024);
- Brolga Movements and Spatial Requirements During Breeding, south-west Victoria. Ecology and Heritage Partners Pty Ltd, November 2013 (EHP 2013);
- Breeding home range movements of pre-fledged brolga chicks, *Antigone rubicundra* (Gruidae) in Victoria, Australia – Implications for wind farm planning and conservation (Veltheim *et al.* 2019);
- Guidelines for bat surveys in relation to wind farm developments (Lumsden 2007);
- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2024);
- Relevant listings under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act), including the latest Threatened (DEECA 2024e) and Protected (Department of Environment, Land, Water and Planning [DELWP] 2019a) listings in the Project Area;
- The online VicPlan Map (Department of Transport and Planning [DTP] 2024) to ascertain current zoning and environmental overlays in the Project Area;
- Aerial photography of the Project Area.

Database searches covered a minimum search radius of 10 kilometers from the project area boundaries.

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2.3 Flora Assessment

A flora assessment within the wind farm Assessment Area was undertaken on 30 November 2021, and 30 March 2023 by ecologists accredited in the VQA Assessment methodology (Department of Sustainability and Environment [DSE] 2004) to obtain information on ecological values.

Commonly observed vascular flora species were recorded, significant records mapped, and the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DEECA pre-1750 and extant EVC mapping (DEECA 2024a) and their published descriptions (DEECA 2024c).

Where native vegetation was identified a habitat hectare assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (DSE 2004).

2.4 Fauna Assessment

Concurrently with the flora assessments, a fauna assessment was undertaken to obtain information on terrestrial fauna values within the wind farm development boundary. The wind farm Assessment Area surrounds was visually assessed and active searching under and around ground debris for small mammals, reptiles and frogs was undertaken. Binoculars were also used to scan the area for birds, and observers listened

for calls and searched for other signs of fauna such as nests, remains of dead animals, droppings and footprints. Potential habitat for fauna was assessed, with a particular emphasis on habitats that may provide shelter, food or other resources for significant species.

The surveys sought primarily to assess the extent and condition of native vegetation communities and potential flora and fauna habitat, with particular consideration given to significant ecological communities and species of conservation concern, such as threatened and migratory species.

All fieldwork was carried out under the appropriate licences, including a Wildlife Research Permit (#10010929) reissued by DEECA on 26 October 2023 under the Wildlife Act 1975, and a Protected Flora Research Permit (#10010917) reissued by DEECA on 14 November 2023 under the Flora and Fauna Guarantee Act. Ethics Committee Approval to conduct research using live animals has been granted by the Wildlife and Small Institutions Animal Ethics Committee (05.17).

2.4.1 Operational Impacts to Birds and Bats

The Clean Energy Association has developed *Best Practice Guidelines for Implementation of Wind Energy Projects in Australia* (Clean Energy Association 2013). The guidelines suggest a structured approach for ecological assessments that includes potential operational impacts on birds and bats. This approach was followed for the assessment and includes:

- Desktop review;
- Field surveys;
- Species-specific studies, if required;
- Development of avoidance, mitigation and offset strategies to minimise impacts on species if required; and;
- Development and implementation of monitoring programs for the construction and operational phases of the wind farm development.

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2.4.2 Bird Assessments

Bird Utilisation Surveys

Bird utilisation surveys are the most commonly used method for generating quantitative data on bird use of a potential wind farm site. The methods employed for the proposed Swansons Lane Wind Farm bird utilisation surveys have been designed to comply with the guidelines described in *AusWEA – Wind Farms and Birds: Interim Standards for Risk Assessment (2005)*. According to these guidelines, bird utilisation surveys are undertaken to ascertain:

- The species composition of birds that use the Project Area;
- The frequency with which each of those species use the Project Area;
- The height at which each of these species fly in the Project Area; and,
- The distribution of these species across the landscape.

Bird utilisation surveys are a minimum requirement for all wind farm sites and are used to inform the design of higher-level investigations, if required.

AusWEA Wind Farms and Birds: Interim Standards for Risk Assessment

The Australian Wind Energy Association (AusWEA 2005) has developed interim standards for risk assessment of birds for wind farm developments in Australia. This document outlines the type of investigations required, the order in which they should be undertaken and a systematic approach for assessing risk of bird impact at wind farms. This process allows for more detailed studies should a potentially significant risk be identified during preliminary studies.

The AusWEA (2005) interim standards recommend three levels of investigations, with each level involving increasing levels of detail. These levels include:

- Level 1 investigations provide an initial assessment of the risk of significant bird impacts from the operation of the proposed wind farm; Level 1 investigations involve a regional overview, review of existing data, and indicative bird utilisation surveys and roaming surveys.
- Level 2 investigations refine the risk assessment from the Level 1 investigation, using more intensive methods. Level 2 investigations involve roaming surveys and risk modelling.
- Level 3 investigations are initiated if the results of the Level 2 investigations indicate a greater than low level of residual risk of significant bird impacts from the operation of the proposed wind farm. Level Three investigations involve population assessment and population viability analysis.

The interim standards also recommend consultation with the wind farm developer and key representatives of agencies that assess and approve development to ensure that the proposed development is consistent with the Planning and Environment Act 1987.

- Agree on the issues, questions and objectives of bird impact risk assessment studies;
- Agree on the consequence and, where relevant, likelihood criteria that apply to the results of the studies; and,
- Where required, agree on the nature and effectiveness of mitigation measures.

Fixed Point Bird Counts

Field Zoologists, experienced in bird identification, undertook the fixed-point count surveys to the specifications outlined below. 10 × 42 binoculars were used to identify the bird to species, or for some species, generic level (e.g. non-calling Raven species).

The following was undertaken as part of the fixed-point bird counts:

- Five locations were established at which to undertake fixed point counts, with two of these located outside of the windfarm development footprint. The locations chosen were to ensure that the entire range of habitats within close proximity to the windfarm development boundary were sampled and that a range of habitat types represented in that sample (Figure 3);
- The search radius from the point was at least 100 metres for small birds and up to 800 metres for large birds (e.g. birds of prey, waterbirds), or further, if accurate identification to species level was achievable, using prominent landmarks;

- The duration of each fixed-point count was 20 minutes;
- The height at which each bird flew through the survey area was estimated to the nearest 10 metres;
- The direction of flight of each bird was recorded to the nearest 45 degrees of the compass;
- Each point was surveyed at different times of day (e.g. early morning, late morning, early afternoon and late afternoon) to account for diurnal differences in bird activity; and,
- Each point was surveyed five times over the course of each survey period. A total of two Bird Utilisation surveys were conducted at Swansons Lane Wind Farm (Table 1).

Table 1. Bird utilisation survey dates

Survey #	Survey dates
Survey #1 (Winter)	9-10 August 2021
Survey #2 (Spring)	28-29 November 2022

Incidental observations and roaming surveys

In addition to bird species recorded during the fixed-point count surveys, incidental observations of bird species were recorded while travelling between point counts and during other field based activities. Birds seen adjacent to the Project Area were also recorded.

Statistical Analyses

Species accumulation curves were generated from the point count data and are presented as graphs. This, along with a measure of completeness provides an overall account of the survey efficacy in predicting the species likely to occur within the Project Area.

Completeness follows the methods of Watson (2003) which is widely used in the manufacturing industry and ecology-based projects (Watson 2003) and is calculated as the actual richness (A) divided by the predicted richness (P) expressed as a percentage. The predicted species richness was calculated with the EstimateS 9.1.0 program, using the Michaelis–Menten richness estimator (MMMeans) using 1000 runs and estimates of 85, which uses the ratio of species seen once (singletons) to the species seen more than once (doubletons) to predict species richness (Raaijmakers 1987; Colwell 2004; Colwell 2013).

2.4.3 Brolga Assessment

Due to the potential risk posed to Brolga by wind farms in Victoria, DELWP developed the *Interim Guidelines for the Assessment, Avoidance, Mitigation and Offsetting of Potential Wind Farm Impacts on the Victorian Brolga Population* (Interim Guidelines) (DSE 2012). The Interim Guidelines outline a conservative approach to assessing and managing the effects of both individual wind farms and the cumulative impacts of the wind industry on the Victoria Brolga population. The objective of the Interim Guidelines is to ensure that there is no ‘net effect’ of wind farms on the Brolga, with the goal of achieving a positive effect for the population as a whole. The guidelines identify key habitat features for Brolga which require consideration and protection—these being breeding sites and flocking sites (DSE 2012).

It is noted that DELWP released the Draft *Brolga Assessment and Mitigation Standards for wind energy facility permit applications* in 2020 (DELWP 2020a). However, this document is still in Draft and is yet to be

incorporated into the Victorian Planning Scheme. As such, the assessment of the potential impacts of the Swanson Lane Wind Farm on the Brolga was undertaken with reference to the Interim Guidelines (DSE 2012). The Project Area is located on the southern extent of the Victorian distribution range (as indicated in DSE 2012). As such, a Level 1 Assessment was triggered.

The Level 1 Assessment provides a preliminary determination of whether a proposed wind farm development represents any level of risk to the Victorian Brolga population. The findings of the Level 1 Assessment are used to decide whether a Level 2 Assessment is required as per the Interim Guidelines (DSE 2012).

Desktop analysis

Relevant literature, online-resources and databases were reviewed to provide an assessment of Brolga breeding, flocking, and sighting records associated with the study area and Radius of Investigation (ROI), which for Brolga is a minimum 10-kilometre buffer of the project area.

Accuracy of records

A number of Brolga breeding records within biological databases (i.e. VBA) are not associated with wetlands due to the inaccuracy of the record. DEECA provide a protocol for addressing historical Brolga breeding records that have an inaccuracy greater than 100 metres where the co-ordinates are not at a wetland. The following steps are to be applied in these circumstances:

- Attempt to confirm the record location using the location and observer details;
- Buffer the record according to the accuracy field;
- Attribute the record to the closest wetland within the accuracy buffer;
- If there are no wetlands within the accuracy buffer, disregard the record; and,
- If the accuracy attribute is greater than one kilometre, disregard the record.

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Flocking site definitions

The Interim Guidelines (DSE 2012) identify that a flock roost site must meet three required criteria (Table 2).

Table 2. Criteria used to identify a flock roost site. The site should meet all three criteria (DSE 2012).

Criteria	Justification
More than one year of recording	To ensure the selection of traditional regularly used sites
One or more records of counts equal to or greater than 10 birds	To include sites which have been used often or traditionally by flocking Brolgas. The assumption is made that if more than 10 birds are recorded on a wetland, flocking behaviour is likely.
Recorded in more than one month	To include sites where Brolgas flock for periods greater than one day or one week, i.e. to include sites traditionally for the majority of the flocking or non-breeding season.

Sites that had recorded 10 or more Brolga (including a site identified through Landowner consultation) were identified as possible flocking sites. Short-listed sites could be divided into two categories:

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Traditional Flocking Sites

- Not specifically defined within the Interim Guidelines (DSE 2012), traditional flocking sites are described as a wetland to which 10 or more Brolga return each night to roost during the dry, flocking season 'year after year' (DSE 2012).

One-off Flocking Sites

- One-off flocking sites are defined in the Interim Guidelines as a site where 10 or more Brolga have been observed on a single occasion, but the site is not a regularly used (traditional) site (DSE 2012).

One-off flocking records may correspond to daytime foraging away from traditional flocking sites and can often be associated with non-wetland habitats (i.e. pasture and cropped land). Therefore, traditional flocking sites are considered to have greater value for Brolga than one-off flocking sites, the former representing a key habitat resource that provides overnight roosting potential. Importantly, Brolga movement and dispersal to and from one-off flocking sites are likely to be indicators of typical movements by Brolga during the migration season. Such movements can be considered in determining the residual risk of the proposed development to the Brolga population (DSE 2012).

Breeding site definitions

Monogamous breeders, Brolga pairs return annually to wetlands during the onset of the breeding season to re-establish territories. The typical breeding period for Brolga spans from July to December. However, the specific timing of their breeding efforts can be influenced by local and seasonal variations in climatic and wetland conditions.

Typically, a nest is constructed on the perimeter of a shallow herb sedge-dominated freshwater wetland. As per the Interim Guidelines, the entire perimeter of the wetland is considered to be the 'breeding site'. Breeding sites also include wetlands with historic records of Brolga breeding, noting that a wetland remains a breeding site unless it has been permanently drained and/or planted with trees (DSE 2012).

Community consultation

All residents within ten kilometres of the wind farm boundary (i.e. within the ROI) were invited to participate in consultation by means of a Landowner Consultation Questionnaire. The purpose of the landowner consultation was to determine Brolga sighting, breeding and flocking records not otherwise documented on biological databases, and to obtain further information on the availability of suitable breeding habitats across the locality.

Landowner questionnaires were mailed out to residences on 6 October 2023. In total, the Landowner Consultation Questionnaire was mailed to 1,722 separate residences and/or businesses within the ROI.

A copy of the landowner questionnaire and letter is provided in Appendix 5.

It is noted that the quality of landowner survey data is likely to vary due to landowner interest and length of residency. However, the data provided through the consultation process may add additional information to the assessment not previously available via other methods. While not all landowners responded, or provided contact details for follow-up, it is unlikely that the data provided via community consultation is a comprehensive assessment of all Brolga breeding and flocking habitat within the ROI. However, coupled with

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detailed a desktop interrogation via aerial imagery, the Level 1 Assessment is considered to adequately consider the potential for Brolga utilisation within the study area and ROI.

Field Assessment

A roaming survey was undertaken between 29 September – 1 October and on 19 October 2021 to visit locations within 20 kilometres of the study area where the species has previously been recorded, or sites that have the potential to support flocking or breeding habitat (Figure 6). The 2021 roaming surveys were undertaken during the known breeding season for the Brolga, which is a period of high detectability for the species.

2.4.4 Bat Assessment

Bat surveys were undertaken in accordance with the *Survey guidelines for Australia's threatened bats* (DEWHA 2010) and the *Guidelines for bat surveys in relation to wind farm developments* (Lumsden 2007).

Two types of bat detector recording devices were used to survey for microbat species:

- Anabat bat detectors linked to CF Storage Zcaims (Titley Electronics, Ballina NSW). These instruments record the high frequency echolocation calls produced by microbats when they are in flight, and save these calls directly to a memory card.
- Song Meter SM4 (Wildlife Acoustics™) sound recorders. The SM4's recorded audible sounds from 10kHz Hz-55kHz which is the calling acoustic frequency for microbats. These instruments record the high frequency echolocation calls produced by the bats when they are in flight, and save these calls directly to a memory card.

Different bat species produce distinguishable calls; therefore, detectors can be used to identify the species present in a given area. However, there is considerable variation within and between species, and all call identification needs to be undertaken by qualified personnel who have access to reference calls for that region and experience in identifying call characteristics.

Units were placed in areas likely to be utilised by foraging bats, for example adjacent to farm dams, near native vegetation (i.e. along waterways) and planted windrows. Weller and Zabel (2002) found detectors placed at a height of 1.4 metres recorded 30% more calls than those placed on the ground. This method was adopted at all locations within the study area, with all units placed within the forks of trees or branches at a height of at least 1.8 metres to allow call detectability over a greater height.

Bat detector surveys undertaken during Spring 2021 and Summer/Autumn 2022 by Ecology and Heritage Partners at a time when bats are known to be active across the landscape (i.e. movement between maternity and non-maternity roost caves) (TSSC 2021). The bat detector survey effort is presented in Table 3.

Table 3. Bat Detector survey dates

Season	Total survey nights	Survey effort
Spring 2021	61	<ul style="list-style-type: none"> • 30 September: Six Song Meters deployed at six sites • 19-20 October: Batteries and SD cards replaced • 30 November: Song Meters retrieved

Season	Total survey nights	Survey effort
Summer/Autumn 2022	47*	<ul style="list-style-type: none"> 4 February: Four Song Meters and two Anabats deployed at six sites 19-20 March: Bat detectors retrieved

*Note: Some variation in total nights surveyed between individual bat detectors.

Call Analysis

Bat calls collected throughout the Swansons Lane Wind Farm site were downloaded to a laptop and Kaleidoscope Pro 5.4 software (Wildlife Acoustics) was used to convert the WAV (and W4V) files into zero crossing (ZC) files, with the outputs saved in nightly subdirectories. The default Kaleidoscope Pro feature was used to filter 'Noise' into a separate subfolder.

Identification of bat calls collected was undertaken by recognised expert Rob Gration from EcoAerial Consulting Services. Rob Gration has analysed over 2 million microbat calls and has collated an extensive microbat call reference library for Victorian bat species.

Call analysis only focuses on the detection of significant species that had the potential to be present within the Project Area such as Yellow-bellied Sheath-tail Bat *Saccolaimus flaviventris* and Southern Bent-Wing Bat *Miniopterus orianae bassanii*. The call analysis did not attempt to confirm the presence of any other microbat species that are not significant (i.e., or count the number of calls for species other than significant species).

Call identification was completed using Anabat Insight sound analysis software (Titely Scientific) with reference to the EcoAerial microbat call reference library (undated).

The microbat call analysis was conducted in accordance with the *Standards for reporting bat detector surveys* (Australian Bat Society Incorporated undated).

The call analysis protocol utilised by EcoAerial is presented in Table 4.

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Table 4. Bat Detector survey dates

Season	Staff	Company	Analysis Protocol
Spring 2021	Rob Gration	EcoAerial Environmental Services	<ul style="list-style-type: none"> Files passed a Decision Tree analysis based on a combination of pulse characteristics, such as: <ul style="list-style-type: none"> Characteristic frequency; Time between calls; and, Pulse curvature Pulse characteristics used to assign identifications to calls Call identification focused solely on Yellow-bellied Sheath-tailed Bat, and Southern Bent-wing Bat
Summer/Autumn 2022	Rob Gration	EcoAerial Environmental Services	<ul style="list-style-type: none"> Files passed a Decision Tree analysis based on a combination of pulse characteristics, such as: <ul style="list-style-type: none"> Characteristic frequency; Time between calls; and, Pulse curvature Pulse characteristics used to assign identifications to calls Call identification identified Chocolate Wattled Bat <i>Chalinolobus morio</i>, Little Forest Bat <i>Vepadelus vulturnus</i>, White Striped Freetail Bat <i>Austronomus australis</i>, and Southern Bent-wing Bat

Season	Staff	Company	Analysis Protocol
			<ul style="list-style-type: none"> All calls assigned by the Decision Tree analysis were manually inspected to confirm

2.5 Removal, Destruction or Lopping of Native Vegetation (the Guidelines)

Under the *Planning and Environment Act 1987*, Clause 52.17 of the Corangamite Shire and Moyne Shire Planning Schemes require a planning permit from the Responsible Authority to remove, destroy or lop native vegetation. The assessment process for the clearing of vegetation follows the '*Guidelines for the removal, destruction or lopping of native vegetation*' (the Guidelines) (DELWP 2017).

2.5.1 Assessment Pathway

The Guidelines manage the impacts on biodiversity from native vegetation removal using an assessment-based approach. Two factors – extent risk and location category – are used to determine the risk associated with an application for a permit to remove native vegetation. The location category (1, 2 or 3) has been determined for all areas in Victoria and is available on DELWP's NVR Map (DEECA 2024b). Determination of assessment pathway is summarised in Table 5.

Table 5. Assessment pathways for applications to remove, destroy or lop native vegetation (DELWP 2017).

Extent		Location		
			2	3
Native Vegetation	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

Notes: For the purpose of determining the assessment pathway of an application to remove native vegetation the extent includes any other native vegetation that was permitted to be removed on the same contiguous parcel of land with the same ownership as the native vegetation to be removed, where the removal occurred in the five year period before an application to remove native vegetation is lodged.

2.5.2 Vegetation Assessment

Native vegetation (as defined in Table 6) is assessed using two key parameters: extent (in hectares) and condition. For the purposes of this assessment, both condition and extent were determined as part of the habitat hectare assessment.

Table 6. Determination of a patch of native vegetation (DELWP 2017).

Category	Definition	Extent	Condition
Patch of native vegetation	An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native;	Measured in hectares. Based on hectare area of the native patch.	Vegetation Quality Assessment Manual (DSE 2004).
	OR An area with three or more native canopy trees where the drip line of each tree		Modelled condition for Current Wetlands.

Category	Definition	Extent	Condition
	touches the drip line of at least one other tree, forming a continuous canopy; OR any mapped wetland included in the <i>Current Wetlands map</i> , available in DELWP systems and tools.		
Scattered tree	A native canopy tree that does not form part of a native patch.	Measured in hectares. Each Large scattered tree is assigned an extent of 0.071 hectares (15m radius). Each Small scattered tree is assigned a default extent of 0.031 hectares (10 metre radius)	Scattered trees are assigned a default condition score of 0.2 (outside a patch).

Notes: Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'.

2.5.3 Impact Avoidance and Minimisation

All applications to remove native vegetation must demonstrate the three-step approach of avoid, minimise and offset. This is a precautionary approach that aims to ensure that the removal of native vegetation is restricted to what is reasonably necessary, and that biodiversity is appropriately compensated for any native vegetation removal that is approved.

2.5.4 Offsets

Biodiversity offsets are required to compensate for the permitted removal of native vegetation. Offset obligations and offset site criteria are determined in accordance with the Guidelines (DELWP 2017) and are divided into two categories, being General Habitat Units and Species Habitat Units.

The offset requirements for native vegetation removal are calculated by DEECA (formerly DELWP) and presented in a Native Vegetation Removal (NVR) Report, which are based on the vegetation condition scores determined during the biodiversity assessment.

2.6 Likelihood of Occurrence Assessment

Relevant biological databases, literature (listed in Section 2.1) and expert advice were used to identify all species records of national, State and regional conservation significance within 10 kilometres of the project area. The proximity, number, dispersion and date of known locality records (assuming over-dispersed and random patterns of locality records being more likely to occur in the project area) were considered to determine a species' likelihood of occurrence within the project area.

Additional factors also taken into consideration include: the known biogeographical distribution of the species; underlying geology of existing locality records; and vegetation and habitat associations. The decision guidelines for determining the likelihood of occurrence of flora and fauna species are presented in Table 7 and Table 8 respectively.

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The results of the likelihood of occurrence assessment for listed flora and fauna species are provided in Appendices 1.3 and 2.1, respectively.

Table 7. Decision guidelines for determining a flora species likelihood of occurrence within the wind farm development boundary.

Likelihood of occurrence	Decision guidelines
1 – Known occurrence	Recorded within the project area recently (i.e. within 10 years).
2 - High	Previous records of the species in the local vicinity; and/or, the project area contains areas of high-quality habitat.
3 – Moderate	Limited previous records of the species in the local vicinity; and/or, the project area contains some characteristics of the species' preferred habitat.
4 – Low	Poor or limited habitat for the species however other evidence (such as a lack of records or environmental factors) indicates there is a low likelihood of presence.
5 – Unlikely	No potential habitat and/or outside the species range.

Table 8. Decision guidelines for determining a fauna species likelihood of occurrence within the wind farm development boundary.

Likely presence or use of the project area	Decision guidelines
1 – Known occurrence	Recorded within the project area recently (i.e. within 10 years).
2 - High	Likely resident in the project area based on data, records, or expert advice; and/or, recent records (i.e. within 10 years) of the species in the local area; and/or, the project area contains the species' preferred habitat.
3 - Moderate	The species is likely to visit the project area regularly (i.e. at least seasonally); and/or, previous records of the species in the local area; and/or, the project area contains some characteristics of the species' preferred habitat.
4 - Low	The species may visit the project area occasionally or opportunistically whilst en route to more suitable sites; and/or, there are only limited or historical records of the species in the local area (i.e. more than 20 years old); and/or, the project area contains few or no characteristics of the species' preferred habitat.
5 - Unlikely	No previous records of the species in the local area; and/or, the species may fly over the project area when moving between areas of more suitable habitat; and/or, out of the species' range; and/or, no suitable habitat present.

2.7 Assessment Qualifications and Limitations

2.7.1 Site Assessment

This report has been written based on the quality and extent of the ecological values and habitat observed to be present or absent at the time of the desktop and/or field assessments being undertaken.

Data and information held within the ecological databases and mapping programs reviewed in the desktop assessment (e.g. VBA, PMST, Nature Kit Maps etc.) are unlikely to represent all flora and fauna observations within, and surrounding, the wind farm development boundary. It is therefore important to acknowledge that a lack of documented records does not necessarily indicate that a species or community is absent.

The 'snapshot' nature of a standard biodiversity assessment meant that migratory, transitory or uncommon fauna species may have been absent from typically occupied habitats at the time of the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent. Only the 'Assessment Area' (i.e. land within 100 metres of the proposed development footprint) as shown in Figure 2 were assessed in detail as part of the flora assessment.

Ecological values identified within the wind farm development boundary were recorded using a hand-held GPS or tablet with an accuracy of +/-3 metres. This level of accuracy is considered to provide an accurate assessment of the ecological values present within the wind farm development boundary; however, this data should not be used for detailed surveying purposes.

2.7.2 Bird Utilisation Surveys

The fixed-point bird counts may have suffered from some biases because of the use of estimation in determining the distance of birds from the observer. Horizontal distances became increasingly difficult to judge as the distance between the observer and the bird increased.

Vertical distances were also difficult to judge, depending on structures and other landmarks that could be used as a reference. However, the higher the bird the greater the likelihood of error. In addition, this difficulty was not consistent across species, with small and large species biasing the results in unknown directions.

To attempt to overcome these potential biases, to calibrate the estimations of the observers, at each point count 200 metres was measured to use as a reference for the estimations that followed. To calibrate height, a landmark of known height (such as wind anemometer tower, power-line poles etc.) was used as a reference point. Whilst these precautions alleviated some of the bias in this process, the height and distance data need to be interpreted in a cautious manner given the probability of a high degree of error in the data-set.

A further bias in the data-set is the over-representation of large birds. As the distance between the observer and the bird increases, smaller species are increasingly likely to be overlooked. This effect is also likely to be exacerbated by weather conditions with overcast, windy or wet conditions having a negative impact on the detectability of some birds.

2.7.3 Microbats

Call analysis only focuses on the detection of significant species that had the potential to be present within the Project Area. The call analysis did not attempt to confirm the presence of any other microbat species that are not significant (i.e. or count the number of calls for species other than significant species).

Bat detector recording devices, such as the devices used in this survey, occasionally experience technical difficulties, and may be impacted by weather, particularly severe storms. In this instance, short periods of time may fail to be successfully recorded by the device.

The bat detectors used during this survey sample a limited airspace approximately 30 metres from the microphone.

It should be noted that methodology, results and implications relating to the further assessments and potential impacts to Yellow-bellied Sheath-tail Bat *Saccolaimus flaviventris* and Southern Bent-Wing Bat *Miniopterus orianae bassanii* are being undertaken by another consultant, and are not addressed in this report.

3 RESULTS

3.1 Overview

The Project Area is highly modified due to its use as an operating dairy farm. The Assessment Area is generally comprised of pasture paddocks, bordered by planted windrows, and intersected by constructed farm tracks (Plate 1; Plate 2; Figure 2).



Plate 1. Planted windrow and pasture paddock, typical of the Project Area (Ecology and Heritage Partners Pty Ltd 30/03/2023).



Plate 2. Constructed farm track within the Assessment Area. (Ecology and Heritage Partners Pty Ltd 30/03/2023).

Native vegetation where present, is representative of three EVCs; Plains Grassland (132), Plains Grassy Wetland (EVC 125), and Plains Grassy Woodland (EVC 55). The remainder of the Assessment Area was highly modified and was actively grazed and/or cropped and comprised typically of improved pastures, with some areas showing outbreaks of noxious weed species.

A description of ecological values is provided below.

3.2 Vegetation Condition

3.2.1 Patches of Native Vegetation

Native vegetation in the Project Area is representative of three EVCs: *Heavier Soils* Plains Grassland (EVC 132_61), Plains Grassy Wetland (EVC 125), and Plains Grassy Woodland (EVC 55).

The presence of these EVCs is generally consistent with the modelled pre-1750s and extant (2005) modelled native vegetation mapping (DEECA 2024a). Specific details relating to the observed EVCs are provided below.

The results of the habitat hectare assessment are provided in Appendix 1.2.

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Plains Grassland

Heavier Soils Plains Grassland (PG) is generally described a treeless vegetation dominated by graminoids and herbs. The EVC is present on fertile, cracking basalt soils prone to seasonal waterlogging (DEECA 2024c).

Within the Assessment Area, two small discrete patches of Plains Grassland were present within the road reserve of Coyles Road (Figure 2a). Habitat zone PG1b was comprised of Kangaroo Grass *Themeda triandra*, Common Bog-sedge *Shoenus apogon* and Common Tussock-grass *Poa labillardierei*, while PG1a also supported the herbs Common Woodruff *Asperula conferta*, Hairy Willow-herb *Epilobium hirtigerum* and Sheep's Burr *Acaena ovina* (Plate 3; Plate 4).

However, weed cover was high with Brown-top Bent *Agrostis capillaris*, Toowoomba Canary-grass *Phalaris aquatica*, Yorkshire Fog *Holcus lanatus*, Common Sow-thistle *Sonchus oleraceus* and Dandelion *Taraxacum officinale* all locally common.

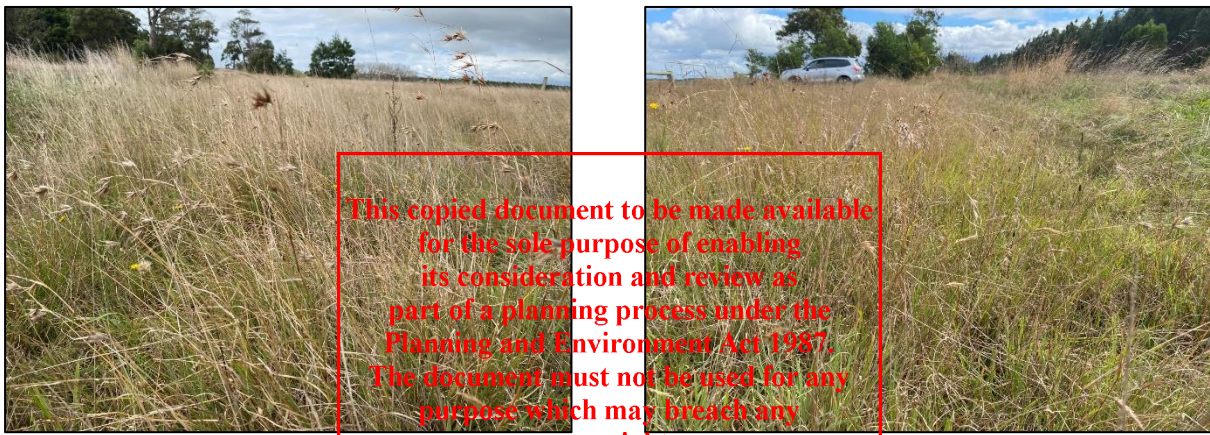


Plate 3. Plains Grassland within Coyles Rd road reserve (Ecology and Heritage Partners Pty Ltd 30/03/2023).

Plate 4. Plains Grassland within Coyles Rd road reserve (Ecology and Heritage Partners Pty Ltd 30/03/2023).

Plains Grassy Wetland

Plains Grassy Wetland (PGWe) is typically a treeless EVC, although eucalypts and a shrub component can occur in low numbers or around the margin of this EVC. The EVC is typically dominated by grasses, small sedges and herbs that are tolerant of periodic inundation, and is usually species poor in the wetter, central areas and species rich in the drier, outer areas (DEECA 2024c).

Adjacent to the current development footprint, PGWe was recorded around the edge of artificial waterbodies (farm dams), or within shallow, low-lying depressions that formed ephemeral wetlands after sustained periods of rainfall.

Species observed included a high cover of Small Spike-sedge *Eleocharis acuta* and Common Swamp Wallaby-grass *Amphibromus nervosus*, with Pondweed *Potamogeton* sp., and Duckweed *Lemna disperma* present within the waterbodies (Plate 5; Plate 6).

All areas of PGWe (aside from the artificial waterbody supporting permanent water) supported high weed cover, with Yorkshire Fog, Toowoomba Canary-grass, Barley *Hordeum vulgare* and Rye-grass *Lolium* sp., being particularly prevalent.



Plate 5. PGWe1a showing fringing Small Spike-sedge (Ecology and Heritage Partners Pty Ltd 30/11/2021).



Plate 6. PGWe1b, dominated by Small Spike-sedge and Common Swamp Wallaby-grass (Ecology and Heritage Partners Pty Ltd 02/12/2021).

Plains Grassy Woodland

Plains Grass Woodland (PGW) is generally described as an open eucalypt woodland, or Acacia/Sheoak woodland over fertile soils. The understory generally consists of a sparse shrub layer on a grassy and herbaceous ground layer (DEECA 2024b).

Within public land that intersected the Assessment Area, and within an area of native vegetation present appears to be the result of replanting and/or revegetation activities, the majority of which is in the form of dense stands of Black Wattle *Acacia mearnsii* and Blackwood *Acacia melanoxylon*, with the occasional specimen of Lightwood *Acacia implexa* also present (Plate 7).

Due to the presence of acacia species, and the modelled presence of Plains Grassland within the broader locality, these vegetation patches are considered to be most closely aligned with the Plains Grassy Woodland EVC. Some of these patches (i.e. PGW2) also support emergent eucalypts, with Manna Gum *Eucalyptus viminalis*, Swamp Gum *Eucalyptus ovata* and Messmate *Eucalyptus obliqua* present (Plate 8).



Plate 7. PGW3 comprised of a dense stand of Black Wattle and Blackwood (Ecology and Heritage Partners Pty Ltd 30/03/2023).



Plate 8. PGW2 with emergent eucalypts and an acacia dominated understory (Ecology and Heritage Partners Pty Ltd 30/11/2021).

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3.2.2 Large Trees in Patches

No Large Trees in patches were recorded in patches of native vegetation within the Assessment Area.

3.2.3 Scattered Trees

A total of eight scattered trees were recorded within the Assessment Area, which consisted of five Large and three Small scattered trees (Figure 2; Appendix 1.3). These trees would have once formed part of the Plains Grassy Woodland or Plains Grassland EVC; however, the understorey vegetation contained predominantly introduced species (mainly exotic pasture grasses) and the trees no longer formed a patch of native vegetation (Plate 9; Plate 10).

One of the scattered trees – the FFG Act listed Bog Gum *Eucalyptus kitsoniana* (Tree 8 – Figure 2c) appears to be a specimen that has naturally recruited from an adjacent windrow containing several planted Bog Gum specimens. Although the Project Area is located outside the naturally occurring range of Bog Gum, given the species is assumed to be a natural recruit, it has been assessed as a scattered tree for the purposes of this assessment as per the requirements of Clause 52.17 of the local planning scheme, and the definition of native vegetation as per the Guidelines (DELWP 2017).

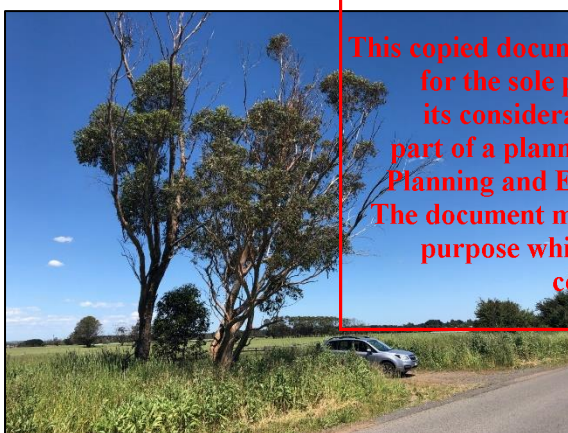


Plate 9. Trees 5 and 6 at the site entrance at Sisters-Garvoc Road (Ecology and Heritage Partners Pty Ltd 30/11/2021).



Plate 10. Tree 7 immediately adjacent to the existing farm track (Ecology and Heritage Partners Pty Ltd 30/03/2023).

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3.2.4 Introduced and Planted Vegetation

Areas not supporting native vegetation had a high cover (>99%) of exotic grass species, many of which were direct-seeded for use as pasture. Scattered native grasses or herbs were generally not present within these areas.

Non-native areas were dominated by exotic grasses including Sweet Vernal-grass *Anthoxanthum odoratum*, Toowoomba Canary-grass, Rye-grass, Cocksfoot, Brown-top Bent, Great Brome *Bromus diandrus*, Kikuyu *Pennisetum clandestinum* and Yorkshire Fog (Plate 11).

Noxious weeds, as defined under the CaLP Act, were present within the Project Area, with Blackberry *Rubus fruticosus* spp. agg. mainly located along the dam fringes, fencelines and road reserves, Spear Thistle *Cirsium vulgare* present in limited numbers along farm tracks and access points, and Bathurst Burr *Xanthium spinosum*

present in several, discrete infestations (Plate 12). Linear sections of Hawthorn *Crataegus monogyna* were present along the Sisters-Garvoc Road road reserve.



Plate 11. Spear Thistle near entrance gate (Ecology and Heritage Partners Pty Ltd 30/03/2023).



Plate 12. Bathurst Burr infestation (See Figure 2e) (Ecology and Heritage Partners Pty Ltd 30/03/2023).

Several planted windrows were present within the Project Area. Windrows were comprised of non-native vegetation – namely Monterey Pine *Cupressus macrocarpa* (Plate 13), or a mixture of planted Victorian and Australian native eucalypts including Sugar Gum *Eucalyptus cladocalyx*, Southern Mahogany *Eucalyptus botryoides*, Bog Gum and Manna Gum (Plate 14).



Plate 13. Monterey Pine windrow.



Plate 14. Planted eucalypt windrow.

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3.3 Fauna Habitat

Plains Grassland and Plains Grassy Woodland may support a diverse community of small mammals and birds, which can also provide an important food resource for native raptors. These ecosystems may provide a range of microhabitats and create opportunities for species to disperse and maintain population connectivity. However, Plains Grassland and Plains Grassy Woodland within the Assessment Area provides low to moderate quality habitat to native fauna due to high levels of disturbance and modification from the natural state. Further, due to the uniformity in the age of most of the observed plantings, little variety in structure and

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habitat type is evident. Aside from the stags (Trees 1-4), no hollows were observed in any of eucalypts and windrows, although some Magpie *Cracticus tibicen* nests were observed.

While the majority of the vegetation within the Project Area are structurally deficient, lacking key mid-storey and understorey components, they are likely to act as 'stepping stones' of habitat for more mobile species (principally birds). Trees (native and non-native) are also likely to facilitate fauna movement throughout the otherwise cleared landscape, and provides habitat for diurnal raptors (e.g., Nankeen Kestrel *Falco cenchroides*, Black-shouldered Kite *Elanus axillaris*), which use trees for perching, roosting and foraging activities.

The remainder of the site is comprised of exotic grassland, dominated by a range of introduced pasture grasses and herbaceous weeds, likely to be used as a foraging resource by common generalist bird species that are tolerant of modified open areas.

Fauna observed using this habitat included Australian Magpie, Little Raven *Corvus mellori*, Galah *Eolophus roseicapilla* and European Rabbit *Oryctolagus cuniculus*. The European Rabbit is listed as pest animals under the CaLP Act.

3.4 Removal, Destruction or Lopping of Native Vegetation (the Guidelines)

The below clearing scenario is based on the development footprint as provided to Ecology and Heritage Partners by RE Future Pty Ltd on 20 February 2024.

All infrastructure has a buffer included around the perimeter to compensate for any unintended impacts during construction. The development footprint and associated impacts to native vegetation are shown in Figure 2. Internal access tracks are sited on existing, internal farm tracks, with few exceptions. Where cabling is proposed to be located within close proximity to native vegetation, cabling infrastructure will be bored to avoid any direct or indirect impacts to native vegetation. The directional bore will be at least 600 millimetres deep for works within the TPZ of Tree 7 to mitigate any encroachment and subsequent indirect impacts.

The impact assessment also takes into consideration site entry locations and swept path impacts at two intersections approaching and entering the Assessment Area (Figure 2f; Figure 2g) were assessed for impacts to native vegetation.

Vegetation proposed to be removed

Overall, the impact area is within Location 2, with 0.136 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway (Table 9).

Condition scores for vegetation proposed to be removed are provided in Appendix 1.2.

Table 9. Removal of Native Vegetation (the Guidelines) (DELWP 2017).

Assessment pathway	Intermediate
Location Category	2
Total Extent (past and proposed) (ha)	0.136
Extent of Corangamite removal (ha)	0.047
Extent of Moyne removal (ha)	0.089
Large Trees (scattered and in patches) to be removed (no.)	2

EVC Conservation Status of vegetation to be removed

Endangered
(Plains Grassy Woodland)

Offset Targets

The overall offset obligation is 0.027 General Habitat Units and two Large Trees (Table 10). As vegetation impacts are proposed across two Council boundaries, the offset implications have been split per municipality (Tables 10; Appendix 3).

Table 10. Offset Targets.

Overall General Offsets Required	0.027 General Habitat Units
Large Trees	2
Vicinity (catchment/council)	Glenelg Hopkins CMA
Minimum Strategic Biodiversity Value*	0.311
Moynes Shire	
General Offsets Required	0.019 General Habitat Units
Large Trees	2
Vicinity (catchment/council)	Glenelg Hopkins CMA
Minimum Strategic Biodiversity Value*	0.3276
Corangamite Shire	
General Offsets Required	0.008 General Habitat Units
Large Trees	0
Vicinity (catchment/council)	Glenelg Hopkins CMA
Minimum Strategic Biodiversity Value*	0.2943

*The minimum Strategic Biodiversity Value is 80% of the weighted average score across habitat zones where a General offset is required.

3.4.1 Offset Statement

According to DEECA's Native Vegetation Offset Register (DEECA 2024f), there are 11 offset sites within the Glenelg Hopkins CMA that can be used to satisfy the General Habitat Unit offset requirements generated by the proposal.

An offset register search statement identifying the relevant offsite sites is provided in Appendix 4.

3.5 Significance Assessment

3.5.1 Flora

The VBA contains no records of nationally significant flora, and four State significant flora species previously recorded within 10 kilometres of the Project Area (DEECA 2024d) (Figure 4). The PMST nominated an additional 17 nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEW 2024) (Appendix 1.4).

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The State significant Bog Gum was recorded within the Assessment Area. However, this species had been planted within a windrow. One specimen (Tree 8) was considered to have naturally recruited from the planted vegetation and is proposed to be removed.

The State Significant Large-fruit Yellow-gum *Eucalyptus leucoxylon* subsp. *megalocarpa* was also present within a planted windrow along the Princes Highway. No naturally occurring specimens were observed, and none will be impacted by the proposal.

No additional national or State significant flora were recorded during the site assessment and based on the highly modified nature of the Assessment Area due to its current and ongoing use as a dairy farm, landscape context and the proximity of previous records, additional significant flora species are considered highly unlikely to occur within the Assessment Area, or be impacted by the Project due to the and high levels of agricultural modification, previous removal of native vegetation and absence of suitable habitat.

As such, targeted surveys for significant flora within the assessment and impact footprints are not required.

3.5.2 Fauna

The VBA contains records of nine nationally significant and 13 State significant fauna species previously recorded within 10 kilometres of the Project Area (DEECA 2024d) (Figure 5). The PMST nominated an additional 24 nationally significant species which have not been previously recorded but have the potential to occur in the locality (DCCEEW 2024) (Appendix 2.1).

White-throated Needletail *Hirundapus caudacutus*, Grey-headed Flying-fox *Pteropus poliocephalus*, and Yarra Pygmy Perch *Nannoperca obscura* are all listed as Vulnerable under the EPBC and FFG Acts and have the potential to utilise habitat within the KOI. These species are discussed further in the below sections.

The Spring 2021 and Summer/Autumn 2022 microbat call analyses identified Chocolate Wattled Bat, Little Forest Bat, and White Striped Freetail Bat. A total of four calls over the two survey periods were within the Southern Bent-wing Bat call complex. There were no records of Yellow-bellied Sheathtail Bat. Implications relating to the potential impacts to Southern Bent-wing Bat and Yellow-bellied Sheathtail Bat (if present) are being undertaken by another consultant (Nature Advisory), and are not addressed in this report.

Based on the highly modified nature of the Project Area, presence of previous records, landscape context and condition of habitat within the Project Area, no additional significant fauna species are considered likely to rely on habitat within the Project Area for foraging or breeding purposes due to the lack of suitable and/or important habitat.

White-throated Needletail

White-throated Needletail are a large (up to 20 centimetres in length and approximately 120 grams in weight) swift supporting a cigar-shaped body, long pointed wings, and a stubby tail (Higgins 1999). The species is non-breeding migrant in Australia, and flocks of birds have been known to visit the local area during the migration period (i.e. spring and summer). The species is most often recorded before storms, low- pressure troughs and cold fronts, where they prey on swarming or disrupted insects. White-throated Needletail is a northern hemisphere breeding migrant, and has a large distribution across Australia, though there is little knowledge of the species' genetic diversity.

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The VBA contains two records of White-throated Needletail, approximately seven kilometres from the Project Area boundary, west and south-west, from 1977 and 1960 respectively. There are also four records in the Atlas of Living Australia (ALA 2024), with all records dated pre-1978 where the date has been provided. White-throated Needletail may continue to opportunistically fly over the Project Area when the species is present in Victoria, however there are no limiting or important habitat present for the species within the study area.

Being non-breeding migrants to Australia, White-throated Needletail typically arrive via Torres Strait during September and October, generally reaching southern Australia in November (DAWE 2019). The number of White-throated Needletail in Australia peak between December and March, before the species' northern migration in April (though some non-breeding individuals will stay behind). The species was not recorded during bird utilisation surveys when the species is known to occur in southern Australia (i.e. 28 and 29 November).

While it is likely that low to moderate numbers could conceivably fly over the study area several days a year when the species is in southern Australia (i.e. between November and March), it is highly unlikely an ecologically significant population would utilise the site, flying at, or below rotor swept area. The species' aerial foraging and flight behaviour is potentially influenced by weather and wind patterns, with storm fronts providing aerial insect foraging opportunities and site topography impacting wind pressure (DAWE 2019). The Assessment Area topography is generally flat and/or gently undulating, with a slight fall towards the south-west. There are no ridges, crests or other landscape features present in the landscape, suggesting site topography is unlikely to significantly affect flight altitude for the species in the Project Area.

While the species is known to collide with turbines in Australia (Hull 2013), Biosis Research (2006) found that impacts at the species level to the White-throated Needletail as a result of collisions with wind turbines were considered low. This research also estimated that at least 2% of the Australian White-throated Needletail population had the potential to encounter current or proposed wind farms but that the likelihood of this portion encountering wind farms was high.

A wind farm risk assessment by BL&A (2018) found that the risk of direct collision with operating turbines and indirect disturbance (i.e. habitat modification) was unlikely and had low consequences with an overall negligible rating for the species. The results of BL&A (2018) carcass searches across 10 wind farms found only 2 occurrences of White-throated Needletail mortalities. Similarly, post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified five records of White-throated Needletail mortality (Moloney *et al.* 2019).

Overall, it is unlikely that White-throated Needletail would fly over the study area in great numbers, or for extended periods of time (i.e. the species would be only an occasional visitor). Consistent with DCCEEW Conservation advice regarding the assessment of threats to White-throated Needletail, namely that 'collision with wind turbines is of low severity and affects a small number of birds' (Page 5, DAWE 2019), the proposed development is not considered to result in a significant impact to White-throated Needletail (Appendix 3), and the risk of the proposed wind farm to species is low.

Microbats

The bat detector survey effort, carried out over two seasons, resulted in a total of 554 bat detector nights. Southern Bent-wing Bat was recorded on at least one occasion during each of the survey efforts, albeit at very low levels (Table 11).

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Table 11. Bat detector survey results

Season	Bat Detector Nights	Survey effort
Spring 2021	301	<ul style="list-style-type: none"> 85 calls assigned to commonly occurring species (i.e. non-significant species) One Southern Bent-wing Bat calls identified at Site 5.
Summer/Autumn 2022	253	<ul style="list-style-type: none"> 2,472 calls assigned to commonly occurring species (i.e. non-significant species) Three Southern Bent-wing Bat calls identified at Site 3.

Implications relating to potential impacts to significant microbat species are being undertaken by another consultant (Nature Advisory), and are not addressed in this report.

Grey-headed Flying Fox

Grey-Headed Flying-fox is currently listed as vulnerable under the EPBC Act (DCCEEW 2023) and threatened under the FFG Act (DEECA 2024e). The species occurs in the coastal belt from Rockhampton in central Queensland to Mt Gambier in South Australia (Menkhorst and Knight 2011). Only a small proportion of the range is in use at any one time as the species selectively forages dependant on the availability of food. As a result, patterns of occurrence and relative abundance vary greatly between seasons and years.

The Grey-Headed Flying-fox is known to be highly mobile within the distribution of the national population and is known to be fluid dependant on the abundance and distribution of food sources. The species typically commutes daily from the colony site to foraging areas, usually within the 20 kilometres of the day roost site (Tidemann 1999). Grey-Headed Flying-fox have been recorded foraging up to 50 kilometres from their roost to different feeding areas in search of food and there is typically a mass exodus of the roosting site at dusk (Parry-Jones and Augee 1992).

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A census of Grey-Headed Flying-fox occurred in May 2005 with a total of 674,000 individuals recorded (Birt 2005; Eby 2004). In 2004, a total of 425,000 individuals were recorded. It has been suggested that the discrepancies between the two years could be attributed to counter error or a higher rate of survivorship of young in 2004 due to a higher availability of food sources and reduced culling (Birt 2005). More recent assessments as part of the National Flying-fox Monitoring Program (CSIRO 2019) placed the estimated population of the species at around 700,000 individuals.

The VBA contains no records of Grey-headed Flying-fox within 10 kilometres of the Project Area boundary. However, the Atlas of Living Australia (ALA 2024) contains 27 records of Grey-headed Flying-fox, primarily between eight and ten kilometres south of the Project Area.

The nearest known roosting camps for Grey-headed Flying-fox are at Warrnambool (202) camp, approximately 28 kilometres south-west, and the Hexham (1238) camp, approximately 30 kilometres north. Grey-headed Flying-fox may therefore fly over the Project Area, however, is it likely that this would occur while en route to more suitable roosting or foraging habitat. The species is primarily a canopy-feeding frugivore and nectivore, most commonly utilising rainforests, open forest, closed and open woodlands.

Wind farm developments pose a risk to the species, which are known to collide with turbine blades (Lumsden *et al.* 2019). However, given the historical presence of the species in relation to the development, the low

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number of turbines (five), and their location away from foraging resources, the overall cumulative effect to Grey-headed Flying-fox is considered to be low.

Recent correspondence with DEECA identified a transient camp for the species, with numbers in the low thousands at Lismore, approximately 105 kilometres north of the study area (Geoff Brooks, DEECA, *pers. comms.* 2023). Although this camp was no longer present during assessments undertaken February 2024, this highlights the capacity for the species to opportunistically establish in new territories (i.e. west of Melbourne) in the vicinity of wind farms in the region.

Ongoing monitoring of the species presence, utilisation of the Project Area, and mortality will be undertaken as part of the BAM Plan (see Section 7), which outlines all proposed monitoring and contingency measures for the species.

Yarra Pygmy Perch

The VBA contains seven records of Yarra Pygmy Perch within 10 kilometres of the Project Area boundary. The Atlas of Living Australia (ALA 2024) contains 17 records of the species. All records of Yarra Pygmy Perch within 10 kilometres occur to the south of the Project Area, within Mount Emu Creek and associated tributaries.

There is no suitable habitat for the species directly within the Project Area (i.e. lakes, ponds, slow-flowing rivers, and freshwater streams), with the demersal species completing its life cycle in freshwater. Suitable habitats typically also support large amounts of aquatic vegetation with rocks or logs. However, there may be indirect impacts to suitable habitat outside the Project Area (i.e. within Mount Emu Creek) arising from construction without appropriate management and mitigation measures.

Therefore, before commencement of construction, a Construction Environmental Management Plan will be prepared to the satisfaction of the Responsible Authority (see Section 7). Suitable mitigation measures will consider reducing risk of introduced pests, disease, and run-off, and avoiding changes to local hydrology.

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3.5.3 Ecological Communities

No nationally significant communities are predicted to occur or were recorded within the Assessment Area.

Plains Grassland vegetation has affinities with the FFG Act- listed Western (Basalt) Plains Grassland ecological community. On moist sites, this community is described as comprising ‘... *tussock grasses, particularly Wallaby Grass, Spear Grass and Tussock Grass tend to dominate... Other perennial herbs found throughout its distribution include Common Bog-sedge, Sheep’s Burr, Pink Bindweed and Scaly Buttons*’.

Given the presence of Kangaroo Grass, Tussock Grass, Common Bog Sedge, and several herbs, it is considered that the Western (Basalt) Plains Grassland ecological community is present within the Plains Grassland patches PG1a and PG1b (Figure 2a).

An impact of 0.001 hectares of impact to the Western (Basalt) Plains Grassland ecological community is proposed.

The Plains Grassy Woodland has affinities with the FFG Act – listed Western Basalt Plains (River Red Gum) Grassy Woodland ecological community. This community is described as having ‘a clearly recognised structure made up of an open canopy of River Red Gum, and a middle layer chiefly of scattered wattles... and a ground layer dominated by grasses’.

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Given the absence of a River Red Gum canopy and grassy ground layer, as well as the dense stands of Blackwood and Black Wattle that make up these patches, the patches of Plains Grassy Woodland are not considered to meet the description of the Western Basalt Plains (River Red Gum) Grassy Woodland ecological community.

No other FFG Act listed communities are considered to be present.

3.6 Bird Utilisation Surveys

3.6.1 Overview

A total of 48 bird species were recorded, consisting of 1,787 individuals, during the fixed-point bird counts undertaken. Three introduced species were recorded: Common Starling *Sturnus vulgaris*, Eurasian Skylark *Alauda arvensis*, and House Sparrow *Passer domesticus*. No State or nationally significant species were recorded within the Project Area.

The most frequently recorded species were Long-billed Corella *Cacatua tenuirostris*, Little Raven *Corvus mellori*, Common Starling and Australian Magpie *Gymnorhina tibicen*.

A total of 94% of bird observations made during the point counts were of individuals that were either on the ground or flying below the Rotor Swept Area. A further 6% did not have their height recorded as they were obscured from vision, while less than 1% of birds were recorded flying in or above the Rotor Swept Area.

A variety of other bird species were also recorded, including:

- Generalist bird species common in modified landscapes, such as open paddocks, including Australasian Pipit *Anthus novaeseelandiae*, Magpie Lark *Grallina cyanoleuca*, Willie Wagtail *Rhipidura leucophrys* and;
- Woodland bird species using linear patches of native and non-native vegetation along roadsides and other bushland in the Project Area, such as Red Wattlebird *Anthochaera carunculata*, Brown Thornbill *Acanthiza pusilla*, Striated Pardalote *Pardalotus striatus* and Yellow-faced Honeyeater *Lichenostomus chrysops*;
- Water bird species using wetlands, dams and streams in the Project Area including Pacific Black Duck *Anas superciliosa*, Australian Shelduck *Tadorna tadornoides*, and Great Cormorant *Phalacrocorax carbo*;
- Raptors foraging over paddocks, roadsides and waterbodies, including Brown Goshawk *Accipiter fasciatus*, Nankeen Kestrel *Falco cenchroides*, and Brown Falcon *Falco berigora*; and,
- Parrot species feeding on sowed crops and using large hollow-bearing gums, including Crimson Rosella *Platycercus elegans*, Eastern Rosella *Platycercus eximius*, Galah *Eolophus roseicapilla*, and Red-rumped Parrot *Psephotus haematonotus*.

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3.6.1 Raptors

Three raptor species - Brown Falcon, Brown Goshawk and Nankeen Kestrel were observed flying in the Project Area. While no raptors were recorded in the Rotor Swept Area, raptor species are likely to fly at this height on occasion.

Territory size of raptors are influenced by the reliability of food resources and suitable nesting sites (Newton 1976), and there is evidence to suggest some species (i.e. Wedge-tailed Eagle) have an average territory size of at least 35 kilometres (Cherriman 2007) (Table 12).

Table 12. Raptors with the highest likelihood of occurrence at Swansons Lane Wind Farm

Species	Records at Swansons Lane Wind Farm	Suitability of the Project Area
Australian Hobby	0	Australian Hobby frequent open habitats, including open woodlands, water courses, and vegetated urban area. This species is likely to opportunistically utilise the Project Area for hunting. Hunting primarily occurs at dusk, often preying on insects and smaller, fleeing birds mid-flight. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified one record of Australian Hobby mortality (Moloney <i>et al.</i> 2019).
Black Falcon	0	Typically occupying arid and semi-arid zones, Black Falcon frequent low, open wooded grasslands, and waterbodies. The species primary feeds on smaller birds (up to cockatoo-size) but may also feed on small mammals (i.e. rabbits and mice). The species was not recorded during surveys. However, the VBA contains one record of the species within 10-kilometres of the Project Area from 1977 (DEECA 2024d). Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified Black Falcon as a 'species of interest' having only one mortality occurrence has been documented (Moloney <i>et al.</i> 2019).
Black-shouldered Kite	0	Black-shouldered Kite are typically found in open grasslands, and other open environments such as mown lawns, sports fields, and roadside verges. The species is a specialist predator of introduce mice, with mice size mammals accounting for 90% of their diet. Given previous records of the species within the broader locality, and the open habitat at Swansons Lane, it is likely that the species could opportunistically occupy the Project Area. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified three records of Black-shouldered Kite mortality (Moloney <i>et al.</i> 2019).
Brown Falcon	1	Brown Falcon are a relatively large falcon, typically located in open grasslands and agricultural areas. Their diet primarily consists of small mammals, including mice and young rabbit, but will also feed on small birds, snakes, lizards and invertebrates. The species was recorded at the wind farm, indicating their presence within the Project Area and broader landscape. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified 48 records of Brown Falcon mortality (Moloney <i>et al.</i> 2019).
Brown Goshawk	1	The Brown Goshawk is widely distributed, mainly found in eucalypt forest and woodlands, as well as farmed areas. The species typically feeds on medium-sized birds, including duck, cockatoo, currawong and kookaburra. The species was recorded at the wind farm, indicating their presence within the Project Area and broader landscape. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified three records of Brown Goshawk mortality (Moloney <i>et al.</i> 2019).
Grey Goshawk	0	Located in eastern and northern Australia, the Grey Goshawk is typically found along the coasts, preferring forests, tall woodlands, and vegetated watercourses. The species was not recorded at the wind farm during surveys. However, the VBA contains seven records of the species within 10-kilometres of the Project Area (DEECA 2024d), most recently to the south-west from 2018. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified zero records of Grey Goshawk mortality (Moloney <i>et al.</i> 2019).

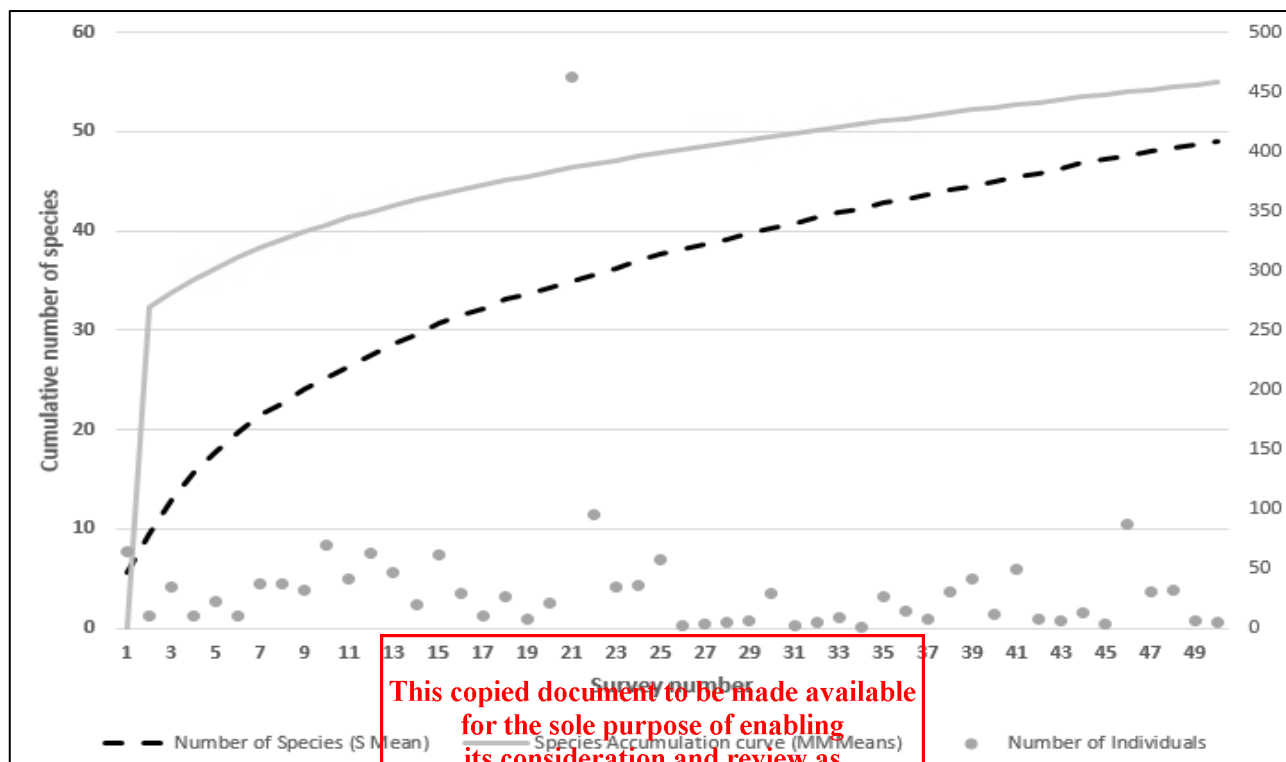
Species	Records at Swansons Lane Wind Farm	Suitability of the Project Area
Little Eagle	0	The Little Eagle typically occupies open woodland, grassland and arid regions. This small eagle has a large range, found widely across mainland Australia, except in heavily forested areas. The species searches for prey by soaring (up to 500 metres) altitude, before swooping to take prey from the ground, trees or shrubs. Their diet is varied, feeding on small birds, mammals, reptiles, and insects. The species was not recorded at the wind farm during surveys. However, the VBA contains seven records of the species within 10-kilometres of the Project Area (DEECA 2024), most recently to the south-east from 1960. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified one record of Little Eagle mortality (Moloney <i>et al.</i> 2019).
Nankeen Kestrel	1	Often seen hovering over grasslands or crops, Nankeen Kestrel prefer temperate grasslands and open woodlands where they can prey on small birds, reptiles, rodents, and insects. The species was recorded at both wind farms. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified 54 records of Nankeen Kestrel mortality. Along with Australian Magpie, the common Nankeen Kestrel had the highest medium-sized bird mortality rates in this study (Moloney <i>et al.</i> 2019).
Swamp Harrier	0	Swamp Harrier is widely distributed throughout Australasia. Unlike most raptors, this species nests on the ground – often in wetlands. This large raptor has benefited from European settlement and the expansion of farmland, preying on ground birds, water birds, reptiles, frogs, fish, and small mammals. The species has the potential to opportunistically utilise habitat within the Swansons Lane Wind Farm. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified 10 records of Swamp Harrier mortality (Moloney <i>et al.</i> 2019).
Wedge-tailed Eagle	0	Wedge-tailed Eagle are the largest bird of prey in Australia. The species is highly generalised, occupying habitats from desert to rainforest, however the species prefers a varied topography, including rocky areas with some open and wooded areas. Wedge-tailed Eagle are highly aerial, often soaring for hours and reaching heights over 1,800 metres. Individuals can spot prey from over a kilometre away, and their diet consisting an array of medium to large ground-dwelling animals. However, the species has shown a preference for rabbit and carrion (i.e. roadkill) in recent times. The species has the potential to opportunistically utilise habitat within the Swansons Lane Wind Farm. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified 58 records of Wedge-tailed Eagle mortality (Moloney <i>et al.</i> 2019).
Whistling Kite	0	Found throughout Australia, Whistling Kite typically occupy open and lightly wooded areas near waterbodies. The species has a broad diet, consisting of small mammals, fish, birds, reptiles, amphibians, crustaceans, insects, and carrion. The species has the potential to opportunistically utilise habitat within the Swansons Lane Wind Farm. Post-construction mortality survey data for 15 Victorian wind farms (2003 to 2018) identified five records of Whistling Kite mortality (Moloney <i>et al.</i> 2019).

Overall, raptors in general accounted for a low percentage (<1%) of birds recorded within and adjacent to the Project Area during the bird surveys. However, operating wind farms are known to impact raptors in Victoria (Moloney *et al.* 2019), and this impact (plus their cumulative effect) must be considered. Therefore, before commencement of construction, a Bat and Avifauna Management Plan will be prepared to the satisfaction of the Responsible Authority, in consultation with the DEECA (see Section 7).

3.6.2 Species Richness

The predicted species richness estimate for the point count surveys was 55 species, which converts to a completeness of over 90% and means that an additional 5-6 species are predicted to occupy the Project Area but were not recorded.

A greater number of predicted species relative to actual species is an indication that while survey effort was high and covered a range of conditions and seasons, several possibly more cryptic species may be present but



were not recorded. The study appears to approach an asymptote (or plateau). The results show a clear relationship between effort and the number of species detected (Graph 1).

Graph 1. Species accumulation curve across the entire survey period. Source: Species accumulation curve produced using EstimateS (Colwell 2013).

3.6.3 Flight Heights

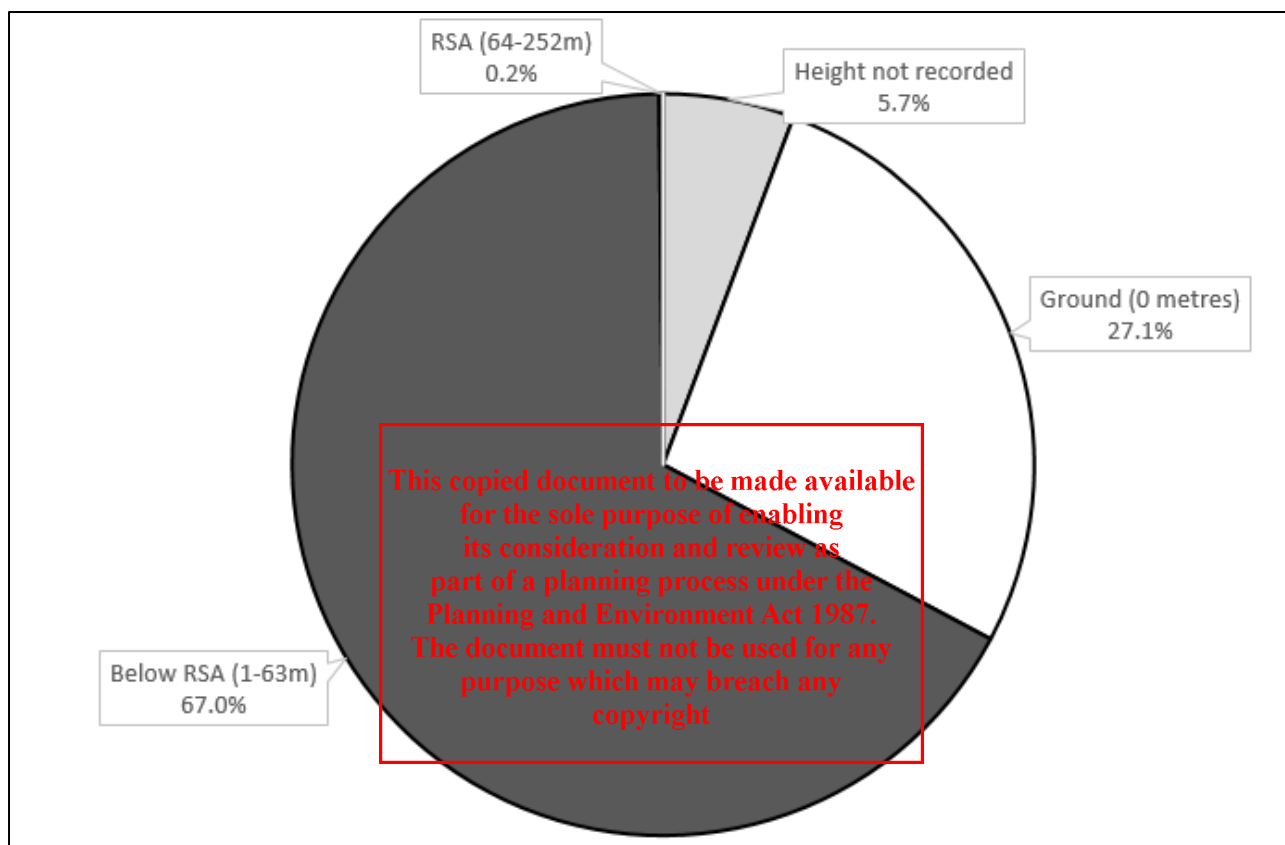
Nearly all birds observed (99%) during the point counts were either recorded on the ground, flying below the Rotor Swept Area or were non-visual observations (i.e. heard only) with the flight height not recorded (Table 13). One species was recorded flying in or above the Rotor Swept Area (Pacific Black Duck). The five species observed flying closest to the Rotor Swept Area – at 50 metres or greater – were Australian Raven *Corvus coronoides*, Little Corella *Cacatua sanguinea*, Long-billed Corella, Pacific Black Duck, and White-faced Heron *Egretta novaehollandiae*.

Bird point count survey locations were assigned to capture a representative sample of vegetation and habitat type. Given much of the Project Area comprises open paddocks, most bird point count survey locations are situated in these areas. However, fixed count locations were sited to also capture any woodland and waterbird habitats in the Project Area.

Table 13. Summary of birds recorded at the varying flight heights

Flight Height	# of birds	% of birds
Height not recorded	102	5.7%
Ground (0 metres)	484	27.1%

Flight Height	# of birds	% of birds
Below RSA (1-63m)	1198	67.0%
RSA (64-252m)	3	0.2%
Above RSA (>252m)	0	0.0%



Graph 2. Percentage of birds recorded below (RSA), at rotor swept area (RSA) height (64 – 252 metres), during the survey period.

While one waterbird species was recorded flying in or above the Rotor Swept Area, several parrot, waterbird and raptor species are also likely to utilise heights within and above RSA on occasion. Large parrots, including several recorded below the Rotor Swept Area during surveys such as Galah, Sulphur-crested Cockatoo *Cacatua galerita* and Red-rumped Parrot, tend to fly in the Rotor Swept Area as they move daily between roosts and feeding areas.

While no large wetlands are present within the Project Area, several waterbird species were recorded during point count surveys including – Australian Shelduck *Tadorna tadornoides*, Great Cormorant, Pacific Black Duck, Little Pied Cormorant *Microcarbo melanoleucos*, and White-faced Heron – may fly in the Rotor Swept Area when moving between habitat areas.

Generally, non-passerine birds such as raptors, wetland/waterbirds and parrots have flight characteristics that may be more susceptible to collisions with wind turbines. These species are usually larger, less mobile, occur in flocks (particularly parrots) and frequent open areas for foraging. It's therefore possible that minor changes in local distribution and abundance of these species may occur. However, these impacts are not expected to

be significant and are in line with the guidelines outlined in AusWEA (2005). A Bat and Avifauna Management (BAM) Plan will be prepared to provide greater detail regarding proposed mitigation of impacts to potentially impacted birds and bats (Section 6.3).

Table 14. Number of instances of bird species recorded in Point Count Surveys classified according to the RSA at which they were detected (excluding incidental records).

Species (Common Name)	Height not observed	Ground	Below RSA	RSA	Total
Australasian Pipit	0	1	0	0	1
Australian Magpie	1	124	36	0	161
Australian Raven	0	0	10	0	10
Australian Shelduck	0	7	2	0	9
Australian Wood Duck	0	32	16	0	48
Black Swan	0	10	0	0	10
Brown Falcon	0	0	1	0	1
Brown Goshawk	0	0	1	0	1
Brown Songlark	1	0	0	0	1
Brown Thornbill	0	0	2	0	2
Brown-headed Honeyeater	1	0	0	0	1
Common Starling	0	238	3	0	241
Crested Pigeon	0	0	7	0	7
Crimson Rosella	0	0	2	0	2
Eastern Rosella	0	0	20	0	20
Eurasian Skylark	38	2	19	0	59
Fan-tailed Cuckoo	6	0	0	0	6
Galah	0	0	6	0	6
Great Cormorant	0	20	0	0	20
Grey Butcherbird	0	0	1	0	1
Grey Fantail	0	0	3	0	3
Grey Shrike Thrush	2	0	0	0	2
House Sparrow	0	0	20	0	20
Jacky Winter	0	0	1	0	1
Laughing Kookaburra	2	0	2	0	4
Little Corella	0	0	25	0	25
Little Grassbird	1	0	0	0	1
Little Pied Cormorant	0	22	1	0	23
Little Raven	0	250	92	0	342
Long-billed Corella	0	2	545	0	547
Magpie-lark	9	3	9	0	21
Masked Lapwing	0	2	0	0	2
Nankeen Kestrel	0	0	1	0	1

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Species (Common Name)	Height not observed	Ground	Below RSA	RSA	Total
Noisy Miner	3	0	5	0	8
Pacific Black Duck	0	0	52	3	55
Purple Swampphen	2	0	0	0	2
Raven sp.	0	0	4	0	4
Red Wattlebird	10	1	2	0	13
Red-rumped Parrot	0	0	6	0	6
Striated Pardalote	14	0	0	0	14
Stubble Quail	1	7	0	0	8
Sulphur-crested Cockatoo	0	0	2	0	2
Superb Fairy-wren	2	1	5	0	8
Weebill	2	0	14	0	16
Welcome Swallow	0	0	28	0	28
White-faced Heron	0	0	3	0	3
White-plumed Honeyeater	1	0	0	0	1
Willie Wagtail	2	0	11	0	13
Yellow-faced Honeyeater	1	0	6	0	7

Note. Ground – 0 metres; Below RSA – 1-63 metres; RSA 64-252 metres; Above RSA > 252 metres.

3.7 Brolga Level 1 Assessment

3.7.1 Desktop Assessment

Atlas of Living Australia

Data extraction from the ALA (2024) identified zero records of Brolga, including any breeding or flocking records, within the ROI.

Birdlife New Atlas

Data extraction from the Birdlife New Atlas (2024) identified zero records of Brolga, including any breeding or flocking records, within the ROI. Data extraction up to 30 kilometres revealed seven non-breeding Brolga records between a 10 kilometre and 30 kilometre radius of the wind farm development boundary (Figure 6). These records are primarily located 25-30 kilometres north of the study area.

Victorian Biodiversity Atlas

A search of the VBA identified zero records of Brolga, including any breeding or flocking records, within the ROI. Data extraction up to 30 kilometres revealed 963 Brolga records between a 10 kilometre and 30 kilometre radius of the wind farm development boundary (Figure 6). Over 99.5% of these VBA records (959 records) occur to the north and at least 18-kilometres away from the wind farm boundary (Figure 6). The closest Brolga breeding record is 18.3 kilometres to the north of the wind farm boundary (DEECA 2024d).

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3.7.2 Community consultation

A total of 1,722 Landowners located within the wind farm development boundary and ROI were contacted in October 2023 as part of the Level 1 Brolga Assessment, with the invitation made open for landowners to forward the landowner questionnaire to additional interested parties. This included residents within the townships of Terang where properties were location within the ROI.

On 6 October 2023 the Landowner Questionnaire was mailed to residents, with 20 October 2023 the advised deadline for return submission via return postage or email. However, all responses as of 20 December 2023 have been included in this assessment.

As of 20 December 2023, a total of 289 questionnaires have been marked and returned to sender by the postage service. The results from the remaining 1,433 questionnaires are illustrated in Figure 7 and are summarised below:

- 75 questionnaires completed, returned, and analysed:
 - Three residents (4% of responses) recorded observation(s) of Brolga (up to one pair);
 - Zero residents recorded Brolga breeding activity or nests; and,
 - Zero residents recorded Brolga flocking activity.

3.7.3 Field Assessment

Lake Keilambete, located approximately 10 kilometres north-east of the study area, was visited and potential habitat suitability assessed. Water levels were high in Lake Keilambete during the field assessment, with several water bird species present on site. However, no Brolga were observed and based on the location of previous records and landowner surveys, it is unlikely to provide breeding or flocking habitat for Brolga. The study area and surrounds were visited immediately following a period of high rainfall. Inundated paddocks were searched for Brolga from the roadside, and, in the case of properties within the study area, from internal private roads and on foot.

No habitats within the study area or broader locality are considered to support moderate or high-quality breeding or flocking habitat for Brolga. No Brolga were observed during the surveys.

3.7.4 Conclusion

The triggers for a Level 2 Brolga Assessment (DSE 2012) and corresponding justification for the Swansons Lane Wind Farm and described in Table 15.

Table 15. Triggers used to determine if a Level 2 Brolga Assessment is required (DSE 2012).

Trigger	Justification
Records of breeding or flocking habitats within the radius of investigation	No records of Brolga breeding or flocking within the ROI were identified through biological databases or community consultation.
The proposed development is located in an area which may be used by Brolgas moving seasonally between breeding and foraging sites, and may potentially create	Over 99.5% of VBA Brolga records occur at least 18 kilometres to the north of the study area. The proposed development is highly unlikely to be situated between seasonal movement sites, and

Trigger	Justification
a barrier effect reducing movements between these habitats	therefore has a very low likelihood to create a barrier effect for the species.
The proposed development is located in an area which may be used by Brolgas for diurnal movements between foraging and roosting sites	Given the absence of Brolga records within biological databases within the ROI, it is highly unlikely that the species enters the study area for diurnal movements between foraging and roosting sites. Further, it is highly unlikely that the proposed works pose a collision risk to the species.
The proposed location of new powerlines associated with the development may create new collision risks for Brolga.	

Overall, no Brolga records (sighting, breeding, or flocking) exist within online biological databases for the ROI. Further, no breeding or flocking records were identified through community consultation or field assessments. Based on the results of the Level 1 Brolga Assessment, the proposed development does not trigger a Level 2 Brolga Assessment.

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4 LEGISLATIVE AND POLICY IMPLICATIONS

4.1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES), described in Table 16.

Table 16. Potential impacts to matters of National Environmental Significance (NES)

Matter of NES	Potential Impacts
World Heritage properties	The proposed action will not impact any properties listed for World Heritage.
National heritage places	The proposed action will not impact any places listed for national heritage.
Ramsar wetlands of international significance	The nearest Ramsar wetland is the Western District Lakes – approximately 40 kilometres east of the proposed wind farm. The proposed action is highly unlikely to impact the ecological character of any Ramsar wetland, or other downstream waterbodies.
Threatened species and ecological communities	<p>Several nationally significant threatened ecological communities were recorded during the assessment.</p> <p>The broader area is known to be utilised as foraging habitat for the nationally significant Southern Bent-wing Bat.</p>
Migratory and marine species	<p>Several Migratory and/or Marine species have previously been recorded within 10 kilometres of the windfarm development boundary (DEECA 2024d). However, the windfarm development boundary would not be classed as an ‘important habitat’ as defined under the EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines (DoE 2013).</p>
Commonwealth marine area	The proposed action will not impact any Commonwealth marine areas.
Nuclear actions (including uranium mining)	The proposed action is not a nuclear action.
Great Barrier Reef Marine Park	The proposed action will not impact the Great Barrier Reef Marine Park.
Water resources impacted by coal seam gas or mining development	The proposed action is not a coal seam gas or mining development.

The proposed action is highly unlikely to have a significant impact on any matter of NES considered in this report. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.

It is noted that implications associated with the presence of Southern Bent-wing Bat are being addressed by another consultant, and are not included in this report.

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4.2 *Flora and Fauna Guarantee Act 1988 (Victoria)*

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) is the primary legislation dealing with biodiversity conservation and the sustainable use of native flora and fauna in Victoria. The provisions of the FFG Act bind all public agencies, public landowners and land managers. The Act contains lists of threatened flora and fauna species, 'protected flora species' and threatened ecological communities, as well as action statements to protect the long-term viability of these values. The Act applies to the removal of listed threatened species and communities, as well as protected flora species.

An FFG Act permit is generally not required for the removal of listed and/or protected flora species and communities on private land. There are currently no requirements for proponents to apply for a permit under the FFG Act where a proposed activity requires the removal of habitat for a listed terrestrial fauna species. The Act does however regulate the removal, salvage, temporary holding, translocation, taking, trading and keeping of FFG Act-listed fish species.

On 10 September 2019, Section 4B was incorporated into the *Flora and Fauna Guarantee Act 1988*. Section 4B now requires a decision, policy, program or process by a Minister or public authority to "give proper consideration to" the objectives of the Act, as well as Victoria's Biodiversity Strategy, Action Statements and other determinations or plans under the Act

4.2.1 *Implications*

Permits under the FFG Act for impacts to protected flora species removed for construction related activities on public land are only required for members of the Orchidaceae family, due to being declared general protected flora. No orchids were recorded as part of the assessment.

A small remnant of the FFG Act Western (Basalt) Plains Grassland ecological community is present (PG1a; PG1b – Figure 2a) is present, with 0.001 hectares of impact proposed.

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Due to the highly modified condition of the Project Area, there are not expected to be any indirect, long-term or cumulative impacts for significant flora or vegetation communities.

The State significant Grey-headed Flying Fox and White-throated Needletail have the potential to opportunistically utilise habitat within the broader locality. Ongoing monitoring for these species will be undertaken as part of the BAM Plan requirements to ensure any potential long-term impacts can be appropriately mitigated.

With the implementation of the measures proposed within the Construction Environment Management Plan (CEMP), the Project is not expected to result in the introduction of any threatening processes, or contribute to long-term impacts to significant matters.

Implications relating to Southern Bent-wing Bat and Yellow-bellied Sheathail Bat (if present) are being addressed by another consultant, and are not considered further in this report. No other significant microbat species are considered likely to occur in the ROI.

4.3 *Planning and Environment Act 1987 (Victoria)*

The *Planning and Environment Act 1987* outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. All planning schemes contain native vegetation

provisions at Clause 52.17, which requires a planning permit from the relevant local Council to remove, destroy or lop native vegetation, unless an exemption at Clause 52.17-7 of the Victoria Planning Provisions applies.

4.3.1 Local Planning Scheme

The Project Area is located within the Corangamite Shire, Moyne Shire and Glenelg Shire Council. All land is zoned Farming Zone (FZ). A Bushfire Management Overlay (BMO) applies to a small area surrounding the plantations to the north of the Project Area (DTP 2023):

4.3.2 The Guidelines

The State Planning Policy Framework and the decision guidelines at Clause 12.01 Biodiversity and Clause 52.17 Native Vegetation require Planning and Responsible Authorities to have regard for the Guidelines (DELWP 2017).

4.3.3 Implications

In accordance with Clause 61.01 of the Corangamite Shire and Moyne Shire Planning Schemes, the Minister for Planning is the Responsible Authority for the use and development of land for a Wind Energy facility or Solar facility.

A permit is required under Clause 52.32 of the Corangamite and Moyne Shire Planning Schemes to use and develop a wind energy facility. This report satisfies the relevant ecological application requirements listed in Clause 52.32-4.

A planning permit from the Corangamite Shire, Moyne Shire and Glenelg Shire Council is required to remove, destroy or lop any native vegetation under Clause 52.17.

Overall, the impact area is within Location 2, with 0.136 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway.

As vegetation impacts are proposed across two Council boundaries, the offset implications have been split per municipality (Tables 10; Appendix 3).

4.4 Catchment and Land Protection Act 1994 (Victoria)

Several weeds listed as noxious under the *Catchment and Land Protection Act 1994* were recorded during the assessment. Similarly, there is evidence that the Project Area is currently occupied by several pest fauna species listed under the CaLP Act. Weed management controls must be included in the Construction Environment Management Plan prepared for the project.

4.5 Wildlife Act 1975 and Wildlife Regulations 2013 (Victoria)

The *Wildlife Act 1975* (and associated *Wildlife Regulations 2013*) is the primary legislation in Victoria providing for protection and management of wildlife. Authorisation for habitat removal may be obtained under the *Wildlife Act 1975* through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*. Any persons engaged to remove, salvage, hold or relocate native fauna

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during construction must hold a current Management Authorisation under the *Wildlife Act 1975*, issued by DEECA.

4.6 Policy and Planning Guidelines – Development of Wind Energy Facilities in Victoria

Wind energy facilities should not lead to unacceptable impacts on critical environmental, cultural or landscape values. These values include those protected under Commonwealth and State legislation, those recognised through planning schemes such as the State Planning Policy Framework.

The Responsible Authority and applicants must consider a range of environmental values (for example: flora, vegetation and fauna) and risks when identifying suitable sites for wind energy facility development.

4.6.1 Implications

Impacts on flora and fauna species and habitats from wind energy facilities and associated infrastructure can be minimised through facility placement and design measures at the project planning stage. Minimisation of impacts to native vegetation patches, scattered trees, and significant impacts to environmental values at the site can be further achieved by focusing construction and other project activity in agricultural areas.

A Construction Environmental Management Plan (CEMP) will be required to detail how the site will be managed throughout the life of the Project, and across all environmental components. The CEMP should include a bat and avifauna management plan (DELWP 2021).

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5 POTENTIAL IMPACTS

The project footprint has been finalised with reference to the findings of this assessment to avoid and minimise impacts on ecological values where possible. Likely impacts associated with the project footprint and operation of the proposed wind farm are discussed in the following sections.

5.1 Construction Related Impacts

Prior to construction, a Construction Environmental Management Plan (CEMP) (or similar document) will be developed. This document will include particular provisions for the protection of areas of native vegetation.

- The CEMP will also include a Construction and Site Works Management Plan;
- The CEMP should include specific species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed, pest and pathogen management measures, etc.; and,
- Fencing and/or bunting erection requirements around works areas in proximity to areas of native vegetation and ecological significance.

All construction staff on site (i.e. the area of construction) will be made aware of the project specific CEMP (or similar document) and their responsibilities regarding environmental management. All staff will attend an environmental site induction, which will inform contractors of the requirements of the CEMP. All main contractors undertaking construction works will be provided with a copy of the CEMP prior to commencement of works. The main contractors must issue sub-contractors with a copy of the document prior to commencement of works to allow time to become familiar with the document and guidelines/procedures.

Following the induction, all persons working on site are required to sign the induction form and a log will be kept of all staff that have completed the environmental site induction. All construction personnel will hold appropriate competencies/ qualifications for their intended role. A summary of actions and timings of the induction will be provided.

The induction will include the following:

- Information about the environmental values present within and surrounding the Project Area.
- A site plan will be provided for viewing in order to become informed on environmental values.
- The legislative context of the development.
- The key objectives and measures outlined in the CEMP.
- The duty of care of all persons to protect the environmental values within and surrounding the Site; ensure that their actions are in accordance with the relevant environmental legislations and policies, and the CEMP; and report any faults, issues or actions with the potential (even if remote) to impact upon the environment.
- The hierarchy of environmental responsibility and the lines of reporting.
- The reprimand and penalties of non-compliance.
- The requirement for all persons inducted to sign a logbook of induction.

- A log is to be kept of all staff that have completed the environmental site induction.
- All site changes that affect environmental protection, whether they are a directly or indirectly as a result of development will be logged at each toolbox meeting.

In the absence of suitable mitigation measures, construction-related impacts are likely to include:

- The introduction and spread of weeds and soil pathogens due to on-site activities;
- Disturbance to wildlife from increased human activity and noise during construction; and,
- Indirect impacts on adjacent areas if construction activities, erosion and drainage are not appropriately managed.

The Project Area is located within a relatively flat farmland landscape with interspersing ephemeral drainage lines which are unlikely to hold water for any length of time. Due to the absence of a permanent natural water source and sparse vegetation, the development footprint is unlikely to support habitat relied on by significant species identified as occurring within the locality that would be affected by construction activities. Therefore, the potential construction related impacts are considered to be low to negligible.

5.2 Operational Impacts

There are likely to be bird and bat mortalities as a result of turbine collision and barotrauma associated with the operation of the wind farm.

5.2.1 Birds

The impact of bird mortality as a result of turbine collision on a population level will affect certain species in different ways. Species that are short-lived and with high annual reproduction rates are likely to be able to absorb additional mortality with insignificant impacts to their overall population size at a regional or national level (Chamberlain *et al.* 2006). By contrast, long-lived, slowly reproducing species are more vulnerable to this type of additive mortality and may be less able to maintain their population size when faced by such stresses (Sæther and Bakke 2000).

Given that raptors are long-lived and are a slowly reproducing species, they are distributed in low densities compared to other birds and are therefore exposed to increased risk of local population declines. The loss of a single breeding individual could potentially adversely impact the local population. However, it is well known based on published literature that certain raptors adapt their behaviour in the presence of wind turbines (Farfán *et al.* 2009), although detailed avoidance rates for most species worldwide is not known (Chamberlain *et al.* 2006). Particular raptor species have been identified as being 'of concern' due to their proneness to collision with operational wind turbines, although these species do appear to become conditioned to the presence of wind turbines after an extended period of time, and adjust their foraging behaviour to avoid wind turbines (i.e. up to 99% avoidance rates for most species) (Madders 2004; Chamberlain *et al.* 2006).

Overall, the quality of habitat in the Project Area, the small size of the wind farm and the ability of birds to actively avoid collisions, means that the impact of the proposed wind farm on local avifauna is expected to be low.

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5.2.2 Bats

Bats are susceptible to collision with wind turbines (Arnett 2005; Kunz *et al.* 2007). In some habitats high numbers are struck by wind turbines, especially those bat species that undertake large scale annual migrations (Kunz *et al.* 2007; Kuvlesky *et al.* 2007; Cryan and Barclay 2009). Furthermore, bats may be attracted to wind turbines following vortices created by the blade tips and have been observed investigating all parts of the turbine (Horn *et al.* 2008; Cryan and Barclay 2009). Bat mortality as a result of barotrauma, which is caused by changes in pressure produced by the rotating turbines, has also been documented (Cryan and Barclay 2009).

Collisions with turbine blades are understood to be the most frequent interaction causing mortality or injury, although the cause of these collisions is poorly known. General observations to date indicate that bats do not typically collide with turbine towers, transmission structures, guy wires, or meteorological towers (i.e. stationary structures); however current understanding of how and why bats come into contact with turbines is lacking. This is due to the limited ability to observe how bats behave at night around these structures as they move across the landscape between patches of vegetation and during foraging activities (MNR 2007, Horn *et al.* 2008).

A recent assessment of bird and bat mortality (Moloney *et al.*, 2019) found that bats account for 44% of wind farm mortalities (445 total bat carcasses found from data available to February 2018). The majority of these mortalities were from White-striped Freetail Bat (67%). Carcass surveys undertaken as part of the Studland Bay and Bluff Point Wind Farms in Tasmania related that the majority of the carcasses were Gould's Wattled Bat (a high-flying, open-air foraging species) with the remaining being *Vespadelus* spp. (Hull and Cawthen 2012).

There are four main factors that contribute to bat mortality at wind farm sites:

- Bat species and abundance in the area;
- Season (i.e. time of year) and weather conditions (e.g. clear, warm nights with low wind). Such factors are likely to influence the level of bat activity and thus mortality at wind power sites (MNR 2007);
- Habitat/landscape features in the area (e.g. migration routes, forested ridges, and hibernacula/swarming sites may be important features). High levels of bat activity have been documented in forested ridge habitats, and areas where the woodland patches have been cleared for wind turbine placement also offer attractive foraging habitat for some species of bats. Edges of remnant woodlands and scattered remnant trees in paddocks provide favourable foraging areas where bats can easily capture airborne insect prey, creating areas of concentrated bat activity (Lumsden and Bennett 2000, 2005; Kunz *et al.* 2007, Horn *et al.* 2008); and,
- The number of turbines contained within the wind farm.

Bat Species in the Locality

Two bat species considered to have a moderate to high risk of collision due to their flight behaviour were recorded within the Assessment Area, namely the White-striped Freetail Bat and Gould's Wattled Bat. These bats (not significant at a State or national level) have recorded the highest and second highest number of collision incidents respectively from a sub-sample of turbines across 15 Victorian Wind Energy Facilities between 2003 and 2018 (Moloney *et al.*, 2019). A Bat and Avifauna Management (BAM) Plan will be prepared

to provide greater detail regarding proposed mitigation of impacts to potentially impacted birds and bats (Section 6.3).

The nationally significant Southern Bent-wing Bat is an insectivorous cave-roosting bat that forages at and around canopy height in treed areas, and close to the ground in grassy areas. Ecology and Heritage Partners understands that eight Southern Bent-wing Bat mortalities due to collisions with turbines have been reported during post-construction surveys at operational wind farm (as per publicly available data up to 2019) (Moloney *et al.* 2019, Symbolix 2020). The potential impacts to Southern Bent-wing Bat will be addressed by another consultant, and will be provided in a separate report.

5.3 Cumulative Biodiversity Impacts

The largest impact to biodiversity in the locality and encompassing bioregion is likely to have stemmed from increased European settlement around the 1940s and the subsequent land clearance for agriculture. Future disturbance associated with human activities in the bioregion is likely to be associated with ongoing agricultural activities and development.

The impacts from the project must be considered together with the biodiversity impacts that have resulted from historic and predicted future human disturbances.

In addition to cumulative impacts to biodiversity from the Swansons Lane Wind Farm, operational activities have the potential to lead to incremental and cumulative impacts (e.g. barrier effects, changes to bird/bat behaviour etc.). Nearby operating wind farms within the vicinity of the Project area include:

- Timboon Wind Farm (operating) - 3 turbines located approximately 20 kilometres south of the Project area;
- Ferguson Wind Farm (operating) - 3 turbines located approximately 30 kilometres south-east of the project area; and,
- Mortlake South Wind Farm (operating) - 35 turbines located approximately 15 kilometres north-west of the project area.

The operation of the proposed Swansons Lane Wind Farm is considered unlikely to significantly increase cumulative pressures within the broader landscape due to the local landscape characteristics (i.e. generally flat and/or gently undulating, with no ridges, crests or waterways within or immediately adjacent to the development footprint), the development footprint being located in a setting within a predominantly cleared and uniform landscape, and the relatively low number of operational turbines in close proximity (i.e. 10 kilometres).

Despite this, ongoing monitoring of bird and bat populations following commissioning of the Project will enable the proponent to identify and mitigate cumulative impacts as other renewable energy projects are brought on-line.

5.4 The Impact of Climate Change

Climate change is likely to have an impact on both the flora and fauna of the Assessment Area. There has been recent speculation about the movement of wetlands south as the interior of Australia becomes increasingly

arid. This conjecture is not supported by empirical data and it is likely that changes in Australia's climate will have unpredictable impacts on Australia's biodiversity, including birds (Pittock 2003). Changes that have already occurred as a result of the effect of climate change on birds include changes to distribution, phenology, morphology and physiology, behaviour, and abundance and population dynamics (Chambers *et al.* 2005).

As climate change is better understood it may be that developments such as wind farms need to be mindful of the impacts of this phenomenon, however at present, this is not possible. It should also be noted that wind farms are a 'clean' energy source with relatively very low carbon emissions.

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6 MITIGATION MEASURES

6.1 Avoid and Minimise Statement

The land within the Assessment Area has not been subject to any strategic level planning process.

It is not possible to avoid impacts to native vegetation due to the requirement to access the Project Area via existing access tracks for construction and maintenance. However, native vegetation impacts have been minimised by siting wind turbines and other infrastructure in areas devoid of native vegetation, and utilising existing farm tracks for access purposes. Native vegetation impacts are due to the requirement to establish access into the Project Area from Sisters-Garvoc Road, which will result in impacts to two large trees (Trees 5 and 6) located within the swept path.

Tree 8 will also be impacted as it is located immediately adjacent to the existing access track, and will be removed as part of the works to stabilise the track, and install reticulation. However, potential impacts to Tree 7 have been avoided as cabling infrastructure will be bored directional drilling to at least 600 millimetres deep for works within the TPZ of the tree to mitigate any encroachment and subsequent indirect impacts.

Other site entry locations have been designed to take advantage of existing access points, or have been designed to minimise impacts to native vegetation where possible.

The transport route for turbine delivery has also been designed to utilise known intersections where native vegetation impacts will be avoided with the exception of two intersections located immediately north of Portland. Vegetation impacts at these locations will result in the trimming of some branches to facilitate movement through the intersection. However, no impacts to the trunks of canopy trees will occur.

Given the nature of the proposed project, and minimisation measures demonstrated as part of the proposed footprint, there are no feasible opportunities to further avoid and minimise impacts without undermining the key objectives of the project.

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6.2 Best Practice Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial values present within the Assessment Area may include:

- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including fencing retained areas of native vegetation. If indeed necessary, trees should be lopped or trimmed rather than removed. Similarly, soil disturbance and sedimentation within waterbodies should be avoided or kept to a minimum, to avoid, or minimise impacts to fauna habitats;
- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. Native vegetation (areas of sensitivity) should be included as a mapping overlay on any construction plans;
- Tree Protection Zones (TPZs) should be implemented to prevent indirect losses of native vegetation during construction activities (DSE 2011). A TPZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the Diameter at Breast Height (DBH). At a minimum standard a TPZ should consider the following:

- A TPZ of trees should be a radius no less than two metres or greater than 15 metres;
 - Construction, related activities and encroachment (i.e. earthworks such as trenching that disturb the root zone) should be excluded from the TPZ;
 - Where encroachment is 10% or more of the total area of the TPZ, the tree should be considered as lost and offset accordingly (unless an arboricultural report specifies otherwise);
 - Directional drilling may be used for works within the TPZ without being considered encroachment. The directional bore should be at least 600 millimetres deep;
 - The above guidelines may be varied if a qualified arborist confirms the works will not significantly damage the tree (including stags / dead trees). In this case the tree would be retained, and no offset would be required; and,
 - Where the minimum standard for a TPZ has not been met an offset may be required.
- Removal of any habitat trees or shrubs (particularly hollow-bearing trees or trees/shrubs with nests) should be undertaken between February and September to avoid the breeding season for most fauna species. If any habitat trees or shrubs are proposed to be removed, this should be undertaken under the supervision of an appropriately qualified zoologist to salvage and translocate any displaced fauna. A Fauna Management Plan may be required to guide the salvage and translocation process;
 - Where possible, construction stockpiles, machinery, roads, and other infrastructure should be placed away from areas supporting native vegetation, Large Trees and/or wetlands;
 - Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Authority guidelines (EPA 2020a; EPA 2020b; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and,
 - As indigenous flora provides valuable habitat for indigenous fauna, it is recommended that any landscape plantings that are undertaken as part of the proposed works are conducted using indigenous species sourced from a local provenance, rather than exotic deciduous trees and shrubs.

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6.3 Bat and Avifauna management (BAM) Plan

A Bat and Avifauna Management (BAM) Plan will be prepared prior to construction in consultation with DEECA to provide greater detail regarding proposed mitigation of impacts to potentially impacted birds and bats as part of the Swansons Lane Wind Farm (Ecology and Heritage Partners *in prep*). The BAM Plan will incorporate the following scope of works:

An Impact Risk Assessment will be undertaken to assess the potential risks and impacts to target species due to the proposed action, and is proposed to include the following:

- A description of the relevant components of the Swansons Lane Wind Farm;
- An assessment of the potential impacts (including direct mortality) to all target species during the construction and operational phases of the Swansons Lane Wind Farm, with consideration for potential changes to their utilisation of the site; and,

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- Consideration of listing advice, conservation advice, recovery plans, and threat abatement plans for each target species to inform their potential impacts.

A statement of the long-term objectives and strategy for minimising bird and bat strike risk within the Swansons Lane Wind Farm will be prepared, including but not limited to objectives such as:

- An improved understanding of site utilisation changes for target species throughout project phases; and,
- The development of corrective actions to promote a long-term reduction in turbine collision risk (e.g. via a Bird and Bat adaptive management framework).

Standards for post-commissioning monitoring and mitigation will be prepared, responding to the scale and environmental risks of the Swansons Lane Wind Farm.

An Adaptive Management Framework will be prepared to ensure achievement of environmental outcomes. The Adaptive Management Framework is intended to provide a dynamic approach to mitigation for target species through all project phases, and will deliver corrective actions, informed by site-utilisation and CRM data (where appropriate), monitoring and existing mitigation measures, to ensure environmental outcomes are achieved.

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7 RECOMMENDATIONS

Based on the quality and extent of ecological values known to, or considered likely to occur, it is recommended that Swansons Lane Wind Farm Pty Ltd:

1. Prior to construction, develop a Construction Environmental Management Plan (CEMP) with specific management actions to mitigate against potential impacts to areas of ecological value;
2. Develop a Weed Management Plan, which should be incorporated into the CEMP;
3. Before commencement of construction, the preparation of a Bat and Avifauna Management Plan to the satisfaction of the Responsible Authority, in consultation with the DEECA. When approved, the BAM Plan must be endorsed by the Responsible Authority. The BAM Plan must include:
 - a) A strategy for managing and mitigating bird and bat strike arising from the wind energy facility operation. The strategy must include procedures for the regular removal of carcasses likely to attract raptors to areas near wind turbines;
 - b) A procedure for addressing significant impacts to bird and bat populations caused by the wind farm. This procedure must provide that the operator of the wind energy facility immediately investigates the possible causes of any significant impacts on bird and bat populations, and thereafter designs and implement measures to mitigate those impacts in consultation with the Responsible Authority and DEECA;
 - c) A monitoring period of at least two years to record, by species, any bird and bat strikes; and,
 - d) A strategy to manage and/or monitor the wind farm beyond the designated period depending upon the results of the monitoring period referred to above. The strategy must include provisions to take account of any changes to weather patterns during the initial one-year monitoring period.
4. If there are changes to the layout through the process of preparing the final development plans, confirmation of any potential impacts (or lack thereof) to native vegetation must be undertaken.

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8 CONCLUSION

The Project Area is highly modified due to its use as an operating dairy farm. The Assessment Area is generally comprised of pasture paddocks, bordered by planted windrows, and intersected by constructed farm tracks.

Native vegetation in the Project Area is representative of three EVCs: Plains Grassland (EVC 132), Plains Grassy Wetland (EVC 125), and Plains Grassy Woodland (EVC 55). The presence of these EVCs is generally consistent with the modelled pre-1750s and extant (2005) modelled native vegetation mapping. Aside from planted specimens, no national or State significant flora species or vegetation communities were recorded, or are considered to occur within the Assessment Area.

No Brolga records (sighting, breeding, or flocking) exist within online biological databases within the 10-kilometre buffer of the Wind Farm boundary. Further, no breeding or flocking records were identified through the community consultation process. Based on the results of the Level 1 Brolga Assessment, the proposed development does not trigger a Level 2 Brolga Assessment.

A total of 48 bird species were recorded, consisting of 1,787 individuals, during the fixed-point bird utilisation surveys. A total of 94% of bird observations made during the point counts were of individuals that were either on the ground or flying below the Rotor Swept Area (RSA = 64 metres – 252 metres). A further 6% did not have their height recorded as they were obscured from vision, while less than 1% of birds were recorded flying in or above the Rotor Swept Area.

The proposed action will not result in a significant impact on any matter of NES considered in this report. As such, a referral to the Commonwealth Environment Minister is not required regarding matters listed under the EPBC Act that are considered within this report.

It is noted that investigations associated with the nationally significant Southern Bent-wing Bat are being undertaken by another consultant, with implications under the EPBC Act for this species provided separately.

An FFG Act permit will be required where impacts in road reserves (public land) result in the removal of the Western (Basalt) Plains Grassland ecological community.

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9 SUMMARY OF REQUIREMENTS

Further requirements associated with development of the Project Area, as well as additional studies or reporting that may be required, are provided in Table 17.

Table 17. Further requirements associated with development of the Project Area.

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	The proposed action is highly unlikely to have a significant impact on any matter of NES considered in this report. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act. It is noted that investigations associated with significant microbat species are being undertaken by another consultant.	No further action required (regarding matters addressed in this report).
Flora and Fauna Guarantee Act 1988	<p>Permits under the FFG Act for impacts to protected flora species removed for construction related activities on public land are only required for members of the Orchidaceae family, due to being declared general protected flora. No orchids were recorded as part of the assessment.</p> <p>A small remnant of the FFG Act Western (Basalt) Plains Grassland ecological community is present (PG1a, PG1b – Figure 2a) is present, with 0.001 hectares of impact proposed.</p> <p>Due to the highly modified condition of the Project Area, there are not expected to be any indirect, long term or cumulative impacts for significant flora or vegetation communities.</p> <p>The State significant <i>Guilfordia</i> <i>leucophaea</i> and <i>White-throated Needletail</i> have the potential to opportunistically utilise habitat within the broader locality. Ongoing monitoring for these species will be undertaken as part of the BAM Plan requirements to ensure any potential long-term impacts can be appropriately mitigated.</p> <p>With the implementation of the measures proposed within the Construction Environment Management Plan (CEMP), the Project is not expected to result in the introduction of any threatening processes, or contribute to long-term impacts to significant matters.</p> <p>Implications relating to Southern Bent-wing Bat and Yellow-bellied Sheathail Bat (if present) are being addressed by another consultant, and are not considered further in this report. No other significant microbat species are considered likely to occur in the ROI.</p>	Submit application for FFG Act permit for the removal of 0.001 hectares of the Western (Basalt) Plains Grassland ecological community.
Planning and Environment Act 1987	<p>A planning permit from the Corangamite Shire, Moyne Shire and Glenelg Shire Council is required to remove, destroy or lop any native vegetation under Clause 52.17.</p> <p>A permit is required under Clause 52.32 of the Corangamite and Moyne Shire Planning Schemes to use and develop a wind energy facility.</p>	Prepare planning application for the removal of native vegetation.
Catchment and Land Protection Act 1994	Noxious weed species and pest fauna species listed under the CaLP Act were recorded within the Assessment Area. To meet requirements under the CaLP Act, listed noxious weeds and/or pests should be appropriately controlled throughout the Project Area.	Incorporate weed and pest animal management actions into the CEMP.
Wildlife Act 1975	Any persons engaged to conduct salvage and translocation or general handling of terrestrial fauna species must hold a current Management Authorisation.	Ensure wildlife specialists hold a current Management Authorisation.

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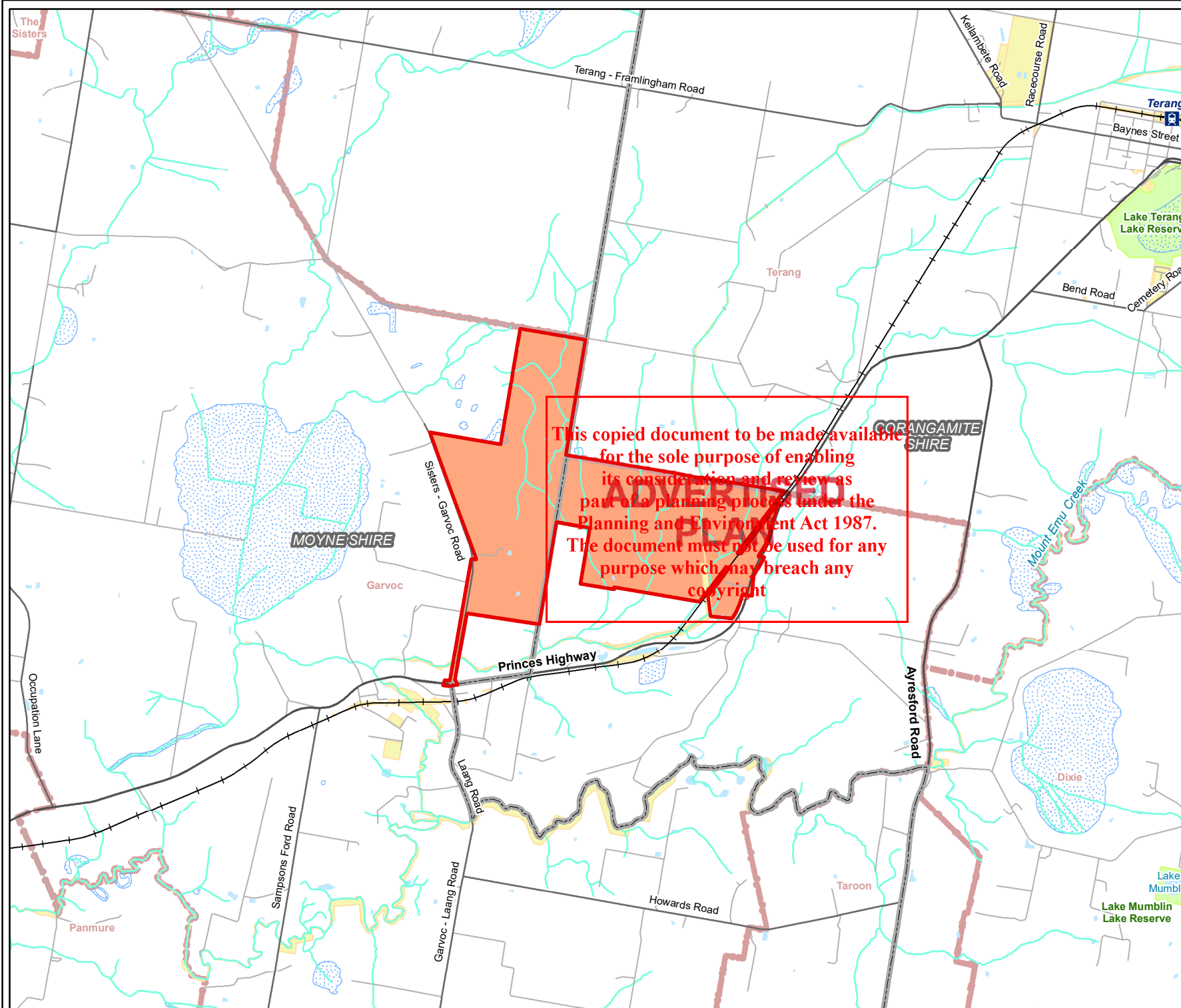
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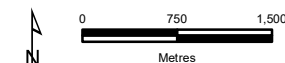
Legend

- Project Area
- Railway
- Major Road
- Collector Road
- Minor Road
- Minor Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Parks and Reserves
- Crown Land
- Localities
- Local Government Areas



Figure 1

Location of the study area
Ecological Assessment,
Swanson Lane Wind Farm



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Legend

- Project Area
- Impact footprint (2-5m buffer)
- Wind Turbines
- Access track
- Cabling
- Swept path
- Turbine footing and hardstand
- Fire passing bay, water tanks and WTG fire break
- ★ Other flora
- + Noxious weed

Ecological Vegetation Classes

- Plains Grassland (EVC 132)
- Plains Grassy Woodland (EVC 55)
- Impacted vegetation

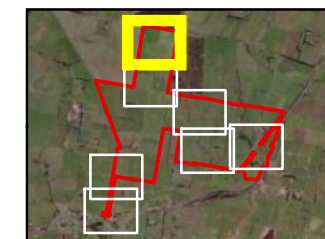
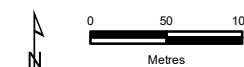


Figure 2a

Ecological features
*Ecological Assessment,
 Swanson Lane Wind Farm*



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Legend

- Project Area
 - Impact footprint (2-5m buffer)
 - Wind Turbines
 - ▲ Met mast
 - Access track
 - Cabling
 - Laydown area
 - Met mast
 - Site office area
 - Substation area
 - Turbine footing and hardstand
 - Fire passing bay, water tanks and WTG fire break
 - ★ Scattered Large Tree
 - Scattered Small Tree
 - ★ FFG Act Protected flora
 - Scattered spear thistle
 - Tree Protection Zone
 - Planted windrow (non-native)
- ### Ecological Vegetation Classes
- Plains Grassy Wetland (EVC 125)

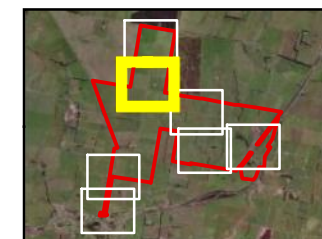
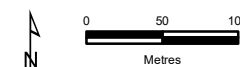


Figure 2b

Ecological features
Ecological Assessment,
Swanson Lane Wind Farm



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Legend

- Project Area
- Impact footprint (2-5m buffer)
- Wind Turbines
- Access track
- Cabling
- Turbine footing and hardstand
- Fire passing bay, water tanks and WTG fire break
- ✿ Scattered Small Tree
- + Noxious weed
- FFG Act Listed
- ✕ Impacted Tree
- Tree Protection Zone
- Planted windrow (native)

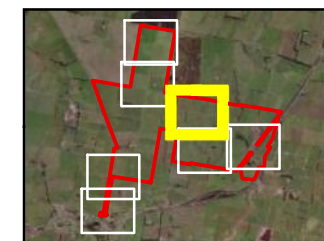
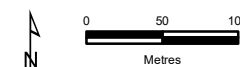


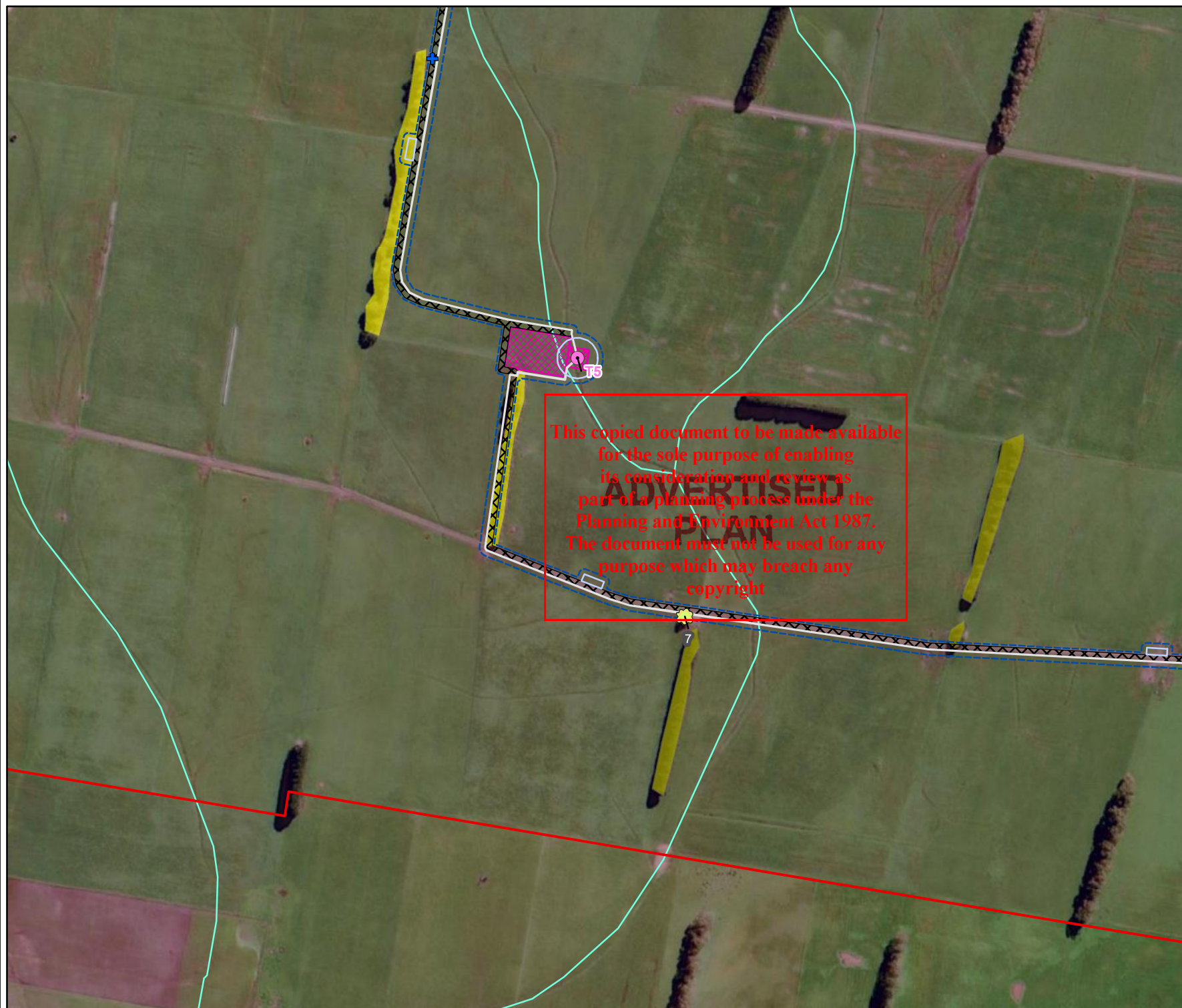
Figure 2c

Ecological features
Ecological Assessment,
Swanson Lane Wind Farm



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Legend

- Project Area
- Impact footprint (2-5m buffer)
- Wind Turbines
- Access track
- Cabling
- Turbine footing and hardstand
- Fire passing bay, water tanks and WTG fire break
- ✱ Scattered Small Tree
- + Noxious weed
- Tree Protection Zone
- Planted windrow (native)
- Planted windrow (non-native)

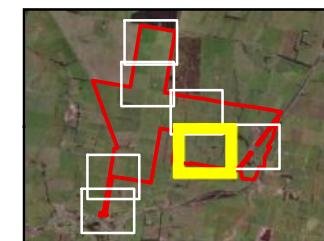
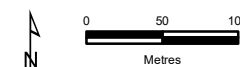


Figure 2d

Ecological features
*Ecological Assessment,
 Swanson Lane Wind Farm*



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14553_Fig02_EcoFeat_MB 22/05/2025 melsley



Legend

- Project Area
 - Impact footprint (2-5m)
 - Access track
 - Cabling
 - Substation area
 - Fire passing bay, water tanks and WTG fire break
 - ✱ FFG Act Protected
 - ★ Other flora
 - + Noxious weed
 - Bathurst Burr infestation
 - Planted windrow (non-
 - Planted vegetation
- Ecological Vegetation Classes**
- Plains Grassy Woodland (EVC 55)
 - Impacted vegetation

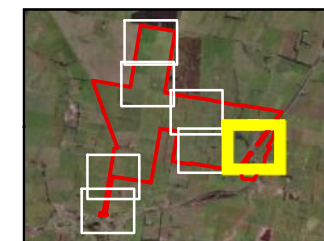


Figure 2e

Ecological features
Ecological Assessment,
Swanson Lane Wind Farm



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14553_Fig02_EcoFeat_MB 22/05/2025 melsley



Legend

- Project Area
 - Impact footprint (2-5m buffer)
 - Access track
 - Cabling
 - Swept path
 - Fire passing bay, water tanks and WTG fire break
 - ✿ Scattered Large Tree
 - ✿ FFG Act Protected
 - ★ Other flora
 - + Noxious weed
 - Hawthorn Infestation
 - X Impacted Tree
 - Tree Protection Zone
 - Planted windrow (native)
- ### Ecological Vegetation Classes
- Plains Grassy Woodland (EVC 55)
 - Impacted vegetation

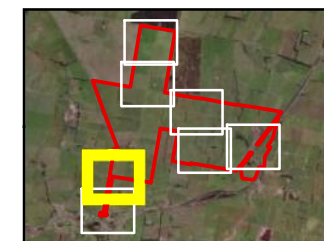
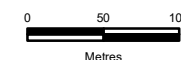


Figure 2f

Ecological features
*Ecological Assessment,
 Swanson Lane Wind Farm*



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14553_Fig02_EcoFeat_MB 22/05/2025 melsley



Legend

- Project Area
- Swept path
- ▲ Non-native tree
- Hawthorn Infestation
- Planted natives (Large-gruit)
- Yellow Gum (FFG Act Listed)
- Planted vegetation

Ecological Vegetation Classes

- Plains Grassy Woodland (EVC 55)

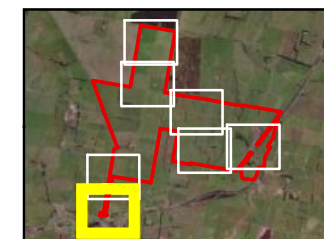


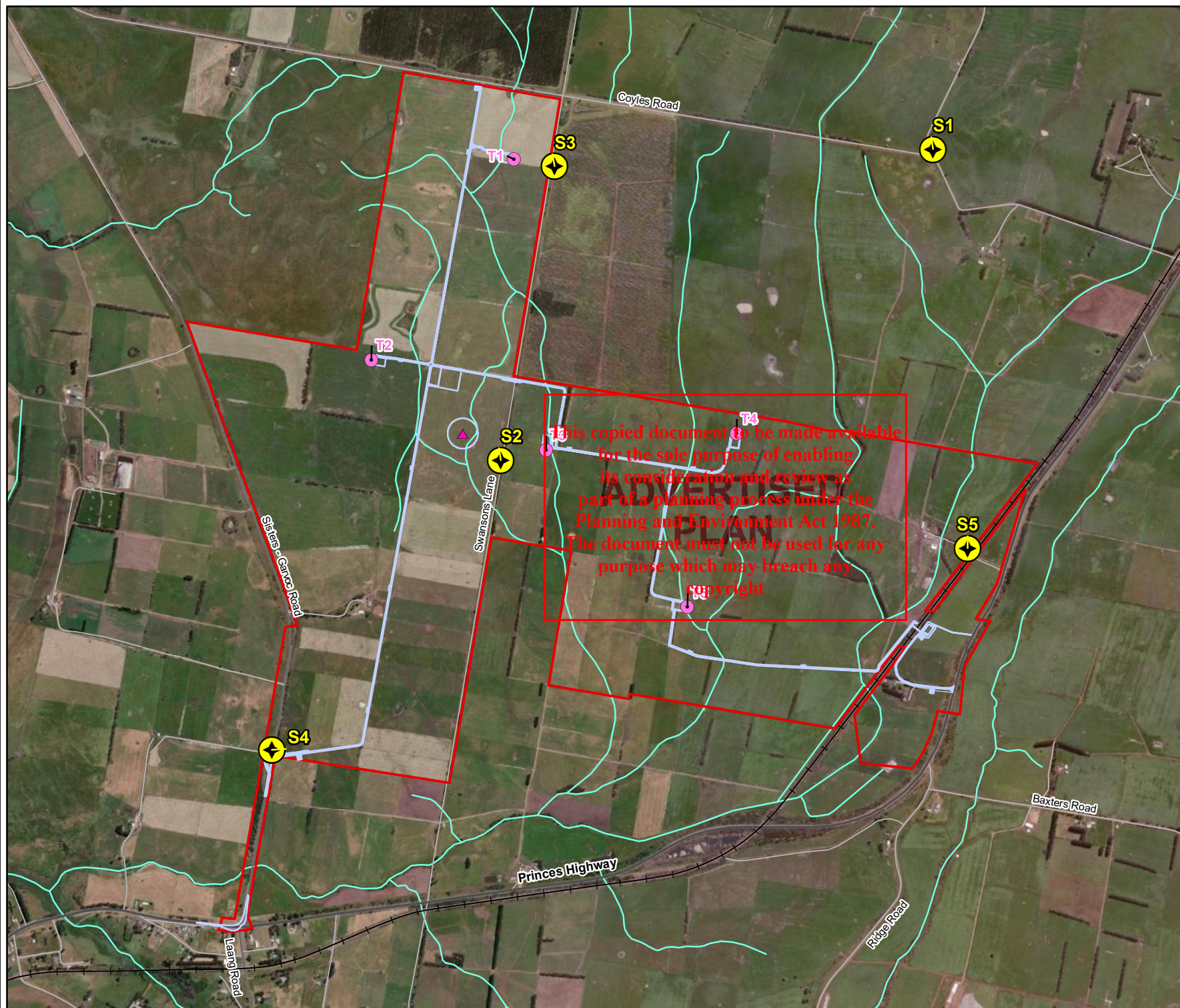
Figure 2g

Ecological features
*Ecological Assessment,
 Swanson Lane Wind Farm*



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14553_Fig02_EcoFeat_MB 22/05/2025 melsley



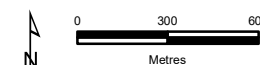
Legend

- Project Area
- Development footprint
- Wind turbines
- ▲ Met mast
- ↻ Bird survey locations



Figure 3

Fauna survey effort
*Ecological Assessment,
 Swanson Lane Wind Farm*








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14553 Fig03 FaunaSurv 27/02/2024 melsley

Legend

 Project Area

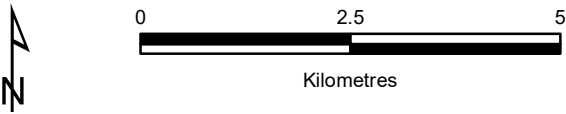
Significant flora

-  Dwarf Silver-wattle
-  Giant Honey-myrtle
-  Showy Lobelia
-  Southern Blue-gum
-  Swamp Flax-lily

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Figure 4
Previously documented significant
flora within 10km of the study area
*Ecological Assessment, Swanson Lane
Wind Farm*



Victorian Biodiversity Atlas (VBA) // Sourced from: 'VBA_FLORA25', 'VBA_FLORA100', 'VBA_FAUNA25' and 'VBA_FAUNA100'. Updated December 2023 © The State of Victoria, Department of Energy, Environment and Climate Action. Records prior to 1949 not shown.

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Legend

- Project Area

Significant fauna

Australasian Shoveler

Black Falcon

Blue-winged Parrot

Curlew Sandpiper

Gang-gang Cockatoo

Grey Goshawk

Hardhead

Hooded Plover

Little Eagle

Little Galaxias

Long-nosed Potoroo
- Musk Duck

Platypus

Plumed Egret

Powerful Owl

Rufous Bristlebird (Otway)

Southern Bent-winged Bat

Southern Brown Bandicoot

Southern Toadlet

White-throated Needletail

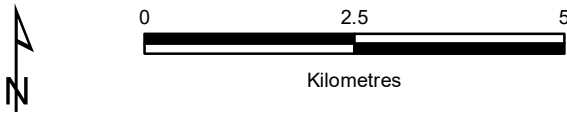
Yarra Pygmy Perch

squeak beetle

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Figure 5
Previously documented significant fauna within 10km of the study area
Ecological Assessment, Swanson Lane Wind Farm



Victorian Biodiversity Atlas (VBA) // Sourced from: 'VBA_FLORA25', 'VBA_FLORA100', 'VBA_FAUNA25' and 'VBA_FAUNA100'. Updated December 2023 © The State of Victoria, Department of Energy, Environment and Climate Action. Records prior to 1949 not shown.

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+

Wind turbines

30km search buffer

10km search buffer

Brolga sighting record (VBA 2024)

Brolga breeding record (VBA 2024)

Brolga flocking record (VBA 2024)

Brolga record (Birdlife 2024)

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Melbourne

Moynes (S)

Garvoc

Figure 6

Previously documented Brolga records within 30km of the study area

Ecological Assessment, Swanson Lane Wind Farm

0510

Kilometres

ecology & heritage

partners

Victorian Biodiversity Atlas (VBA) // Sourced from: 'VBA_FAUNA25' and 'VBA_FAUNA100', Updated June 2024 © The State of Victoria, Department of Energy, Environment and Climate Action.

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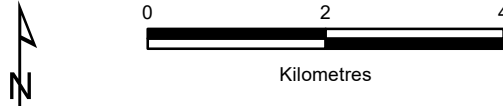
14553 Fig06 Brolga 30km 13/09/2024 melsley

- Legend**
- Wind turbines
 - 10km buffer
 - 4km buffer
 - 2023 landowner responses

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Figure 7
Landowner consultation
Swanson Lane Wind Farm



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APPENDIX 1 FLORA

Appendix 1.1 - Flora Results

Legend:

CR Listed as Critically Endangered under the FFG Act;

***** Listed as a noxious weed under the CaLP Act;

Planted Victorian and non-Victorian species.

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Table A1.1. Flora within the Project Area.

SCIENTIFIC NAME	COMMON NAME	COMMENT
NATIVE SPECIES		
<i>Acacia implexa</i>	Lightwood	-
<i>Acacia mearnsii</i>	Black Wattle	P
<i>Acacia melanoxylon</i>	Blackwood	-
<i>Acacia verticillata</i>	Prickly Moses	-
<i>Acaena ovina</i>	Australian Sheep's Burr	-
<i>Amphibromus nervosus</i>	Common Wallaby grass	-
<i>Asperula conferta</i>	Common Woodruff	-
<i>Eleocharis acuta</i>	Common Spikessedge	-
<i>Epilobium hirtigerum</i>	Hairy Willow-herb	-
<i>Eucalyptus botryoides</i>	Southern Mahogany	#
<i>Eucalyptus kitsoniana</i>	Bog Gum	CR #
<i>Eucalyptus leucoxylon</i> subsp. <i>megalocarpa</i>	Large-fruit Yellow-gum	CR #
<i>Eucalyptus obliqua</i>	Messmate Stringybark	-
<i>Eucalyptus ovata</i>	Swamp Gum	-
<i>Eucalyptus viminalis</i>	Manna Gum	-
<i>Juncus</i> sp.	Rush	-
<i>Lemna disperma</i>	Common Duckweed	-
<i>Leptospermum continentale</i>	Prickly Tea-tree	-
<i>Poa labillardierei</i>	Common Tussock-grass	-
<i>Potamogeton</i> sp.	Pondweed	-
<i>Pteridium esculentum</i>	Austral Bracken	-
<i>Schoenus apogon</i>	Common Bog-sedge	-
<i>Themeda triandra</i>	Kangaroo Grass	-
NON-NATIVE AND PLANTED SPECIES		
<i>Cynodon dactylon</i>	Couch	-
<i>Agrostis capillaris</i>	Brown-top Bent	-

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SCIENTIFIC NAME	COMMON NAME	COMMENT
<i>Brassica</i> spp.	Turnip	-
<i>Bromus diandrus</i>	Great Brome	-
<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	Soft Brome	-
<i>Chrysanthemoides monilifera</i>	Boneseed	*
<i>Cirsium vulgare</i>	Spear Thistle	*
<i>Crataegus monogyna</i>	Hawthorn	*
<i>Cupressus macrocarpa</i>	Monterey Cypress	-
<i>Dactylis glomerata</i>	Cocksfoot	-
<i>Epilobium hirsutum</i>	Great Willow-herb	-
<i>Eucalyptus cladocalyx</i>	Sugar Gum	-
<i>Holcus lanatus</i>	Yorkshire Fog	-
<i>Hordeum</i> sp.	Barley	-
<i>Lolium</i> spp.	Rye Grass	-
<i>Paspalum dilatatum</i>	Paspalum	-
<i>Paspalum distichum</i>	Water Couch	-
<i>Phalaris aquatica</i>	Toowoomba Canary-grass	-
<i>Pittosporum undulatum</i>	Sweet Pittosporum	-
<i>Plantago coronopus</i>	Buck's-horn Plantain	-
<i>Plantago lanceolata</i>	Ribwort	-
<i>Rubus fruticosus</i> spp. agg.	Blackberry	*
<i>Rumex crispus</i>	Curled Dock	-
<i>Sonchus oleraceus</i>	Common Sow-thistle	-
<i>Taraxacum officinale</i>	Dandelion	-
<i>Watsonia</i> sp.	Watsonia	-
<i>Xanthium spinosum</i>	Bathurst Burr	*

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Appendix 1.2 - Habitat Hectare Assessment

Table A1.2. Habitat Hectare Assessment Table.

Vegetation Zone		PGW ₁	PGW ₂	PGW ₃	PG ₁	PGWe ₁
Bioregion		VVP	VVP	VVP	VVP	VVP
EVC / Tree		PGW	PGW	PGW	PG(HS)	PGWe
EVC Number		55_61	55_61	55_61	132_61	125
EVC Conservation Status		En	En	En	En	En
Patch Condition	Large Old Trees /10	0	0	0	0	0
	Canopy Cover /5	0	4	0	0	0
	Under storey /25	5	5	10	10	20
	Lack of Weeds /15	2	2	2	2	9
	Recruitment /10	3	3	3	3	5
	Organic Matter /5	2	3	3	2	3
	Logs /5	0	2	0	0	0
	Treeless EVC Multiplier	1.00	1.00	1.00	1.36	1.36
	Subtotal =	12.00	19.00	18.00	23.12	50.32
Landscape Value /25		1	1	1	1	1
Habitat Points /100		13	20	19	24	51
Habitat Score		0.13	0.20	0.19	0.24	0.51

Notes: PGW = Plains Grassy Woodland; PGWe – Plains Grassy Wetland;; VVP – Victorian Volcanic Plain, WarP – Warrnambool Plain; En = Endangered; Vu = Vulnerable.

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Appendix 1.3 - Scattered Trees and Large Trees in Patches

Table A1.3. Scattered Trees and Large Trees in Patches.

Tree ID (Figure 2)	Species Name	Common Name	DBH	Size Class	Type	Status
1	<i>Eucalyptus</i> sp.	Stag	85	Large	Scattered	Retained
2	<i>Eucalyptus</i> sp.	Stag	55	Small	Scattered	Retained
3	<i>Eucalyptus</i> sp.	Stag	74	Large	Scattered	Retained
4	<i>Eucalyptus</i> sp.	Stag	77	Large	Scattered	Retained
5	<i>Eucalyptus viminalis</i>	Manna Gum	73	Large	Scattered	Removed
6	<i>Eucalyptus obliqua</i>	Messmate	79	Large	Scattered	Removed
7	<i>Eucalyptus ovata</i>	Swamp Gum	47	Small	Scattered	Retained
8	<i>Eucalyptus kitsoniana</i>	Bog Gum	13	Small	Scattered	Removed

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Appendix 1.4 - Significant Flora Species

Significant flora within 10 kilometres of the Project Area is provided in the Table A1.4.3 at the end of this section, with Tables A1.4.1 and A1.4.2 below providing the background context for the values in Table 1.4.3.

Table A1.4.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 7 in Table A1.4.3.

EPBC (<i>Environment Protection and Biodiversity Conservation Act 1999</i>):		FFG (<i>Flora and Fauna Guarantee Act 1988</i>):	
EX	Extinct	e	Endangered in Victoria
CR	Critically endangered	v	Vulnerable in Victoria
EN	Endangered	r	Rare in Victoria
VU	Vulnerable		
#	Listed on the Protected Matters Search Tool		

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Table A1.4.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant flora species previously recorded within 10 kilometres of the Project Area, or that may potentially occur within the Project Area to determine their likelihood of occurrence. The values in this table correspond to Column 8 in Table A1.4.3.

Likelihood of occurrence	Decision guidelines
1 – Known occurrence	Recorded within the project area recently (i.e. within 10 years).
2 - High	Previous records of the species in the local vicinity; and/or, the project area contains areas of high-quality habitat.
3 – Moderate	Limited previous records of the species in the local vicinity; and/or, the project area contains some characteristics of the species' preferred habitat.
4 – Low	Poor or limited habitat for the species however other evidence (such as a lack of records or environmental factors) indicates there is a low likelihood of presence.
5 – Unlikely	No potential habitat and/or outside the species range.

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Table A1.4.3 Significant flora recorded within 10 kilometres of the Project Area.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
NATIONAL SIGNIFICANCE							
<i>Amphibromus fluitans</i> #	River Swamp Wallaby-grass	-	-	VU	-	4	No suitable habitat within Assessment Area
<i>Dianella amoena</i> #	Matted Flax-lily	-	-	EN	cr	4	No suitable habitat within Assessment Area
<i>Glycine latrobeana</i> #	Clover Glycine	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Lachnagrostis adamsonii</i> #	Adamson's Blown-grass	-	-	EN	-	4	No suitable habitat within Assessment Area
<i>Lepidium aschersonii</i> #	Spiny Peppercress	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Lepidium hyssopifolium</i> #	Basalt Pepper-cress	-	-	EN	-	4	No suitable habitat within Assessment Area
<i>Poa sallacustris</i> #	Salt-lake Tussock-grass	-	-	VU	cr	4	No suitable habitat within Assessment Area
<i>Prasophyllum spicatum</i> #	Dense Leek-orchid	-	-	VU	cr	4	No suitable habitat within Assessment Area
<i>Pterostylis chlorogramma</i> #	Green-striped Greenhood	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Pterostylis cucullata</i> #	Leafy Greenhood	-	-	VU	-	4	No suitable habitat within Assessment Area
<i>Pterostylis tenuissima</i> #	Swamp Greenhood	-	-	VU	-	4	No suitable habitat within Assessment Area

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Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
<i>Rutidosia leptorhynchoidea</i> #	Button Wrinklewort	-	-	EN	en	4	No suitable habitat within Assessment Area
<i>Senecio macrocarpus</i> #	Large-fruit Fireweed	-	-	VU	cr	4	No suitable habitat within Assessment Area
<i>Senecio psilocarpus</i> #	Swamp Fireweed	-	-	VU	-	4	No suitable habitat within Assessment Area
<i>Thelymitra epipactoides</i> #	Metallic Sun-orchid	-	-	EN	en	4	No suitable habitat within Assessment Area
<i>Thelymitra matthewsii</i> #	Spiral Sun-orchid	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Xerochrysum palustre</i> #	Swamp Everlasting	-	-	VU	cr	4	No suitable habitat within Assessment Area
STATE SIGNIFICANCE							
<i>Dianella callicarpa</i>	Swamp Flax-lily	2019	3	-	en	3	No suitable habitat within Assessment Area
<i>Eucalyptus globulus</i> subsp. <i>globulus</i>	Southern Blue-gum	2006	1	-	en	4	No specimens recorded on-site
<i>Lobelia beaugleholei</i>	Showy Lobelia	1979	1	-	vu	4	No suitable habitat within Assessment Area
<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Giant Honey-myrtle	2020	4	-	en	4	Outside naturally occurring range

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Data source: Victorian Biodiversity Atlas (DEECA 2024d); Protected Matters Search Tool (DCCEEW 2024).

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APPENDIX 2 FAUNA

Appendix 2.1 Significant Fauna Species

Significant fauna within 10 kilometres of the Project Area is provided in the Table A2.1.3 at the end of this section, with Tables A2.1.1 and A2.1.2 below providing the background context for the values in Table 2.1.3.

Table A2.1.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 8 in Table A2.1.3.

EPBC (<i>Environment Protection and Biodiversity Conservation Act 1999</i>):		FFG (<i>Flora and Fauna Guarantee Act 1988</i>):	
EX	Extinct	CR	Critically endangered in Victoria
CR	Critically endangered	EN	Endangered in Victoria
EN	Endangered	VU	Vulnerable in Victoria
VU	Vulnerable	NT	Near threatened in Victoria
CD	Conservation dependent		
#	Listed on the Protected Matters Search Tool		

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Table A2.1.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant fauna species previously recorded within 10 kilometres of the Project Area, or that may potentially occur within the Project Area to determine their likelihood of occurrence. The values in this table correspond to Column 9 in Table A2.1.3.

Likely presence or use of the project area	Decision guidelines
1 – Known occurrence	Recorded within the project area recently (i.e. within 10 years).
2 - High	Likely resident in the project area based on database records, or expert advice; and/or, recent records (i.e. within 10 years) of the species in the local area; and/or, the project area contains the species' preferred habitat.
3 - Moderate	The species is likely to visit the project area regularly (i.e. at least seasonally); and/or, previous records of the species in the local area; and/or, the project area contains some characteristics of the species' preferred habitat.

Likely presence or use of the project area	Decision guidelines
4 - Low	The species may visit the project area occasionally or opportunistically whilst en route to more suitable sites; and/or, there are only limited or historical records of the species in the local area (i.e. more than 20 years old); and/or, the project area contains few or no characteristics of the species' preferred habitat.
5 - Unlikely	No previous records of the species in the local area; and/or, the species may fly over the project area when moving between areas of more suitable habitat; and/or, out of the species' range; and/or, no suitable habitat present.

Table A2.1.3. Significant fauna within 10 kilometres of the Project Area.

Scientific name	Common name	Total # of documented occurrences	Last documented year	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
<i>Antechinus minimus maritimus</i> #	Swamp Antechinus (mainland)	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Aphelocephala leucopsis</i> #	Southern Whiteface	-	-	VU	-	4	No suitable habitat within Assessment Area
<i>Botaurus poiciloptilus</i> #	Australasian Bittern	-	-	EN	cr	4	No suitable habitat within Assessment Area
<i>Calidris ferruginea</i>	Curlew Sandpiper	1	1980	CR	cr	4	No suitable habitat within Assessment Area
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	3	1995	EN	-	4	No recent records. Limited suitable habitat
<i>Climacteris picumnus victoriae</i> #	Brown Treecreeper (south-eastern)	-	-	VU	-	4	No suitable habitat within Assessment Area
<i>Dasyurus maculatus maculatus</i> (SE mainland population) #	Spot-tailed Quoll	-	-	EN	-	4	No suitable habitat within Assessment Area

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
<i>Delma impar</i> #	Striped Legless Lizard	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Eulamprus tympanum marnieae</i> #	Corangamite Water Skink	-	-	EN	en	4	No suitable habitat within Assessment Area
<i>Falco hypoleucos</i> #	Grey Falcon	-	-	VU	vu	4	No records. Limited suitable habitat
<i>Galaxiella pusilla</i> #	Eastern Dwarf Galaxias	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Grantiella picta</i> #	Painted Honeyeater	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	-	VU	vu	4	No recent records. Limited suitable habitat
<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot	-	-	EN	en	4	No suitable habitat within Assessment Area
<i>Lathamus discolor</i> #	Swift Parrot	-	-	CR	cr	4	No suitable habitat within Assessment Area
<i>Lissolepis coventryi</i> #	Swamp Skink	-	-	EN	en	4	No suitable habitat within Assessment Area
<i>Litoria raniformis</i> #	Growling Grass Frog	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Mastacomys fuscus mordicus</i> #	Broad-toothed Rat (mainland)	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Melanodryas cucullata cucullata</i> #	South-eastern Hooded Robin	-	-	EN	-	4	No suitable habitat within Assessment Area

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Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
<i>Miniopterus orianae bassanii</i>	Southern Bent-winged Bat (southern ssp.)	20	2021	-	cr	1	Recorded within the Assessment Area during initial targeted surveys
<i>Nannoperca obscura</i>	Yarra Pygmy Perch	7	2010	VU	vu	3	No suitable habitat within Assessment Area
<i>Neophema chrysostoma</i>	Blue-winged Parrot	7	1995	VU	-	4	No recent records. Limited suitable habitat (i.e. eucalypt forest and woodlands)
<i>Numenius madagascariensis</i> #	Eastern Curlew	This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright		CR	cr	4	No suitable habitat within Assessment Area
<i>Pedionomus torquatus</i> #	Plains-wanderer			CR	cr	4	No suitable habitat within Assessment Area
<i>Petaurus australis australis</i> #	Yellow-bellied Glider (south-eastern)		-	VU	-	4	No suitable habitat within Assessment Area
<i>Potorous tridactylus trisulcatus</i>	Long-nosed Potoroo	10	1976	VU	vu	4	No suitable habitat within Assessment Area
<i>Prototroctes maraena</i> #	Australian Grayling	-	-	VU	en	4	No suitable habitat within Assessment Area
<i>Pseudomys novaehollandiae</i> #	New Holland Mouse	-	-	VU	en	4	No records. No suitable habitat (i.e. coastal areas and up to 100 km inland on sandstone country)
<i>Pteropus poliocephalus</i> #	Grey-headed Flying fox	-	-	VU	vu	4	No known camps in close proximity (i.e. 5-15km forage range) however species may fly over the Assessment Area en

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
							route to more suitable habitat
<i>Rostratula australis</i> #	Australian Painted Snipe	-	-	EN	cr	4	No suitable habitat within Assessment Area
<i>Stagonopleura guttata</i> #	Diamond Firetail	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Synemon plana</i> #	Golden Sun Moth	-	-	VU	vu	4	No suitable habitat within Assessment Area
<i>Thinornis cucullatus</i>	Hooded Plover	1	2009	VU	vu	4	No suitable habitat within Assessment Area
<i>Accipiter novaehollandiae</i>	Grey Goshawk	7	2018	-	en	3	Species may opportunistically utilise the Assessment Area
<i>Ardea intermedia plumifera</i>	Plumed Egret	1	1995	-	cr	4	No suitable habitat within Assessment Area
<i>Aythya australis</i>	Hardhead	2	1980	-	vu	4	No suitable habitat within Assessment Area
<i>Biziura lobata</i>	Musk Duck	6	2010	-	vu	4	No suitable habitat within Assessment Area
<i>Dasyornis broadbenti caryochrous</i>	Rufous Bristlebird (Otway)	3	1978	-	vu	4	No recent records. Limited suitable habitat (i.e. moderately dense understory)

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Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	Likely occurrence in Project Area	Rationale for occurrence likelihood
<i>Engaeus sericatus</i>	Hairy Burrowing Crayfish	6	2008	-	vu	4	Limited suitable habitat (i.e. wet, muddy, or peaty environments)
<i>Falco subniger</i>	Black Falcon	1	1977	-	cr	4	No recent records. Limited suitable habitat. Species may opportunistically fly through or over the Assessment Area
<i>Galaxiella tooortkooort</i>	Little Galaxias	5	2010	-	en	4	No suitable habitat within Assessment Area
<i>Hieraaetus morphnoides</i>	Little Eagle	1	1960	-	vu	4	No recent records. Limited suitable habitat. Species may opportunistically fly through or over the Assessment Area
<i>Ornithorhynchus anatinus</i>	Platypus	1	1981	-	vu	4	No suitable habitat within Assessment Area
<i>Pseudophryne semimarmorata</i>	Southern Toadlet	27	1979	-	en	3	No suitable habitat within Assessment Area
<i>Spatula rhynchotis</i>	Australasian Shoveler	1	1980	-	vu	4	No suitable habitat within Assessment Area

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Appendix 2.2. Vulnerable Nationally Significant Values

Table A2.2. Significant impact assessment - Vulnerable matters of NES (EPBC Act).

Significant Impact Criteria - will the activity:	Ecological Matter	
	White-throated Needletail	Grey-Headed Flying-Fox
Lead to a long-term decrease in the size of an important population of a species	The population of White-throated Needletail is estimated at 10,000 individuals or more (Higgins 1999). The loss of occasional individuals due to collision is not expected to result in the long-term decrease in the population of the species.	National Flying-fox Monitoring Program (CSIRO 2019) placed the estimated population of Grey-headed Flying-fox at approximately 700,000 individuals. The loss of occasional individuals due to collision is not expected to result in the long-term decrease in the population of the species.
Reduce the area of occupancy of an important population	Given the wide distribution of the species along Australia's eastern and southern seaboard, the Swansons Lane Wind Farm will not reduce the area of occupancy for White-throated Needletail.	Given the known camps of the species, the Swansons Lane Wind Farm will not reduce the area of occupancy for Grey-headed Flying-fox. However, the species may establishment new camps in the future. As such, ongoing monitoring and management will occur through implementation of the BAM plan.
Fragment an existing important population into two or more populations	The project will not fragment the population. Although the species may fly through the site, the species is also able to pass over or between turbines or go around the windfarm infrastructure	The project will not fragment the population. Although the species may fly through the site, the species is also able to pass over or between turbines or go around the windfarm infrastructure
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the species includes the breeding grounds in the Northern Hemisphere, as well as important non-breeding habitat. Although 0.119 hectares of native vegetation is proposed to be removed, this is located within a discrete area of the overall core non-breeding range between Far-north Queensland and Southern Tasmania. Given the native vegetation removal is predominantly located outside of large tracts of native vegetation, the impacted vegetation is not classified as critical habitat for White-throated Needletail.	Habitat critical to the survival of the species includes subtropical and temperate rainforests, tall sclerophyll forests and woodlands for roosting camps. These camps are typically located close to gullies and waterbodies, in vegetation with a dense canopy – a topography and vegetation type not present within the Project Area.

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Significant Impact Criteria - will the activity:	Ecological Matter	
	White-throated Needletail	Grey-Headed Flying-Fox
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	With the implementation of appropriate mitigation measures, it is not likely that harmful invasive species would become further established as a result of the Swansons Lane Wind Farm.	With the implementation of appropriate mitigation measures, it is not likely that harmful invasive species would become further established as a result of the Swansons Lane Wind Farm.
Introduce disease that may cause the species to decline	With the implementation of appropriate mitigation measures, it is not likely that any diseases would be introduced to the Project Area that would cause these species to decline.	With the implementation of appropriate mitigation measures, it is not likely that any diseases would be introduced to the Project Area that would cause these species to decline.
Interfere substantially with the recovery of the species	Given the wide distribution of the species, and large population numbers, the proposed action will not interfere with the recovery of the species	Given the wide distribution of the species, and large population numbers, the proposed action will not interfere with the recovery of the species
Conclusion	Given the wide distribution of the species, and large population numbers, the proposed action will not result in a significant impact to the species	Given the wide distribution of the species, and large population numbers, the proposed action will not result in a significant impact to the species

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APPENDIX 3 - NATIVE VEGETATION REMOVAL (NVR) REPORT

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Native Vegetation Removal Report

NVRR ID: 354_20250528_GW7

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the [Guidelines for the removal, destruction or lopping of native vegetation](#) (the Guidelines). This report is **not an assessment by DEECA** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Report details

Date created: 28/05/2025

Local Government Area:

CORANGAMITE SHIRE

MOYNE SHIRE

Shapefile name:

EHP14553_Garvoc_VG20_Patches_Cor_28052025.shp

EHP14553_Garvoc_VG20_Trees_Cor_28052025.shp

Site assessor name: Shannon LeBel

Registered Aboriginal Party: Eastern Maar

Coordinates: 142.82707, -38.26046

Address:

87 COYLES ROAD TERANG 3264

7350 PRINCES HIGHWAY GARVOC 3265

PRINCES HIGHWAY GARVOC 3265

SISTERS-GARVOC ROAD GARVOC 3265

Regulator Notes

Removal polygons are located:

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Summary of native vegetation to be removed

Assessment pathway	Intermediate Assessment Pathway		
Location category	Location 2 The native vegetation extent map indicates that this area is typically characterised as supporting native vegetation. Additionally, it is modelled as encompassing an endangered Ecological Vegetation Class, sensitive wetland or sensitive coastal area. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) <i>Includes endangered EVCs (ha): 0.047</i>	0.136	Extent of past removal (ha)	0.089
		Extent of proposed removal - Patches (ha)	0.016
		Extent of proposed removal - Scattered Trees (ha)	0.031
No. Large Trees proposed to be removed	0	No. Large Patch Trees	0
		No. Large Scattered Trees	0
No. Small Scattered Trees	1		

Offset requirements if approval is granted

Any approval granted will include a condition to secure an offset, before the removal of native vegetation, that meets the following requirements:

General Offset amount ¹	0.008 General Habitat Units
Minimum strategic biodiversity value score ²	0.2943
Large Trees	0
Vicinity	Glenelg Hopkins CMA or CORANGAMITE SHIRE LGA, MOYNE SHIRE LGA

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

The availability of third-party offset credits can be checked using the Native Vegetation Credit Register (NVCR) Search Tool - <https://nvcr.delwp.vic.gov.au>

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1. The General Offset amount required is the sum of all General Habitat Units in Appendix 1.
 2. Minimum strategic biodiversity value score is 80 per cent of the weighted average score across habitat zones where a General Offset is required.
 3. The Species Offset amount(s) required is the sum of all Species Habitat Units in Appendix 1.

Application requirements

Applications to remove, destroy or lop native vegetation must include all the below information. If an appropriate response has not been provided the application is not complete.

Application Requirement 1 - Native vegetation removal information

If the native vegetation removal is mapped correctly, the information presented in this Native Vegetation Removal Report addresses Application Requirement 1.

Application Requirement 2 - Topographical and land information

This statement describes the topographical and land features in the vicinity of the proposed works, including the location and extent of any ridges, hilltops, wetlands and waterways, slopes of more than 20% gradient, low-lying areas, saline discharge areas or areas of erosion.

Application Requirement 3 - Photographs of the native vegetation to be removed

Application Requirement 3 is not addressed in this Native Vegetation Removal Report. All applications must include recent, timestamped photos of each Patch, Large Patch, Tree and Scattered Tree which has been mapped in this report.

Application Requirement 4 - Past removal

If past removal has been considered correctly, the information presented in this Native Vegetation Removal Report addresses Application Requirement 4.

Application Requirement 5 - Avoid and minimise statement

This statement describes what has been done to avoid and minimise impacts on native vegetation and associated biodiversity values.

Application Requirement 6 - Property Vegetation Plan


This requirement only applies if an approved Property Vegetation Plan (PVP) applies to the property
Does a PVP apply to the proposal?

Application Requirement 7 - Defendable space statement

Where the removal of native vegetation is to create defendable space, this statement:

- Describes the bushfire threat; and

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- 
- Describes how other bushfire risk mitigation measures were considered to reduce the amount of native vegetation proposed for removal (this can also be part of the avoid and minimise statement).

This statement is not required if, If the proposed defensible space is within the Bushfire Management Overlay (BMO), and in accordance with the 'Exemption to create defensible space for a dwelling under Clause 44.06 of local planning schemes' in Clause 52.12-5.

Application Requirement 8 - Native Vegetation Precinct Plan

This requirement is only applicable if you are removing native vegetation from within an area covered by Native Vegetation Precinct Plan (NVPP), and the proposed removal is not identified as 'to be removed' within the NVPP.

Does an NVPP apply to the proposal?

Application Requirement 9 - Offset statement

This statement demonstrates that an offset is available and describes how the required offset will be secured. The Applicant's Guide provides information relating to this requirement.

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Next steps

Applications to remove, destroy or lop native vegetation must address all the application requirements specified in the Guidelines. If you wish to remove the mapped native vegetation you are required to apply for approval from the responsible authority (e.g. local Council). This Native vegetation removal report must be submitted with your application and meets most of the application requirements. The following requirements need to be addressed, as applicable.

Application Requirement 3 - Photographs of the native vegetation to be removed

Recent, dated photographs of the native vegetation to be removed **must be provided** with the application. All photographs must be clear, show whether the vegetation is a Patch of native vegetation, Patch Tree or Scattered Tree, and identify any Large Trees. If the area of native vegetation to be removed is large, provide photos that are indicative of the native vegetation.

Ensure photographs are attached to the application. If appropriate photographs have not been provided the application is not complete.

Application Requirement 6 - Property Vegetation Plan

If a PVP is applicable, it must be provided with the application.

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Appendix 1: Description of native vegetation to be removed

General Habitat Units for each zone (Patch, Scattered Tree or Patch Tree) are calculated by the following equation in accordance with the Guidelines

General Habitat Units = extent without overlap x condition score 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							Information calculated by NVR Map				
Zone	Type	DBH (cm)	EVC code	Bioregional conservation status	Partial Removal	Condition score	Large Tree(s)	Polygon extent (ha)	Extent without overlap (ha)	SBV score	General Habitat Units
C2-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.003	0.003	0.390	0.000
C3-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.001	0.001	0.460	0.000
C4-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.011	0.011	0.460	0.002
M1-g	Patch	-	VVP_0055_61	Endangered	no	0.200	-	0.007	0.007		
M13-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.010	0.010		
M14-e	Patch	-	VVP_0132_61	Endangered	no	0.240	-	0.029	0.029		
M15-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.003	0.003		

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Information provided by or on behalf of the applicant							Information calculated by NVR Map				
Zone	Type	DBH (cm)	EVC code	Bioregional conservation status	Partial Removal	Condition score	Large Tree(s)	Polygon extent (ha)	Extent without overlap (ha)	SBV score	General Habitat Units
C8-ts	Scattered Tree	13	VVP_0055_61	Endangered	no	0.200	-	0.031	0.031	0.330	0.006
M5-tl	Scattered Tree	73	VVP_0055_61	Endangered	no	0.200	-	0.031	0.021		
M6-tl	Scattered Tree	79	VVP_0055_61	Endangered	no	0.200	-	0.031	0.018		

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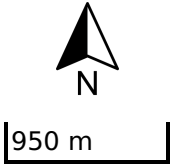
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Appendix 2: Images of mapped native vegetation

1. Property in context



- Proposed Removal
- Past Removal
- Partial Removal
- Property Boundaries



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2. Aerial photograph showing mapped native vegetation



- Proposed Removal
- Past Removal
- Partial Removal



800 m

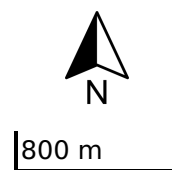
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3. Location Risk Map



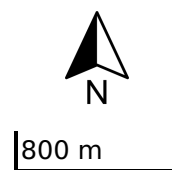
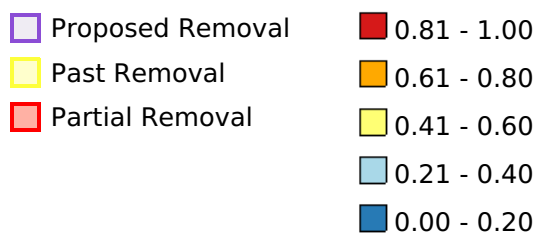
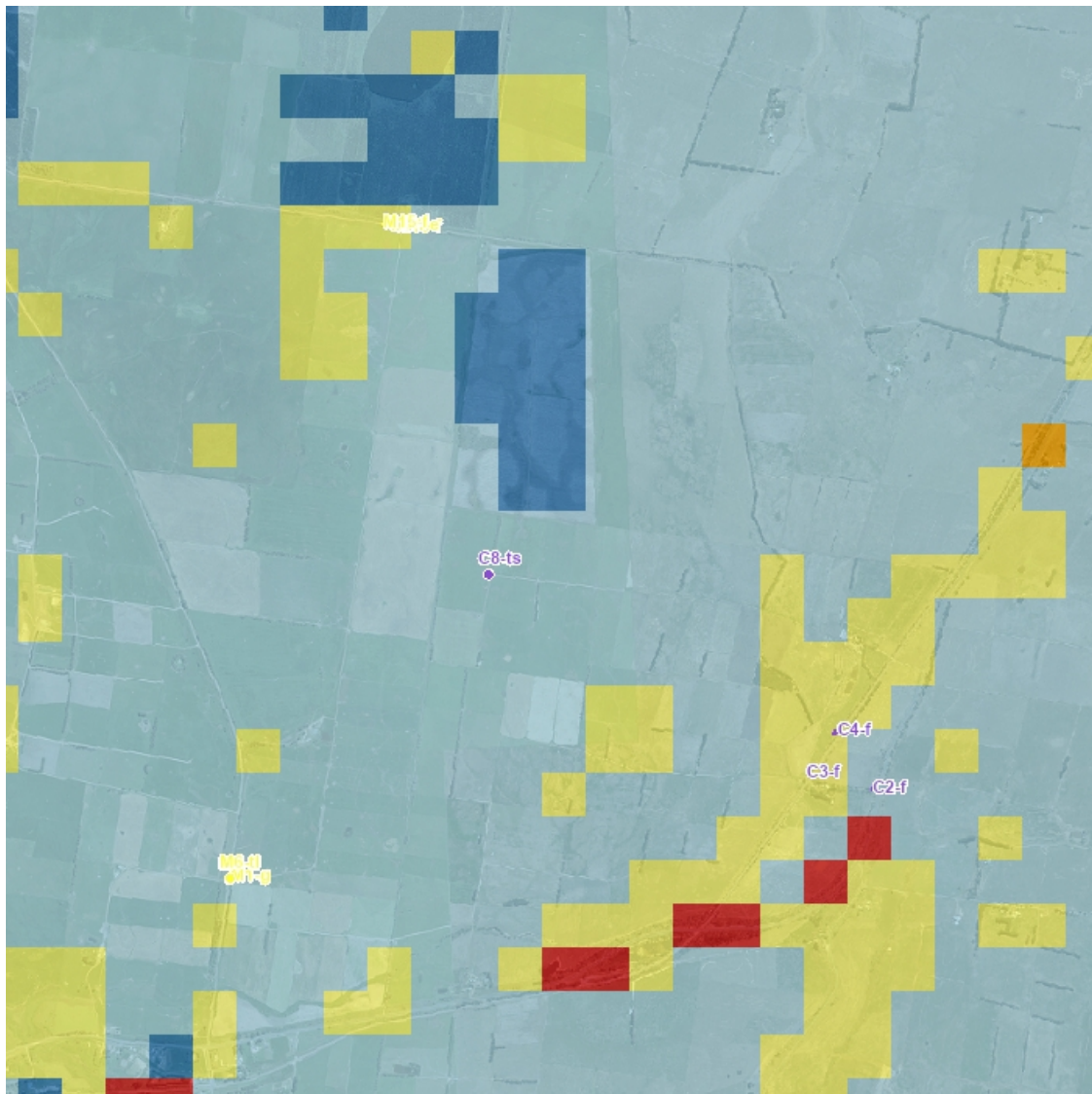
- | | |
|---|--|
| Proposed Removal | Location 1 |
| Past Removal | Location 2 |
| Partial Removal | Location 3 |



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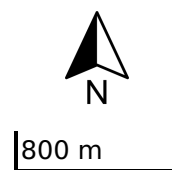
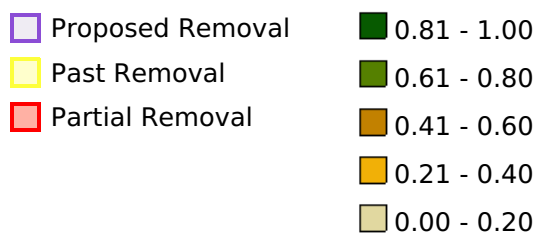
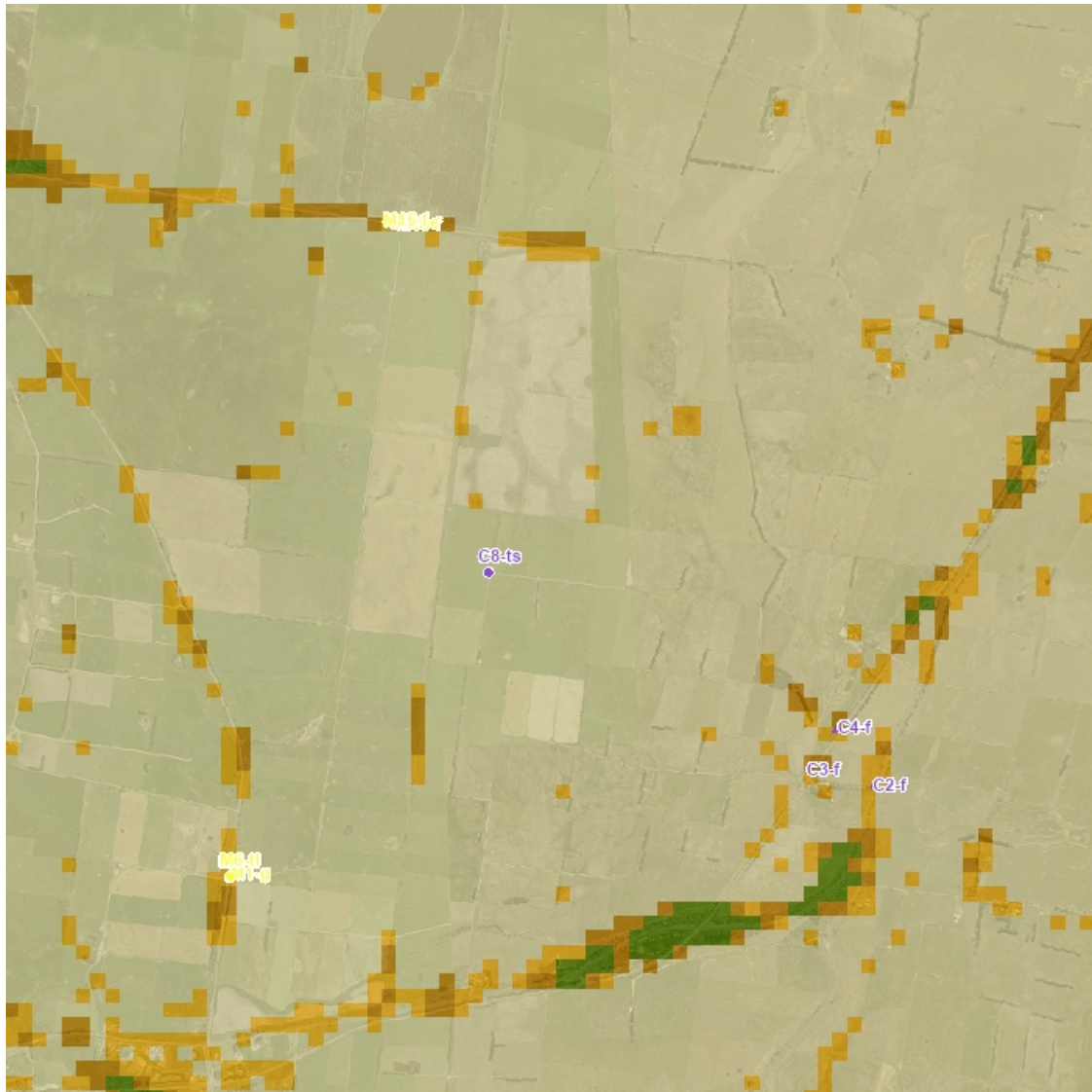
4. Strategic Biodiversity Value Score Map



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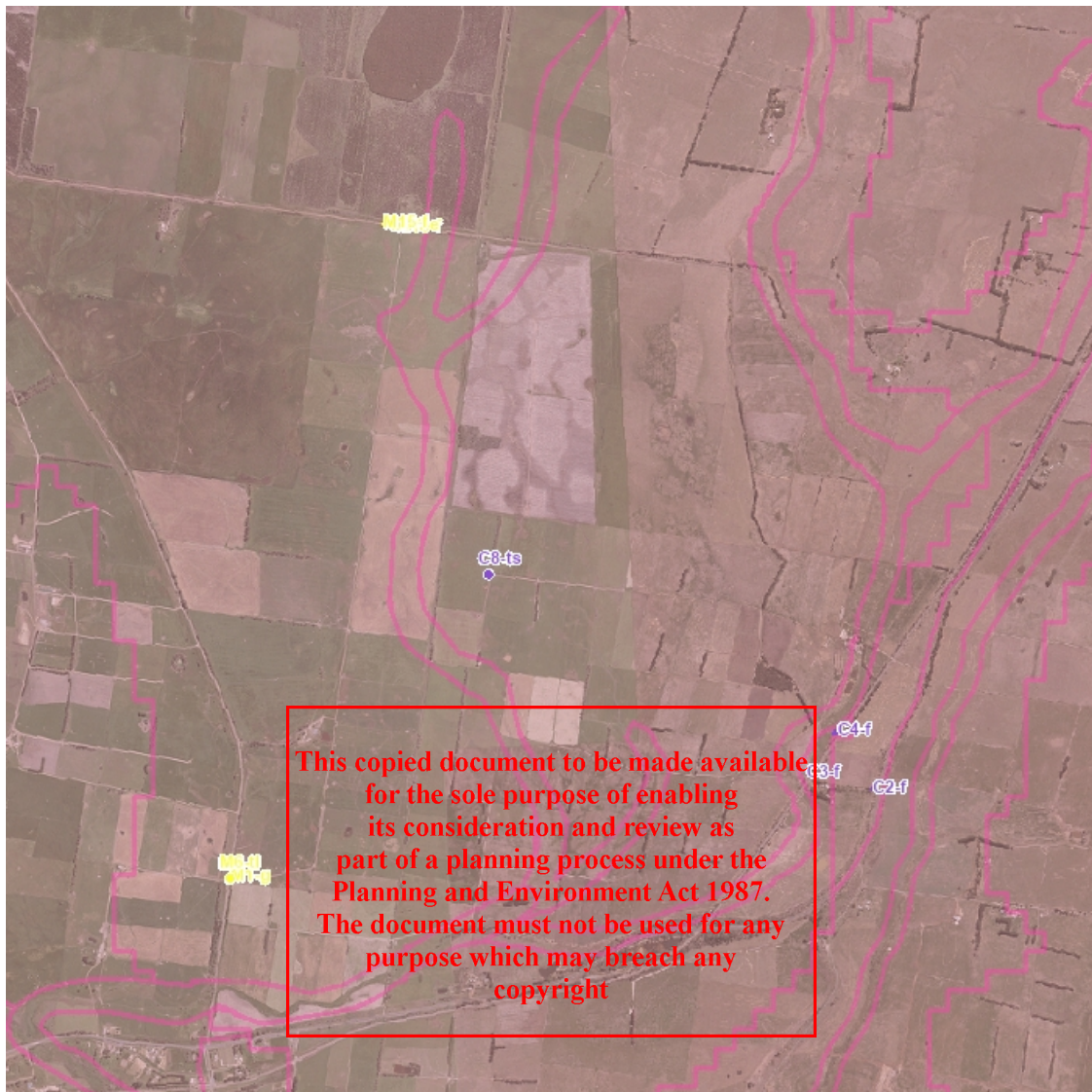
5. Condition Score Map



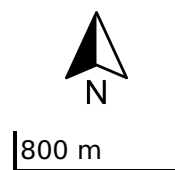
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6. Endangered EVCs



- Proposed Removal
- Past Removal
- Partial Removal
- Endangered 1750 Ecological Vegetation Classes



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Native Vegetation Removal Report

NVRR ID: 354_20250528_II6

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the [Guidelines for the removal, destruction or lopping of native vegetation](#) (the Guidelines). This report is **not an assessment by DEECA** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Report details

Date created: 28/05/2025

Local Government Area:

CORANGAMITE SHIRE

MOYNE SHIRE

Shapefile name:

EHP14553_Garvoc_VG20_Patches_Moyne_28052025.shp

EHP14553_Garvoc_VG20_Trees_Moyne_28052025.shp

Site assessor name: Shannon LeBel

Registered Aboriginal Party: Eastern Maar

Coordinates: 142.82707, -38.26046

Address:

87 COYLES ROAD TERANG 3264

7350 PRINCES HIGHWAY GARVOC 3265

PRINCES HIGHWAY GARVOC 3265

SISTERS-GARVOC ROAD GARVOC 3265

Regulator Notes

Removal polygons are located:

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Summary of native vegetation to be removed

Assessment pathway	Intermediate Assessment Pathway		
Location category	Location 2 The native vegetation extent map indicates that this area is typically characterised as supporting native vegetation. Additionally, it is modelled as encompassing an endangered Ecological Vegetation Class, sensitive wetland or sensitive coastal area. The removal of less than 0.5 hectares of native vegetation in this area will not require a Species Offset.		
Total extent including past and proposed removal (ha) <i>Includes endangered EVCs (ha): 0.089</i>	0.136	Extent of past removal (ha)	0.047
		Extent of proposed removal - Patches (ha)	0.049
		Extent of proposed removal - Scattered Trees (ha)	0.040
No. Large Trees proposed to be removed	0	No. Large Patch Trees	0
		No. Large Scattered Trees	0
No. Small Scattered Trees	2		

Offset requirements if approval is granted

Any approval granted will include a condition to secure an offset, before the removal of native vegetation, that meets the following requirements:

General Offset amount ¹	0.019 General Habitat Units
Minimum strategic biodiversity value score ²	0.3276
Large Trees	0
Vicinity	Glenelg Hopkins CMA or CORANGAMITE SHIRE LGA, MOYNE SHIRE LGA

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

The availability of third-party offset credits can be checked using the Native Vegetation Credit Register (NVCR) Search Tool - <https://nvcr.delwp.vic.gov.au>

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1. The General Offset amount required is the sum of all General Habitat Units in Appendix 1.
 2. Minimum strategic biodiversity value score is 80 per cent of the weighted average score across habitat zones where a General Offset is required.
 3. The Species Offset amount(s) required is the sum of all Species Habitat Units in Appendix 1.

Application requirements

Applications to remove, destroy or lop native vegetation must include all the below information. If an appropriate response has not been provided the application is not complete.

Application Requirement 1 - Native vegetation removal information

If the native vegetation removal is mapped correctly, the information presented in this Native Vegetation Removal Report addresses Application Requirement 1.

Application Requirement 2 - Topographical and land information

This statement describes the topographical and land features in the vicinity of the proposed works, including the location and extent of any ridges, hilltops, wetlands and waterways, slopes of more than 20% gradient, low-lying areas, saline discharge areas or areas of erosion.

Application Requirement 3 - Photographs of the native vegetation to be removed

Application Requirement 3 is not addressed in this Native Vegetation Removal Report. All applications must include recent, timestamped photos of each Patch, Large Patch, Tree and Scattered Tree which has been mapped in this report.

Application Requirement 4 - Past removal

If past removal has been considered correctly, the information presented in this Native Vegetation Removal Report addresses Application Requirement 4.

Application Requirement 5 - Avoid and minimise statement

This statement describes what has been done to avoid and minimise impacts on native vegetation and associated biodiversity values.

Application Requirement 6 - Property Vegetation Plan


This requirement only applies if an approved Property Vegetation Plan (PVP) applies to the property
Does a PVP apply to the proposal?

Application Requirement 7 - Defendable space statement

Where the removal of native vegetation is to create defendable space, this statement:

- Describes the bushfire threat; and

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- 
- Describes how other bushfire risk mitigation measures were considered to reduce the amount of native vegetation proposed for removal (this can also be part of the avoid and minimise statement).

This statement is not required if, If the proposed defensible space is within the Bushfire Management Overlay (BMO), and in accordance with the 'Exemption to create defensible space for a dwelling under Clause 44.06 of local planning schemes' in Clause 52.12-5.

Application Requirement 8 - Native Vegetation Precinct Plan

This requirement is only applicable if you are removing native vegetation from within an area covered by Native Vegetation Precinct Plan (NVPP), and the proposed removal is not identified as 'to be removed' within the NVPP.

Does an NVPP apply to the proposal?

Application Requirement 9 - Offset statement

This statement demonstrates that an offset is available and describes how the required offset will be secured. The Applicant's Guide provides information relating to this requirement.

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Next steps

Applications to remove, destroy or lop native vegetation must address all the application requirements specified in the Guidelines. If you wish to remove the mapped native vegetation you are required to apply for approval from the responsible authority (e.g. local Council). This Native vegetation removal report must be submitted with your application and meets most of the application requirements. The following requirements need to be addressed, as applicable.

Application Requirement 3 - Photographs of the native vegetation to be removed

Recent, dated photographs of the native vegetation to be removed **must be provided** with the application. All photographs must be clear, show whether the vegetation is a Patch of native vegetation, Patch Tree or Scattered Tree, and identify any Large Trees. If the area of native vegetation to be removed is large, provide photos that are indicative of the native vegetation.

Ensure photographs are attached to the application. If appropriate photographs have not been provided the application is not complete.

Application Requirement 6 - Property Vegetation Plan

If a PVP is applicable, it must be provided with the application.

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Appendix 1: Description of native vegetation to be removed

General Habitat Units for each zone (Patch, Scattered Tree or Patch Tree) are calculated by the following equation in accordance with the Guidelines

General Habitat Units = extent without overlap x condition score 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							Information calculated by NVR Map				
Zone	Type	DBH (cm)	EVC code	Bioregional conservation status	Partial Removal	Condition score	Large Tree(s)	Polygon extent (ha)	Extent without overlap (ha)	SBV score	General Habitat Units
C2-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.003	0.003		
C3-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.001	0.001		
C4-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.011	0.011		
M1-g	Patch	-	VVP_0055_61	Endangered	no	0.200	-	0.007	0.007	0.400	0.001
M13-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.010	0.010	0.420	0.001
M14-e	Patch	-	VVP_0132_61	Endangered	no	0.240	-	0.029	0.029	0.420	0.007
M15-f	Patch	-	VVP_0055_61	Endangered	no	0.130	-	0.003	0.003	0.420	0.000

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Information provided by or on behalf of the applicant							Information calculated by NVR Map				
Zone	Type	DBH (cm)	EVC code	Bioregional conservation status	Partial Removal	Condition score	Large Tree(s)	Polygon extent (ha)	Extent without overlap (ha)	SBV score	General Habitat Units
C8-ts	Scattered Tree	13	VVP_0055_61	Endangered	no	0.200	-	0.031	0.031		
M5-tl	Scattered Tree	73	VVP_0055_61	Endangered	no	0.200	-	0.031	0.021	0.400	0.004
M6-tl	Scattered Tree	79	VVP_0055_61	Endangered	no	0.200	-	0.031	0.018	0.400	0.004

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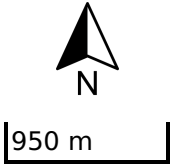
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Appendix 2: Images of mapped native vegetation

1. Property in context



- Proposed Removal
- Past Removal
- Partial Removal
- Property Boundaries



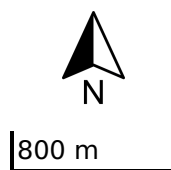
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2. Aerial photograph showing mapped native vegetation



- Proposed Removal
- Past Removal
- Partial Removal



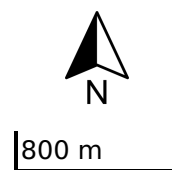
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3. Location Risk Map



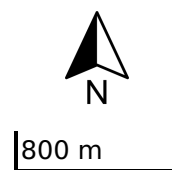
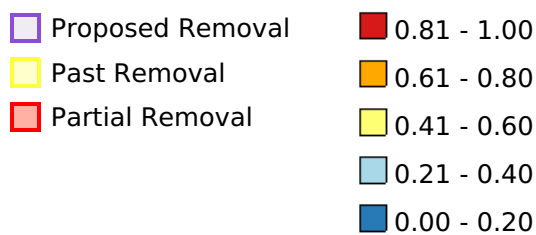
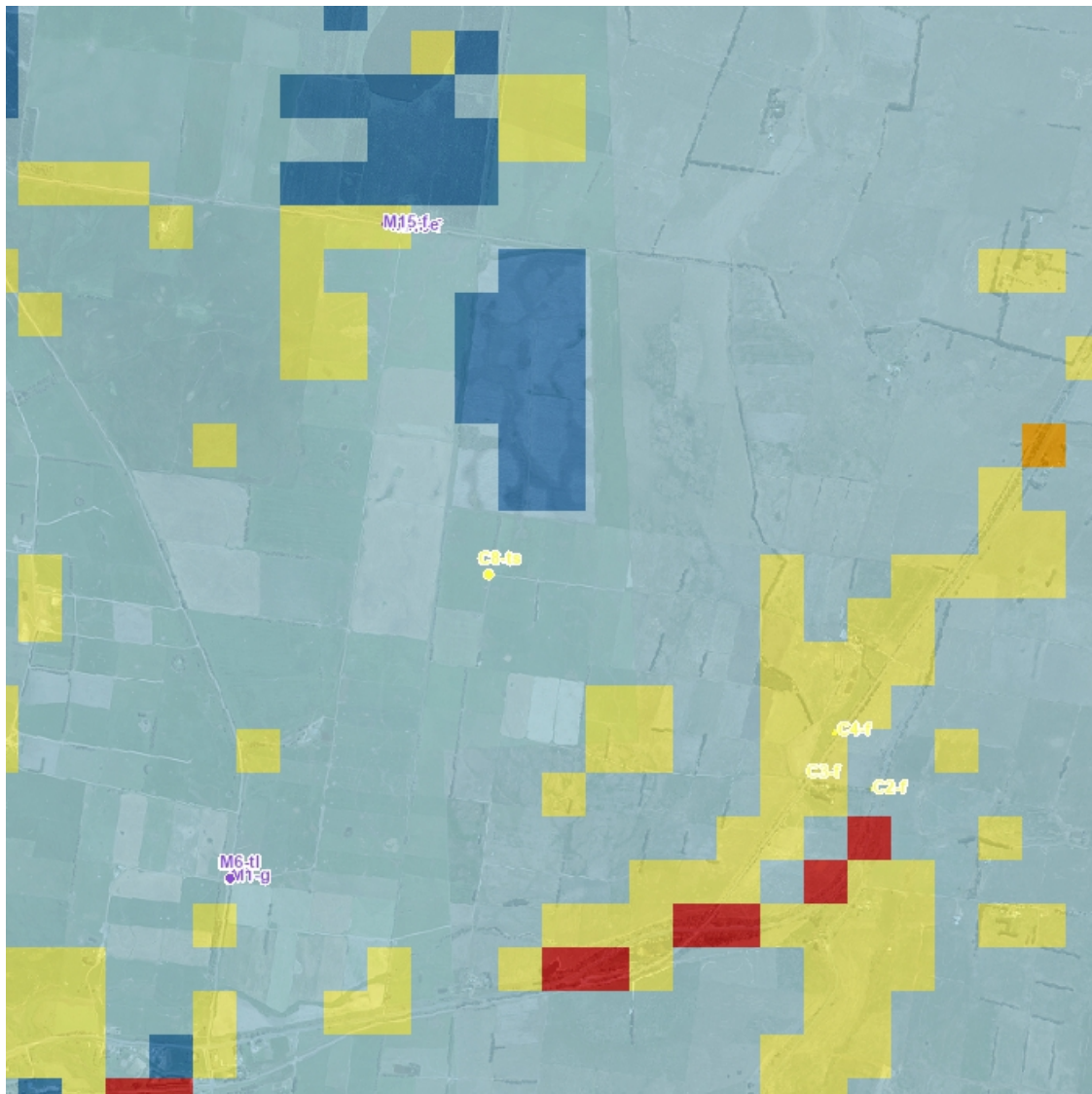
- | | |
|--|---|
| Proposed Removal | Location 1 |
| Past Removal | Location 2 |
| Partial Removal | Location 3 |



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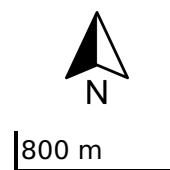
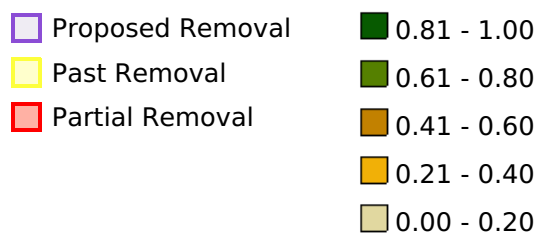
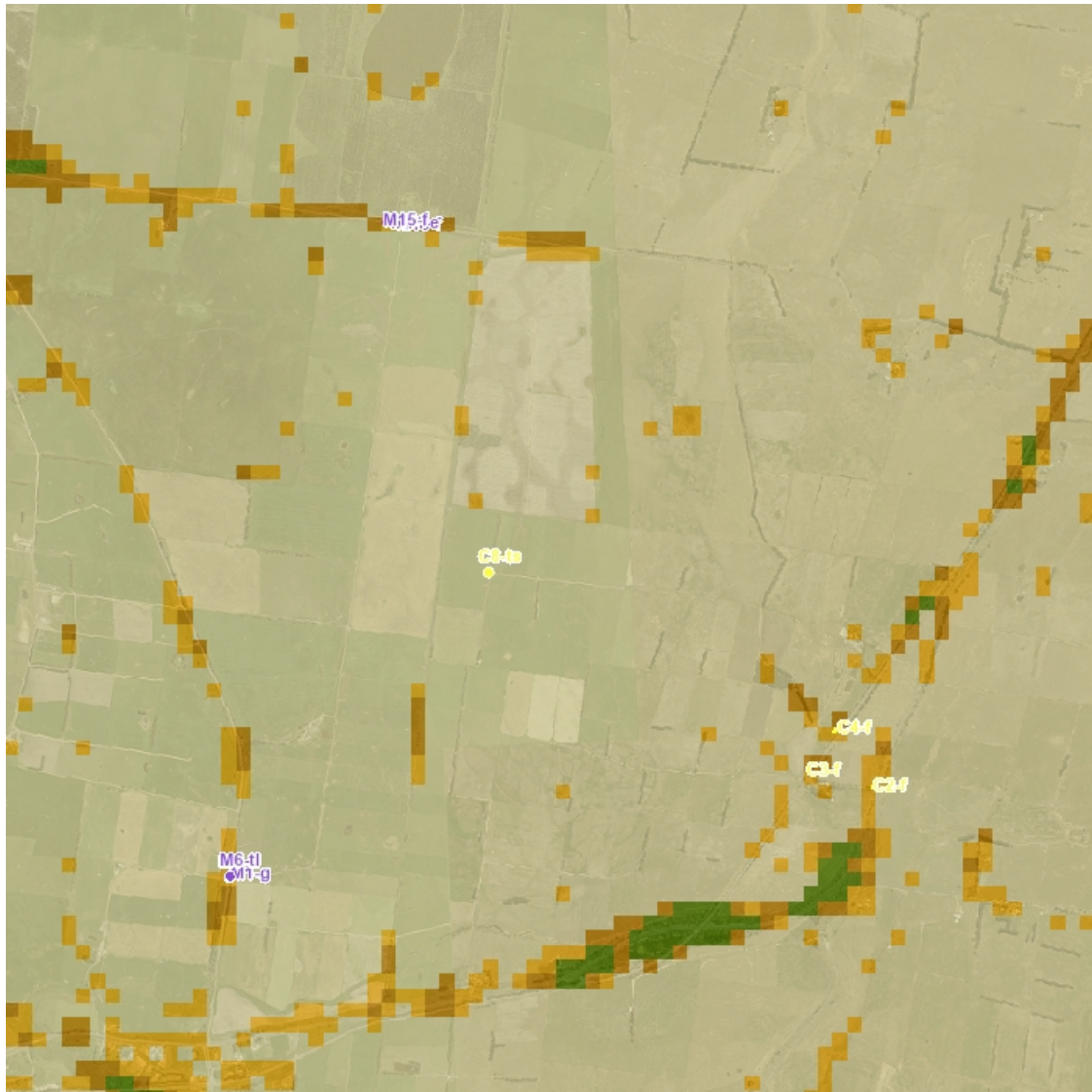
4. Strategic Biodiversity Value Score Map



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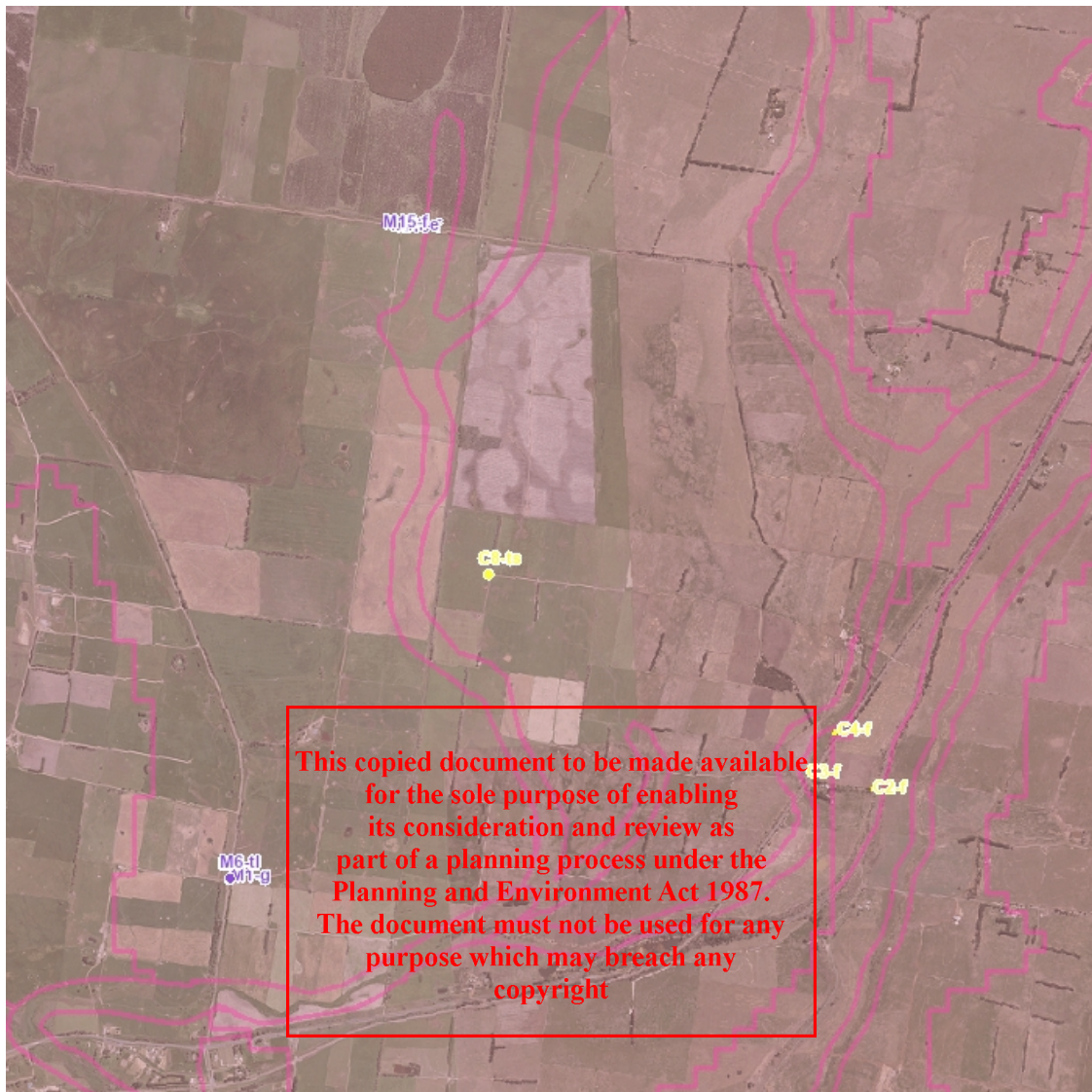
5. Condition Score Map



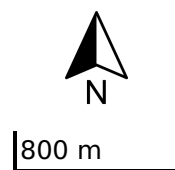
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6. Endangered EVCs



- Proposed Removal
- Past Removal
- Partial Removal
- Endangered 1750 Ecological Vegetation Classes



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APPENDIX 4 - AVAILABLE NATIVE VEGETATION CREDITS

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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: 28/05/2025 10:42

Report ID: 29928

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)
0.136	0.3276	2	Glenelg Hopkins

Details of available native vegetation credits on 28 May 2025 10:42

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-2088	0.193	5	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	VegLink
BBA-2467	0.236	11	Glenelg Hopkins	Glenelg Shire	No	Yes	No	Contact NVOR
BBA-3027	1.231	267	Glenelg Hopkins	Pyrenees Shire	Yes	Yes	No	VegLink
BBA-3041	0.286	252	Glenelg Hopkins	Moyné Shire	Yes	Yes	No	VegLink
TFN-C0543	0.407	7	Glenelg Hopkins	Southern Grampians Shire	No	Yes	No	Bio Offsets
VC_CFL-3693_01	2.179	600	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	VegLink
VC_CFL-3727_01	12.307	24	Glenelg Hopkins	Ararat Rural City	Yes	Yes	No	VegLink
VC_CFL-3763_01	3.246	266	Glenelg Hopkins	Glenelg Shire	Yes	Yes	No	VegLink
VC_CFL-3807_01	5.606	62	Glenelg Hopkins	SOUTHERN GRAMPIANS SHIRE	Yes	Yes	No	Contact NVOR
VC_CFL-3814_01	12.719	526	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	VegLink
VC_TFN-C2046_01	7.438	1446	Glenelg Hopkins	Southern Grampians Shire	Yes	Yes	No	Ecocentric, Ethos, VegLink

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

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Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
----------------	-----	----	-----	-----	------------	--------	-------------	-----------

There are no sites listed in the Native Vegetation Credit Register that meet your offset requirements when applying the alternative arrangements as listed in section 11.2 of the Guidelines for the removal, destruction or lopping of native vegetation.

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)
----------------	-----	----	-----	-----	------------	--------	-------------	-----------

There are no potential sites listed in the Native Vegetation Credit Register that meet your offset requirements.

LT - Large Trees

CMA - Catchment Management Authority

LGA - Municipal District or Local Government Authority

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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
	Fully traded			
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@deeca.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not available
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
IDES	Indigenous Design Environmental Services Pty Ltd	(03) 9437 0555		www.idecological.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

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

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Obtaining this publication does not guarantee that the credits shown will be available in the Native Vegetation Credit Register either now or at a later time when a purchase of native vegetation credits is planned.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes

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APPENDIX 5 – LANDOWNER QUESTIONNAIRE

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Landowner Consultation Questionnaire

The aim of the following survey is to enable Ecology and Heritage Partners to develop a broad-scale understanding of the environment within the general locality of the proposed Swansons Lane Wind Farm through acquiring information on land use, management practices, and the potential presence of Brolga within the broader vicinity. This information will assist by informing the design and operation of the proposed Swansons Lane Wind Farm.

Date: _____

Landholder's Name: _____

Property Address: _____

What is the primary use for your land? (i.e. cropping, grazing, mixed alternating)

What broad land types exist on your land? (i.e. arable, stony, aquatic, mixed, cleared)

How long have you owned or farmed the land?

Are you aware of feral animals on your land? (i.e. rabbits and warrens, foxes, deer etc.)

Do you manage feral animals of your land? (Please circle one)

Yes / No

Do you have any wetlands/waterbodies on your property? If so, how many/what type
(i.e. farm dams, creek/stream, ephemeral wetlands)

Have there been any changes to waterbodies/wetlands within your property? When and why
did these changes occur? (i.e. drainage for cropping purposes)

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A diagram consisting of a white rectangular area with ten horizontal black lines. At the bottom of this area, there is a red rectangle. The red rectangle is positioned such that its top edge is aligned with the second horizontal line from the bottom, and its bottom edge is aligned with the bottom-most horizontal line. The red rectangle is centered horizontally within the white area.

If you have observed Brolga on your property, please indicate where (using Lat/Longs from Google Maps), when and how many Brolga you have seen on your property.

2

Have you observed Brolga breeding on your property (i.e. nest sites)? If so, where (using lat/longs from Google Maps), when, and how often?

Have you observed any Brolga 'flocking' on your property? If so, where (using lat/longs from Google Maps), when, and how many Brolga?

Any other comments related to Brolga, birds or bats?

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Are you happy for Ecology and Heritage Partners to call you to discuss your answers to the questionnaire in more detail? If so, please provide your best contact number and time to call:

Contact name: _____

Contact number: _____

Best time to call: _____

Please forward your completed responses
plus any relevant photography or Google Maps screenshots to:

230 Latrobe Terrace, Geelong West VIC 3218

or email reply to dheaton@ehpartners.com.au

Please also use the below contact information for any queries relating to this questionnaire

David Heaton | Consultant Zoologist / Bushfire Consultant

Ecology and Heritage Partners (Geelong)

T 1300 839 325 | M 0438 178 934 | dheaton@ehpartners.com.au | www.ehpartners.com.au

 Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.