ecology & heritage partners

Final Report

Biodiversity Assessment, 210 Jarosite Road, Bells Beach

Prepared for

Tony Hobba Architects

December 2016

Ecology and Heritage Partners Pty Ltd

MELBOURNE: 292 Mt Alexander Road Ascot Vale VIC 3056 **GEELONG:** PO Box 8048 Newtown VIC 3220
BRISBANE: Level 22, 127 Creek Street Brisbane QLD 4000 **ADELAIDE:** 8 Greenhill Road Wayville SA 5034
CANBERRA: PO Box 6067, O'Connor ACT 2602 **www.ehpartners.com.au** | (03) 9377 0100

DOCUMENT CONTROL

Assessment	Biodiversity Assessment
Address	210 Jarosite Road, Bells Beach
Project number	7315/7855
Project manager	Robyn Giles (Senior Botanist), Chad Browning (Senior Zoologist)
Report reviewer	Clio Gates Foale (Senior Ecologist), Chad Browning, Andrew Hill (Principal Ecologist/ Director)
Other EHP staff	Andrew Taylor (Consultant Zoologist)
Mapping	Robyn Giles, Chad Browning
File name	*7315_EHP_210JarositeRd_BA_Report_FINAL_141216*
Client	Tony Hobba Architects
Bioregion	Otway Plain
CMA	Corangamite
Council	Surf Coast Shire

Report versions	Comments	Comments updated by	Date submitted
Draft 1	-	RG	05/10/2015
Draft 2	NA	RG	06/10/2015
Draft 3	Updated to reflect amended development plan	CSB	08/08/2016
Draft 4	Updated to reflect amended development plan	CSB	27/10/2016
Final	Updated to reflect amended development plan	CSB	14/12/2016

Acknowledgements

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

- Tony Hobba and Tony Gardiakos for project information;
- The Victorian Department of Environment, Land, Water and Planning (DELWP) for access to ecological databases and assistance with sourcing offsets.

GLOSSARY

Acronym	Description
AVW	Atlas of Victorian Wildlife
CaLP Act	*Catchment and Land Protection Act 1994*
CEMP	Construction Environmental Management Plan
CMA	Catchment Management Authority
CMP	Conservation Management Plan
DBH	Diameter at Breast Height
DELWP	Victorian Department of Environment, Land, Water and Planning
DoEE	Federal Department of the Environment and Energy (formerly the Department of the Environment [DoE])
EES	Environment Effects Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EVC	Ecological Vegetation Class
FFG Act	*Flora and Fauna Guarantee Act 1988*
FIS	Flora Information System
HabHa	Habitat Hectare
Habitat Hectare	A unit of measurement which combines the condition and extent of native vegetation
NES	National Environmental Significance
NVIM Tool	Native Vegetation Information Management Tool (DELWP)
PMST	Protected Matters Search Tool (DoEE)
TRZ	Tree Retention Zone
VBA	Victorian Biodiversity Atlas (DELWP)

SUMMARY

Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Tony Hobba Architects to conduct a Biodiversity Assessment at 210 Jarosite Road, Bells Beach. This 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.

Methods

A field assessment was undertaken on 8 September 2015 to obtain information on terrestrial flora and fauna values within the study area. A habitat hectare assessment was undertaken in conjunction with the flora survey. Vegetation within the study area was assessed according to the habitat hectare methodology.

Results

Flora

Twenty-nine (29) flora species (28 indigenous and 1 non-indigenous) were recorded within the study area during the field assessment. Based on habitat present within the study area, landscape context and the proximity of previous records, significant flora species are considered unlikely to occur within the site.

Fauna

No significant fauna species were recorded during the site assessment; however there is suitable habitat within the study area for fauna species of State conservation significance (Rufous Bristlebird [Otways subsp.] *Dasyornis broadbenti caryochrous* and White-footed Dunnart *Sminthopsis leucopus*).

Communities

Vegetation within the study area did not meet the condition thresholds that define any significant ecological communities.

Permitted Clearing Assessment (the Guidelines)

The study area is within Location C, with 0.366 hectares of native vegetation proposed to be impacted. This total includes 0.258 hectares of native vegetation encompassed in the development footprint (removed) and 0.108 hectares considered partially lost due to the requirements of managing defendable space. As such, the permit application falls under the High Risk-based pathway. The offset requirement for native vegetation removal is 0.228 General Biodiversity Equivalence Units (BEUs).

Legislative and Policy Implications

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

The proposed action is unlikely to have a significant impact on any matter of National Environmental Significance (NES). As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.

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

The study area is known to support flora species listed as 'protected' under the FFG Act. However the site is privately owned and as such a permit under the FFG Act is not required.

Planning and Environment Act 1987

A Planning Permit from Surf Coast Shire is required to remove, destroy or lop any native vegetation. In this instance, the Victorian Department of Environment, Land, Water and Planning (DELWP) is likely to be a mandatory referral authority as the vegetation removal falls under the High risk-based pathway.

Other Legislation and Policy

Implications relating to other local and State policy (*Wildlife Act 1975*, *Catchment and Land Protection Act 1994*, local government authorities) as well as additional studies or reporting that may be required (Construction Environment Managements Plan) are outlined in Section 7.

Table S1. Application requirements for a permit to remove native vegetation (*Victoria Planning Provisions* Clause 52.17 -3; DEPI 2013a)

No.	Application Requirement	Response
Application requirements for all applications:		
1	The location of the site of native vegetation to be removed.	210 Jarosite Road, Bells Beach. Refer to Section 1.3
2	A description of the native vegetation to be removed, including the area of the patch of native vegetation and/or the number of any scattered trees to be removed.	0.366 hectares of remnant vegetation impacted. Refer to Section 3
3	Maps or plans containing information set out in the Guidelines, (Department of Environment and Primary Industries, September 2013)	Refer to Figures and BIOR report (Appendix 4)
4	Recent dated photographs of the native vegetation to be removed.	Refer to Section 3
-	Topographic information, highlighting ridges, crests and hilltops, streams and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion.	Refer to Section 1.3
5	The risk-based pathway of the application to remove native vegetation.	Refer to Section 4.1
6	Where the purpose of removal, destruction or lopping of native vegetation is to create defendable space, a statement is required that explains why removal, destruction or lopping of native vegetation is necessary. The statement must have regard to other available bushfire risk mitigation measures. This requirement does not apply to the creation of defendable space in conjunction with an application under the Bushfire Management Overlay.	This application is covered by a Bushfire Management Overlay
7	A copy of any property vegetation plan that applies to the site.	A PVP does not apply to the study area
8	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 other native vegetation removal has been permitted within the same contiguous parcel of land during the last five years
9	The strategic biodiversity score of the native vegetation to be removed.	0.538. Refer to Section 4.1 and BIOR report (Appendix 4)
10	The offset requirements should a permit be granted to remove native vegetation.	0.228 General BEUs. Refer to Section 4 and BIOR report (Appendix 4)
Additional application requirements for Moderate and High risk-based pathway applications:		
11	A habitat hectare assessment of the native vegetation to be removed.	Refer to Section 4.1 and BIOR report (Appendix 4)
12	A statement outlining what steps have been taken to minimise the impacts of the removal of native vegetation on biodiversity.	Refer to Section 7
13	An assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity, with specific regard to the proportional impact on habitat for any rare or threatened species.	See Section 7.1.1 and BIOR report (Appendix 4)
14	An offset strategy that details how a compliant offset will be secured to offset the biodiversity impacts of the removal of native vegetation.	Refer to Section 7.3.1.1

CONTENTS

1 INTRODUCTION 10
1.1 Background 10
1.2 Scope and Objectives 10
1.3 Study Area 11
2 METHODS 12
2.1 Nomenclature 12
2.2 Desktop Assessment 12
2.3 Flora and Fauna Assessment 12
2.4 Permitted Clearing Assessment (the Guidelines) 13
2.4.1 Risk-based Pathway 13
2.4.2 Vegetation Assessment 13
2.4.3 Impact Minimisation 14
2.4.4 Offset 14
2.4.5 Biodiversity Impact and Offset Requirements (BIOR) Report 14
2.5 Assessment Qualifications and Limitations 14
3 RESULTS 16
3.1 Flora Species 16
3.2 Existing Conditions 16
3.2.1 Native Scrub 16
3.2.2 Native Forest 17
3.3 National Significance Assessment 18
3.3.1 Flora 18
3.3.2 Fauna 18
3.3.3 Ecological Communities 19
3.4 State Significance Assessment 19
3.4.1 Flora 19
3.4.2 Fauna 19
3.4.3 Ecological Communities 20
3.5 Regional Significance Assessment 20

4 PERMITTED CLEARING ASSESSMENT 21
4.1 Permitted Clearing Assessment (the Guidelines) 21
4.1.1 Vegetation proposed to be removed 21
4.1.2 Offset Targets 21
5 POTENTIAL IMPACTS 22
6 LEGISLATIVE AND POLICY IMPLICATIONS 23
6.1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) 23
6.1.1 Ramsar wetlands of international significance 23
6.1.2 Threatened species and ecological communities 24
6.1.3 Migratory and marine species 24
6.1.4 Implications 24
6.2 *Flora and Fauna Guarantee Act 1988* (Victoria) 24
6.2.1 Implications 25
6.3 *Planning and Environment Act 1987* (Victoria) 25
6.3.1 Local Planning Schemes 26
6.3.2 The Guidelines 26
6.4 *Wildlife Act 1975* and Wildlife Regulations 2013 (Victoria) 27
6.4.1 Implications 27
6.5 *Catchment and Land Protection Act 1994* (Victoria) 27
6.5.1 Implications 28
7 MITIGATION MEASURES 29
7.1 Minimise Impacts 29
7.1.1 Contribution to Victoria's Biodiversity 29
7.1.2 Minimisation Statement 29
7.2 Best Practice Mitigation Measures 30
7.3 Offset Impacts 31
8 FURTHER REQUIREMENTS 33
REFERENCES 34
FIGURES 36
APPENDICES 41
APPENDIX 1 42
Appendix 1.1 – Rare or Threatened Categories for Listed Victorian Taxa 42

Appendix 1.2 – Defining Ecological Significance 43
Appendix 1.3 – Defining Site Significance 44
Appendix 1.4 – Vegetation Condition and Habitat Quality 45
Appendix 1.5 – Offsets and Exemptions 46
APPENDIX 2 - FLORA 47
Appendix 2.1 – Flora Results 47
Appendix 2.2 – Significant Flora Species 48
Appendix 2.3 – Habitat Hectares 52
APPENDIX 3 - FAUNA 53
Appendix 3.1 – Significant fauna species 53
APPENDIX 4 - BIOR REPORT (BIOR), DELWP 58

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Tony Hobba Architects to conduct a Biodiversity Assessment at 210 Jarosite Road, Bells Beach.

The purpose of the assessment was to identify the extent and type of remnant native vegetation present within the study area and to determine the presence of significant flora and fauna species and/or ecological communities. This report presents the results of the assessment and discusses the potential ecological and legislative implications associated with the proposed action.

1.2 Scope and Objectives

The objectives of the flora and fauna assessment were to:

- Review the relevant flora and fauna databases and available literature;
- Conduct a site assessment to identify flora and fauna values within the study area;
- Provide maps showing any areas of remnant 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 study area in accordance with Commonwealth and State legislation;
- Document relevant environmental legislation and policy;
- Document any opportunities and constraints associated with the proposed works; and,
- Advise whether any additional flora and/or fauna surveys are required prior to works commencing (e.g. targeted surveys for significant flora and fauna species).

Where areas of remnant vegetation were present, the following tasks were completed to address requirements under the '*Permitted clearing of native vegetation - Biodiversity assessment guidelines*' (the Guidelines) (DEPI 2013a):

- A habitat hectare assessment;
- Provision of recommendations to address requirements under the Guidelines to avoid and/or minimise impacts to remnant vegetation; and,
- Identification of offset targets for any native vegetation, scattered trees and habitat for rare or threatened species proposed to be lost as a result of the proposed works including the management of defendable space zones.

1.3 Study Area

The study area is located at 210 Jarosite Road, Bells Beach, approximately 6.5 kilometres south-west of the Torquay Township (Figure 1). The site covers approximately 1.6 hectares and is bound by Jarosite Road to the north, Great Otway National Park to the south and private land to the east and west.

There are no waterways or drainage lines present within the study area and the majority of the site is vegetated except for the existing driveway. No erosion was observed during the field survey. The southern half of the property is relatively flat with a slight downslope (0-5 degrees) from west to east heading towards the coastline. There is a steeper slope (~5 degrees) in the northern half of the property from the break of slope indicated on Figure 2 heading north downslope towards Jarosite Road.

According to the Victorian Department of Environment, Land, Water and Planning (DELWP) Biodiversity Interactive Map (DELWP 2015a), the study area occurs within the Otway Plain Bioregion. It is located within the jurisdiction of the Corangamite Catchment Management Authority (CMA) and the Surf Coast Shire municipality. Section 6.3.1 discusses zoning and overlays relevant to the study area.

2 METHODS

2.1 Nomenclature

Common and scientific names of vascular plants follow the Victorian Biodiversity Atlas (VBA) (DELWP 2016) and the Census of Vascular Plants of Victoria (Walsh and Stajsic 2007). Vegetation community names follow DELWP's Ecological Vegetation Class (EVC) benchmarks (DELWP 2015b). The names of aquatic and terrestrial vertebrate and invertebrate fauna follow the VBA (DELWP 2016).

2.2 Desktop Assessment

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

- The DELWP Biodiversity Interactive Map (DELWP 2015a) for:
    - Modelled data for location risk, remnant vegetation patches, scattered trees and habitat for rare or threatened species;
    - The extent of historic and current EVCs; and,
    - The location of sites of biological significance (BioSites) within the region.
- The VBA (DELWP 2016d) for previously documented flora and fauna records within the project locality;
- Flora Information System (FIS) (Viridans 2013a) and Atlas of Victorian Wildlife (AVW) (Viridans 2013b) for assistance with the distribution and identification of flora and fauna species;
- The Federal Department of the Environment and Energy (DoEE) (Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DoEE 2016);
- The DELWP Planning Maps Online to ascertain current zoning and environmental overlays (DELWP 2015c);
- Aerial photography of the study area; and,
- Relevant environmental legislation and policies.

2.3 Flora and Fauna Assessment

A flora and fauna assessment was undertaken on 8 September 2015 to obtain information on flora and fauna habitat values within the study area. The study area was walked, with all observed flora species recorded, any significant records mapped and the overall condition of vegetation noted. Remnant vegetation in the local area was also investigated to assist in determining the pre-European vegetation within the study area.

EVCs were determined with reference to DELWP pre-1750 and extant EVC mapping and their published descriptions (DELWP 2015b). The significance assessment criteria of taxa and vegetation communities are presented in Appendix 1.

The study area was visually assessed and active searching under and around ground debris for reptiles, frogs and small mammals was undertaken. Binoculars were also used to scan the area for birds, and the observer 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.

2.4 Permitted Clearing Assessment (the Guidelines)

The following describes the assessment process for the clearing of vegetation in accordance with the Guidelines (DEPI 2013a).

2.4.1 Risk-based Pathway

The Guidelines manage the impacts on biodiversity from native vegetation removal using a risk-based approach. Two factors – extent risk and location risk – are used to determine the risk associated with an application for a permit to remove native vegetation. The location risk (A, B or C) has been determined for all areas in Victoria and is available on DELWP's Native Vegetation Information Management (NVIM) Tool (DELWP 2015c). Determination of the applicable risk-based pathway is summarised in Table 1.

Table 1. Risk-based pathways for applications to remove native vegetation (DEPI 2013a)

Extent		Location		
		A	B	C
Native Vegetation	< 0.5 hectares	Low	Low	High
	≥ 0.5 hectares and < 1 hectare	Low	Moderate	High
	≥ 1 hectare	Moderate	High	High
Scattered Trees	< 15 scattered trees	Low	Moderate	High
	≥ 15 scattered trees	Moderate	High	High

Notes: For the purpose of determining the risk-based 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.

2.4.2 Vegetation Assessment

Native vegetation (as defined in Table 2) is assessed using two key parameters: extent (in hectares) and condition. Extent is determined through a site assessment. The condition score for Moderate and High Risk-based pathways must be assessed through a habitat hectare[1] assessment conducted by a qualified ecologist. The condition score for Low Risk-based pathways may be based on either modelled data available on the NVIM Tool (DELWP 2015c), or through a habitat hectare assessment. The methodology for undertaking a habitat hectare assessment is described in the Vegetation Quality Assessment Manual (DSE 2004).

[1] A 'habitat hectare' is a unit of measurement which combines the condition and extent of native vegetation.

Table 2. Assessment of remnant native vegetation (DEPI 2013a)

Category	Definition	Extent	Condition
Remnant patch of native vegetation	An area of native vegetation where at least 25 per cent of the total perennial understorey plant cover is native plants. OR An area with three or more native canopy trees where the canopy foliage cover is at least 20 per cent of the area.	Measured in hectares. Based on hectare area of the remnant patch.	Vegetation Quality Assessment Manual (DSE 2004).
Scattered tree	A native canopy tree that does not form part of a patch.	Measured in hectares. Each scattered tree is assigned an extent of 0.071 hectares (30m diameter).	Scattered trees are assigned a default condition score of 0.2.

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

2.4.3 Impact Minimisation

Applications under the Moderate and High risk-based pathways must include a statement outlining steps taken to minimise the impact of the removal of native vegetation on Victoria's biodiversity, along with an assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity (DEPI 2013a). The impact minimisation statement is provided in Section 7.

2.4.4 Offset

Offsets are divided into two categories: General and Specific. Specific offsets are required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species[2]. Otherwise, a General offset is required. Offset obligations and offset site criteria are determined in accordance with the Guidelines (DEPI 2013a) and are summarised in Appendices 1.5.1 and 1.5.2.

2.4.5 Biodiversity Impact and Offset Requirements (BIOR) Report

The offset requirements for native vegetation removal are calculated by DELWP, based on the vegetation condition scores determined during the biodiversity assessment. The resulting Biodiversity Impact and Offset Requirements report (BIOR) produced by DELWP is presented in Appendix 4.

2.5 Assessment Qualifications and Limitations

Data and information held within the ecological databases and mapping programs reviewed in the desktop assessment (e.g. VBA, PMST, Biodiversity Interactive Maps etc.) are unlikely to represent all flora and fauna observations within, and surrounding, the study area. It is therefore important to acknowledge that a lack of documented records does not necessarily indicate that a species or community is absent, but instead may reflect a lack of survey effort.

[2] Only species listed as 'critically endangered', 'endangered', 'vulnerable' or 'rare' on DEPI's advisory lists (DSE 2005; DSE 2013) for flora and fauna are considered a rare or threatened species.

The survey was undertaken during an optimal time for the identification of flora species (early spring). The 'snap shot' nature of a standard flora and fauna assessment reduces the likelihood of mobile, migratory, seasonal, cryptic, nocturnal or uncommon species being detected. Generally, targeted or repeated surveys, at specific times of the year, are required to detect such species.

Notwithstanding the above, terrestrial flora and fauna data collected during the field assessment, and information obtained from relevant sources (e.g. biological databases and relevant literature) are considered adequate to provide an accurate assessment of the ecological values within the study area.

3 RESULTS

3.1 Flora Species

Twenty-nine (29) flora species (28 indigenous and 1 non-indigenous) were recorded within the study area during the field assessment. A consolidated list of flora species recorded is provided in Appendix 2.1.

3.2 Existing Conditions

Vegetation within the study area was dominated by dense indigenous scrub and woodland vegetation. Based on the field assessment, this vegetation corresponds with the Coastal Headland Scrub (EVC 161) and Shrubby Dry Forest (EVC 21) EVCs. These classifications are consistent with extant DELWP mapping which shows the study area to be dominated by the two EVCs (DELWP 2015b). The vegetation communities are discussed in further detail below.

3.2.1 Native Scrub

3.2.1.1 Vegetation Condition

Coastal Headland Scrub (EVC 161) is described as a scrub or low shrubland to two metres tall on rocky coastal headlands often associated with cliffs exposed to the stresses of extreme salt-laden winds and salt spray from the south west (DELWP 2015a). Within the study area, very dense Coastal Headland Scrub vegetation was present throughout the southern half of the site. This vegetation was dominated by indigenous shrubs including Hedge Wattle *Acacia paradoxa*, Prickly Tea-tree *Leptospermum continentale* and occasionally Golden Wattle *Acacia pycnantha*, Silver Banksia *Banksia marginata*, Silky Guinea-flower *Hibbertia sericea* and Prickly Moses *Acacia verticillata* (Plate 1). The ground layer was dominated by a dense cover of sedges and rushes including Variable Sword-sedge *Lepidosperma laterale*, Thatch Saw-sedge *Gahnia radula* and Wattle Mat-rush *Lomandra filiformis*. Occasional small Eucalypts were also present, typically Manna Gum *Eucalyptus viminalis*, Brown Stringybark *Eucalyptus baxteri* and Red Ironbark *Eucalyptus tricarpa*. Very few weeds were observed within this vegetation.

Within the site there was a small area adjacent to the existing shed that had been largely cleared of vegetation (CHS1, Figure 2; Plate 2), however, the groundcover was still dominated by indigenous species and this area was considered a remnant patch under the Guidelines definition (DEPI 2013a) (Table 2). If left unmanaged, it is likely that this area would regenerate to dense scrub similar to the surrounding area.

3.2.1.2 Fauna Habitat

A number of common native fauna species are likely to be residing in, relying upon and/or regularly using native scrub within the study area. The vegetation density of the thickets is likely to provide protection and refuge for many birds, particularly small birds that can otherwise be vulnerable to predation (e.g. robins, whistlers, pardalotes, fantails, thornbills) and small arboreal and ground-dwelling mammals (e.g. possums, gliders, native rodents). The presence of fallen debris offers shelter for some reptiles (e.g. skinks) and amphibians.

Of significance, native scrub within the study area has the potential to support the State-significant Rufous Bristlebird (Otways subsp.) *Dasyornis broadbenti caryochrous* and White-footed Dunnart *Sminthopsis leucopus* (Section 3.4.2).

Plate 1. Coastal Headland Scrub (CHS2) within the study area (Source EHP 8/09/2015)

Plate 2. Coastal Headland Scrub (CHS1) within the study area (Source EHP 8/09/2015)

3.2.2 Native Forest

3.2.2.1 Vegetation Condition

Shrubby Dry Forest (EVC 21) is a low, open forest to 20 metres tall characterised by the diversity and variability of the eucalypts. The understorey contains a well-developed medium to low shrub layer and sparse ground layer with tussock forming grasses dominant (DELWP 2015a). Within the study area, Shrubby Dry Forest was present in the northern third of the site and in a small area in the south-east corner. This vegetation was dominated by a sparse Red Ironbark overstorey with Prickly Teatree, Coast Pomaderris *Pomaderris paniculosa* subsp. *paralia* and Golden Wattle dominating the understorey. Dense Thatch Saw-sedge and Variable Sword-sedge were again dominant in the ground layer. Very few weeds were present within this vegetation.

Similar with the cleared area of Coastal Headland Scrub, there were large areas of Shrubby Dry Forest that had been largely cleared adjacent to the driveway (SDF2, Figure 2; Plate 4). These areas were dominated by indigenous species and were still considered to be a remnant patch under the Guidelines definition (DEPI 2013a). If left unmanaged, it is likely that these areas would regenerate to dense scrub similar to the surrounding area.

3.2.2.2 Fauna Habitat

Native forest within the study area is likely to provide suitable habitat for a range of common native fauna species. Fissures and crevices associated with Messmate, Red Ironbark and other tree species within this habitat type offer refuge and nesting opportunities for hollow-dependent fauna, particularly microbats. The trees and shrubs provide blossoms, fruits and insects for an array of birds and mammals as well as roosting and nesting opportunities. The dense cover of Dense Thatch Saw-sedge and Variable Sword-sedge, as well as fallen debris, provides shelter and foraging habitat for ground dwelling mammals and reptiles.

Similar to native scrub, native forest within the study area has the potential to support the State-significant Rufous Bristlebird (Otways subsp.) and White-footed Dunnart (Section 3.4.2).

Plate 3. Shrubby Dry Forest (SDF1) within the study area (Source EHP 8/09/2015)

Plate 4. Shrubby Dry Forest (SDF2) within the study area (Source EHP 8/09/2015)

3.3 National Significance Assessment

National significance for flora and fauna is defined in Appendix 1.2.

3.3.1 Flora

The VBA and FIS contain records of six nationally listed flora species previously recorded within 10 kilometres of the study area (DELWP 2016; Viridans 2013a) (Appendix 2.2; Figure 3). The PMST nominated an additional five nationally significant species which have not been recorded in the locality but have the potential to occur (DoEE 2016).

Based on habitat present within the study area, landscape context and the proximity of previous records, nationally significant flora species are considered unlikely to occur within the site (Appendix 2.2).

3.3.2 Fauna

The VBA and AVW contain records of 22 nationally listed fauna species previously recorded within 10 kilometres of the study area (DELWP 2016; Viridans 2013b) (Appendix 3.1; Figure 4). The PMST nominated an additional 26 nationally significant species which have not been recorded in the locality but have the potential to occur (DoEE 2016).

Based on habitat present within the study area, landscape context and the proximity of previous records, nationally significant fauna species are considered unlikely to occur within the site (Appendix 3.1). Owing to the inclusion of marine habitats within the 10 kilometre search area, a large number of marine mammals and birds are included in the database search results (e.g. Wandering Albatross *Diomedea exulans* and Southern Right Whale *Eubalaena australis*). The proposed activity will not directly or indirectly impact upon habitats suitable for these species.

3.3.3 Ecological Communities

Six nationally listed ecological communities are predicted to occur within 10 kilometres of the study area (DoEE 2016):

- Giant Kelp Marine Forests of South East Australia;
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain;
- Natural Damp Grassland of the Victorian Coastal Plain;
- Natural Temperate Grassland of the Victorian Volcanic Plain;
- Subtropical and Temperate Coastal Saltmarsh; and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Remnant vegetation within the study area was not representative of the corresponding EVCs for any of these communities, and therefore, no nationally listed ecological communities occur within the study area.

3.4 State Significance Assessment

State significance for flora and fauna is defined in Appendix 1.2.

3.4.1 Flora

No State-significant flora species were recorded within the study area during the field assessment. The VBA and FIS contain records of 44 State-significant flora species within 10 kilometres of the study area (DELWP 2016; Viridans 2013a) (Appendix 2.2; Figure 3).

Based on habitat present within the study area, landscape context and the proximity of previous records, State-significant flora species are considered unlikely to occur within the site (Appendix 2.2).

3.4.2 Fauna

The VBA and AVW contain records of 35 State-significant fauna species within 10 kilometres of the study area (DELWP 2016; Viridans 2013b) (Appendix 2.2; Figure 4). Of these species, there is suitable habitat within the study area for:

- Rufous Bristlebird (Otways subsp.) - This species has been recorded 138 times within the locality, including within 400 metres of the study area (2006). Within the site, both Shrubby Dry Forest and Coastal Headland Scrub provide potential habitat for this species.
- White-footed Dunnart - This species has been recorded 32 times within the locality, including within 4.3 kilometres of the study area (2009). This species is found in a range of different habitats across its distribution, including coastal dune vegetation, coastal forest, tussock grassland and sedgeland, heathland, woodland and forest. Shrubby Dry Forest and Coastal Headland Scrub within the study area provide potential habitat for this species.

Based on the extent of vegetation clearing proposed and the presence of large tracts of similar and higher quality habitat adjoining the study area, the proposed activity is unlikely to significantly impact upon these species. It is noted that Specific offsets for Rufous Bristlebird and White-footed Dunnart have not been triggered under the Guidelines (DEPI 2013a) (Section 4) and that there are unlikely to be any implications for project approval relating to their potential presence.

3.4.3 Ecological Communities

Vegetation within the study area did not meet the condition thresholds that define any State-significant ecological communities.

3.5 Regional Significance Assessment

Regional significance for fauna is defined in Appendix 1.2.

The VBA and AVW contain records of 18 regionally significant fauna species within 10 kilometres of the study area (DELWP 2016; Viridans 2013b) (Appendix 2.2; Figure 3). Based on habitat present within the study area, landscape context and the proximity of previous records, regionally significant fauna species are considered unlikely to occur within the site (Appendix 3.1).

4 PERMITTED CLEARING ASSESSMENT

4.1 Permitted Clearing Assessment (the Guidelines)

4.1.1 Vegetation proposed to be removed

The study area is within Location C, with 0.366 hectares of native vegetation proposed to be impacted. This total includes 0.258 hectares of native vegetation encompassed in the development footprint and 0.108 hectares considered partially lost due to the requirements of managing defendable space. Based on the location and extent of native vegetation removal proposed, the permit application falls under the High Risk-based pathway.

As the application falls under the High Risk-based pathway, a habitat hectare assessment was completed to determine condition scores of vegetation proposed to be removed, with condition scores provided in Appendix 2.3.

Table 3. Permitted Clearing Assessment (the Guidelines)

Risk-based pathway	High
Total Extent	0.366
Remnant Patch (ha)	0.366
Scattered Trees (no.)	0
Location Risk	C
Strategic Biodiversity Score	0.538

4.1.2 Offset Targets

The offset requirement for native vegetation removal is 0.228 General Biodiversity Equivalence Units (BEUs).

A summary of proposed vegetation losses and associated offset requirements is presented in Table 4 and the Biodiversity Impact and Offset Requirements (BIOR) Report is presented in Appendix 4.

Table 4. Offset targets

General Offsets Required	0.228
Vicinity (catchment / LGA)	Corangamite CMA / Surf Coast Shire
Minimum Strategic Biodiversity Score*	0.431

Note: BEU = Biodiversity Equivalence Units

5 POTENTIAL IMPACTS

The proposed action is likely to directly impact on several indigenous flora and fauna species, and communities recorded within the study area. These impacts may include:

- Loss of potential habitat for State significant fauna species (Rufous Bristlebird [Otways subsp.] and White-footed Dunnart);
- Removal of the Coastal Headland Scrub (Direct loss - 0.245ha; Partial Loss - 0.108ha) and Shrubby Dry Forest (Direct loss - 0.013ha) EVCs;
- Loss of habitat and potential mortality for locally common fauna species inhabiting Coastal Headland Scrub and Shrubby Dry Forest within the study area;
- Potential for further habitat fragmentation in a fragmented landscape and the associated creation of barriers to the movement and migration of indigenous fauna;
- Potential for the 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 and drainage are not appropriately managed.

6 LEGISLATIVE AND POLICY IMPLICATIONS

This section identifies biodiversity policy and legislation relevant to the proposed development, principally the:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth);
- *Flora and Fauna Guarantee Act 1988* (FFG Act) (Victoria);
- *Planning and Environment Act 1987* (Victoria);
    - Local Planning Schemes;
    - Victoria's Native Vegetation Permitted Clearing Regulations.
- *Wildlife Act 1975* and Wildlife Regulations 2013 (Victoria); and,
- *Catchment and Land Protection Act 1994* (CALP Act) (Victoria).

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

The EPBC Act establishes a Commonwealth process for the assessment of proposed actions (i.e. project, development, undertaking, activity, or series of activities) that are likely to have a significant impact on matters of National Environmental Significance (NES), or on Commonwealth land. An action, unless otherwise exempt, requires approval from the Commonwealth Environment Minister if it is considered likely to have an impact on any of the following matters of NES:

- World Heritage properties;
- National heritage places;
- Ramsar wetlands of international significance;
- Threatened species and ecological communities;
- Migratory and marine species;
- Commonwealth marine area;
- Nuclear actions (including uranium mining);
- Great Barrier Reef Marine Park; or,
- Water resources impacted by coal seam gas or mining development.

6.1.1 Ramsar wetlands of international significance

The study area occurs within the same catchment as one Ramsar wetland (DoEE 2016), the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula site (Within 20 kilometres).

The above wetland is unlikely to be impacted as it is situated a considerable distance from the study area (approximately 20 kilometres). Provided management practices and construction techniques are consistent with Construction Techniques for Sediment Pollution Control (EPA 1991) and Environmental Guidelines for Major Construction Sites (EPA 1996), the project is unlikely to affect the ecological character of any Ramsar wetland.

6.1.2 Threatened species and ecological communities

Flora: No flora species listed under the EPBC Act were recorded within the study area during the field assessment and none are considered likely to occur on site (Section 3.3.1).

Fauna: No fauna species listed under the EPBC Act were recorded within the study area during the field assessment and none are considered likely to occur on site (Section 3.3.2).

Communities: No ecological communities listed under the EPBC Act were recorded within the study area (Section 3.3.3).

6.1.3 Migratory and marine species

Twenty (20) Migratory and/or Marine species have been recorded within 10 kilometres of the study area (DELWP 2016; Appendix 3.1). However, the majority of these species are limited to marine environments and the study area is not classed as 'important habitat' as defined under the EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines (DoE 2013).

6.1.4 Implications

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

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

The FFG Act is the primary Victorian legislation providing for the conservation of threatened species and ecological communities, and for the management of processes that are threatening to Victoria's native flora and fauna. The FFG Act contains protection procedures such as the listing of threatened species and/or communities, and the preparation of action statements to protect the long-term viability of these values.

Proponents are required to apply for an FFG Act Permit to 'take' listed and/or protected flora species, listed vegetation communities and listed fish species in areas of public land (i.e. within road reserves, drainage lines and public reserves). An FFG Act permit is generally not required for removal of species or communities on private land, or for the removal of habitat for a listed terrestrial fauna species.

Flora: Six 'protected' flora species were recorded within the study area during the field assessment (Appendix 2.1).

Fauna: No fauna species listed under the FFG Act were recorded within the study area during the field assessment. There is suitable habitat within the study area for two fauna species listed under the FFG Act (Rufous Bristlebird [Otways subsp.] and White-footed Dunnart) (Section3.4.2).

Communities: No ecological communities listed under the FFG Act were recorded within the study area (Section 3.4.3).

Threatening processes: The following threatening processes listed under the FFG Act should be considered in relation to the proposed development:

- Habitat fragmentation as a threatening process for fauna in Victoria;
- Invasion of native vegetation by 'environmental weeds'; and,
- The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.

6.2.1 Implications

The local planning authority may consider flora, fauna and communities listed under the FFG Act when making decisions regarding the use and development of land.

The study area is known to support flora species listed as 'protected' under the FFG Act. However the site is privately owned and as such a permit under the FFG Act is not required.

6.3 *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 require a planning permit from the relevant local Council to remove, destroy or lop native vegetation on a site of more than 0.4 hectares, unless an exemption under clause 52.17-7 of the Victorian Planning Schemes applies (Appendix 1.5.3) or a subdivision is proposed with lots less than 0.4 hectares[3]. Local planning schemes may contain other provisions in relation to the removal of native vegetation (Section 6.3.1).

Where the clearing of native vegetation is permitted, the quantity and type of vegetation to be offset is determined using methodology specified in the Guidelines (DEPI 2013a). In addition, a permit must be referred to DELWP if vegetation removal meets one or more of the below thresholds (Table 5).

Table 5. Permit to remove native vegetation – application referral triggers (Clause 66, Referral and Notice Provisions)

Native Vegetation	• Remove, destroy or lop native vegetation where the area to be cleared is 0.5 hectares or more
	• Remove, destroy or lop native vegetation which is to be considered under the High Risk-based pathway
Other Circumstances	• Remove, destroy or lop native vegetation if a property vegetation plan applies to the site
	• Remove, destroy or lop native vegetation on Crown land which is occupied or managed by the responsible authority

[3] In accordance with the Victorian Civil and Administrative Tribunal's (VCAT) decision Villawood v Greater Bendigo CC (2005) VCAT 2703 (20 December 2005) all native vegetation is considered lost where proposed lots are less than 0.4 hectares in area and must be offset at the time of subdivision.

6.3.1 Local Planning Schemes

The study area is located within the Surf Coast Shire municipality. The following zoning and overlays apply (DELWP 2015c):

- Rural Conservation Zone (RCZ);
- Bushfire Management Overlay (BMO); and,
- Vegetation Protection Overlay – Schedule 1 (VPO1).

6.3.1.1 Implications

A Planning Permit from Surf Coast Shire is required to remove, destroy or lop any native vegetation. In this instance, DELWP is likely to be a mandatory referral authority as the vegetation removal falls under the High risk-based pathway.

Under the VPO1, an application to remove vegetation must:

- Indicate the total extent of native vegetation on the subject land and the total extent of proposed clearing, destruction and lopping;
- Specify the purpose of the proposed clearing;
- Demonstrate that the extent of removal, destruction or lopping native vegetation has been reduced as much as is reasonable and practicable;
- Specify proposals for revegetation following disturbance , or for restoration of an alternate site, including proposed species and ground stabilisation; and,
- Include a report on the vegetation and habitat significance of the area and the vegetation to be removed, to the satisfaction of the Responsible Authority.

This assessment and report addresses the requirements of the VPO1 including the purpose of the clearing, specific details of vegetation and habitat significance of the area within the site and surrounding area, and demonstration of minimisation.

Under the BMO, a Bushfire Management Statement is required for the proposed development. This has been prepared by South Coast Bushfire Consultants (October 2016) and addresses the requirements of the BMO.

6.3.2 The Guidelines

In December 2013 the Victorian Government integrated the Guidelines (DEPI 2013a) into the Victorian Planning Provisions, replacing the *Victoria's Native Vegetation Management – A Framework for Action* (The Framework) (NRE 2002). The primary objective of the regulations is "no net loss in the contribution made by native vegetation to Victoria's biodiversity". The State Planning Policy Framework and the decision guidelines at Clause 52.17 (Native Vegetation) of Particular Provisions and Clause 12.01 require Planning and Responsible Authorities to have regard for the Guidelines.

Areas of remnant native vegetation, Scattered Trees and habitat for rare or threatened species must be offset if they are proposed to be disturbed as part of the project.

6.3.2.1 Implications

The study area is within Location C, with 0.366 hectares of native vegetation proposed to be removed (including partial losses associated with the applied Defendable Space Zone). As such, the permit application falls under the High Risk-based pathway. The offset requirement for native vegetation removal is 0.228 General BEUs, with a minimum SBS of 0.431. A summary of proposed vegetation losses and associated offset requirements is presented in Section 4 and the BIOR Report is presented in Appendix 4.

6.4 *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. The Act requires people engaged in wildlife research (e.g. fauna surveys, salvage and translocation activities) to obtain a permit under the Act to ensure that these activities are undertaken in a manner consistent with the appropriate controls.

The *Wildlife Act 1975* has the following objectives:

- To establish procedures for the promotion of protection and conservation of wildlife, the prevention of species extinctions, and the sustainable use and access to wildlife; and,
- To prohibit and regulate the conduct of those involved in wildlife related activities.

6.4.1 Implications

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 during construction must hold a current Management Authorisation under the *Wildlife Act 1975*.

6.5 *Catchment and Land Protection Act 1994* (Victoria)

The *Catchment and Land Protection Act 1994* (CaLP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. The Act also provides a legislative framework for the management of private and public land and sets out the responsibilities of land managers, stating that they must take all reasonable steps to:

- Avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner;
- Protect water resources;
- Conserve soil;
- Eradicate regionally prohibited weeds;
- Prevent the growth and spread of regionally controlled weeds; and,
- Prevent the spread of, and as far as possible eradicate, established pest animals.

6.5.1 Implications

No weeds listed as noxious under the CaLP Act were recorded during the assessment. There is evidence that the study area is currently occupied by one pest fauna species listed under the CaLP Act (Red Fox). Landowners are responsible for the control of any infestation of noxious weeds and pest fauna species. Construction activities must be managed to ensure that listed noxious weeds are not introduced to the site in order to meet CaLP Act requirements.

7 MITIGATION MEASURES

7.1 Minimise Impacts

For the removal of vegetation that falls under the Moderate and High Risk-based pathways, the Guidelines (DEPI 2013a) require the responsible authority to consider whether reasonable steps have been taken to ensure that impacts of the proposed removal of native vegetation on biodiversity have been minimised. Minimisation effort should be commensurate with the contribution that the native vegetation makes to Victoria's biodiversity (DELWP 2015c).

7.1.1 Contribution to Victoria's Biodiversity

The Handbook (DELWP 2015e) describes the relevant information to consider when determining the contribution native vegetation makes to Victoria's biodiversity. Based on available information it is determined that the native vegetation proposed to be removed as part of the current application has a moderate contribution to Victoria's biodiversity.

7.1.2 Minimisation Statement[4]

The proposed development involves the removal of 0.258 hectares of native vegetation encompassed in the development footprint. Management activities required to establish a Defendable Space Zone will result in the partial loss of an additional 0.108 hectares of native vegetation.

Native vegetation covers approximately 96% of the assessed property. Given the extent of native scrub and forest within the study area; opportunities for total avoidance are limited; however measures aimed at minimising impacts have been incorporated into the project design where feasible.

Impacts on native vegetation within the study area have been minimised by incorporating an existing cleared access track into the project design and by including the previously cleared areas of Coastal Headland Scrub (CHS1) (Section3.2.1.1) within the Defendable Space Zone and development footprint, thereby limiting the requirement to fully or partially clear areas of higher quality vegetation on site.

---

[4] Section 5.2 (page 20) of the Handbook (DELWP 2015e) states:

> *"Minimisation should target native vegetation that makes the greatest contribution to Victoria's biodiversity - that is, areas of better condition, higher strategic biodiversity score, and/or higher habitat importance scores.*
>
> *The minimisation statement could state that minimisation was achieved by a past strategic planning exercise or by site interventions, or that it is not achievable or desirable on site for specific reasons."*

Section 6.3.2 (page 26) of the Handbook (DELWP 2015e) states:

> *"Minimisation should be commensurate with the contribution that the native vegetation makes to Victoria's biodiversity. Minimum effort can be considered reasonable when the native vegetation contributes lower value to Victoria's biodiversity – for example, only general offsets are required, strategic biodiversity score is low, the native vegetation is limited in extent and isolated from other patches of remnant vegetation."*

Section 6.5, Table 4 (page 29) of the Handbook (DELWP 2015e) states:

> *"Statement can describe that minimisation is unreasonable at the site level because the native vegetation makes a very low contribution to biodiversity (such as no species offset requires, low strategic biodiversity score) or because retained native vegetation would have limited long term prospect of retaining biodiversity value."*

Further, following development of the proposed activity and the direct/ partial removal of 0.366 hectares of native vegetation, 1.181 hectares of native vegetation would be retained in the undeveloped areas of the property, including 0.619 hectares of Coastal Headland Scrub and 0.562 hectares of Shrubby Dry Forest. The proposed direct loss of native vegetation (excluding partial losses associated with the Defendable Space Zone) will result in an approximate 17% reduction of native vegetation present within the property.

The project footprint has also been redesigned to avoid what DELWP modelling suggests would be a proportional impact on the State significant flora species Nodding Baeckea *Euryomyrtus ramosissima* subsp. *prostrata*. As a result of refining the project footprint, the proposed vegetation losses do not exceed the proportional impact threshold (0.005% of modelled habitat) for this species and no Specific Offsets have been triggered (i.e. only General Offsets are required).

Furthermore, in consultation with DELWP, the original proposal which adopted a Bushfire Attack Level (BAL) of 29 has been modified to accord with BAL 40, thereby reducing the extent of native vegetation within the Defendable Space Zone from 0.173 hectares to 0.108 hectares. During discussions with DELWP it was also confirmed that any wastewater associated with the proposed development will be contained within the established garden beds sited in the Defendable Space Zone.

7.2 Best Practice Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial and aquatic values present within the study 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;
- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. Habitat Zones (areas of sensitivity) should be included as a mapping overlay on any construction plans;
- Tree Retention Zones (TRZs) should be implemented to prevent indirect losses of native vegetation during construction activities (DSE 2010). A TRZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the DBH. At a minimum standard a TRZ should consider the following:
    - Construction, related activities and encroachment (i.e. earthworks such as trenching that disturb the root zone) should be excluded from the TRZ;
    - Where encroachment exceeds 10% of the total area of the TRZ, the tree should be considered as lost and offset accordingly;
    - Directional drilling may be used for works within the TRZ 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 TRZ has not been met an offset may be required.

- Removal of any habitat trees or shrubs (particularly hollow-bearing trees) should be undertaken between February and September to avoid the breeding season for the majority of 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;
- 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. It should be noted that landscaping/revegetation surrounding the dwelling must not breach the requirements of Defendable Space Zones;
- Where possible, construction stockpiles, machinery, roads, and other infrastructure should be placed away from areas supporting native vegetation;
- Consideration of Water Sensitive Urban Design techniques such as stormwater treatment wetlands, bio-retention systems, porous paving or swales; and,
- Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Agency guidelines (EPA 1991; EPA 1996; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands.

In addition to these measures, the following documents should be prepared and implemented prior to any construction activities:

- Construction Environmental Management Plan (CEMP). The CEMP should include specific species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed and pathogen management measures, etc.

7.3 Offset Impacts

7.3.1.1 Offset Criteria

The Guidelines (DEPI 2013a) require offsetting as the final step in considering the impacts of development on native vegetation. Under the Moderate and High Risk-based pathway, emphasis is placed on minimising impacts, and only after these steps have been taken should offsets be considered. Offset targets must be met, as specified in Section 4.1.

7.3.1.2 Offset Options

Potential offsets may be sourced using the following mechanisms:

- Over-the-Counter Offsets Scheme: The Guidelines include the expansion of the "Over-the-Counter" (OTC) Offsets Scheme, allowing non-government agencies to establish themselves as OTC Facilities. OTC Facilities will broker native vegetation offsets (credits) between landholders (with offset sites) and permit holders (with offset requirements).

- BushBroker: BushBroker maintains a register of landowners who are willing to sell offset credits. Offsets secured by Bushbroker are done so via a Section 69 Agreement under the *Conservation, Forest and Lands Act 1987*.
- Trust for Nature: Trust for Nature holds a list of landowners who are willing to sell vegetation offsets. Offsets secured by Trust for Nature are done so under the Victorian *Conservation Trust Act 1972*.
- Local Councils: The proponent may contact local councils to seek availability of offsets.

7.3.1.3 Offset Strategy

Ecology and Heritage Partners are a DELWP accredited OTC offset broker and confirm that the offset obligations generated by this proposal can be satisfied through existing credits registered in our OTC database. Several landowners registered in our offset database have suitable General BEU native vegetation credits available within Surf Coast municipality and the Corangamite CMA, and it is anticipated that the relevant offset obligations generated by this proposal can be secured through an OTC scheme without any difficulty should a permit be issued for the development.

8 FURTHER REQUIREMENTS

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided in Table 6, below.

Table 6. Further requirements associated with development of the study area

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	The proposed action is unlikely to have a significant impact on any matter of NES. As such, a referral to the Commonwealth Environment Minister is considered unwarranted regarding matters listed under the EPBC Act.	No further action required.
Flora and Fauna Guarantee Act 1988	The study area is known to support flora species listed as 'protected' under the FFG Act. However the site is privately owned and as such a permit under the FFG Act is not required.	No further action required.
Planning and Environment Act 1987	The offset requirement for native vegetation removal is 0.252 General Biodiversity Equivalence Units. A Planning Permit from Surf Coast Shire is required to remove, destroy or lop any native vegetation. In this instance, DELWP is likely to be a mandatory referral authority as the vegetation removal falls under the High risk-based pathway. The property is covered by a Bushfire Management Overlay and a Vegetation Protection Overlay (VPO-1).	Prepare and submit a Planning Permit application. Planning Permit conditions are likely to include a requirement for: • Demonstration of impact minimisation. • Vegetation offsets, as detailed in Section 4. • A Construction Environment Management Plan (CEMP). • A Bushfire Management Statement
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.

REFERENCES

Christidis, L. & Boles, W.E 2008. Systematics and Taxonomy of Australian Birds. CSIRO Publishing, Collingwood, Victoria.

Cogger, H. G (Ed). 1996. Reptiles and Amphibians of Australia. 5th Edition. Reed Books Australia, Victoria.

Cogger, H.G., Cameron, E.E., Sadlier, R.A. and Eggler P., 1993. The Action Plan for Australian Reptiles. Australian Nature conservation Agency, Canberra, ACT.

DELWP 2016. Victorian Biodiversity Atlas. Sourced from: "VBA_FLORA25" and "VBA_FLORA100", January 2016. Victorian Department of Environment, Land, Water and Planning..

DELWP 2015a. Biodiversity Interactive Map [WWW Document]. URL http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim/. Victorian Department of Environment, Land, Water and Planning.

DELWP 2015b. Ecological Vegetation Class (EVC) Benchmarks for each Bioregion [WWW Document]. URL http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/evc-benchmarks#bioregionname. Victorian Department of Environment, Land, Water and Planning.

DELWP 2015c. Native Vegetation Information Management Tool [WWW Document] URL http://nvim.depi.vic.gov.au/. Victorian Department of Environment, Land, Water and Planning.

DEPI 2013a. Permitted clearing of native vegetation - Biodiversity assessment guidelines (the Guidelines). Victorian Department of Environment and Primary Industries.

DoE 2013. Significant Impact Guidelines 1.1. Matters of National Environmental Significance. Federal Department of the Environment, Canberra.

DoEE 2016. Protected Matters Search Tool: Interactive Map [WWW Document]. URL http://www.environment.gov.au/epbc/pmst/. Federal Department of Environment and Energy, Canberra.

DSE 2004. Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method. Version 1.3. Victorian Department of Sustainability and Environment.

DSE 2005. Advisory List of Rare or Threatened Plants in Victoria. Victorian Department of Sustainability and Environment.

DSE 2009. Advisory list of Threatened Invertebrate Fauna in Victoria – 2009. Victorian Department of Sustainability and Environment.

DSE 2013. Advisory List of Rare or Threatened Fauna in Victoria. Victorian Department of Sustainability and Environment.

DTPLI 2014. Planning Maps Online [www Document]. URL http://services.land.vic.gov.au/landchannel/jsp/map/PlanningMapsIntro.jsp.

Duncan, A., Baker, G.B. and Montgomery, N. (Eds) 1999. The Action Plan for Australian Bats. Environment Australia. Canberra, ACT.

EPA 1991. Construction Techniques for Sediment Pollution Control. Published document prepared by the Victorian Environment Protection Authority, Victoria.

EPA 1996. Environmental Guidelines for Major Construction Sites. Published document prepared by the Victorian Environmental Protection Authority (EPA).

Garnett, S.T. and Crowley, G. M. 2000. The Action Plan for Australian Birds 2000. Environment Australia.

Lee, A. K. 1995. Action Plan for Australian Rodents. Australian Nature Conservation Agency, Canberra.

Maxwell, S., Burbidge, A A. and Morris, K (Eds) 1996. The 1996 Action Plan for Australian Marsupials and Monotremes. Wildlife Australia for Australasian Marsupial and Monotreme Specialist Group and the IUCN Species Survival commission, Switzerland.

Menkhorst, P. and Knight, F. 2004. A Field Guide to the Mammals of Australia . 2nd Edition. Oxford University Press, Victoria.

Nelson, J. S. 1994. Fishes of the World, 3rd Edition. John Wiley & Sons, New York.

NRE 2002. Native Vegetation Management: A Framework for Action. Department of Natural Resources and Environment, Victoria.

Sands, D.P.A. and New, T.R. 2002. The Action Plan for Australian Butterflies, Environment Australia, Canberra.

Strahan, R. (Ed) 1995. The Mammals of Australia. Reed Books, Sydney.

Tyler, M.J. 1997. The Action Plan for Australian Frogs. Wildlife Australia: Canberra.

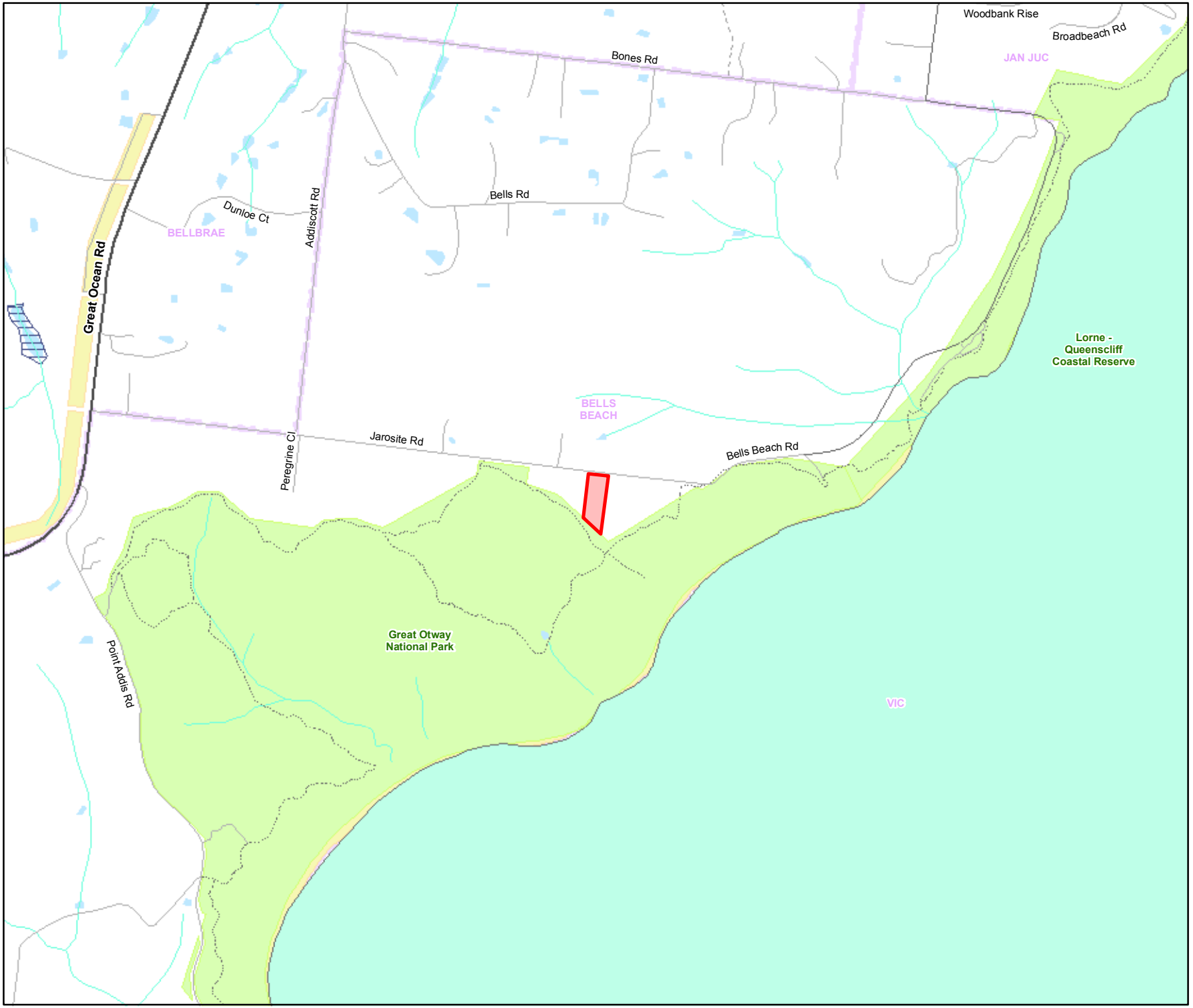
Victorian Urban Stormwater Committee 1999. Urban Stormwater: Best Practice Environmental Management Guidelines. CSIRO.

Viridans 2013a. Flora Information System. Viridans Biological Databases.

Viridans 2013b. Victorian Fauna Database. Viridans Biological Databases.

Walsh, N.G., Stajsic, V. 2007. A census of the vascular plants of Victoria, 8th ed. ed. Royal Botanic Gardens Melbourne.

FIGURES



Legend

- Study Area
- Major Road
- Collector Road
- Minor Road
- Proposed Road
- Walking Track
- Minor Watercourse
- Permanent Waterbody
- Parks and Reserves
- Crown Land
- Localities

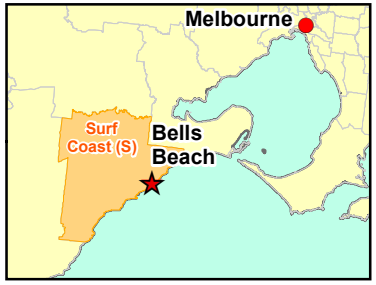


Figure 1

Location of the study area

210 Jarosite Road, Bells Beach

N

0 195 390

Metres

ecology & heritage partners

7315_Fig01_StudyArea 7/09/2015 rgiles

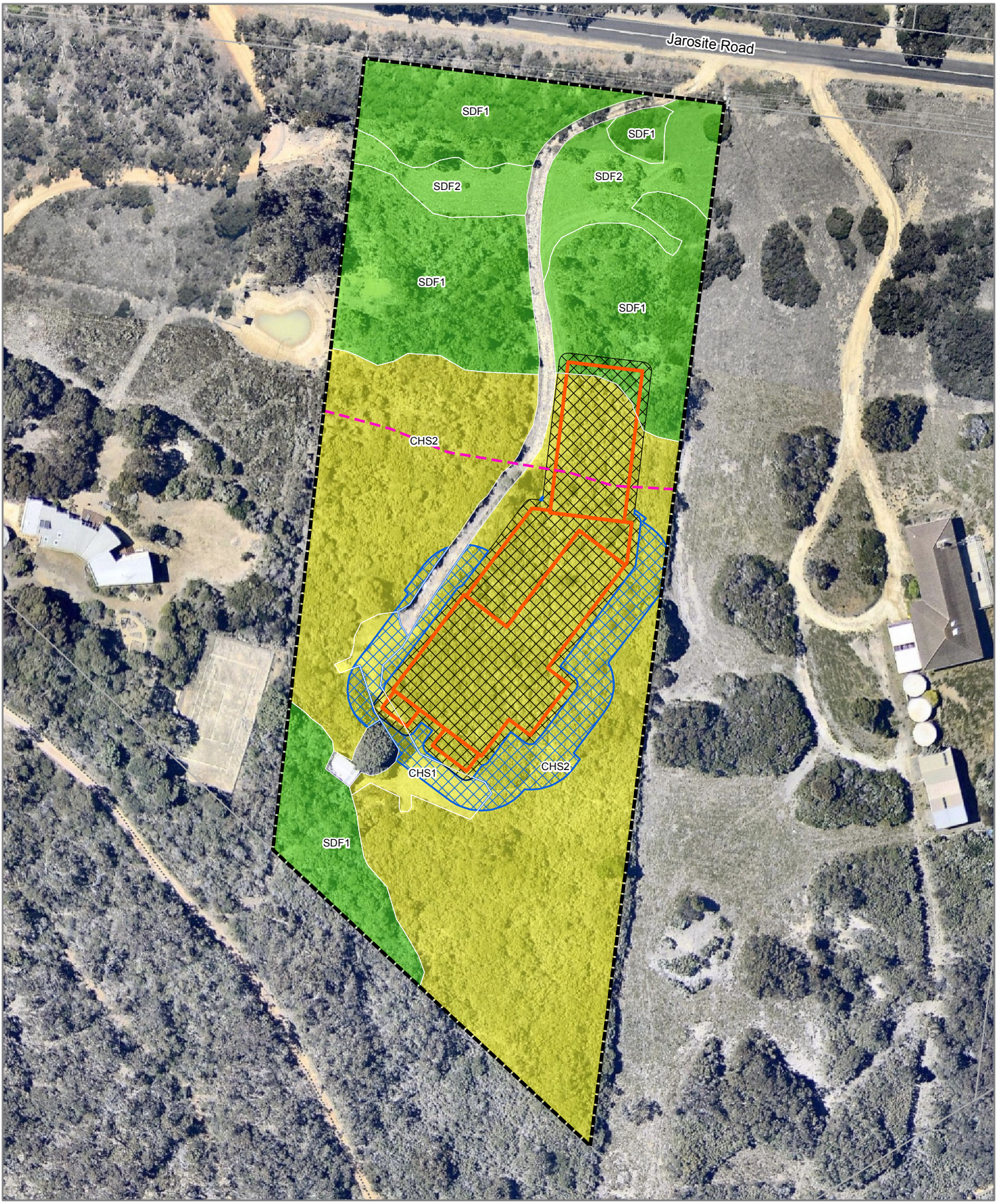


Figure 2

Ecological features in the study area
Flora and Fauna Assessments for 210 Jarosite Road, Bells Beach

Legend

Study Area
Break of Slope

Vegetation

Coastal Headland Scrub
Shrubby Dry Forest

Vegetation to be removed

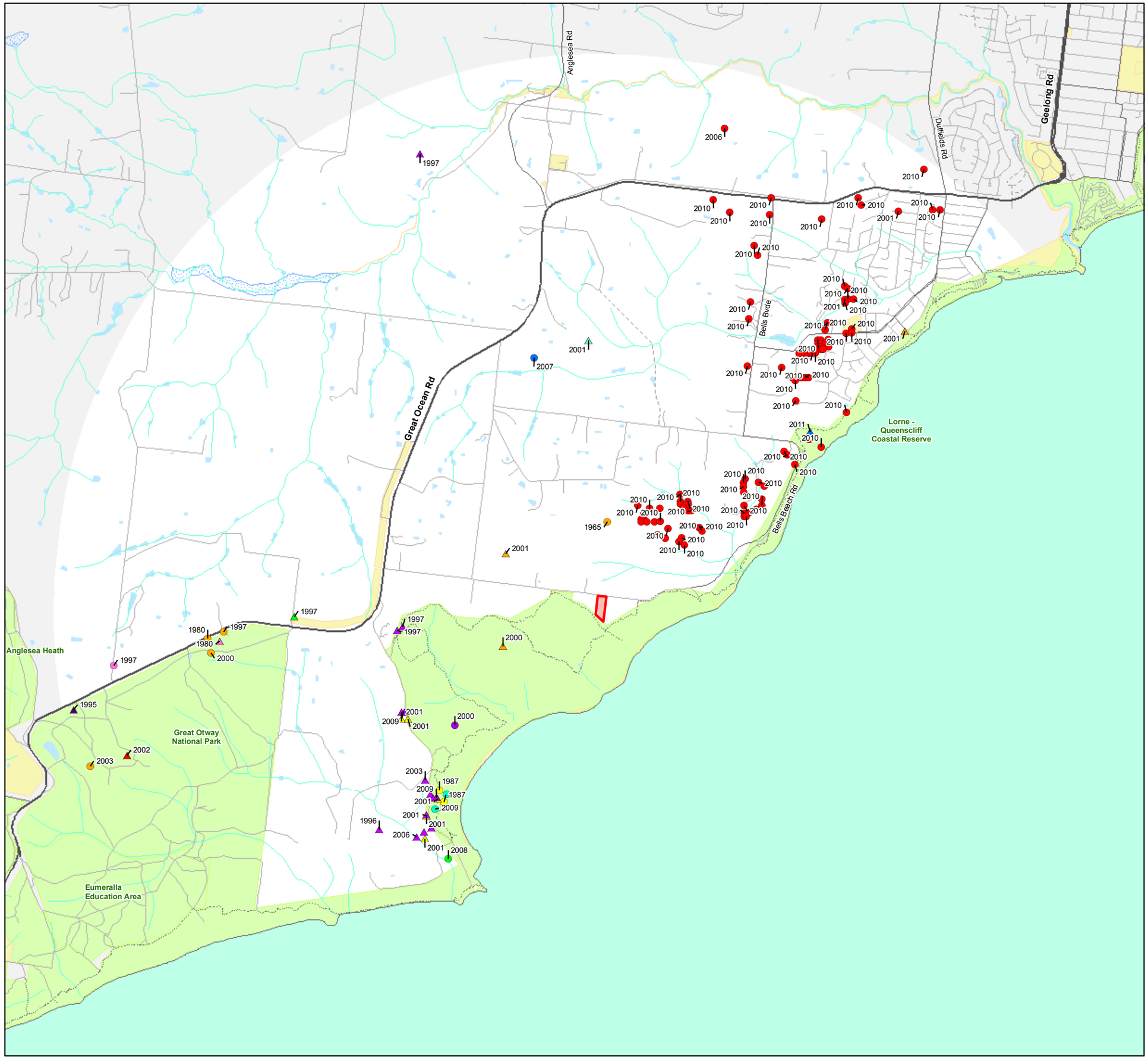
Construction Footprint (100% vegetation removal)
Defendable Space (50% vegetation removal)

ecology & heritage partners

N

0 12.5 25
Metres

7315_Fig02_EcolFeat_Portrait_A4_CB_Opt7 14/12/2016 cbrowning



Legend

- Bellarine Yellow-gum
- Blotched Sun-orchid
- Coast Bush-pea
- Coast Twin-leaf
- Forked Rice-flower
- Fringed Midge-orchid
- Inland Pomaderris
- Merran's Sun-orchid
- Otway Grey-gum
- Pallid Sun-orchid
- Paper Flower
- Spiral Sun-orchid
- Tasman Pomaderris
- Tufted Grass-tree
- Velvet Daisy-bush
- Western Peppermint
- Wine-lipped Spider-orchid
- Study Area

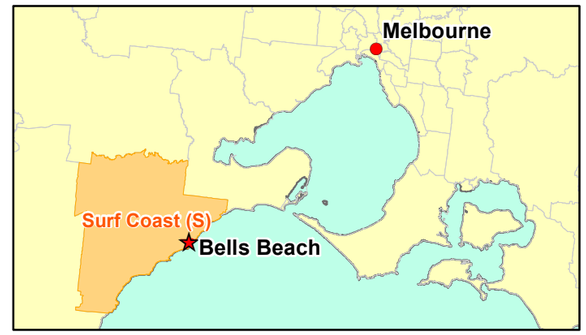


Figure 3

Previously documented significant flora within 5km of the study area

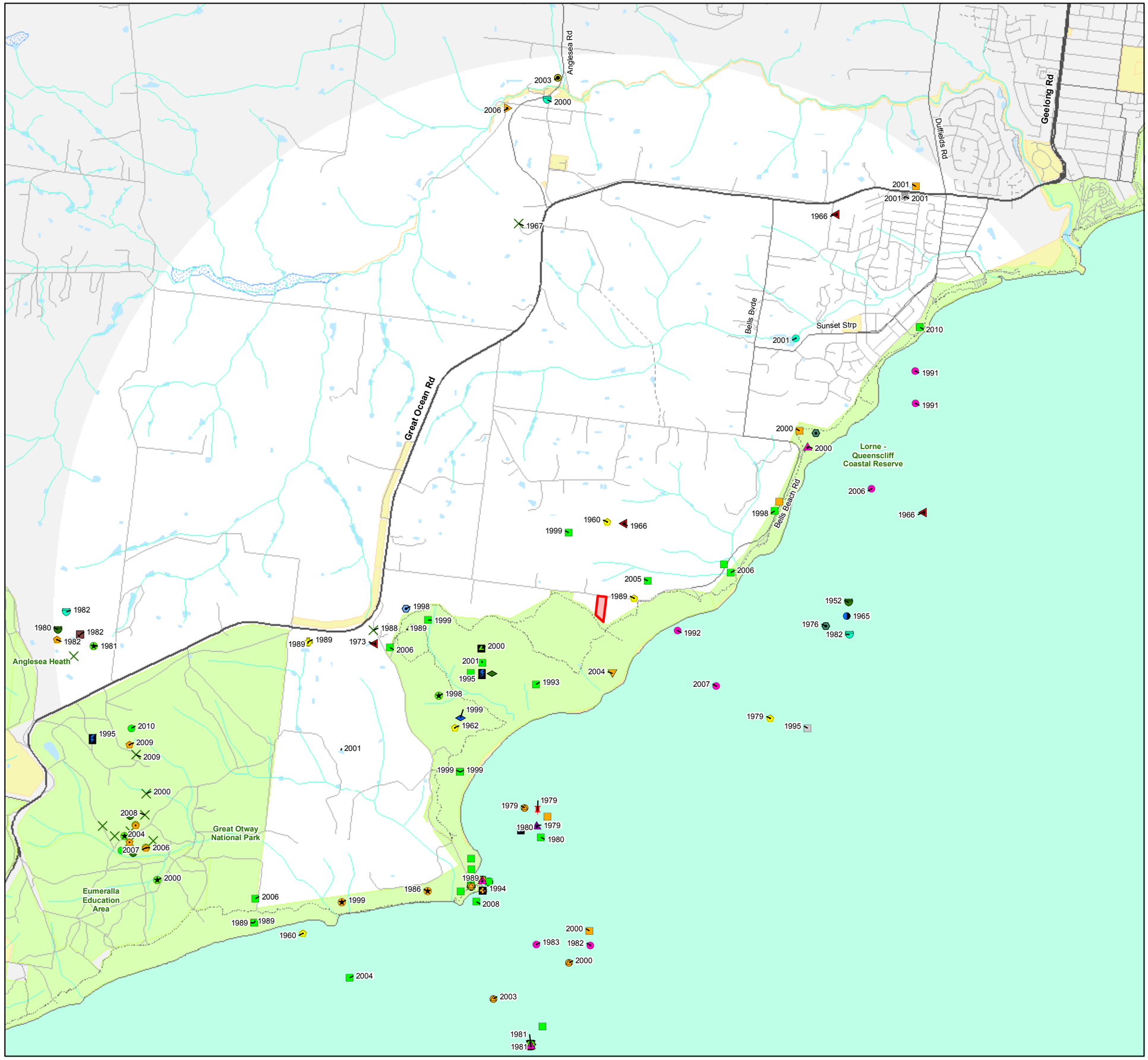
210 Jarsoite Road, Bells Beach

N

0 0.75 1.5

Kilometres

ecology & heritage partners



Legend

- Australasian Shoveler
- Azure Kingfisher
- Black-browed Albatross
- Black-eared Cuckoo
- Black-faced Cormorant
- Blue Petrel
- Blue Whale
- Brown Toadlet
- Caspian Tern
- Chestnut-rumped Heathwren
- Common Bent-wing Bat
- Common Sandpiper
- Eastern Great Egret
- Eastern Pygmy-possum
- Elegant Parrot
- Fairy Prion
- Fairy Tern
- Glossy Ibis
- Grey Goshawk
- Grey Plover
- Growling Grass Frog
- Hardhead
- Hooded Plover
- Humpback Whale
- Indian Yellow-nosed Albatross
- Intermediate Egret
- Latham's Snipe
- Lewin's Rail
- Little Egret
- Masked Owl
- Mountain Dragon Angelsea form
- Musk Duck
- Nankeen Night Heron
- New Holland Mouse
- Pacific Gull
- Pied Cormorant
- Powerful Owl
- Royal Spoonbill
- Ruddy Turnstone
- Rufous Bristlebird (Otway)
- Shy Albatross
- Sooty Albatross
- Southern Brown Bandicoot
- Southern Right Whale
- Southern Toadlet
- Speckled Warbler
- Spot-tailed Quoll
- Spotted Quail-thrush
- Swamp Antechinus
- Swift Parrot
- Wandering Albatross
- White-faced Storm-Petrel
- White-footed Dunnart
- Study Area

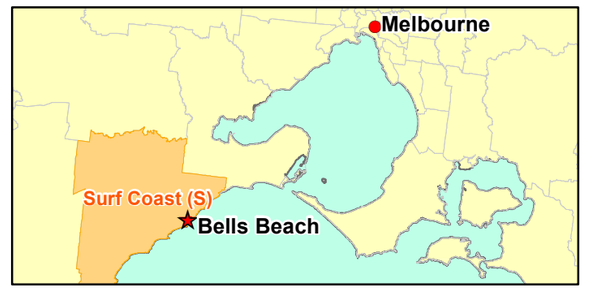


Figure 4

Previously documented significant fauna within 5km of the study area

210 Jarsoite Road, Bells Beach

N

0 0.75 1.5

Kilometres

ecology & heritage partners

APPENDICES

APPENDIX 1

Appendix 1.1 – Rare or Threatened Categories for Listed Victorian Taxa

Table A1.1. Rare or Threatened categories for listed Victorian taxa.

Rare or Threatened Categories
Conservation Status in Australia (Based on the EPBC Act 1999)
EX - Extinct: Extinct is when there is no reasonable doubt that the last individual of the species has died.
CR - Critically Endangered: A species is critically endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.
EN - Endangered: A species is endangered when it is not critically endangered but is facing a very high risk of extinction in the wild in the near future.
VU - Vulnerable: A species is vulnerable when it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future.
R* - Rare: A species is rare but overall is not currently considered critically endangered, endangered or vulnerable.
K* - Poorly Known: A species is suspected, but not definitely known, to belong to any of the categories extinct, critically endangered, endangered, vulnerable or rare.
Conservation Status in Victoria (Based on DSE 2005, DSE 2009, DSE 2013)
x - Presumed Extinct in Victoria: not recorded from Victoria during the past 50 years despite field searches specifically for the plant, or, alternatively, intensive field searches (since 1950) at all previously known sites have failed to record the plant.
e - Endangered in Victoria: at risk of disappearing from the wild state if present land use and other causal factors continue to operate.
v - Vulnerable in Victoria: not presently endangered but likely to become so soon due to continued depletion; occurring mainly on sites likely to experience changes in land-use which would threaten the survival of the plant in the wild; or, taxa whose total population is so small that the likelihood of recovery from disturbance, including localised natural events such as drought, fire or landslip, is doubtful.
r - Rare in Victoria: rare but not considered otherwise threatened - there are relatively few known populations or the taxon is restricted to a relatively small area.
k - Poorly Known in Victoria: poorly known and suspected, but not definitely known, to belong to one of the above categories (x, e, v or r) within Victoria. At present, accurate distribution information is inadequate.

Appendix 1.2 – Defining Ecological Significance

Table A1.2. Criteria for defining Ecological Significance ratings for significant flora, fauna and communities.

National Significance
Flora: National conservation status is based on the EPBC Act list of taxa considered threatened in Australia (i.e. extinct, critically endangered, endangered, vulnerable).
Fauna: National conservation status is based on the EPBC Act list of taxa considered threatened in Australia (i.e. Extinct, Critically Endangered, Endangered, Vulnerable). Fauna listed as Extinct, Critically Endangered, Endangered, Vulnerable, or Rare under National Action Plans for terrestrial taxon prepared for DoEE: threatened marsupials and monotremes (Maxwell et al. 1996), rodents (Lee 1995), bats (Duncan et al. 1999), birds (Garnett and Crowley 2000), reptiles (Cogger et al. 1993), amphibians (Tyler 1997) and butterflies (Sands and New 2002).
Communities: Vegetation communities considered critically endangered, endangered or vulnerable under the EPBC Act and considering vegetation condition.
State Significance
Flora: Threatened taxa listed under the provisions of the FFG Act. Flora listed in the State Government's Advisory List of Rare or Threatened Plants in Victoria (DSE 2005).
Fauna: Threatened taxon listed under Schedule 2 of the FFG Act. Fauna listed as Extinct, Critically Endangered, Endangered and Vulnerable on the State Government's Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013). Listed as Lower Risk (Near Threatened, Conservation Dependent or Least concern) or Data Deficient under National Action Plans for terrestrial species prepared for the DoEE: threatened marsupials and monotremes (Maxwell et al. 1996), rodents (Lee 1995), bats (Duncan et al. 1999), birds (Garnett and Crowley 2000), reptiles (Cogger et al. 1993), amphibians (Tyler 1997) and butterflies (Sands and New 2002).
Communities: Ecological communities listed as threatened under the FFG Act. EVC listed as threatened (i.e. endangered, vulnerable) or rare in a Native Vegetation Plan for a particular bioregion (DSE 2013c) and considering vegetation condition.
Regional Significance
Fauna: Fauna with a disjunct distribution, or a small number of documented recorded or naturally rare in the particular Bioregion in which the study area is located. A particular taxon that is has an unusual ecological or biogeographical occurrence or listed as Lower Risk – Near Threatened, Data Deficient or Insufficiently Known on the State Government's Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013).
Communities: EVC listed as depleted or least concern in a Native Vegetation Plan for a particular bioregion (DSE 2013c) and considering vegetation condition. EVC considered rare by the author for a particular bioregion.
Local Significance
Local significance is defined as flora, fauna and ecological communities indigenous to a particular area, which are not considered rare or threatened on a national, state or regional level.

Appendix 1.3 – Defining Site Significance

Table A1.3. Criteria for defining Site Significance ratings.

National Significance
A site is of National significance if: • It regularly supports, or has a high probability of regularly supporting individuals of a taxon listed as 'Critically Endangered' or 'Endangered' under the EPBC Act and/or under National Action Plans for terrestrial taxon prepared for the DoEE. • It regularly supports, or has a high probability of supporting, an 'important population' as defined under the EPBC Act of one or more nationally 'vulnerable' flora and fauna taxon. • It is known to support, or has a high probability of supporting taxon listed as 'Vulnerable' under National Action Plans. • It is known to regularly support a large proportion (i.e. greater than 1%) of a population of a taxon listed as 'Conservation Dependent' under the EPBC Act and/or listed as Rare or Lower Risk (near threatened, conservation dependent or least concern) under National Action Plans. • It contains an area, or part thereof designated as 'critical habitat' under the EPBC Act, or if the site is listed under the Register of National Estate compiled by the Australian Heritage Commission. • It is a site which forms part of, or is connected to a larger area(s) of remnant native vegetation or habitat of national conservation significance such as most National Park, and/or a Ramsar Wetland(s).
State Significance
A site is of State significance if: • It occasionally (i.e. every 1 to 5 years) supports, or has suitable habitat to support taxon listed as 'Critically Endangered' or 'Endangered' under the EPBC Act and/or under National Action Plans. • It regularly supports, or has a high probability of regularly supporting (i.e. high habitat quality) taxon listed as 'Vulnerable', 'Near threatened', 'Data Deficient' or 'Insufficiently Known' in Victoria (DSE 2005, 2013), or species listed as 'Data Deficient' or 'Insufficiently Known' under National Action Plans. • It contains an area, or part thereof designated as 'critical habitat' under the FFG Act. • It supports, or likely to support a high proportion of any Victorian flora and fauna taxa. • It contains high quality, intact vegetation/habitat supporting a high species richness and diversity in a particular bioregion. • It is a site which forms part of, or connected to a larger area(s) of remnant native vegetation or habitat of state conservation significance such as most State Parks and/or Flora and Fauna Reserves.
Regional Significance
A site is of Regional significance if: • It regularly supports, or has a high probability of regularly supporting regionally significant fauna as defined in Table 1.2. • Is contains a large population (i.e. greater than 1% or 5%) of flora considered rare in any regional native vegetation plan for a particular bioregion. • It supports a fauna population with a disjunct distribution, or a particular taxon that has an unusual ecological or biogeographical occurrence. • It is a site which forms part of, or is connected to a larger area(s) of remnant native vegetation or habitat of regional conservation significance such as most Regional Parks and/or Flora and Fauna Reserves.
Local Significance
Most sites are considered to be of at least local significant for conservation, and in general a site of local significance can be defined as: • An area which supports indigenous flora species and/or a remnant EVC, and habitats used by locally significant fauna species. • An area which currently acts, or has the potential to act as a wildlife corridor linking other areas of higher conservation significance and facilitating fauna movement throughout the landscape.

Appendix 1.4 – Vegetation Condition and Habitat Quality

Table A1.4.1 Defining Vegetation Condition ratings.

Criteria for defining Vegetation Condition
High Quality: Vegetation dominated by a diversity of indigenous species, with defined structures (where appropriate), such as canopy layer, shrub layer, and ground cover, with little or few introduced species present.
Moderate Quality: Vegetation dominated by a diversity of indigenous species, but is lacking some structures, such as canopy layer, shrub layer or ground cover, and/or there is a greater level of introduced flora species present.
Low Quality: Vegetation dominated by introduced species, but supports low levels of indigenous species present, in the canopy, shrub layer or ground cover.

Table A1.4.2 Defining Habitat Quality.

Criteria for defining Habitat Quality
High Quality: • High degree of intactness (i.e. floristically and structurally diverse), containing several important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component. • High species richness and diversity (i.e. represented by a large number of species from a range of fauna groups). • High level of foraging and breeding activity, with the site regularly used by native fauna for refuge and cover. • Habitat that has experienced, or is experiencing low levels of disturbance and/or threatening processes (i.e. weed invasion, introduced animals, soil erosion, salinity). • High contribution to a wildlife corridor, and/or connected to a larger area(s) of high quality habitat. • Provides known, or likely habitat for one or more rare or threatened species listed under the EPBC Act, FFG Act, or species considered rare or threatened according to DSE 2005; 2009 or 2013.
Moderate Quality: • Moderate degree of intactness, containing one or more important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component. • Moderate species richness and diversity - represented by a moderate number of species from a range of fauna groups. • Moderate levels of foraging and breeding activity, with the site used by native fauna for refuge and cover. • Habitat that has experienced, or is experiencing moderate levels of disturbance and/or threatening processes. • Moderate contribution to a wildlife corridor, or is connected to area(s) of moderate quality habitat. • Provides potential habitat for a small number of threatened species listed under the EPBC Act, FFG Act, or species considered rare or threatened according to DSE 2005; 2009 or 2013.
Low Quality: • Low degree of intactness, containing few important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component. • Low species richness and diversity (i.e. represented by a small number of species from a range of fauna groups). • Low levels of foraging and breeding activity, with the site used by native fauna for refuge and cover. • Habitat that has experienced, or is experiencing high levels of disturbance and/or threatening processes. • Unlikely to form part of a wildlife corridor, and is not connected to another area(s) of habitat. • Unlikely to provide habitat for rare or threatened species listed under the EPBC Act, FFG Act, or considered rare or threatened according to DSE 2005; 2009 or 2013.

Appendix 1.5 – Offsets and Exemptions

Table A1.5.1. Calculation of Biodiversity Equivalence Scores and General or Specific Offsets (DEPI 2013a)

Pathway	Biodiversity Assessment Tools	Information Source
Low Risk-based pathway	Condition Score	Modelled data, NVIM Tool (DELWP 2015c)
	Habitat Hectares	= Condition Score x Extent (ha)
	Strategic Biodiversity Score	Modelled data, NVIM Tool (DELWP 2015c)
	General Biodiversity Equivalence Score	= Habitat Hectares x Strategic Biodiversity Score
Moderate or High Risk-based pathway	Condition Score	Habitat hectare assessment
	Habitat Hectares	= Condition Score x Extent (ha)
	Strategic Biodiversity Score and Habitat Importance Score	Modelled data, determined by DEPI
	Specific Biodiversity Equivalence Score **(A)**	= Habitat Hectares x Habitat Importance Score
	Sum of Specific Biodiversity Equivalence Scores of remaining habitat **(B)**	Data gathered during the site assessment is provided to DEPI for analysis and a resulting assessment offset report is provided by the Department.
	Specific Offset Threshold **(C)**	
	General/Specific Threshold Test: If **A ÷ B > C** a **Specific** offset is required If **A ÷ B < C** a **General** offset required	

Table A1.5.2. Summary of offset requirements (DEPI 2013a)

Risk –based Pathway	Offset Type	Offset Amount (Risk adjusted biodiversity equivalence score)	Offset Attributes		
			Habitat for Species	Vicinity	Strategic Biodiversity Score
Low Risk	General offset	1.5 times the general biodiversity equivalence score of the native vegetation to be removed.	No restrictions	In the same Catchment Management Authority or Local Government Area boundary as the native vegetation to be removed.	At least 80 per cent of the strategic biodiversity score of the native vegetation to be removed.
Moderate or High Risk	General offset	1.5 times the general biodiversity equivalence score of the native vegetation to be removed.	No restrictions	In the same Catchment Management Authority or Local Government Area boundary as the native vegetation to be removed.	At least 80 per cent of the strategic biodiversity score of the native vegetation to be removed.
Moderate or High Risk	Specific offset	For each species impacted, 2 times the specific biodiversity equivalence score of the native vegetation to be removed.	Likely habitat for each rare or threatened species that a specific offset is required for, according to the specific-general offset test.	No restrictions	No restrictions

APPENDIX 2 - FLORA

Appendix 2.1 – Flora Results

Table A2.1. Flora recorded within the study area.

Scientific Name	Common Name	Native / Introduced	EPBC	FFG	VROTS
Acacia longifolia subsp. *sophorae*	Coast Wattle	Native but some stands may be alien	-	-	-
Acacia paradoxa	Hedge Wattle	-	-	-	-
Acacia pycnantha	Golden Wattle	-	-	P	-
Acacia verniciflua s.l.	Varnish Wattle	-	-	P	-
Acacia verticillata	Prickly Moses	-	-	P	-
Acrotriche serrulata	Honey-pots	-	-	P	-
Allocasuarina paludosa	Scrub Sheoak	-	-	-	-
Astroloma humifusum	Cranberry Heath	-	-	P	-
Banksia marginata	Silver Banksia	-	-	-	-
Brachyloma daphnoides	Daphne Heath	-	-	P	-
Cassytha melantha	Coarse Dodder-laurel	-	-	-	-
Comesperma volubile	Love Creeper	-	-	-	-
Drosera aberrans	Scented Sundew	-	-	-	-
Drosera macrantha subsp. *macrantha*	Climbing Sundew	-	-	-	-
Eucalyptus baxteri	Brown Stringybark	-	-	-	-
Eucalyptus tricarpa	Red Ironbark	-	-	-	-
Eucalyptus viminalis subsp. *viminalis*	Manna Gum	-	-	-	-
Gahnia radula	Thatch Saw-sedge	-	-	-	-
Gonocarpus tetragynus	Common Raspwort	-	-	-	-
Hibbertia sericea	Silky Guinea-flower	-	-	-	-
Lasiopetalum baueri	Slender Velvet-bush	-	-	-	-
Lepidosperma laterale	Variable Sword-sedge	-	-	-	-
Leptospermum continentale	Prickly Tea-tree	-	-	-	-
Lomandra filiformis	Wattle Mat-rush	-	-	-	-
Lomandra nana	Dwarf Mat-rush	-	-	-	-
Pinus radiata	Radiata Pine	Introduced	-	-	-
Platylobium obtusangulum	Common Flat-pea	-	-	-	-
Pomaderris paniculosa subsp. *Paralia*	Coast Pomaderris	-	-	-	-
Thelymitra spp.	Sun Orchid	-	-	-	-

Note: P denotes species protected under the FFG Act.

Appendix 2.2 – Significant Flora Species

Table A2.2 Significant flora recorded within 10 kilometres of the study area

Key:

EPBC	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
FFG	*Flora and Fauna Guarantee Act 1988* (FFG Act)
DEPI	Advisory List of Threatened Flora in Victoria (DELWP 2016)

EX	Extinct	X	Extinct
CR	Critically endangered	e	Endangered
EN	Endangered	v	Vulnerable
VU	Vulnerable	r	Rare
K	Poorly Known (Briggs and Leigh 1996)	k	Poorly Known
#	Records identified from EPBC Act Protected Matters Search Tool.	L	Listed
*	Records identified from the FIS		

1	Known occurrence	Recorded within the study area recently (i.e. within ten years)
2	High Likelihood	Previous records of the species in the local vicinity; and/or, The study area contains areas of high quality habitat.
3	Moderate Likelihood	Limited previous records of the species in the local vicinity; and/or, The study area contains poor or limited habitat.
4	Low Likelihood	Poor or limited habitat for the species however other evidence (such as a lack of records or environmental factors) indicates there is a very low likelihood of presence.
5	Unlikely	No suitable habitat and/or outside the species range.

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likely occurrence in study area
NATIONAL SIGNIFICANCE							
Eucalyptus crenulata	Buxton Gum	1	1998	EN	L	e	5
Glycine latrobeana	Clover Glycine	1	1980	VU	L	v	5
Grevillea infecunda	Anglesea Grevillea	2	1997	VU	L	v	5
Ixodia achillaeoides subsp. *arenicola* #	Coast Ixodia	-	-	VU	-	v	5
Leucochrysum albicans var. *tricolor* #	Hoary Sunray	-	-	EN	-	e	4
Prasophyllum frenchii	Maroon Leek-orchid	1	1934	EN	L	e	5
Prasophyllum spicatum	Dense Leek-orchid	3	1934	VU	-	e	5
Pterostylis cucullata #	Leafy Greenhood	-	-	VU	L	v	5
Thelymitra epipactoides #	Metallic Sun-orchid	-	-	EN	L	e	5
Thelymitra matthewsii	Spiral Sun-orchid	8	2007	VU	L	v	5
Xerochrysum palustre #	Swamp Everlasting	-	-	VU	L	v	5
STATE SIGNIFICANCE							
Acacia cupularis	Cup Wattle	3	2004	-	-	r	4
Acacia uncifolia	Coast Wirilda	4	2004	-	-	r	3
Burnettia cuneata	Lizard Orchid	2	1995	-	-	r	4
Caladenia oenochila	Wine-lipped Spider-orchid	1	1995	-	-	v	3
Caladenia valida	Robust Spider-orchid	7	2001	-	L	e	4
Caladenia venusta	Large White Spider-orchid	9	1998	-	-	r	4
Caladenia vulgaris	Slender Pink-fingers	1	1991	-	-	r	4
Calochilus imberbis	Naked Beard-orchid	2	2001	-	-	r	4
Chorizandra australis	Southern Bristle-sedge	1	1995	-	-	k	5
Comesperma polygaloides	Small Milkwort	1	1980	-	L	v	5
Corunastylis ciliata	Fringed Midge-orchid	7	2007	-	-	k	4
Corybas fordhamii	Swamp Pelican-orchid	5	1995	-	-	r	5
Dipodium pardalinum	Spotted Hyacinth-orchid	6	2001	-	-	r	4

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likely occurrence in study area
Eucalyptus falciformis	Western Peppermint	18	2007	-	-	r	4
Eucalyptus leucoxylon subsp. *bellarinensis*	Bellarine Yellow-gum	351	2011	-	L	e	4
Eucalyptus litoralis	Otway Grey-gum	23	2007	-	-	v	3
Euryomyrtus ramosissima subsp. *prostrata*	Nodding Baeckea	15	2007	-	-	r	4
Galium compactum	Compact Bedstraw	1	1980	-	-	r	5
Hypoxis vaginata var. *brevistigmata*	Yellow Star	5	1999	-	-	k	5
Juncus revolutus	Creeping Rush	2	1983	-	-	r	5
Lawrencia spicata	Salt Lawrencia	5	2001	-	-	r	5
Lepidosperma canescens	Hoary Rapier-sedge	5	1992	-	-	r	5
Olearia pannosa subsp. *cardiophylla*	Velvet Daisy-bush	32	2009	-	L	v	3
Oxalis thompsoniae	Fluffy-fruit Wood-sorrel	7	1995	-	-	k	5
Pelargonium littorale	Coast Stork's-bill	2	1983	-	-	k	4
Pimelea hewardiana	Forked Rice-flower	4	2009	-	-	r	4
Poa billardierei	Coast Fescue	2	2004	-	-	r	5
Pomaderris apetala subsp. *maritima*	Tasman Pomaderris	1	2001	-	-	v	5
Pomaderris paniculosa subsp. *paniculosa*	Inland Pomaderris	1	2000	-	-	v	5
Prasophyllum barnettii	Elegant Leek-orchid	1	2001	-	L	v	5
Prasophyllum lindleyanum	Green Leek-orchid	1	1978	-	-	v	5
Pterostylis sp. aff. *plumosa* (Anglesea)	Large Plume-orchid	1	2005	-	-	r	5
Pultenaea canaliculata	Coast Bush-pea	2	1987	-	-	r	4
Ranunculus pumilio var. *politus*	Ferny Small-flower Buttercup	1	1995	-	-	k	5
Rytidosperma dimidiatum	Tasmanian Wallaby-grass	1	1959	-	-	v	5
Schoenus laevigatus	Short-leaf Bog-sedge	3	1959	-	-	k	5
Thelymitra benthamiana	Blotched Sun-orchid	19	2003	-	-	v	4
Thelymitra orientalis	Hoary Sun-orchid	1	1969	-	-	v	5
Thelymitra pallidiflora	Pallid Sun-orchid	12	2001	-	-	e	3

Scientific name	Common name	Total # of documented records	Last documented record	EPBC	FFG	DEPI	Likely occurrence in study area
Thelymitra X *irregularis*	Crested Sun-orchid	2	2004	-	-	r	5
Thelymitra X *merraniae*	Merran's Sun-orchid	5	2003	-	L	e	5
Thomasia petalocalyx	Paper Flower	10	2001	-	-	r	3
Xanthorrhoea caespitosa	Tufted Grass-tree	2	2011	-	-	r	3
Zygophyllum billardierei	Coast Twin-leaf	2	2008	-	-	r	4

Data source: Victorian Biodiversity Atlas (DELWP 2015); Protected Matters Search Tool (DoE 2015).

Taxonomic order: Alphabetical.

Appendix 2.3 – Habitat Hectares

Table A2.3. Habitat Hectares results for remnant vegetation recorded within the study area.

Vegetation Zone		CHS1	CHS2	SDF1	SDF2
Bioregion		OP	OP	OP	OP
EVC / Tree		CHS	CHS	SDF	SDF
EVC Number		161	161	21	21
EVC Conservation Status		Vu	Vu	LC	LC
Patch Condition	Large Old Trees /10	NA	NA	0	0
	Canopy Cover /5	NA	NA	3	0
	Under storey /25	15	25	15	15
	Lack of Weeds /15	15	15	15	15
	Recruitment /10	3	5	5	3
	Organic Matter /5	5	10	5	5
	Logs /5	NA	NA	2	0
	Treeless EVC Multiplier	1.36	1.36	1	1
	Subtotal =	51.68	74.8	45	38
Landscape Value /25		18	18	18	18
Habitat Points /100		69.68	92.8	63	56
Habitat Score		0.697	0.93	0.63	0.56
Total Area (ha)		0.04	0.93	0.46	0.11
Total habitat hectares		0.03	0.86	0.29	0.06
Conservation Significance		V. High	V. High	Medium	Low

APPENDIX 3 - FAUNA

Appendix 3.1 – Significant fauna species

Table A3.1. Significant fauna within 10 kilometres of the study area.

Common Name	Scientific Name	Last Record (VBA)	# Records (VBA)	EPBC Act[1]	FFG ACT[2]	VIC (2013)[3]	Likelihood of Occurance[4]
NATIONAL SIGNIFICANCE							
Birds							
Wandering Albatross	*Diomedea exulans*	1981	8	VU, M	L	en	4
Black-browed Albatross	*Thalassarche melanophris melanophris*	2000	11	VU, M	-	vu	4
Shy Albatross	*Thalassarche cauta*	2007	23	VU, M	L	vu	4
Grey-headed Albatross	*Thalassarche chrysostoma*	#	-	EN, M	L	vu	4
Indian Yellow-nosed Albatross	*Thalassarche carteri*	2007	4	VU, M	L	vu	4
Antipodean Albatross	*Diomedea exulans antipodensis*	#	-	VU, M	-	-	4
Campbell Albatross	*Thalassarche melanophris impavida*	#	-	VU, M	-	-	4
Tristan Albatross	*Diomedea exulans exulans*	#	-	EN, M	-	-	4
Salvin's Albatross	*Thalassarche cauta salvini*	#	-	VU, M	-	-	4
White-capped Albatross	*Thalassarche cauta steadi*	#	-	VU, M	-	-	4
Buller's Albatross	*Diomedea bulleri*	#	-	VU, M	-	-	4
Southern Royal Albatross	*Diomedea epomophora epomophora*	#	-	VU, M	-	-	4
Northern Royal Albatross	*Diomedea epomophora sanfordi*	#	-	EN, M	-	-	4
Sooty Albatross	*Phoebetria fusca*	1994	1	VU, M	L	-	4
Southern Giant-Petrel	*Macronectes giganteus*	1972	2	EN, M	L	vu	4
Northern Giant-Petrel	*Macronectes halli*	#	-	VU, M	L	nt	4
Blue Petrel	*Halobaena caerulea*	1999	1	VU, M	-	-	4
Fairy Prion	*Pachyptila turtur*	2001	9	VU, M	-	vu	4
Soft-plumaged Petrel	*Pterodroma mollis*	#	-	VU, M	-	-	4
Gould's Petrel	*Pterodroma leucoptera*	#	-	EN, M	-	-	4

Common Name	Scientific Name	Last Record (VBA)	# Records (VBA)	EPBC Act[1]	FFG ACT[2]	VIC (2013)[3]	Likelihood of Occurance[4]
Australasian Bittern	*Botaurus poiciloptilus*	#	-	EN	L	en	4
Hooded Plover	*Thinornis rubricollis rubricollis*	2008	23	VU	L	vu	4
Plains-wanderer	*Pedionomus torquatus*	1971	1	CR	L	cr	4
Australian Painted Snipe	*Rostratula australis*	#	-	VU, M	L	cr	4
Eastern Curlew	*Numenius madagascariensis*	1964	1	CR, M	-	vu	4
Fairy Tern	*Sternula nereis nereis*	1998	5	VU, M	L	en	4
Swift Parrot	*Lathamus discolor*	1999	5	EN	L	en	4
Orange-bellied Parrot	*Neophema chrysogaster*	#	-	CR	L	cr	4
Regent Honeyeater	*Anthochaera phrygia*	#	-	CR	L	cr	4
Painted Honeyeater	*Grantiella picta*	#	-	VU	L	vu	3
Mammals							
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	1965	1	EN	L	en	4
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	2011	54	EN	L	nt	3
Long-nosed Potoroo	*Potorous tridactylus tridactylus*	1978	1	VU	L	nt	3
Grey-headed Flying-fox	*Pteropus poliocephalus*	1968	1	VU	L	vu	3
Common Bent-wing Bat (S ssp.)	*Miniopterus schreibersii bassanii*	#	-	CR	L	cr	4
New Holland Mouse	*Pseudomys novaehollandiae*	1995	47	VU	L	vu	3
Southern Right Whale	*Eubalaena australis*	2010	39	EN, M	L	cr	4
Blue Whale	*Balaenoptera musculus*	1995	3	EN, M	L	cr	4
Humpback Whale	*Megaptera novaeangliae*	2007	1	VU, M	L	vu	4
Reptiles							
Loggerhead Turtle	*Caretta caretta*	#	-	EN, M	-	-	4
Green Turtle	*Chelonia mydas*	#	-	VU, M	-	-	4
Leathery Turtle	*Dermochelys coriacea*	#	-	EN, M	L	cr	4
Striped Legless Lizard	*Delma impar*	#	-	VU	L	en	4
Amphibians							
Growling Grass Frog	*Litoria raniformis*	2000	5	VU	L	en	4
Fish							
Great White Shark	*Carcharodon carcharias*	#	-	VU, M	L	vu	4
Dwarf Galaxias	*Galaxiella pusilla*	#	-	VU	L	en	4

Common Name	Scientific Name	Last Record (VBA)	# Records (VBA)	EPBC Act[1]	FFG ACT[2]	VIC (2013)[3]	Likelihood of Occurance[4]
Australian Grayling	*Prototroctes maraena*	#	-	VU	L	vu	4
Invertebrates							
Golden Sun Moth	*Synemon plana*	#	-	CR	L	cr	4
STATE SIGNIFICANCE							
Birds							
Rufous Bristlebird (Otways subsp.)	*Dasyornis broadbenti caryochrous*	2010	138	-	L	nt	2
Musk Duck	*Biziura lobata*	2002	6	-	-	vu	4
Australasian Shoveler	*Anas rhynchotis*	1999	5	-	-	vu	4
Hardhead	*Aythya australis*	2002	6	-	-	vu	4
Blue-billed Duck	*Oxyura australis*	2002	3	-	L	en	4
White-throated Needletail	*Hirundapus caudacutus*	2004	48	M	-	vu	3
White-faced Storm-Petrel	*Pelagodroma marina*	2000	3	-	-	vu	4
Little Bittern	*Ixobrychus minutus dubius*	1969	1	-	L	en	4
Eastern Great Egret	*Ardea modesta*	2007	68	M	L	vu	3
Intermediate Egret	*Ardea intermedia*	1980	1	-	L	en	3
Little Egret	*Egretta garzetta nigripes*	1980	1	-	L	en	3
Grey Goshawk	*Accipiter novaehollandiae novaehollandiae*	2006	17	-	L	vu	3
Lewin's Rail	*Lewinia pectoralis pectoralis*	2001	4	-	L	vu	4
Baillon's Crake	*Porzana pusilla palustris*	2001	1	-	L	vu	4
Grey Plover	*Pluvialis squatarola*	2006	1	-	-	en	4
Common Sandpiper	*Actitis hypoleucos*	1978	1	M	-	vu	4
Ruddy Turnstone	*Arenaria interpres*	1979	2	M	-	vu	4
Caspian Tern	*Hydroprogne caspia*	2004	21	M	L	nt	4
Elegant Parrot	*Neophema elegans*	1995	1	-	-	vu	4
Powerful Owl	*Ninox strenua*	1999	18	-	L	vu	4
Barking Owl	*Ninox connivens connivens*	1998	1	-	L	en	3
Masked Owl	*Tyto novaehollandiae novaehollandiae*	1983	2	-	L	en	3
Brown Treecreeper (south-eastern ssp.)	*Climacteris picumnus victoriae*	1909	1	-	-	nt	3
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygius*	2007	23	-	L	vu	3
Speckled Warbler	*Chthonicola sagittatus*	1998	1	-	L	vu	3

Common Name	Scientific Name	Last Record (VBA)	# Records (VBA)	EPBC Act[1]	FFG ACT[2]	VIC (2013)[3]	Likelihood of Occurance[4]
Hooded Robin	*Melanodryas cucullata cucullata*	1969	2	-	L	nt	3
Diamond Firetail	*Stagonopleura guttata*	2008	1	-	L	nt	3
Mammals							
Swamp Antechinus	*Antechinus minimus maritimus*	2007	43	-	L	nt	3
White-footed Dunnart	*Sminthopsis leucopus*	2011	32	-	L	nt	2
Common Bent-wing Bat	*Miniopterus schreibersii GROUP*	1989	1	-	L	-	4
Reptiles							
Mountain Dragon	*Rankinia diemensis*	2006	33	-	-	-	3
Swamp Skink	*Lissolepis coventryi*	2007	1	-	L	vu	3
Amphibians							
Brown Toadlet	*Pseudophryne bibronii*	1973	21	-	L	en	3
Southern Toadlet	*Pseudophryne semimarmorata*	2011	46	-	-	vu	3
Fish							
Southern Pygmy Perch	*Nannoperca australis*	1991	1	-	-	-	4
REGIONAL SIGNIFICANCE							
Birds							
Common Diving-Petrel	*Pelecanoides urinatrix*	1989	1	-	-	nt	4
Pied Cormorant	*Phalacrocorax varius*	2006	44	-	-	nt	4
Black-faced Cormorant	*Phalacrocorax fuscescens*	1989	4	-	-	nt	4
Nankeen Night Heron	*Nycticorax caledonicus hillii*	2007	12	-	-	nt	4
Glossy Ibis	*Plegadis falcinellus*	1980	1	-	-	nt	4
Royal Spoonbill	*Platalea regia*	2001	12	-	-	nt	4
Spotted Harrier	*Circus assimilis*	1997	2	-	-	nt	3
Latham's Snipe	*Gallinago hardwickii*	2003	11	M	-	nt	3
Pectoral Sandpiper	*Calidris melanotos*	1969	1	M	-	nt	4
Little Button-quail	*Turnix velox*	1971	1	-	-	nt	3
Whiskered Tern	*Chlidonias hybridus javanicus*	2002	1	-	-	nt	3
Pacific Gull	*Larus pacificus pacificus*	2010	91	-	-	nt	3

Common Name	Scientific Name	Last Record (VBA)	# Records (VBA)	EPBC Act[1]	FFG ACT[2]	VIC (2013)[3]	Likelihood of Occurance[4]
Black-eared Cuckoo	*Chrysococcyx osculans*	1991	2	-	-	nt	4
Azure Kingfisher	*Alcedo azurea*	1978	1	-	-	nt	4
Spotted Quail-thrush	*Cinclosoma punctatum*	2007	13	-	-	nt	3
Mammals							
Eastern Pygmy-possum	*Cercartetus nanus*	2011	17	-	-	nt	3
Reptiles							
Long-necked Turtle	*Chelodina longicollis*	2001	1	-	-	dd	4
Fish							
River Blackfish	*Gadopsis marmoratus*	1980	1	-	-	-	4

Notes: 1) Listed as Critically Endangered (CR), Endangered (E), Vulnerable (V) or Migratory (M) under the EPBC Act
2) Listed (L) under the FFG Act
3) Listed as Critically Endangered (cr), Endangered (e), Vulnerable (v) or Near Threatened (nt) on the Victoria Advisory List (DSE 2013)
4) Likelihood of occurrence:

1	High Likelihood	Known resident in the Study area based on site observations, database records, or expert advice; and/or, Recent records (i.e. within five years) of the species in the local area (VBA 2011); and/or, The Study area contains the species' preferred habitat.	2	Moderate Likelihood	The species is likely to visit the Study area regularly (i.e. at least seasonally); and/or, Previous records of the species in the local area (DSE 2011b); and/or, The Study area contains some characteristics of the species' preferred habitat.
3	Low Likelihood	The species is likely to visit the Study 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 Study area contains few or no characteristics of the species' preferred habitat.	4	Unlikely	No previous records of the species in the local area; and/or, The species may fly over the Study area when moving between areas of more suitable habitat; and/or, Out of the species' range; and/or, No suitable habitat present.

Data sources: Victorian Biodiversity Atlas (DELWP 2016); Victorian Fauna Database (Viridans 2014b); Protected Matters Search Tool (DoE 2015).

Taxonomic order: Mammals (Strahan 1995 in Menkhorst & Knight 2004); Birds (Christidis & Boles, 2008); Reptiles and Amphibians (Cogger et al. 1983 in Cogger 1996); Fish (Nelson 1994); Mussels & Crustaceans (Alphabetical); Invertebrates (Alphabetical).

APPENDIX 4 - BIOR REPORT (BIOR), DELWP

Biodiversity impact and offset requirements report

This report **does not represent an assessment by DELWP** of the proposed native vegetation removal. It provides additional biodiversity information to support moderate and high risk-based pathway applications for permits to remove native vegetation under clause 52.16 or 52.17 of planning schemes in Victoria.

Date of issue: **14/12/2016** **DELWP ref: EHP_0566**
Time of issue: **12:18 pm**

Project ID	Jarosite Rd Option7

Summary of marked native vegetation

Risk-based pathway	**High**
Total extent	0.366 ha
Remnant patches	0.366 ha
Scattered trees	0 trees
Location risk	C

Strategic biodiversity score of all marked native vegetation	0.538

Offset requirements if a permit is granted

If a permit is granted to remove the marked native vegetation, a requirement to obtain a native vegetation offset will be included in the permit conditions. The offset must meet the following requirements:

Offset type	**General offset**
General offset amount (general biodiversity equivalence units)	0.228 general units
General offset attributes	
Vicinity	Corangamite Catchment Management Authority (CMA) **or** Surf Coast Shire Council
Minimum strategic biodiversity score	0.431[1]

See Appendices 1 and 2 for details in how offset requirements were determined.

NB: values presented in tables throughout this document may not add to totals due to rounding

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

Next steps

Any proposal to remove native vegetation must meet the application requirements of the high risk-based pathway and it will be assessed under the high risk-based pathway.

If you wish to remove the marked native vegetation you are required to apply for a permit from your local council. Council will then refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

The biodiversity assessment report from NVIM and this biodiversity impact and offset report should be submitted with your application for a permit to remove native vegetation you plan to remove, lop or destroy.

The Biodiversity assessment report generated by the tool within NVIM provides the following information:

- The location of the site where native vegetation is to be removed.
- The area of the patch of native vegetation and/or the number of any scattered trees to be removed.
- Maps or plans containing information set out in the *Permitted clearing of native vegetation – Biodiversity assessment guidelines*
- The risk-based pathway of the application for a permit to remove native vegetation

This report provides the following information to meet application requirements for a permit to remove native vegetation:

- Confirmation of the risk-based pathway of the application for a permit to remove native vegetation
- The strategic biodiversity score of the native vegetation to be removed
- Information to inform the assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity, with specific regard to the proportional impact on habitat for any rare or threatened species.
- The offset requirements should a permit be granted to remove native vegetation.

Additional application requirements must be provided with an application for a permit to remove native vegetation in the moderate or high risk-based pathways. These include:

- A habitat hectare assessment report of the native vegetation that is to be removed
- A statement outlining what steps have been taken to ensure that impacts on biodiversity from the removal of native vegetation have been minimised
- An offset strategy that details how a compliant offset will be secured to offset the biodiversity impacts of the removal of native vegetation.

Refer to the *Permitted clearing of native vegetation – Biodiversity assessment guidelines* and for a full list and details of application requirements.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

For more information contact the DELWP Customer Service Centre 136 186

Appendix 1 – Biodiversity impact of removal of native vegetation

Habitat hectares

Habitat hectares are calculated for each habitat zone within your proposal using the extent and condition scores in the GIS data you provided.

Habitat zone	Site assessed condition score	Extent (ha)	Habitat hectares
1-2-a	0.930	0.241	0.224
2-2-b	0.930	0.000	0.000
3-3-a	0.630	0.013	0.008
4-1-a	0.349	0.013	0.005
5-1-b	0.349	0.009	0.003
6-2-c	0.465	0.002	0.001
7-2-d	0.465	0.011	0.005
8-2-e	0.465	0.064	0.030
9-2-f	0.465	0.000	0.000
10-2-g	0.465	0.005	0.002
11-2-h	0.465	0.003	0.001
12-1-c	0.697	0.001	0.000
13-1-d	0.697	0.003	0.002
TOTAL			**0.283**

Impacts on rare or threatened species habitat above specific offset threshold

The specific-general offset test was applied to your proposal. The test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the specific offset threshold. The threshold is set at 0.005 per cent of the total habitat for a species. When the proportional impact is above the specific offset threshold a specific offset for that species' habitat is required.

The specific-general offset test found your proposal does not have a proportional impact on any rare or threatened species' habitats above the specific offset threshold. No specific offsets are required. A general offset is required as set out below.

Clearing site biodiversity equivalence score(s)

The general biodiversity equivalence score for the habitat zone(s) is calculated by multiplying the habitat hectares by the strategic biodiversity score.

Habitat zone	Habitat hectares	Proportion of habitat zone with general offset	Strategic biodiversity score	General biodiversity equivalence score (GBES)
1-2-a	0.224	100.000 %	0.534	0.120
2-2-b	0.000	100.000 %	0.516	0.000
3-3-a	0.008	100.000 %	0.512	0.004
4-1-a	0.005	100.000 %	0.571	0.003
5-1-b	0.003	100.000 %	0.514	0.002
6-2-c	0.001	100.000 %	0.571	0.000
7-2-d	0.005	100.000 %	0.514	0.003
8-2-e	0.030	100.000 %	0.562	0.017
9-2-f	0.000	100.000 %	0.538	0.000
10-2-g	0.002	100.000 %	0.524	0.001
11-2-h	0.001	100.000 %	0.514	0.001
12-1-c	0.000	100.000 %	0.571	0.000
13-1-d	0.002	100.000 %	0.540	0.001

Mapped rare or threatened species' habitats on site

This table sets out the list of rare or threatened species' habitats mapped at the site beyond those species for which the impact is above the specific offset threshold. These species habitats do not require a specific offset according to the specific-general offset test.

Species number	Species common name	Species scientific name
10220	Grey Goshawk	Accipiter novaehollandiae novaehollandiae
10230	Square-tailed Kite	Lophoictinia isura
10246	Barking Owl	Ninox connivens connivens
10248	Powerful Owl	Ninox strenua
10498	Chestnut-rumped Heathwren	Calamanthus pyrrhopygius
11280	Grey-headed Flying-fox	Pteropus poliocephalus
12283	Lace Monitor	Varanus varius
13117	Brown Toadlet	Pseudophryne bibronii
13125	Southern Toadlet	Pseudophryne semimarmorata
500044	Sticky Wattle	Acacia howittii
501326	Yarra Gum	Eucalyptus yarraensis
501456	Clover Glycine	Glycine latrobeana
501915	Hoary Rapier-sedge	Lepidosperma canescens
502702	Green Leek-orchid	Prasophyllum lindleyanum
502709	Maroon Leek-orchid	Prasophyllum frenchii
502746	Snowy Mint-bush	Prostanthera nivea var. nivea
503392	Paper Flower	Thomasia petalocalyx
504088	Southern Xanthosia	Xanthosia tasmanica
504258	Nodding Baeckea	Euryomyrtus ramosissima subsp. prostrata
504491	Southern Blue-gum	Eucalyptus globulus subsp. globulus
505337	Austral Crane's-bill	Geranium solanderi var. solanderi s.s.

Appendix 2 – Offset requirements detail

If a permit is granted to remove the marked native vegetation the permit condition will include the requirement to obtain a native vegetation offset.

To calculate the required offset amount required the biodiversity equivalence scores are aggregated to the proposal level and multiplied by the relevant risk multiplier.

Offsets also have required attributes:

- General offsets must be located in the same Catchment Management Authority (CMA) boundary or Local Municipal District (local council) as the clearing and must have a minimum strategic biodiversity score of 80 per cent of the clearing.[2]

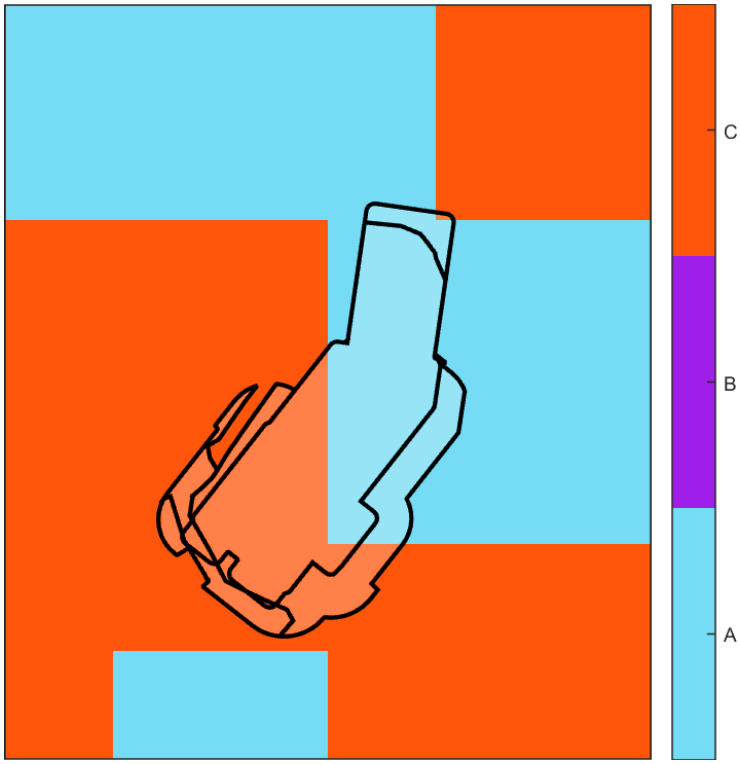
The offset requirements for your proposal are as follows:

Offset type	Clearing site biodiversity equivalence score	Risk multiplier	Offset requirements	
			Offset amount (biodiversity equivalence units)	Offset attributes
General	0.152 GBES	1.5	0.228 general units	Offset must be within Corangamite CMA or Surf Coast Shire Council Offset must have a minimum strategic biodiversity score of 0.431

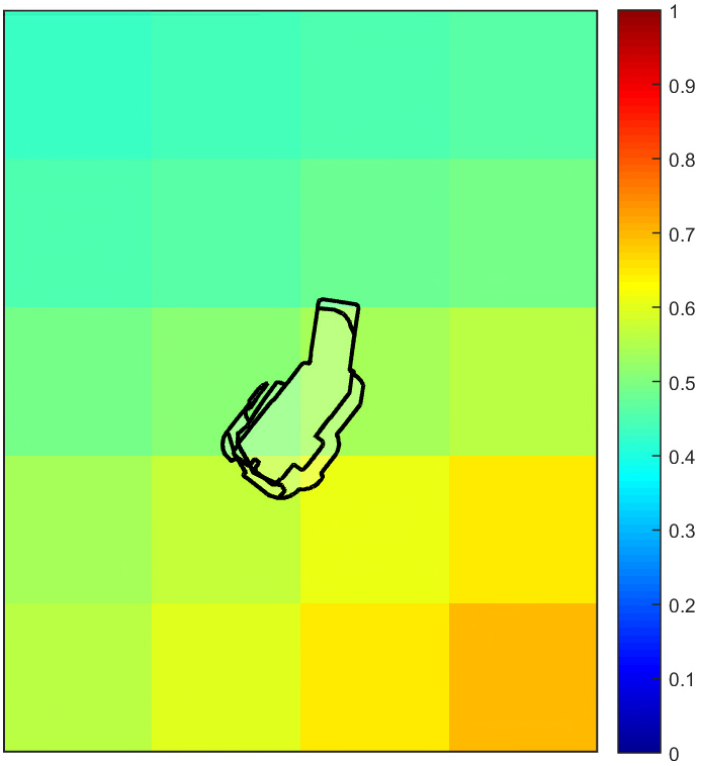
[2] Strategic biodiversity score is a weighted average across habitat zones where a general offset is required

Appendix 3 – Images of marked native vegetation

1. Native vegetation location risk map



2. Strategic biodiversity score map



3. Aerial photograph showing marked native vegetation

Yellow boundaries denote zones of complete clearing.

Blue boundaries denote zones of partial clearing with a halved condition score.

Glossary

Condition score

This is the site-assessed condition score for the native vegetation. Each habitat zone in the clearing proposal is assigned a condition score according to the habitat hectare assessment method. This information has been provided by or on behalf of the applicant in the GIS file.

Dispersed habitat

A dispersed species habitat is a habitat for a rare or threatened species whose habitat is spread over a relatively broad geographic area greater than 2,000 hectares.

General biodiversity equivalence score

The general biodiversity equivalence score quantifies the relative overall contribution that the native vegetation to be removed makes to Victoria's biodiversity. The general biodiversity equivalence score is calculated as follows:

$$\boldsymbol{General\ biodiversity\ equivalence\ score} = \boldsymbol{habitat\ hectares} \times \boldsymbol{strategic\ biodiversity\ score}$$

General offset amount

This is calculated by multiplying the general biodiversity equivalence score of the native vegetation to be removed by the risk factor for general offsets. This number is expressed in general biodiversity equivalence units and is the amount of offset that is required to be provided should the application be approved. This offset requirement will be a condition to the permit for the removal of native vegetation.

$$\boldsymbol{Risk\ adjusted\ general\ biodiversity\ equivalence\ score} = \boldsymbol{general\ biodiversity\ equivalence\ score\ clearing} \times \mathbf{1.5}$$

General offset attributes

General offset must be located in the same Catchment Management Authority boundary or Municipal District (local council) as the clearing site. They must also have a strategic biodiversity score that is at least 80 per cent of the score of the clearing site.

Habitat hectares

Habitat hectares is a site-based measure that combines extent and condition of native vegetation. The habitat hectares of native vegetation is equal to the current condition of the vegetation (condition score) multiplied by the extent of native vegetation. Habitat hectares can be calculated for a remnant patch or for scattered trees or a combination of these two vegetation types. This value is calculated for each habitat zone using the following formula:

$$\boldsymbol{Habitat\ hectares} = \boldsymbol{total\ extent}\ (\boldsymbol{hectares}) \times \boldsymbol{condition\ score}$$

Habitat importance score

The habitat importance score is a measure of the importance of the habitat located on a site for a particular rare or threatened species. The habitat importance score for a species is a weighted average value calculated from the habitat importance map for that species. The habitat importance score is calculated for each habitat zone where the habitat importace map indicates that species habitat occurs.

Habitat zone

Habitat zone is a discrete contiguous area of native vegetation that:

- is of a single Ecological Vegetation Class
- has the same measured condition.

Highly localised habitat

A highly localised habitat is habitat for a rare or threatened species that is spread across a very restricted area (less than 2,000 hectares). This can also be applied to a similarly limited sub-habitat that is disproportionately important for a wide-ranging rare or threatened species. Highly localised habitats have the highest habitat importance score (1) for all locations where they are present.

Minimum strategic biodiversity score

The minimum strategic biodiversity score is an attribute for a general offset.

The strategic biodiversity score of the offset site must be at least 80 per cent of the strategic biodiversity score of the native vegetation to be removed. This is to ensure offsets are located in areas with a strategic value that is comparable to, or better than, the native vegetation to be removed. Where a specific and general offset is required, the minimum strategic biodiversity score relates only to the habitat zones that require the general offset.

Offset risk factor

There is a risk that the gain from undertaking the offset will not adequately compensate for the loss from the removal of native vegetation. If this were to occur, despite obtaining an offset, the overall impact from removing native vegetation would result in a loss in the contribution that native vegetation makes to Victoria's biodiversity.

To address the risk of offsets failing, an offset risk factor is applied to the calculated loss to biodiversity value from removing native vegetation.

$$\boldsymbol{Risk\ factor\ for\ general\ offsets} = \mathbf{1.5}$$

$$\boldsymbol{Risk\ factor\ for\ specific\ offset} = \mathbf{2}$$

Offset type

The specific-general offset test determines the offset type required.

When the specific-general offset test determines that the native vegetation removal will have an impact on one or more rare or threatened species habitat above the set threshold of 0.005 per cent, a specific offset is required. This test is done at the permit application level.

A general offset is required when a proposal to remove native vegetation is not deemed, by application of the specific-general offset test, to have an impact on any habitat for any rare or threatened species above the set threshold of 0.005 per cent. All habitat zones that do not require a specific offset will require a general offset.

Proportional impact on species

This is the outcome of the specific-general offset test. The specific-general offset test is calculated across the entire proposal for each species on the native vegetation permitted clearing species list. If the proportional impact on a species is above the set threshold of 0.005 per cent then a specific offset is required for that species.

Specific offset amount

The specific offset amount is calculated by multiplying the specific biodiversity equivalence score of the native vegetation to be removed by the risk factor for specific offsets. This number is expressed in specific biodiversity equivalence units and is the amount of offset that is required to be provided should the application be approved. This offset requirement will be a condition to the permit for the removal of native vegetation.

$$\boldsymbol{Risk\ adjusted\ specific\ biodiversity\ equivalence\ score} = \boldsymbol{specific\ biodiversity\ equivalence\ score\ clearing} \times \mathbf{2}$$

Specific offset attributes

Specific offsets must be located in the modelled habitat for the species that has triggered the specific offset requirement.

Specific biodiversity equivalence score

The specific biodiversity equivalence score quantifies the relative overall contribution that the native vegetation to be removed makes to the habitat of the relevant rare or threatened species. It is calculated for each habitat zone where one or more species habitats require a specific offset as a result of the specific-general offset test as follows:

$$\boldsymbol{Specific\ biodiversity\ equivalence\ score} = \boldsymbol{habitat\ hectares} \times \boldsymbol{habitat\ importance\ score}$$

Strategic biodiversity score

This is the weighted average strategic biodiversity score of the marked native vegetation. The strategic biodiversity score has been calculated from the *Strategic biodiversity map* for each habitat zone.

The strategic biodiversity score of native vegetation is a measure of the native vegetation's importance for Victoria's biodiversity, relative to other locations across the landscape. The *Strategic biodiversity map* is a modelled layer that prioritises locations on the basis of rarity and level of depletion of the types of vegetation, species habitats, and condition and connectivity of native vegetation.

Total extent (hectares) for calculating habitat hectares

This is the total area of the marked native vegetation in hectares.

The total extent of native vegetation is an input to calculating the habitat hectares of a site and in calculating the general biodiversity equivalence score. Where the marked native vegetation includes scattered trees, each tree is converted to hectares using a standard area calculation of 0.071 hectares per tree. This information has been provided by or on behalf of the applicant in the GIS file.

Vicinity

The vicinity is an attribute for a general offset.

The offset site must be located within the same Catchment Management Authority boundary or Local Municipal District as the native vegetation to be removed.