Vegetation Assessment and Biodiversity Impact and Offset Requirements Report

Briody Drive Torquay West

Final Report

A Report to

Briody Drive Landowner Consortium

Prepared by

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October 2016

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Document History

Version	Date	Distribution
Preliminary Report 1st Draft	November 28 2013	Chris Mason St Quentin Consulting
Final Report	February 24 2015	Chris Mason St Quentin Consulting
Final Report including offset requirements	November 17 2015	Chris Mason St Quentin Consulting
Final Report with modified offset requirements	October 7 2016	Chris Mason St Quentin Consulting

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1 Introduction

1.1 Project Background

This Report has been commissioned by the Briody Drive Landowner Consortium to assess the occurrence and significance of any remnant indigenous vegetation and faunal habitat to discuss any implications for potential vegetation removal at the Briody Drive precinct, Torquay west. A medium density residential sub-division is proposed for the study area.

This report is generally prepared in accordance with the Victorian Native Vegetation Management Framework (*refer to* 4.2), as it was the guiding document at the time of preparation. Where appropriate (i.e. for calculating vegetation offsets) the gazetted Native Vegetation Permitted Clearing Regulations (*refer to* 4.6) are utilized.
This version (October 2016) contains modifications to the amount of vegetation to be removed, and therefor offset, in keeping with the requirements of the Surfcoast Shire.

1.2 Aims

The aims of the study are to:

- Determine the extent of any native vegetation that exists in the study area.
- Describe the vegetation of the study area including vegetation species, species significance and vegetation communities (EVCs).
- Assess the presence of native fauna and native fauna habitat.
- Discuss the legislative implications for any potential vegetation removal including the calculation of vegetation offset requirements.

1.3 Study Area

The study area is the footprint of the proposed residential redevelopment at part of Briody Drive, Torquay west, located within the Surfcoast Shire. The study area is bound by Messmate Road, Grossmans Road, Deep Creek and Illawong Drive, as shown on Map 1. Areas of indigenous vegetation and habitat that occur on the adjacent Roadside Reserves are also included in this study.

The study area is within the Otway Plains bioregion (DELWP website i), which is located within in the Corangamite Catchment Management Authority area. Sections of the study area are subject to a Vegetation Protection Overlay (VPO1) under the Surfcoast Shire Planning Scheme (DPCD website i)

The site appears to have been disturbed in the past, probably due previous agricultural land use and current residential. However the site carries some localised areas of indigenous vegetation. The vegetation of the site can be described as follows:

- Predominately exotic vegetation including plantings of exotic and non-indigenous native trees.
- Areas of indigenous vegetation, comprised of remnant 'patches' and a single scattered tree (*refer to* Figure 7).

1.4 Area of Potential Impact

For the purposes of this report, the area of potential impact is the entire footprint of the proposed residential sub-division. This area is shown on Figure 1.

Figure 1. Location of study area is shown within the red lines.

2 Methodology

2.1 Taxonomy

Scientific names for plants follow the Census of Vascular Plants of Victoria (Walsh and Stasjic 2007). Common names for plants follow the Flora of Victoria Volumes 2-4 (Walsh and Entwisle 1994-1999).

Scientific and common names for birds are consistent with Field Guide to the Birds of Australia (Simpson, Day & Trusler 2004). Scientific and common names for mammals are consistent with Melbourne's Wildlife – A field guide to the fauna of Greater Melbourne (Museum Victoria 2006).

2.2 Literature and Database Review

Relevant literature and databases, including data from within the Victorian Biodiversity Atlas (DELWP website iii), the Biodiversity Interactive Map (DELWP website ii) and the Commonwealth Department of Sustainability, Environment, Water, Populations and Communities (EPBC Website i) were reviewed.

Three types of classification database were obtained to determine the conservation status of the fauna species recorded at the study area. This includes the Department of Environment, Water, Heritage and the Arts *Environment Protection and Biodiversity Conservation Act 1999,* the Department of Sustainability and Environment *Advisory list of threatened vertebrate fauna in Victoria - 2007* and the Department of Sustainability and Environment *Flora and Fauna Guarantee Act 1988.*

2.3 Field Survey

The study area was inspected on foot on the 14th of November 2013 by the report author.

General observations were made on the vegetation and habitat quality of the study area. A list of all indigenous vascular plant species was compiled. The location of any significant vegetation was mapped. Areas of indigenous vegetation were assessed for status (remnant patch or scattered trees). Habitat Hectare vegetation quality assessments were undertaken for areas of remnant patch vegetation. An assessment of the extant fauna, including lists of all extant vertebrate fauna, was undertaken.

2.4 Limitations

The survey was conducted in spring, a time of year when most indigenous plant species should be visible. The survey includes only vascular flora. Non-vascular flora (mosses, lichens, fungi, etc.) species were not recorded. Non-vascular flora was considered only as a percentage cover value component of the Net Gain Field Assessment. Invertebrate fauna surveys were not undertaken. The site inspection is considered to be adequate to assess the ecological values of the site. Although additional survey may record additional plant and fauna species, there are not considered to be any significant limitations to this study.

2.5 Defining Significance

A number of criteria are applied in order to assess the significance of flora species and vegetation communities. The definition of the criteria is detailed in Appendix 1.

2.6 Defining and Assessing Native Vegetation

Native vegetation in Victoria has been defined by DELWP as belonging to two categories. These are:

Remnant Patch

A remnant patch of native vegetation is either:

- any area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
- any area with three or more native canopy trees where the canopy foliage cover is at least 20 per cent of the area.

Scattered Trees

A scattered tree is:

- a native canopy tree that does not form part of a remnant patch.

Habitat Hectares

Habitat hectare (Vegetation Quality Assessment) is a site-based measure that combines extent and condition of native vegetation. The current condition of native vegetation is assessed against a benchmark for its Ecological Vegetation Class (EVC). EVCs are classifications of native vegetation types. The benchmark for an EVC describes the attributes of the vegetation type in its mature natural state, which reflects the pre-settlement circumstances. The condition score of native vegetation at a site can be determined through undertaking a habitat hectare assessment. The habitat hectares of native vegetation is calculated by multiplying the current condition of the vegetation (condition score) by the extent of native vegetation.

(DELWP website ii).

3 Results

3.1 Ecological Vegetation Classes (EVC)

EVCs are the primary level of classification of vegetation communities within Victoria. An EVC contains one or more plant (floristic) community, and represents a grouping of vegetation communities with broadly similar ecological attributes. Classification of EVCs in this report follows Oates and Taranto (2002).

The pre-1750 EVC mapping of the study area undertaken by DELWP (DELWP website i) indicates that the study area and immediate surrounds were comprised of EVC 175 Grassy Woodland and EVC 892 Heathy Woodland/Sandy Heathland mosaic.

This report finds that parts of the study area are comprised of partially intact native vegetation that accords with both EVC 175 Grassy Woodland and EVC 892 Heathy Woodland/Sandy Heathland mosaic as well as an area that is assessed to accord with EVC 83 Swampy Riparian Woodland (Site 7).

The bioregional conservation status of EVC 175 Grassy Woodland and EVC 83 Swampy Riparian Woodland is 'Endangered'. Endangered is defined as an EVC where less than 10% of pre-european extent remains. The bioregional conservation status of EVC 892 Heathy Woodland/Sandy Heathland mosaic is 'Least Concern'. Least Concern is defined as an EVC where greater than 50% of pre-european extent remains (DELWP website i).

Refer to Figure 2 for 1750 EVC distribution and Figure 3 for 2005 EVC distribution (DELWP data- DELWP Website ii).

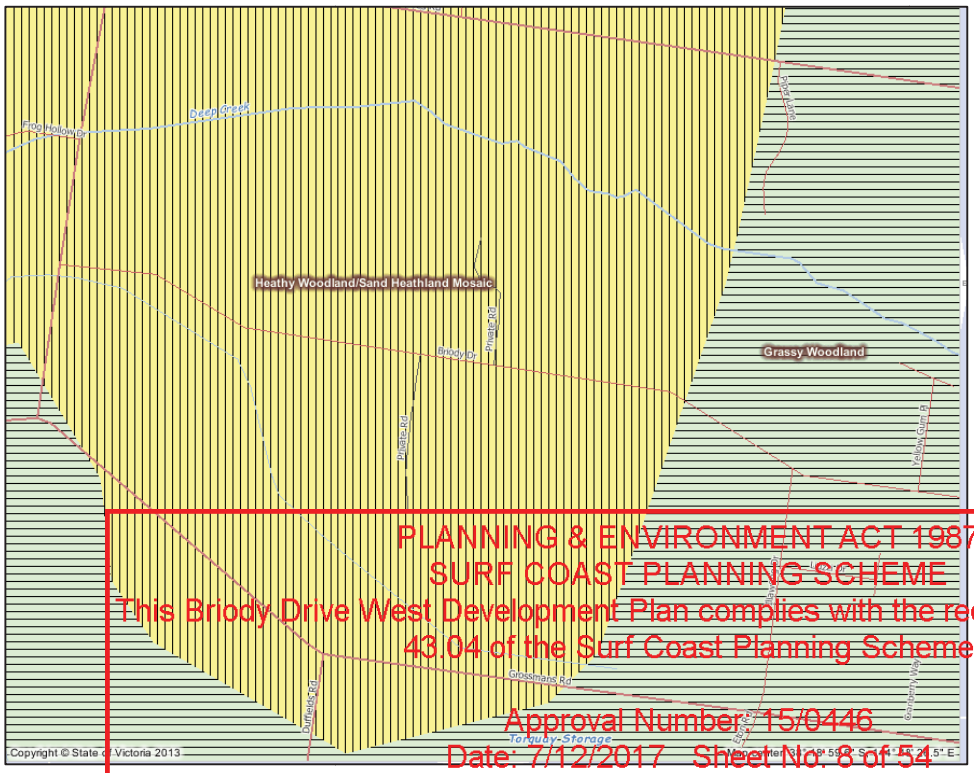


Figure 2. Pre 1750 EVC distribution (DELWP data).

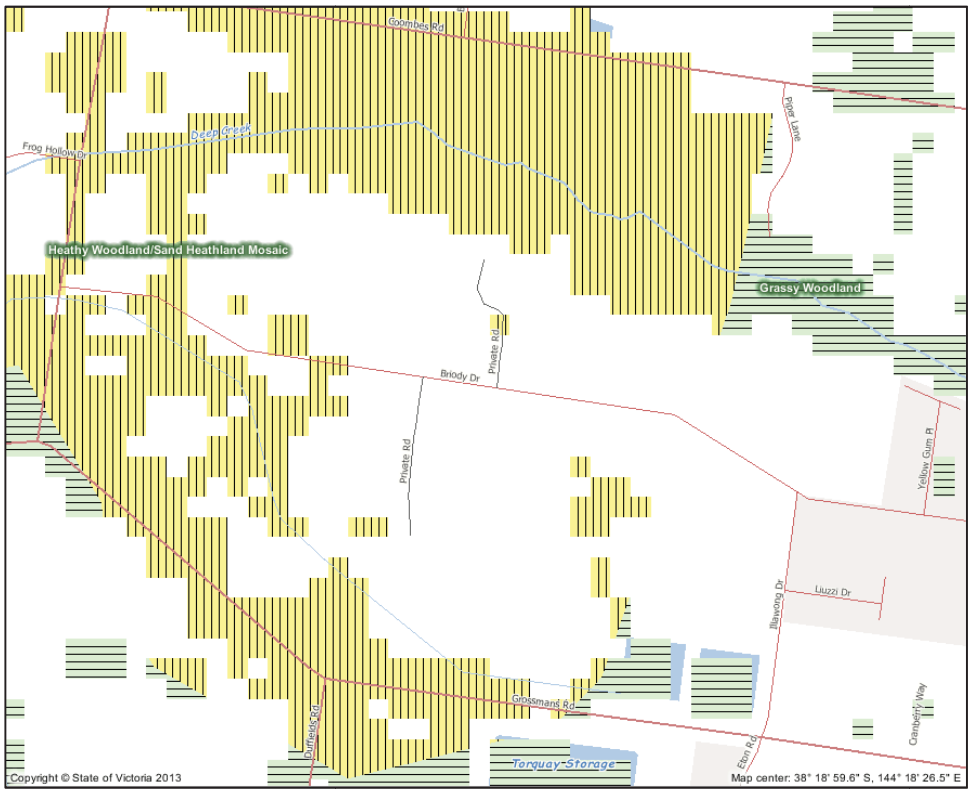


Figure 3. 2005 EVC distribution (DELWP data).

3.2 Flora

The study area consists of mostly exotic and non-indigenous plantation vegetation with scattered occurrences of indigenous species.

The indigenous vegetation consists of remnant 'patches' and one 'scattered tree' of relatively intact vegetation. (*see* Table 1 and 4.1).

3.2.1 Plant Species

The vegetation of the study area consists of a total of 50 indigenous vascular plant species and 30 naturalized exotic vascular plant species. Refer to Table 1 for a list of indigenous vascular plant species recorded this study, including conservation status and location. Refer to Table 2 for a list of naturalized exotic vascular plant species recorded this study.

Table 1 Indigenous Vascular Plant Species, Conservation Status and distribution

Botanical Name	Common Name	Status	1	2	3	4	5	6	7
Acacia mearnsii	Late Black Wattle	Local				*		*	
Acacia paradoxa	Hedge Wattle	Local	*	*					
Acacia pycnantha	Golden Wattle	Local	*	*	*		*	*	
Acacia verniciflua	Varnish Wattle	Local	*				*		
Acacia verticillata	Prickly Moses	Local					*		*
Acaena echinata	Sheeps Burr	Local		*					
Aceana novea-zelandiae	Bidgee-widgee	Local							*
Acrotriche serrulata	Honey Pots	Local	*				*		
Amyema pendulum	Drooping Mistletoe	Local					*		
Arthropodium strictum	Chocolate Lily	Local	*		*		*		
Astroloma humifusum	Cranberry Heath	Local	*				*		
Austrodanthonia geniculata	Kneed Wallaby-grass	Local	*	*					
Austrodanthonia racemosa	Slender Wallaby-grass	Local		*	*		*		
Austrodanthonia sp.	Wallaby-grass	Local			*		*		
Austrostipa sp.	Spear-grass	Local	*	*	*		*		
Cassytha melantha	Coarse Dodder-laurel	Local		*					
Clematis microphylla	Small-leaf Clematis	Local	*				*		
Convolvulus erubescens	Blushing Bindweed	Local	*						
Dianella admixta	Black-anther Flax-lily	Local	*	*			*		
Dianella brevicaulis	Coast Flax-lily	Local	*						
Dichondra repens	Kidney Weed	Local	*				*		
Eucalyptus leucoxylon ssp. *bellarinensis*	Bellarine Yellow Gum	State							
Eucalyptus obliqua	Messmate Stringybark	Local	*	*	*		*	*	
Eucalyptus ovata	Swamp Gum	Local	*				*		
Eucalyptus viminalis	Manna Gum	Local	*		*		*		
Gahnia radula	Thatch Saw-sedge	Local	*	*		*	*	*	

Gonocarpus tetragynus	Common Raspwort	Local	*	*		*	*		
Hydrocotyle hirta	Hairy Pennywort	Local	*				*		
Juncus pallidus	Pale Rush	Local	*	*		*	*		*
Juncus subsecundus	Finger Rush	Local	*	*		*	*		
Lagenifera stipitata	Blue-bottle Daisy	Local	*						
Lepidosperma congestum	Clustered Sword-sedge	Local	*	*			*		
Leptospermum continentale	Prickly Tea-tree	Local	*	*		*	*		*
Lomandra filiformis	Wattle Mat-rush	Local	*	*	*	*	*	*	
Lomandra longifolia	Spiny Mat-rush	Local					*		
Lysanthe strigosa	Peach Heath	Local	*						
Myoporum insulare	Common Boobialla	Local					*		
Microleana stipoides	Weeping Grass	Local	*	*	*	*	*	*	
Oxalis perennans	Woodland Sorrel	Local	*	*	*	*	*	*	
Patersonia fragilis	Short Purple Flag	Local					*		
Pimelea humilis	Common Rice-flower	Local	*						
Platylobium obtusangulum	Common Flat-pea	Local	*						
Poa sieberiana	Slender Tussock-grass	Local	*	*			*		
Pteridium esculentum	Bracken-fern	Local	*	*		*	*		
Senecio biserratus	Jagged Fireweed	Local	*				*		
Senecio quadridentaus	Cottony Groundsel	Local	*				*		
Themeda triandra	Kangaroo Grass	Local	*	*					
Viola hederacea	Common Violet	Local					*		
Xanthorrhea australis	Austral Grass-tree	Local	*						
Xanthorrhea minor	Small Grass-tree	Local					*		

Status: L – Local conservation significance
S – State conservation significance
Species Location (*): 1 - 7 Site Numbers (*see below* 3.4 *and* Map 1)

Table 2 Exotic Vascular Plant Species

Botanical Name	Common Name
Acacia baileana	Cootamundra Wattle
Acacia longifolia ssp. longifolia	Sallow Wattle
Acacia saligna	Golden Wreath Wattle
Acetosella vulgaris	Sheep Sorrel
Agapanthus praecox	Agapanthus
Anthoxanthum odoratum	Sweet Vernal-grass
Arctotheca calendula	Capeweed
Billardiera heterophylla	Bluebell Creeper
Briza maxima	Large Quaking-grass
Chrysanthemoides monilifera	Boneseed
Cotoneaster sp.	Cotoneaster
Cynodon dactylon	Couch
Dactylis glomeratus	Cock's-foot Grass
Ehrharta longiflora	Annual Veldt-grass
Eucalyptus cladocalyx	Sugar Gum
Gazania sp.	Gazania

Holcus lanatus	Yorkshire Fog-grass
Hypochaeris radicata	Flatweed
Leptospermum sp.	Teatree
Lolium sp.	Rye-grass
Melaleuca armillaris	Giant Honey-myrtle
Nassella trichotoma	Serrated Tussock
Oxalis pes-caprae	Soursob
Phalaris aquatica	Toowoomba Canary-grass
Pittosporum undulatum	Sweet Pittosporum
Prunus sp.	Plum
Rumex conglomeratus	Clustered Dock
Trifolim spp.	Clover
Ulex europeus	Gorse
Watsonia meraina ssp. bulbifera	Bulbil Watsonia

3.2.2 Condition of the Native Vegetation

The site supports predominately exotic vegetation with scattered occurrences of indigenous species that due to the quality of the vegetation have been accorded remnant 'patch' and 'scattered tree' status. Remnant 'patch' vegetation was recorded on private property and roadside reserves. Scattered tree vegetation was recorded as a single specimen on private property (Site 4) (*refer to* 3.4 and 4).

Much of the areas of exotic vegetation are comprised of rough lawn or grazed pasture, non-indigenous native and exotic tree plantings and exotic gardens.

Many of the tree plantings appear to originate from the time of the current sub-division (c. 1980s?) and are now relatively mature specimens. As such they provide habitat and a food source for a number of locally common fauna species (*refer to* 3.4).

Refer to Table 3 for a list of dominant planted tree specimens recorded this survey.

Table 3 Dominant Planted Tree Specimens

Botanical Name	Common Name
Acacia spp.	Wattle
Cupressus sp.	Cypress
Eucalyptus cladocalyx	Sugar Gum
Eucalyptus gomphocephalum	Tuart
Eucalyptus leucoxylon (various non-local taxa)	Yellow Gum
Eucalyptus leuhmanii	Bushy Yate
Eucalyptus sideroxylon	Ironbark
Eucalyptus spp.	Gum
Eucalyptus viminalis	Manna Gum
Eucalytus globulus	Blue Gum
Hakea spp.	Hakea
Melaleuca armillaris	Giant Honey-myrtle
Melaleuca spp.	Paper-bark
Pinus radiata	Monterey Pine

3.2.3 Significant Plant Species

One species of State conservation significance, Bellarine Yellow Gum, was recorded during this study. Bellarine Yellow Gum is a listed taxon under the State Flora and Fauna Guarantee Act (*1988*). Bellarine Yellow Gum was recorded from one location, Grossmans Road roadside reserve (Site 3) (*refer to* Plate 3).

All of the remaining 49 indigenous species are assessed to be of Local conservation significance. Refer to Table 1 for a list of significant indigenous plant species.

3.3 Site Descriptions

Each of the sites of indigenous vegetation recorded for the study area described as follows. Details of vegetation status are given in Tables 2, 3 and 4.

Site 1.
Relatively intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation dominated by Messmate, occurring on sections of Grossmans Road roadside reserve and on sections of Messmate Road roadside reserve.

Site 2.
Partially intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation dominated by Acacia species, occurring on private property adjacent to Grossmans Road.

Site 3.
Partially intact EVC 175 Grassy Woodland vegetation (patch) occurring on Grossmans Road roadside reserve including individual specimens of Bellarine Yellow Gum.

Site 4.
Partially intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation, dominated by Messmate and Acacia occurring on private property adjacent to Grossmans Road and Messmate Road.

Site 5.
Relatively intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation dominated by Messmate and Swamp Gum, occurring on Messmate Road roadside reserve.

Site 6.
Partially intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation, dominated by Messmate and Acacia occurring on private property adjacent to Messmate Road.

Site 7.
Partially intact EVC 83 Swampy Riparian Woodland (patch) vegetation, dominated by Prickly Teatree, occurring on private property adjacent to Deans Creek corridor.

Refer to Figure 7 for the location of the recorded sites. Refer to Plates 1-8 for photographs of recorded sites.

3.4 Fauna

A total of 14 vertebrate fauna species (two mammals, 10 birds and two frogs) were recorded for the study area. Refer to Table 4 for a list of all vertebrate fauna species recorded during this study, including conservation status, type of record and distribution within the study area.

Table 4 Vertebrate Fauna, Conservation Significance, type of record and distribution

Common Name	Scientific Name	Conservation Status	Type of record	Distribution within the study area
Mamals				
European Rabbit	*Oryctolagus cuniculus*	Exotic	Scats	Widespread and abundant
Red Fox	*Vulpes vulpes*	Exotic	Scats	Widespread
Birds				
Australian Magpie	*Gymnorhina tibicen*	Local	Sighted	Widespread and abundant
Australian Raven	*Corvus coronoides*	Local	Sighted	Widespread and abundant
Galah	*Eolophus roseicapillus*	Local	Sighted	Widespread
Red Wattlebird	*Anthochaera carunculata*	Local	Heard	Widespread and abundant
Sulphur-crested Cockatoo	*Cacatua galerita*	Local	Sighted	Widespread and abundant
Welcome Swallow		Local	Sighted	Widespread
New Holland Honeyeater		Local	Sighted	Widespread
Restless Fly-catcher		Local	Sighted	Widespread
Willy Wag-tail		Local	Sighted	Widespread
Magpie Lark		Local	Sighted	Widespread and abundant
Amphibians				
Southern Brown Tree Frog	Litoria ewingi	Local	Heard	Site 7 (Deep Creek)
Eastern Common Froglet	Crinia signifera	Local	Heard	Site 7 (Deep Creek)

Implications

All recorded indigenous fauna species are assessed to be of Local conservation significance, being widespread and locally abundant species. The removal of habitat for these species is unlikely to have more than a minor and temporary impact upon populations of these species.

3.5 Significant Habitat

To determine the conservation significance of the native vegetation on site, the significance of the vegetation in providing habitat for rare or threatened species is accessed in terms of 'best 50%' or 'remaining 50%'. If the vegetation provides the best 50% of habitat for the threatened species, the conservation significance is Very High, if it provides the remaining 50%, the conservation significance is High (DNRE Website i).

A significant habitat assessment was carried out for the one significant plant species, 12 significant bird species, two significant frog species and one significant mammal species occurring within a 5km radius of the study area (Table 5).

Of the 16 species, one species, Bellarine Yellow Gum, was recorded for the study area (Site 3 –part of Grossmans Road roadside reserve). The habitat for this species is determined to be 'remaining 50%' as population numbers are low (less than 5 trees, the population is not secure due to vegetation removal in proximity to electricity power lines (*refer to* Plate 3) and as secure populations exist in the nearby Deep Creek Reserve.

Of the 15 fauna species, the study area is determined to provide the remaining 50% due to a combination of the following factors, fragmentation of habitat, degradation of habitat, or unlikely to occur as habitat is not present (*refer to* Table 5).

Implications

The study area is considered to represent the remaining 50% habitat for all of the listed significant species.

Table 5 Habitat Assessment of threatened species known within a 5km radius of study area

Common Name	Preferred Habitat	Likelihood of occurrence	Steps	Determination best/remaining 50% habitat
Plants				
Bellarine Yellow Gum	Woodlands	Present	A-B-C- No	Remaining
Amphibians				
Southern Toadlet	Woodlands and shrublands near water	Potential habitat however unlikely to occur due to fragmentation	A-D-F-no	Remaining
Brown Toadlet	Woodlands and shrublands near water	Potential habitat however unlikely to occur due to fragmentation	A-D-F-no	Remaining
Growling Grass Frog	Wetlands	Potential habitat however unlikely to occur due to fragmentation and	A-D-F-no	Remaining

		degradation		
Birds				
Lathams Snipe	Wetlands	Unlikely to occur	A-D-no	Remaining
Rufous Bristle Bird	Dense near coastal scrub	Potential habitat however unlikely to occur due to fragmentation	A-D-F-no	Remaining
Pied Cormorant	Wetlands	Unlikely to occur	A-D-no	Remaining
Hooded Plover	Coastal	Unlikely to occur		Remaining
Fairy Prion	Coastal	Unlikely to occur	A-D-no	Remaining
Pacific Gull	Coastal	Unlikely to occur	A-D-no	Remaining
Eastern Great Egret	Wetlands	Unlikely to occur	A-D-no	Remaining
Whiskered Tern	Coastal	Unlikely to occur		Remaining
Hardhead	Wetlands	Unlikely to occur	A-D-no	Remaining
Musk Duck	Wetlands	Unlikely to occur	A-D-no	Remaining
Plains Wanderer	Grasslands	Unlikely to occur	A-D-no	Remaining
Grey Goshawk	Tall forest wet gullies	Unlikely to occur	A-D-no	Remaining
Mammals				
Southern Brown Bandicoot	Heathy woodland near coastal scrub	Unlikely to occur	A-D-F-no	Remaining

4 State

4.1 Native Vegetation Management Framework

Net Gain was, at the time the survey was undertaken, the Victorian Government's framework for achieving native vegetation *gains* across the state. The framework is defined in the document *Victorian Native Vegetation Management - A Framework for Action* (DNRE 2002) and is achieved in conjunction with Regional Native Vegetation Plans, prepared by the local Catchment Management Authorities.

Net Gain is described as 'the outcome for native vegetation and habitat where overall gains are greater than overall losses and where individual losses are avoided where possible. Losses and gains are determined by a combined quality/quantity measure and over a specified period of time. Gains may be either required offsets for permitted clearing actions or as a result of land holder and Government assisted efforts that are not associated with clearing' (DNRE Website i).

The stated goal of the framework is to achieve:

> *A reversal, across the whole landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain.*

The three-step approach to net gain is to:

- avoid adverse impacts, particularly through vegetation clearance
- if impacts cannot be avoided, minimize impacts through appropriate consideration in the planning process
- identify appropriate offset options (DNRE website i).

4.2 Native Vegetation Permitted Clearing Regulations

Under Clause 52.16 and Clause 52.17 of the Victorian Planning Provisions, the State has gazetted the Native Vegetation Permitted Clearing Regulations 'the Regulations' (to replace the Native Vegetation Management Framework). The reforms 'introduce a risk based approach to assessing applications to remove native vegetation'

The objective for the permitted clearing of native vegetation is that it results in no net loss. This means permitted clearing has a neutral impact on Victoria's biodiversity.

When native vegetation removal is permitted, an offset must be secured which achieves a no net loss outcome for biodiversity. To achieve this the offset makes a contribution to Victoria's biodiversity that is equivalent to the contribution made by the native vegetation that was removed. The type and amount of offset required depends on the native vegetation being removed and the contribution it makes to Victoria's biodiversity (DELWP Website i).

DELWP have produced a range of biodiversity information tools to assess site significance and to assess the potential impacts of any permitted vegetation clearing. The biodiversity information tools are as follows:

- Native Vegetation Extent; the 'area of land covered by native vegetation'.
- Native Vegetation Site Condition; 'comprised of three components, species diversity, structure and function'.
- Native Vegetation Location Risk' 'location risk is calculated on the basis of a set of spatial models describing the importance of suitable habitat within the current extent of native vegetation for many rare or threatened species and native vegetation modelled condition data'.
- Strategic Biodiversity Score; a ' spatially explicit view of strategic biodiversity values', it 'identifies the value of a site relative to the value of all other Victorian locations'.

Refer to Figure 4 for Location Risk mapping.

Figure 4. Distribution of vegetation according to 'Location Risk'. Blue equates to 'Location Risk A' (i.e. Least Risk). Purple equates to "Location Risk B" (i.e. Medium Risk) Orange equates to 'Location Risk C' (i.e. High Risk). (DELWP Website i). The proposed impacts are sited within areas of Location A, B and C.

Consequently the proposal is assessed according to the document 'Permitted clearing of native vegetation- Meeting the moderate and high risk-based pathway application requirements' (DELWP Website iii). Refer to Appendix 2 and Appendix 3 for the DELWP generated Biodiversity Impact and Offset Requirements Report (DELWP website iv).

4.3 Areas of Remnant Patch Vegetation

The current survey results show that seven sites of remnant 'patch' native vegetation are present across the study area. These patches are summarized in Table 6 as follows.

Table 6 Patches of Indigenous Vegetation

Site #	Location	EVC	Habitat Zone	Description
1	Grossmans Rd roadside reserve	892	1	Relatively intact vegetation.
2	Grossmans Rd private land	892	2	Partially intact vegetation.
3	Grossmans Rd roadside reserve	175	3	Relatively intact vegetation. Includes Bellarine Yellow Gum trees.
4	Grossmans Rd/Messmate Rd private land	892	4	Partially intact vegetation
5	Messmate Rd roadside reserve	892	1	Relatively intact vegetation.
6	Messmate Rd private land	892	4	Partially intact vegetation..
7	Messmate Rd private land (Deep Creek)	83	5	Partially intact vegetation.

Refer to Figure 7 for the location of remnant 'patch' sites.

The current survey results show that the study area consists of 5 habitat zones, referred to as Habitat Zones 1-5. The results of the habitat hectare values are described in Tables 7-11as follows.

Table 7 Habitat Hectare Assessment –Habitat Zone 1 (Sites 1 and 5)

EVC 892 Heathy Woodland/ Sandy Heathland mosaic		Score maximum	Score
Habitat Zone			**1**
Site Condition	Large Old Trees	10	6
	Canopy Cover	5	4
	Understorey	25	15
	Lack of Weeds	15	9
	Recruitment	10	3
	Organic Matter	5	3
	Logs	5	0
Landscape	Patch Size	10	1
	Neighbourhood	10	0
	Distance Core	5	1
Habitat Score		**100**	**42**
EVC Conservation Status			Least Concern
Conservation Significance	Conservation Status x Habitat Hectare Rating		Low
	Threatened Species Rating		Low
	Other Site Attribute Rating		Low
	Overall Conservation Significance (Highest)		**Low**

Table 8 Habitat Hectare Assessment –Habitat Zone 2 (Site 2)

EVC 892 Heathy Woodland/ Sandy Heathland mosaic		Score maximum	Score
Habitat Zone			**2**
Site Condition	Large Old Trees	10	0
	Canopy Cover	5	0
	Understorey	25	5
	Lack of Weeds	15	9
	Recruitment	10	3
	Organic Matter	5	3
	Logs	5	0
Landscape	Patch Size	10	1
	Neighbourhood	10	0
	Distance Core	5	1
Habitat Score		**100**	**22**
EVC Conservation Status			Least Concern
Conservation Significance	Conservation Status x Habitat Hectare Rating		Low
	Threatened Species Rating		Low
	Other Site Attribute Rating		Low
	Overall Conservation Significance (Highest)		**Low**

Table 9 Habitat Hectare Assessment –Habitat Zone 3 (Site 3)

EVC 175 Grassy Woodland		Score maximum	Score
Habitat Zone			**3**
Site Condition	Large Old Trees	10	6
	Canopy Cover	5	4
	Understorey	25	5
	Lack of Weeds	15	9
	Recruitment	10	3
	Organic Matter	5	3
	Logs	5	0
Landscape	Patch Size	10	1
	Neighbourhood	10	0
	Distance Core	5	1
Habitat Score		**100**	**32**
EVC Conservation Status			Endangered
Conservation Significance	Conservation Status x Habitat Hectare Rating		High
	Threatened Species Rating		Medium
	Other Site Attribute Rating		Low
	Overall Conservation Significance (Highest)		**High**

Table 10 Habitat Hectare Assessment –Habitat Zone 4 (Sites 4 and 6)

EVC 892 Heathy Woodland/ Sandy Heathland mosaic		Score maximum	Score
Habitat Zone			**4**
Site Condition	Large Old Trees	10	6
	Canopy Cover	5	4
	Understorey	25	15
	Lack of Weeds	15	9
	Recruitment	10	3
	Organic Matter	5	3
	Logs	5	0
Landscape	Patch Size	10	1
	Neighbourhood	10	0
	Distance Core	5	1
Habitat Score		**100**	**42**
EVC Conservation Status			Least Concern
Conservation Significance	Conservation Status x Habitat Hectare Rating		Low
	Threatened Species Rating		Low
	Other Site Attribute Rating		Low
	Overall Conservation Significance (Highest)		**Low**

Table 11 Habitat Hectare Assessment –Habitat Zone 5 (Site 7)

EVC 83 Swampy Riparian Woodland		Score maximum	Score
Habitat Zone			**5**
Site Condition	Large Old Trees	10	0
	Canopy Cover	5	0
	Understorey	25	5
	Lack of Weeds	15	2
	Recruitment	10	3
	Organic Matter	5	3
	Logs	5	0
Landscape	Patch Size	10	1
	Neighbourhood	10	0
	Distance Core	5	1
Habitat Score		**100**	**15**
EVC Conservation Status			Endangered
Conservation Significance	Conservation Status x Habitat Hectare Rating		High
	Threatened Species Rating		Low
	Other Site Attribute Rating		Low
	Overall Conservation Significance (Highest)		**High**

Note that for EVC 892 the benchmark utilized for this assessment is EVC 48 Heathy Woodland. This EVC is considered to be the closest to EVC 892. It has been selected as the benchmark for EVC 892 (Otway Plain bioregion) is not currently available from the DELWP website.

Table 12 provides a summary of the Habitat Hectare scores and Overall Conservation Significance for each site.

Table 12 Summary of Habitat Hectare scores and Overall Conservation Significance

Site #	Habitat Zone	EVC	Bioregional Conservation Significance	Habitat Score	Overall Conservation Significance
1	1	892	Least Concern	42	Low
2	2	892	Least Concern	22	Low
3	3	175	Endangered	32	High
4	4	892	Least Concern	42	Low
5	1	892	Least Concern	42	Low
6	4	892	Least Concern	42	Low
7	5	83	Endangered	15	High

4.4 Scattered Trees

Under the Regulations, any scattered native canopy trees that are proposed to be removed are subject to protection/and or recruitment offsets, depending upon the characteristics of the site.

For practicality, a standard extent amount (i.e. 0.071 ha) has been developed for scattered trees, based on the habitat hectare assessment method.

Within the Otway Plains Bioregion:

- EVC 175 Grassy Woodland has Eucalyptus spp over 70 cm DBH (diameter at breast height) and Allocasuarina spp over 40 cm DBH as ‘large’ trees.
- EVC 83 Swampy Riparian Woodland has Eucalyptus spp over 70 cm DBH as ‘large’ trees.
- EVC 892 Heathy Woodland/Sandy Heathland mosaic has Eucalyptus spp over 60 cm DBH as ‘large’ trees (data for EVC 892 taken from EVC 48 Heathy Woodland as no data for EVC 892 was available at the time of report preparation).

The current survey results show that one scattered tree is present in the study area.

4.5 Implications

The DELWP Biodiversity Impact and Offset Requirements Report (*refer to* Appendix 2 for the entire study area and Appendix 3 by individual properties) determines that, if a permit to remove the described vegetation is granted, the following vegetation offsets would be required for the current proposal:

Study Area Implications (Appendix 2)

- 0.053 general biodiversity equivalence units, to be achieved within the CCMA. or Surfcoast Shire area, with a minimum strategic biodiversity score of 0.552.
- 0.396 specific biodiversity equivalence units, habitat for 503392, Paper Flower.
- 0.039 specific biodiversity equivalence units, habitat for 504891, Bellarine Yellow Gum.

4.6 State Flora and Fauna Guarantee Act

The *Flora and Fauna Guarantee Act 1988* (FFG Act) is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes.

The flora and fauna conservation and management objectives, as outlined under the *Flora and Fauna Guarantee Act 1988*, are:
(a) to guarantee that all taxa of Victoria's flora and fauna can survive, flourish and retain their potential for evolutionary development in the wild
(b) to conserve Victoria's communities of flora and fauna
(c) to manage potentially threatening processes
(d) to ensure that any use of flora or fauna by humans is sustainable
(e) to ensure that the genetic diversity of flora and fauna is maintained
(f) to provide programs:
(i) of community education in the conservation of flora and fauna
(ii) to encourage co-operative management of flora and fauna through, amongst other things, the entering into of land management co-operative agreements under the *Conservation, Forests and Lands Act 1987*
(iii) of assisting and giving incentives to people, including landholders, to enable flora and fauna to be conserved
(g) to encourage the conserving of flora and fauna through co-operative community endeavors.

Bellarine Yellow Gum is a listed taxon under the State FFG Act. Bellarine Yellow Gum was recorded from one location, Grossmans Road roadside reserve (Site 3).

Implications

Removal of Bellarine Yellow Gum would require a permit under the FFG Act.

Removal of any of the remnant indigenous vegetation recorded within the study area that is located on Crown land (i.e. the roadside reserves) would require a permit under the FFG Act.

5 Vegetation Protection Overlay 1

Within the Surfcoast Shire Planning Scheme Vegetation Protection Overlay 1 (VPO1) has been established to protect environmentally significant values, specifically being indigenous vegetation, within the area that it covers (DPCD website i).

Statement of nature and significance of vegetation to be protected
Areas identified in this scheme are considered significant because one or more of the following apply:

- The vegetation comprises important biodiversity links and corridors between large public land blocks of forest.
- The vegetation forms a link between a major block of vegetation and smaller remnant areas.

The areas consolidate remnant corridors along streams.

- Areas are considered to be of high conservation significance containing diverse flora

and fauna and/or threatened species or communities.

- Areas are representative of a depleted vegetation type in the region or State.
- Vegetation to be protected includes native trees, understorey vegetation, heath and grasses.

Vegetation protection objective to be achieved

- To protect and ensure the long term future of significant native vegetation.
- To ensure development and use does not impact on significant native vegetation.
- To encourage regeneration of significant native vegetation.
- To promote the use of locally indigenous plants for regeneration and revegetation.
- To ensure siting and design of development and works maintains the physical and biological integrity of the natural system.

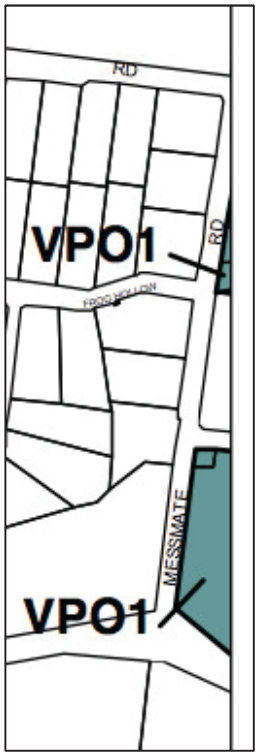
(DCPD website i).

Implications

The results confirm that sections of the study area includes areas of indigenous vegetation that is covered by VPO1 (Sites 4, 6 and 7).

Any application to remove vegetation that occurs within VPO1 (Sites 4, 6 and 7) would require an appropriate response to that overlay.

Refer to Figures 5 and 6 for the location of VPO1 within the study area.



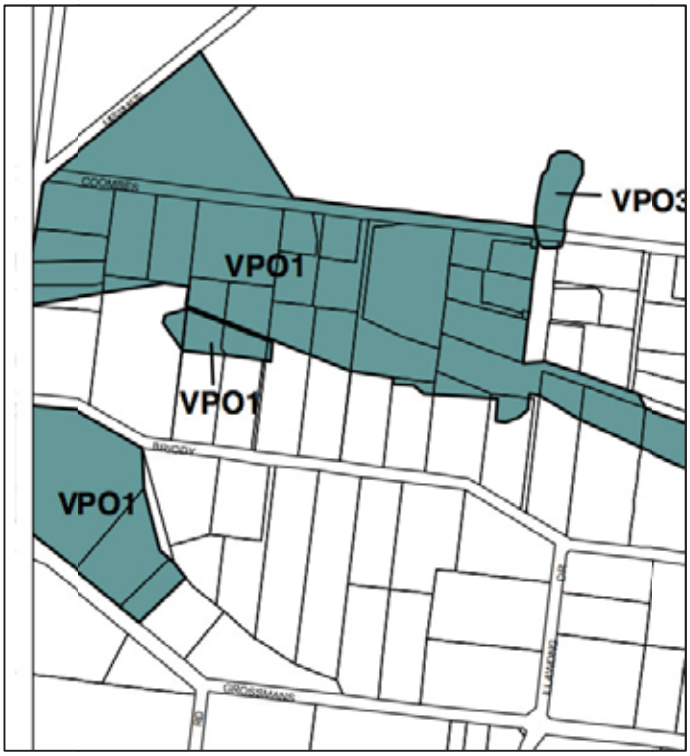


Figure 5. Figure 6.

Figure 5. VPO distribution eastern sector of study area.
Figure 6. VPO1 distribution western sector of study area.

6 Commonwealth Environment Protection and Biodiversity Conservation Act

The Environment Protection and Biodiversity Conservation (EPBC) Act (1999) was established to 'promote the conservation of biodiversity by providing strong protection for listed species and communities in the Commonwealth and for protected areas, Ramsar sites, Commonwealth Reserves, conservation zones and World Heritage sites, etc'.

There are seven *Matters of National Environmental Significance (*MNES) identified in the *EPBC Act 1999*. Certain actions – in particular, actions that are likely to have a significant impact on any MNES – are subject to a rigorous assessment and approval process (DEH, 2006a). MNES that may act as triggers for the Commonwealth assessment and approval regime for this Project are addressed below (DEH, 2006a). The Protected Matters Search Tool (PMST) was utilised to identify potential MNES for the Project.

World Heritage Properties
The Protected Matters Search Tool identifies no World Heritage Properties within 5 km of the study site.

National Heritage Places
The Protected Matters Search Tool identifies no National Heritage Places within 5 km of the study site.

Ramsar Wetlands of International Significance
Ramsar sites are wetland areas declared to be internationally important by the Commonwealth Government using criteria developed by the Ramsar Convention. No Ramsar Sites occur within 5 km of the study site.

Threatened Species and Communities
Threatened communities
No nationally threatened ecological communities are predicted to occur within a 5 km radius of the study site according to the PMST.

Threatened flora species
No EPBC-listed flora species were recorded during the field assessment. There is potential for the three EPBC listed flora to occur within the study site (i.e. Site 3 the Grossmans Rd road reserve), as suitable habitat is present (namely Grassy Woodland). However, it is concluded that there is a low likelihood that these species occur at the study site owing to the degraded nature of the understorey and the absence of previous records of these species within 5 km of the study site (refer to 3.5).

Threatened fauna species
No EPBC-listed fauna species were recorded during the field assessment. There is potential for 12 EPBC listed fauna to occur within the study site. There is a low – medium likelihood of any of the listed species occurring at the study site is considered due to the degraded nature of the site.

Migratory Species
No EPBC-listed migratory bird species were recorded during the field assessment. The PMST predicts a total of 30 species (or suitable habitat for these species) occurring within a 5km radius area. Although a number of these species may use the study site sporadically (predominantly along Deep Creek), the study site does not contain important or critical habitat for any of these species (refer to 3.5).

Commonwealth Marine Areas
The study site is not within a Commonwealth marine area.

Nuclear Actions (including uranium mining)
The Project is not considered to be a nuclear action.

Implications

From flora and fauna considerations, this Project is unlikely to require a referral under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999, as the proposed development is unlikely to impact on a Matter of National Environmental Significance.

7 Conclusions

The vegetation of the study area consists of a total of 50 indigenous and 30 naturalized exotic vascular plant species.

One species of State conservation significance, Bellarine Yellow Gum, was recorded during this study, located on the Grossmans Road roadside reserve. Bellarine Yellow Gum is a listed taxon under the State Flora and Fauna Guarantee Act (*1988*). The remaining 49 indigenous plant species are assessed to be of Local conservation significance.

A total of 12 indigenous vertebrate fauna species (10 birds and two frogs) were recorded for the study area. These fauna species are assessed to be of Local conservation significance, being widespread and locally abundant species. The removal of habitat for these species is unlikely to have more than a minor and temporary impact upon populations of these species.

The study area contains 7 sites that contain remnant 'patch' vegetation and one 'scattered tree'.

Utilizing the Framework criteria, the areas of indigenous vegetation that occur within the study area are assessed as being of **Low** (Sites 1, 2, 4, 5 and 6) and **High Conservation Significance** (Sites 3 and 7).

The study area is assessed to represent the remaining 50% habitat for all of the 16 threatened species listed as occurring within the vicinity of the study area.

The Native Vegetation Permitted Clearing Regulations are utilized to determine vegetation offset requirements. DSE mapping assess the vegetation proposed to be removed as sited within 'Locations Risk A' and 'Location Risk C'.

A permit to clear less than 0.5 ha of 'Location Risk A' vegetation (i.e. Properties 1 and 2) is deemed a 'Low Risk-based pathway application'. A permit to clear less than 0.5 ha of 'Location Risk C' vegetation (i.e. Properties 3, 4, 14, 15 and 16) is deemed a 'High Risk-based pathway application'.

The DELWP Biodiversity Impact and Offset Requirements Report determines that, if a permit to remove the described vegetation is granted, the following vegetation offset requirements would be required for the current proposal:

Study Area Implications

- 0.053 general biodiversity equivalence units, to be achieved within the CCMA or Surfcoast Shire area, with a minimum strategic biodiversity score of 0.552.
- 0.396 specific biodiversity equivalence units for Paper Flower.
- 0.080 specific biodiversity equivalence units for Bellarine Yellow Gum.

As the sections of the study area (Sites 1, 3 and 5) are located on crown land (road reserves), the removal of any of the remnant indigenous vegetation on those sites will require a permit under the FFG Act. The removal of any Bellarine Yellow Gums at Site 3 would also require a permit under the FFG Act.

Sites 4, 6 and 7 are located within Vegetation Protection Overlay (VPO1). The purpose of VPO1 is to protect significant vegetation and wildlife corridors. Consequently an appropriate response to the decision guidelines would be required.

The vegetation of the study area is not of sufficient quality or size to create any implications for the Commonwealth (i.e. EPBC Act) legislation.

There are not considered to be any significant limitations to this study.

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Appendix 1 Assessing Conservation Significance

Botanical conservation significance is assessed at a range of scales, including global, international, national, state, regional and local. Criteria used for determining the conservation significance of flora and fauna at national to local scales are presented below for botanical conservation significance.

National botanical significance applies to an area when it supports one or more of the following attributes:

A population of at least one nationally threatened plant species listed by Briggs and Leigh (1996) or plant species listed on the schedules to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State botanical significance applies to an area when it supports one or more of the following attributes:

A population of at least one plant species threatened in Victoria, as listed by Gullan et al. (1990), NRE (2000a) or more recently in the unpublished records of the Flora Information System (NRE), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.

An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional botanical significance applies to an area that supports one or more of the following attributes:

Supports a population of one or more regionally depleted species defined in a valid regional assessment of biodiversity (eg. Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents).

An ecological vegetation class that is considered endangered or vulnerable in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case the area is of **High Regional** significance.

An ecological vegetation class that is considered depleted in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case it is of **Regional** significance.

Local botanical significance applies to all remnant native vegetation that does not meet the above criteria. In much of Victoria, and in particular on the Otway plains, native vegetation has been so depleted by past clearing and disturbance that all remaining vegetation must be considered to be of at least local conservation significance.

Appendix 2 Biodiversity Impact and Offset Requirements Report

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: 04/10/2016
Time of issue: 10:23 am

DELWP ref: MTE_0014

Project ID	Grossmans_Rd_Torquay

Summary of marked native vegetation

Risk-based pathway	**High**
Total extent	1.044 ha
Remnant patches	0.974 ha
Scattered trees	1 tree
Location risk	C
Strategic biodiversity score of all marked native vegetation	0.710

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)	0.053 general units
General offset attributes	
Vicinity	Corangamite Catchment Management Authority (CMA) **or** Surf Coast Shire Council
Minimum strategic biodiversity score	0.552[1]
Offset type	**Specific offset(s)**
Specific offset amount (specific biodiversity equivalence units) and attributes	0.396 specific units of habitat for Paper Flower 0.039 specific units of habitat for Bellarine Yellow-gum

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

Page1

Biodiversity impact and offset requirements report

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.

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Biodiversity impact and offset requirements report

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
1-1-HZ1	0.220	0.055	0.012
2-2-HZ2	0.220	0.053	0.012
3-3-HZ3	0.220	0.015	0.003
4-4-HZ4	0.220	0.097	0.021
5-5-HZ5	0.150	0.176	0.026
6-6-HZ6	0.420	0.053	0.022
7-7-HZ7	0.420	0.066	0.028
8-8-HZ8	0.420	0.273	0.115
9-9-HZ9	0.420	0.060	0.025
10-11-HZ11	0.220	0.125	0.027
11-10-HZ10	0.200	0.070	0.014
TOTAL			**0.306**

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 has a proportional impact above the specific offset threshold for the following rare or threatened species' habitats

Species number	Species common name	Species scientific name	Species type	Area of mapped habitat (ha)	Proportional impact (%)
503392	Paper Flower	Thomasia petalocalyx	Dispersed	0.776	0.007 %
504891	Bellarine Yellow-gum	Eucalyptus leucoxylon subsp. bellarinensis	Highly Localised - model & points	0.089	0.008 %

Biodiversity impact and offset requirements report

Clearing site biodiversity equivalence score(s)

Where a habitat zone requires specific offset(s), the specific biodiversity equivalence score(s) for each species in that habitat zone is calculated by multiplying the habitat hectares of the habitat zone by the habitat importance score for each species impacted in the habitat zone.

Habitat zone	Habitat hectares	Habitat for rare or threatened species					Specific biodiversity equivalence score (SBES)
		Proportion of habitat zone with specific offset	Species number	Species common name	Species scientific name	Habitat importance score	
1-1-HZ1	0.012	45.776 %	503392	Paper Flower	Thomasia petalocalyx	0.753	0.004
2-2-HZ2	0.012	99.019 %	503392	Paper Flower	Thomasia petalocalyx	0.770	0.009
2-2-HZ2	0.012	89.907 %	504891	Bellarine Yellow-gum	Eucalyptus leucoxylon subsp. bellarinensis	1.000	0.011
3-3-HZ3	0.003	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.770	0.003
4-4-HZ4	0.021	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.768	0.016
6-6-HZ6	0.022	57.717 %	503392	Paper Flower	Thomasia petalocalyx	0.730	0.009
7-7-HZ7	0.028	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.752	0.021
8-8-HZ8	0.115	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.786	0.090
9-9-HZ9	0.025	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.790	0.020
10-11-HZ11	0.027	68.874 %	503392	Paper Flower	Thomasia petalocalyx	0.765	0.014
10-11-HZ11	0.027	32.629 %	504891	Bellarine Yellow-gum	Eucalyptus leucoxylon subsp. bellarinensis	1.000	0.009
11-10-HZ10	0.014	100.000 %	503392	Paper Flower	Thomasia petalocalyx	0.786	0.011

Biodiversity impact and offset requirements report

There are habitat zones in your proposal which are not habitat for the species above. A general offset is required for the(se) habitat zone(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)
1-1-HZ1	0.012	54.224 %	0.855	0.006
2-2-HZ2	0.012	0.981 %	0.814	0.000
5-5-HZ5	0.026	100.000 %	0.643	0.017
6-6-HZ6	0.022	42.283 %	0.626	0.006
10-11-HZ11	0.027	31.126 %	0.814	0.007

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
10045	Lewin's Rail	Lewinia pectoralis pectoralis
10215	Hardhead	Aythya australis
10220	Grey Goshawk	Accipiter novaehollandiae novaehollandiae
10226	White-bellied Sea-Eagle	Haliaeetus leucogaster
10230	Square-tailed Kite	Lophoictinia isura
10238	Black Falcon	Falco subniger
10246	Barking Owl	Ninox connivens connivens
10498	Chestnut-rumped Heathwren	Calamanthus pyrrhopygius
10598	Painted Honeyeater	Grantiella picta
11280	Grey-headed Flying-fox	Pteropus poliocephalus
12283	Lace Monitor	Varanus varius
12683	Glossy Grass Skink	Pseudemoia rawlinsoni
13117	Brown Toadlet	Pseudophryne bibronii
13125	Southern Toadlet	Pseudophryne semimarmorata
500044	Sticky Wattle	Acacia howittii
501456	Clover Glycine	Glycine latrobeana
505337	Austral Crane's-bill	Geranium solanderi var. solanderi s.s.

Biodiversity impact and offset requirements report

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]
- Specific offsets must be located in the same species habitat as that being removed, as determined by the habitat importance map for that species.

The offset requirements for your proposal are as follows:

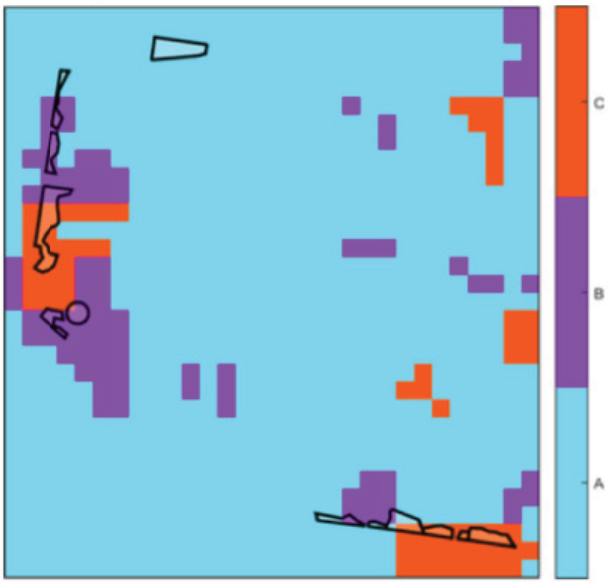
Offset type	Clearing site biodiversity equivalence score	Risk multiplier	Offset requirements	
			Offset amount (biodiversity equivalence units)	Offset attributes
Specific	0.198 SBES	2	0.396 specific units	Offset must provide habitat for 503392, Paper Flower, Thomasia petalocalyx
Specific	0.019 SBES	2	0.039 specific units	Offset must provide habitat for 504891, Bellarine Yellow-gum, Eucalyptus leucoxylon subsp. bellarinensis
General	0.036 GBES	1.5	0.053 general units	Offset must be within Corangamite CMA or Surf Coast Shire Council Offset must have a minimum strategic biodiversity score of 0.552

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

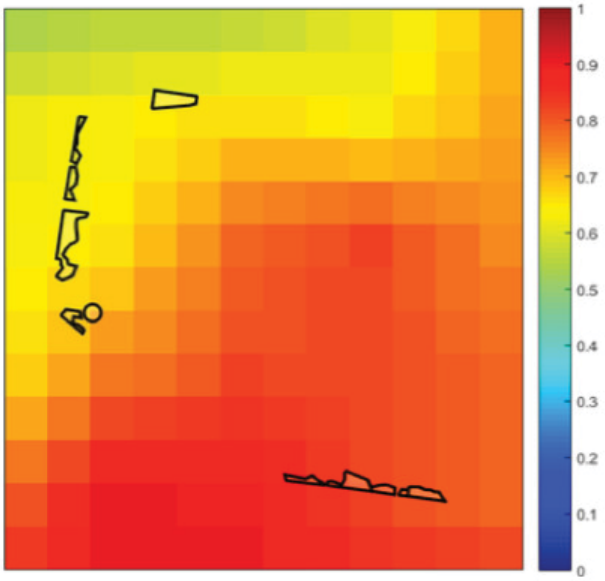
Biodiversity impact and offset requirements report

Appendix 3 – Images of marked native vegetation

1. Native vegetation location risk map



2. Strategic biodiversity score map



Biodiversity impact and offset requirements report

3. Aerial photograph showing marked native vegetation

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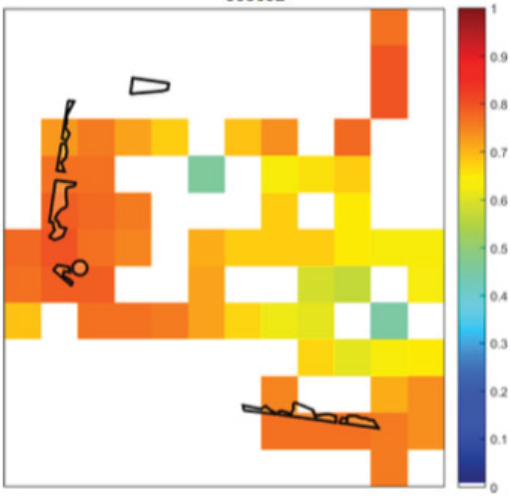
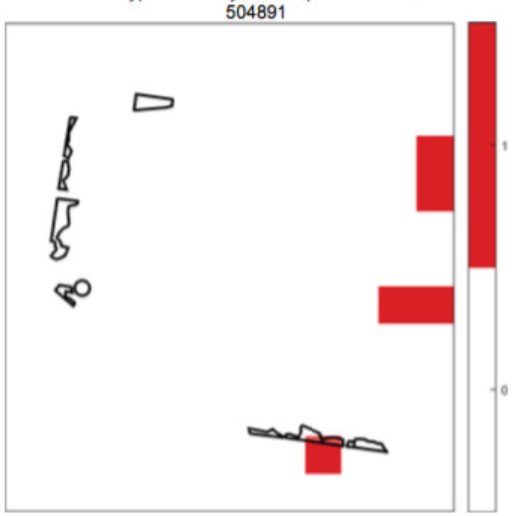
4. Habitat importance maps

Paper Flower
Thomasia petalocalyx
503392



Bellarine Yellow-gum
Eucalyptus leucoxylon subsp. bellarinensis
504891



Biodiversity impact and offset requirements report

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:

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

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.

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

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:

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

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.

Biodiversity impact and offset requirements report

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.

$$Risk\ factor\ for\ general\ offsets = 1.5$$

$$Risk\ factor\ for\ specific\ offset = 2$$

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.

$$Risk\ adjusted\ specific\ biodiversity\ equivalence\ score = specific\ biodiversity\ equivalence\ score\ clearing \times 2$$

Biodiversity impact and offset requirements report

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: $$\textit{Specific biodiversity equivalence score} = \textit{habitat hectares} \times \textit{habitat importance score}$$
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.

Figure 7 Vegetation Locations

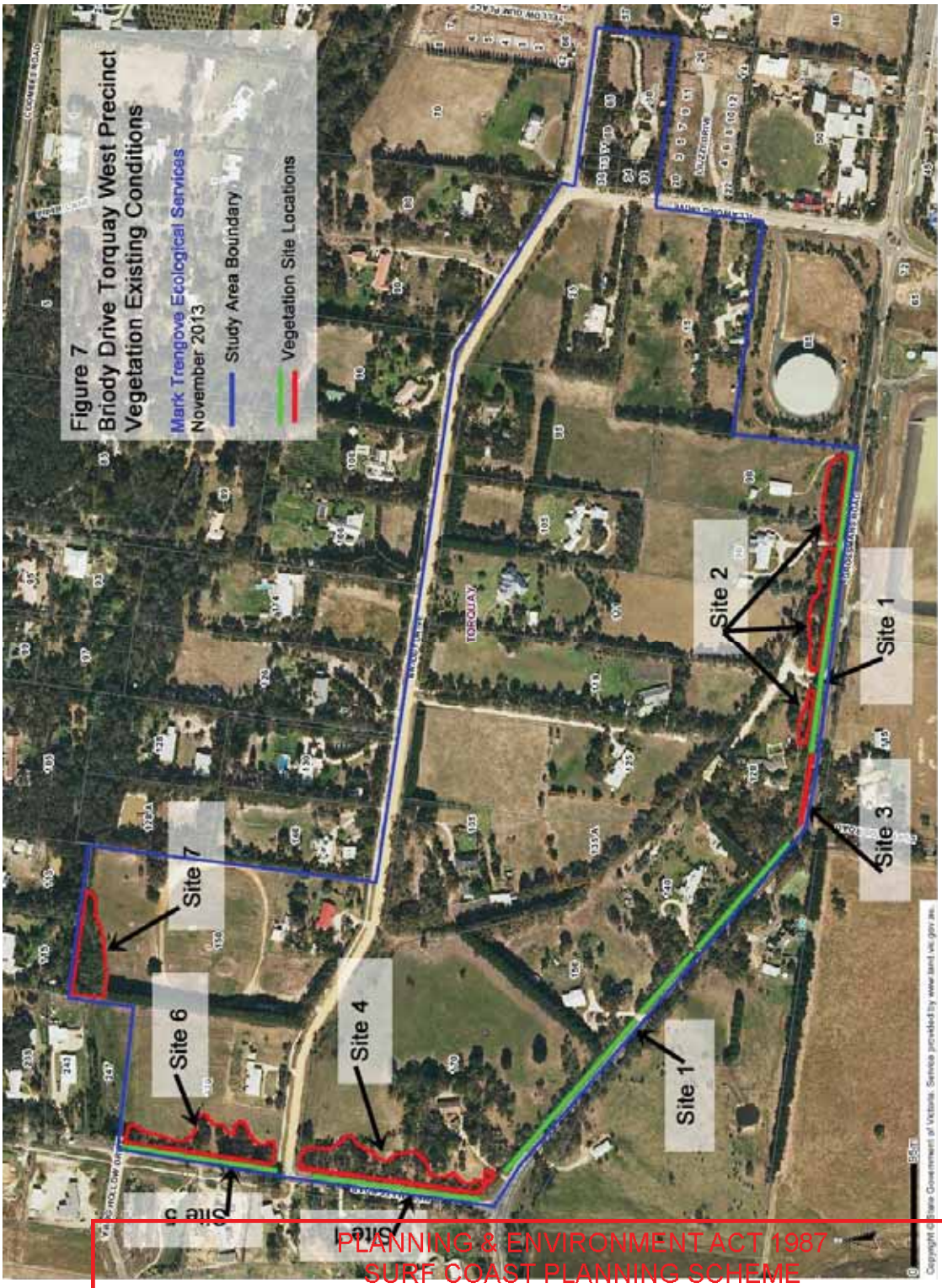


Figure 7. Locations of occurrences of remnant 'patch' and 'scattered tree' vegetation.

Plates 1-8 Site Photographs

Plate 1. Site 1 Grossmans Rd roadside vegetation. EVC 892 Heathy Woodland/Sandy Heathland mosaic vegetation with mature trees with a relatively intact understorey. Note heavy recent pruning under power lines.

Plate 2. Site 2. Partially intact EVC 892 Heathy Woodland/Sandy Heathland mosaic (patch) vegetation dominated by Acacia species occurring on private property adjacent to Grossmans Road. Note that Eucalyptus trees to the rear are located on roadside reserve (Site 1).

Plate 3. Site 3. Partially intact EVC 175 Grassy Woodland vegetation occurring on Grossmans Road Roadside Reserve including individual specimens of Bellarine Yellow Gum. Note heavy recent pruning of Bellarine Yellow Gum under power lines.

Plate 4. Planting of non-indigenous native species on Briody Rd roadside reserve adjacent private property. The tree on the left of the Plate is a mature indigenous Yellow Gum.

Plate 5. Private property Briody Drive typical conditions. Grazed paddock of exotic grasses and weeds.

Plate 6. Relatively intact EVC 892 Heathy Woodland/Sandy Heathland mosaic vegetation dominated by Messmate and Swamp Gum, occurring on Messmate Road Roadside Reserve

Plate 7. Partially intact EVC 892 Heathy Woodland/Sandy Heathland mosaic vegetation, dominated by Messmate and Acacia occurring on private property adjacent to Messmate Road.

Plate 8. Site 7. Partially intact EVC 83 Swampy Riparian Woodland vegetation, dominated by Prickly Teatree, occurring on private property adjacent to Deep Creek corridor. Note that the trees to the rear are located outside of the study area.