

# Statement of Expert Evidence: Proposed Western Highway Duplication - Section 3, Ararat to Stawell, Victoria

PREPARED FOR:  
**VicRoads**  
March 2013.



AUTHOR:  
**Aaron Organ**

## **1 AUTHOR'S EXPERTISE**

---

This Statement of Expert Evidence has been prepared by Mr Aaron Organ, Principal Ecologist and Director, Ecology and Heritage Partners Pty Ltd, of 292 Mt Alexander Road, Ascot Vale, Victoria. It is based on the findings of an investigation by staff at Ecology and Heritage Partners Pty Ltd.

Aaron has over 18 years' experience in the environmental field, including 13 years in an environmental consultant capacity. Aaron has also previously worked as a field ecologist in East Gippsland Victoria, and has worked as a ranger in Queensland and Victoria, having extensive experience in National Park and Reserve management throughout Australia.

He has broad and working knowledge of flora throughout Victoria and has either managed or played an important role in providing environmental advice on a number of large infrastructure projects such as proposed pipelines, and road and rail developments. He has also been a lead author and/or co-author for over 400 projects and has provided expert advice to a range of clients. Some of these projects include proposed wind farms in Victoria, South Australia and Tasmania, long-term flora and fauna monitoring throughout the Illawarra escarpment New South Wales, and various large commercial and industrial projects as well as small residential projects throughout Victoria, including throughout north eastern Melbourne.

## **2 AUTHOR'S STATEMENT**

---

I, Aaron Organ of Ecology and Heritage Partners Pty Ltd, have prepared this Statement of Expert Evidence pertaining to the proposed Western Highway duplication, Section 3, Ararat to Stawell, Victoria. The proceeding statement is based on the findings of a series of ecological investigations undertaken by staff at Ecology and Heritage Partners Pty Ltd.

I was the overall Project Director and contributed to the analysis of the survey results, contributed to the report (detailed analysis of the alignment options) and the provision of ongoing support to the rest of the project team. Other Ecology and Heritage Partners Pty Ltd personnel who worked on the assessments include Clio Gates Foale (Senior Zoologist – Hons in Zoology), Robyn Giles (Consultant Botanist - Hons in Botany), Jo Day (Zoologist – Hons), and Andrew Warnock (Botanist - PhD in Botany). All staff were involved in the detailed flora and fauna site investigations, including habitat hectare assessments, targeted flora and fauna surveys, preparation of the report and project meetings. Specialist input throughout the EES process has been provided by staff including the summary of existing conditions, assessment of alignment options and risk register, assessment of overall impact and contribution to Technical Reference Group meetings and internal workshops.

### 3 BACKGROUND

---

Ecology and Heritage Partners Pty Ltd was engaged by VicRoads to undertake a series of ecological investigations of multiple alignment options for the proposed duplication of the Western Highway between Ararat and Stawell, Victoria. The assessments form part of the Environmental Effects Statement (EES) and planning scheme amendment of the proposed road duplication.

I received instructions from VicRoads by email on 22 February 2013 requesting that I prepare this statement of expert evidence, and I was provided a copy of the relevant submissions received that related to ecological issues.

I have discussed the key issues that are outlined in the Panel Chair's (Planning Panels Victoria) letter dated 7 March 2013, which highlights the matters raised in the submission by the Department of Sustainability and Environment pertaining to:

- 1) The extent of the loss hollow-bearing trees from native forests and woodlands (listed as a threatening process under the FFG Act);
- 2) Further information on the proposed Salvage and Translocation Plans for rare and threatened species;
- 3) Information on Small Milkwort which was not detected until after the EES was published;
- 4) Any information on the EPBC Act-listed Whitebox/Yellow Box/Blakely's Red Gum which was not identified in the EES; and
- 5) Information on the methodology for calculating Net Gain/offsets for large old trees, validation of degraded treeless vegetation and completion of surveys for Golden Sun Moth.

A detailed response to the issues raised is outlined in Section 12 and Table 4 of this statement.

These investigations date back to 2008 and, together with the ensuing ecological reports (outlined below), form the basis of this Statement of Expert Evidence.

1. Ecology Partners Pty Ltd 2008. Desktop Flora and Fauna Assessment, of the Western Highway, Burrumbeet to Stawell, Victoria. A report prepared for VicRoads.
2. Ecology and Heritage Partners Pty Ltd 2011a. Detailed Flora and Fauna Assessment and Preliminary Net Gain Analysis, Western Highway Project: Ararat to Stawell, Victoria. A report prepared for VicRoads.
3. Ecology and Heritage Partners Pty Ltd 2011b. Targeted Terrestrial and Aquatic Fauna Surveys for the Western Highway Project: Ararat to Stawell. A report prepared for VicRoads.

4. Ecology and Heritage Partners Pty Ltd 2011c. Western Highway Project: Section 2, Ararat to Stawell, Victoria – Existing Conditions Report – Flora, Fauna and Ecological Communities. A report prepared for VicRoads.
5. Ecology and Heritage Partners Pty Ltd 2012. Western Highway Project: Section 3, Ararat to Stawell, Victoria. Biodiversity and Habitat Impact Assessment Report – Flora, Fauna and Ecological Communities. A report prepared for VicRoads.



## 4 PROJECT SCOPE

---

The Western Highway Project consists of three stages:

- Section 1: Ballarat to Beaufort
- Section 2: Beaufort to Ararat
- Section 3: Ararat to Stawell

I have represented VicRoads at the previous panel hearing for both Section 1 and 2 of the Western Highway Project.

The EES for Section 3 assesses the proposed duplication of the Western Highway between Ararat and Stawell to a freeway standard complying with the road Category 1 of VicRoads Access Management Policy (AMP1), except for a 800 metre section from Pollards Lane to the Majors Road which is proposed to be constructed to AMP3 (highway) standard.

The project area was defined for the purposes of characterising the existing conditions for the Project, and to consider alignment alternatives. The project area encompasses a corridor extending up to 1500 metres (m) either side (east and west) of the edge of the road reserve (encompassing the extent of new alignment possibilities).

## 5 STUDY AREA

---

The study area consists primarily of road reserve and private properties on either side of the Western Highway, between Ararat and Stawell. It is situated approximately 220 kilometres west of Melbourne, Victoria, and according to the DSE Biodiversity Interactive Map (DSE 2010a), is partly located within the Central Victorian Uplands (CVU) and Goldfields bioregions.

The study area is characterised by native and exotic grassland vegetation, with scattered areas of remnant indigenous vegetation consisting of forest, grassland and wetland communities. The existing highway dissects Concongella Creek north of Ararat and Cobey's Creek and Donald Creek north of Great Western.

## 6 ECOLOGICAL INVESTIGATIONS

---

The following summarises the ecological investigations undertaken by Ecology and Heritage Partners Pty Ltd over the past few years and which have been used to inform this Statement of Expert Evidence.

### 6.1 Database Review

Information from the Victorian Biodiversity Atlas (VBA), Flora Information System (FIS) and Atlas of Victorian Wildlife (AVW) was reviewed to obtain a list of species previously recorded within a 10 kilometre radius of the study area. Ecological Vegetation Class (EVC) Benchmarks for the study area was also reviewed, together with other relevant literature. Aerial photography of the proposed alignments was provided by the client. The presence of EVCs and BioSites within the study area was reviewed using DSE's Biodiversity Interactive Maps (DSE 2010a).

Relevant reports, including the Desktop Flora and Fauna Assessment, of the Western Highway, Burrumbeet to Stawell (Ecology Partners Pty Ltd 2008) were reviewed.

Information referring to matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (listed taxa and ecological communities, Ramsar wetlands) was also obtained from the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) Protected Matters Search Tool (SEWPaC 2010).

### 6.2 Field Assessments

#### Flora Assessment 2010

A flora assessment was undertaken from 15 to 18 and 28 to 30 June 2010, which documented the flora species and vegetation types within the study area. The entire study area was visually assessed, with all vascular plants recorded and the overall condition of vegetation noted. A Net Gain assessment was undertaken concurrently with the flora assessment. The vegetation within the study area was assessed according to the habitat hectare (including remnant trees) methodology (DSE 2004).

#### Fauna Assessment 2010

A habitat assessment and fauna survey was undertaken between 15 and 17 June 2010, to obtain information on terrestrial fauna values within the study area. Binoculars were used to scan the area for birds, and observers also listened for calls and searched for other signs such as nests, feathers, remains of dead animals, droppings and footprints. Habitat features, including ground cover composition and structure, and the presence of hollows and fallen ground debris was noted. The presence of tree hollows, burrows, rocky areas, or any other features likely to be important for fauna habitat were also noted.

An inventory of all fauna species recorded during the survey, and a description of habitats and their overall quality, was documented.

### **Preliminary Net Gain Assessment 2010**

A preliminary Net Gain assessment was undertaken concurrently with the flora assessment. Net Gain is the overall outcome where native vegetation and habitat gains are greater than the losses and where losses are avoided, where possible. A preliminary Net Gain assessment was undertaken concurrently with the flora assessment. The vegetation within the study area was assessed according to the habitat hectare methodology with areas of differing quality and/or EVC type scored against the DSE's Benchmarks (DSE 2004).

### **Due Diligence Assessment 2011**

A due diligence assessment was undertaken on several broad areas adjacent to the original alignment options to identify EVC's, scattered trees, general habitat condition and determine presence of and/or potential habitat for significant flora and fauna species. All areas were visually assessed, documenting flora and fauna species, vegetation types and overall condition of vegetation within the additional areas.

EVCs were determined by reference to DSE pre-1750 and extant EVC mapping and their published descriptions (DSE 2010b). A detailed Net Gain assessment was not undertaken in areas subject to Due Diligence assessment. Such areas were assigned an average habitat score based on other patches of the same EVC within the study area.

This level of assessment is sufficient to identify key opportunities and constraints associated with the highway construction, as well as to inform decisions relating to alignment options with least ecological impact. However, the supplied vegetation losses are indicative and a formal Net Gain assessment should be undertaken on the final preferred alignment to determine actual vegetation losses and offset requirements.

### **Targeted flora surveys 2010, 2011**

Targeted flora surveys for the nationally significant Spiny Rice-flower, Trailing Hop-bush, Pomonal Leek-orchid, Button Wrinklewort and Large-headed Fireweed, and State significant Emerald-lip Greenhood, Fringed Sun-orchid, Crimson Sun-orchid, Rising Star Guinea-flower, Pale-flower Crane's-bill, Fitzgerald's Leek-orchid, Woodland Leek-orchid and Half-bearded Spear-grass were conducted within the study area on 2 and 3 September 2010, 18 and 19 October 2010, and 19 and 21 January 2011.

### **Targeted terrestrial and aquatic fauna surveys 2010, 2011, 2012**

A series of targeted surveys were undertaken within, and in the immediate surrounds of, the study area from September 2010 to April 2011. Twenty-one significant species were targeted: two invertebrates (Golden Sun Moth and Yellow Ochre Butterfly); four mammals (Southern Brown Bandicoot, Brush-tailed Phascogale, Squirrel Glider, Fat-tailed Dunnart); eleven birds

(Elegant Parrot, Brown Treecreeper, Grey-crowned Babbler, Chestnut-rumped Heathwren, Speckled Warbler, Painted Honeyeater, Hooded Robin, Diamond Firetail, Black-chinned Honeyeater, Barking Owl, Powerful Owl); one amphibian (Brown Toadlet), and; two reptiles (Striped Legless Lizard and Lace Goanna).

Aquatic fauna surveys, water quality and habitat assessments were undertaken from Ararat to Stawell at all significant waterbodies intersecting the proposed alignments in June 2010, September 2010, June 2011 and January 2012. An aquatic assessment (including the assessment of farm dams) was conducted between 15 and 17 June 2010 to determine the habitat quality and biodiversity values within the study area. Targeted aquatic fauna surveys, water quality and instream habitat assessments were undertaken in September 2010 and between 16 and 22 June 2011 (across all suitable creeks and drainage lines). Macroinvertebrate surveys, water quality and riparian vegetation assessments were undertaken between 19 and 20 January 2012.

### **6.3 Assessment Qualifications and Limitations**

Assessment qualifications and limitations for the ecological investigations have been discussed at length in Section 2.6 of the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012). Despite these limitations, all methodologies undertaken were considered adequate to represent the ecological values of the study area and inform the EES process.



## 7 KEY OUTCOMES

---

The following section relates specifically to flora and fauna recorded within the proposed alignment option. Information relating to flora and fauna found in surrounding areas can be found in the Impact Assessment report for the Project (Ecology and Heritage Partners Pty Ltd 2012).

### 7.1 Flora

#### Ecological Vegetation Classes

The proposed alignment intersects five EVCs with varying quality and extent including Plains Grassy Woodland, Grassy Woodland, Creekline Grassy Woodland, Grassy Dry Forest and Heathy Woodland.

Grassy Woodland is vulnerable in the Goldfields bioregion and endangered in the Central Victorian Uplands bioregion (DSE 2010a). Creekline Grassy Woodland and Plains Grassy Woodland EVC are listed as endangered, within the Central Victorian Uplands and Goldfields bioregions. Heathy Woodland and Grassy Dry Forest are listed as depleted within the Central Victorian Uplands and Goldfields bioregions.

#### Significant Flora Species and Communities

##### *Nationally Significant Species*

The proposed alignment intersects with known populations of Trailing Hop-bush (vulnerable), located between Gilchrist Road and Hurst Road. Twenty-one plants fall within the proposed alignment footprint, of which, 10 plants fall within habitat zone HW5, six plants fall within HW3 and four plants fall within PGW3 (Ecology and Heritage Partners Pty Ltd 2012).

##### *State Significant Species*

The proposed alignment intersects with known populations of Rising-star Guinea-flower (rare), Emerald-lip Greenhood (vulnerable) and Rosemary Grevillea (rare). Of these species, 11, 203 and 37 plants (respectively) fall within the proposed alignment footprint.

##### *Flora Communities*

No national or State significant flora communities were recorded within the proposed alignment.

## 7.2 Fauna

### Fauna Habitat

The proposed alignment intersects a range of fauna habitats including woodlands, farm dams and drainage lines, native grasslands and scattered trees. A high number of native and introduced species are likely to use these habitats, particularly within riparian and woodland habitats.

### Significant Fauna Species and Communities

#### *Nationally Significant Species*

The proposed alignment intersects habitat for Golden Sun Moth. Populations of the species were recorded scattered throughout the alignment, with a high number recorded between St Ethels Road and The Majors Road, intersecting 24.74 hectares of ‘confirmed’ Golden Sun Moth habitat and 99.94 hectares of ‘potential’ habitat for the species.

#### *State Significant Species*

The proposed alignment intersects habitat for the following species:

- Barking Owl: detected on the corner of Churchill Crossing Road and the Western Highway. However, the species is likely to use most habitats supporting hollow-bearing trees.
- Brown Toadlet: widespread throughout the study area in many of the drainage lines, seeps, road ditches and culverts located within or adjacent to woodland vegetation.
- Brown Treecreeper: widespread throughout the study area in most riparian habitats that support hollow-bearing River Red Gums and Yellow Box.
- Brush-tailed Phascogale: recorded in grassy dry forest on the edge of the Ararat Regional Park abutting the Western Highway roadside vegetation, between McLoughlin Road and Main Divide Road.

#### *Regionally Significant Species*

The proposed alignment intersects habitat for the following species:

- Bearded Dragon: recorded in roadside vegetation at the intersection of London Road and the Western Highway.
- Black-chinned Honeyeater: recorded on the boundary of private property abutting the railway between St Georges Rd and Churchill Crossing Road, however is likely to use woodland areas throughout the area.
- Fat-tailed Dunnart: recorded during targeted surveys in rocky knolls near the intersection of Churchill Crossing Road and the Western Highway, on the southern

side of the Western Highway. The final alignment is located in close proximity (50 metres) to the rocky knoll habitat; as such this species may be impacted by the development.

*Significant Communities*

One FFG Act listed fauna community, the Victorian Temperate Woodland Bird Community, is likely to be present within the alignment options. Habitat for the community is widespread throughout the study area in most riparian habitats that support hollow-bearing River Red-gums or Yellow Box.

## 8 ENVIRONMENTAL LEGISLATION AND POLICY

---

### 8.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

*Flora:* One EPBC Act listed flora species (Trailing Hop-bush; Vulnerable) was recorded within the Assessment Area, with 21 individuals recorded within the final alignment footprint.

*Fauna:* One EPBC Act-listed fauna species, Golden Sun Moth was recorded within the Assessment Area, with 24.74 hectares of 'confirmed' habitat and 99.94 hectares of 'potential' habitat intersected by the proposed alignment footprint.

*Communities:* There is no remnant vegetation within the study area corresponding to any nationally significant ecological community.

#### **Implications for the proposed development**

Based on the EPBC Act Significant Impact Guidelines (DEWHA 1999; 2009) and National Recovery Plan for the Trailing Hop-bush (Carter 2010), the Project will have a significant impact on Golden Sun Moth and Trailing Hop-bush.

### 8.2 Flora and Fauna Guarantee Act 1988 (Victoria)

*Flora:* One FFG Act-listed flora species (Trailing Hop-bush) was recorded within the Assessment Area, with 21 individuals recorded within the final alignment footprint.

*Fauna:* Four FFG Act-listed fauna species were recorded within the Assessment Area: Golden Sun Moth, Brush-tailed Phascogale, Barking Owl and Brown Toadlet. Habitat for each of these species is intersected by the final alignment footprint.

*Communities:* One FFG Act-listed fauna community, the Victorian Temperate Woodland Bird Community, is likely to be present in woodland areas within the final alignment footprint.

*Threatening processes:* A number of threatening processes listed under the FFG Act are applicable to the proposed road works.

#### **Implications for the proposed development**

One flora species, four fauna species and one community listed under the FFG Act were recorded during the current assessment.

An FFG Act permit to remove or disturb native vegetation and listed flora species will be required for the Western Highway Project. No legal implications relating directly to FFG Act-listed fauna species recorded within the study area exist, however DSE and local

authorities may impose conditions relating to these species under other approvals (e.g. *Planning and Environment Act 1987*).

### **8.3 Planning and Environment Act 1987 (Victoria)**

A Planning Permit from Council is required to remove/disturb native vegetation within the study area. In this instance, DSE would be the mandatory referral authority as much of the study area is within a roadside reserve. As an alternative to the need for a planning permit, vegetation removal associated with the Project could be authorised under a Planning Scheme Amendment.

### **8.4 The Native Vegetation Framework (Victoria)**

A preliminary Net Gain assessment for the proposed alignment is presented in the following section. Net Gain requirements will be revised once the alignment has been finalised and the exact losses can be determined.

### **8.5 Wildlife Act 1975 and Wildlife Regulations 2002 (Victoria)**

While a permit will be required for removal of habitat within the study area during construction, this could be in the form of an approval associated with the Planning Scheme Amendment, under the *Planning and Environment Act 1987*. Persons undertaking any inspection, removal or relocation of fauna species located in vegetation to be impacted upon as part of the project must be authorised and hold a current permit under the *Wildlife Act 1975*. A Fauna Salvage and Translocation Plan will be developed prior to commencement of works.



## 9 NET GAIN ASSESSMENT

---

### 9.1 Habitat Hectare Calculations

A habitat hectare assessment was conducted at sites proposed to be disturbed. Numerous habitat hectare polygons of poor to good condition vegetation were identified and classified into habitat types. Losses are based on the worst case scenario in terms of area of impact within the alignment and there are opportunities to reduce this impact during planning and construction.

### 9.2 Scattered Trees

A scattered tree assessment was conducted within the study area. Conservation significance for each scattered tree has been assigned based on the minimum conservation significance for the EVC present in that area (e.g. Plains Grassy Woodland and Creekline Grassy Woodland are classified as Endangered and have a minimum conservation significance of High according to the Framework). The scattered trees have also been divided into their relevant bioregions. A summary of proposed losses for each alignment is provided in Tables 1 - 3.

### 9.3 Net Gain Implications

Net Gain is an overall outcome where native vegetation and habitat gains are greater than vegetation and habitat losses. The Framework has defined a three-step approach for applying Net Gain to protection and clearance decisions.

Emphasis is placed on the first two steps, and only after these two steps have been taken should offsets (actions undertaken to achieve commensurate gains) be considered (NRE 2002). The three-step approach is:

1. To avoid adverse impacts, particularly through vegetation clearance.
2. If impacts cannot be avoided, to minimise impacts through appropriate consideration in planning processes and expert input to project design or management.
3. Identify appropriate offset options.

#### **Avoidance (Step 1)**

VicRoads considered a number of alternative alignment options for Section 3 of the Western Highway between Ararat and Stawell. Alignment options were considered within a project area that was 1.5km either side of the existing highway, except around Great Western where there project area extended to 1.8km to allow for a bypass of the town. A number of factors and features within the project area influenced the development of the alignment options.

These included:

- the need for an appropriate connection with the existing highway;
- allowing for the future bypass of Ararat;
- ensuring design and safety standards are achieved;
- optimising use of existing infrastructure; and
- minimising ecological and social impacts.

Within the project area, the Ararat Regional Park and Sister's Rocks were considered unacceptable areas to accommodate the Project due to the presence of high quality, contiguous remnant vegetation and habitat for flora and fauna species, and were therefore excluded.

The proposed alignment follows the existing highway from Ararat to Great Western, and the decision to follow the existing highway considered a number of factors. In some cases, the protection of one area supporting significant ecological values required a compromise through impacting another area that also supported significant ecological values. Where possible, the effects were mitigated by the avoidance of alternative vegetation or habitat.

Details on locations where significant flora, fauna and ecological communities were avoided are identified within the Flora and Fauna Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

### **Minimisation (Step 2)**

Minimisation may generally be interpreted as minimising impacts on scattered trees or habitat patches through appropriate consideration in planning processes and expert input to project design or management (NRE 2002). If the modification of development plans does not enable the proponent to avoid all adverse impacts to native vegetation, there are several activities that can assist to minimise impacts to native vegetation on site and in adjoining areas, thus satisfying the first two stages of avoid and minimising under the Framework (NRE 2002).

Ecology and Heritage Partners Pty Ltd have progressively provided advice relating to locations where minor alterations to the alignment would minimise impacts to vegetation, with particular consideration for vegetation of High and Very High conservation significance. Locations where these recommendations have been applied, minimising impacts to significant flora, fauna and ecological communities through progressive refinement of the proposed alignment, are shown in Table 11 within the Flora and Fauna Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

To minimise the loss of vegetation along the preferred alignment the following should be considered:

- Appropriate consideration in planning processes and expert input into project design or management.

- Installation of temporary fencing around remnant vegetation to minimise disturbance (i.e. designated ‘no-go’ areas) prior to construction.
- Tree protection measures such as the use of temporary fencing around the perimeter of trees to protect critical root zones prior to construction.

### **Quantification of Offsets (Step 3)**

Once steps 1 and 2 have been considered, then offsets or Net Gain targets can be calculated for any permitted vegetation clearance. Net Gain targets or offsets can be calculated according to Appendix 4, Table 6 within the Framework (NRE 2002).

A summary of vegetation losses and associated Net Gain targets is presented below (Table 1 and 2).

**Table 1.** Summary of vegetation losses and Net Gain targets within the proposed alignment.

Bioregion	Target EVC	Conservation significance	Vegetation			Large Old Trees		
			Total Losses (ha)	Total Losses (HabHa)	Net Gain Target (HabHa)	Total Losses	Total to be Protected	Total to be Recruited
CVU	CGW	V. High	4.36	1.74	3.48	35	280	1400
	GW	V. High	0.19	0.09	0.18	2	16	80
	HW	V. High	47.5	30.29	60.58	257	2056	10280
		High	0.4	0.2	0.3	0	0	0
		Medium	0.02	0.01	0.01	0	0	0
	PGW	V. High	16.29	7.26	14.52	116	928	4640
		High	6.34	1.9	2.85	32	128	640
Gold	CGW	V. High	9.04	4.03	8.06	66	528	2640
	GDF	V. High	1.47	0.78	1.56	12	96	480
		High	1.07	0.5	0.75	9	36	180
		Medium	0.47	0.16	0.16	4	8	40
	GW	V. High	37.64	20.29	40.58	302	2416	12080
		High	0.44	0.11	0.17	4	16	80
	PGW	V. High	0.13	0.06	0.12	2	16	80
		High	8.27	2.48	3.72	41	164	820
<b>Total</b>			<b>133.63</b>	<b>69.9</b>	<b>137.04</b>	<b>882</b>	<b>6688</b>	<b>33440</b>

**Notes:** GDF = Grassy Dry Forest, PGW = Plains Grassy Woodland, CGW = Creekline Grassy Woodland, GW = Grassy Woodland, HW = Heathy Woodland, Gold = Goldfields, CVU = Central Victorian Uplands, Wimm = Wimmera, Dep = Depleted, Vul = Vulnerable, En = Endangered, N/A= Not Applicable. Large Old Tree losses are based on estimates of trees present within each patch, further assessment is required to determine the number of Large Old Trees within all patches within the study area.

**Table 2.** Summary of scattered tree losses and Net Gain targets within the proposed alignment.

Bioregion	Conservation significance	Size	No. trees to be removed	Protect and Recruit				Recruit only	
				Multiplier	Offset total	Multiplier	Offset total	Offset requirement per tree	Total plants required for offset
CVU	High	VLOT	1	4	4	20	20	200	4000
	High	LOT	8	2	16	10	80	100	8000
	High	MOT	5	1	5	5	25	50	1250
	Low	VLOT	4	4	16	20	80	50	4000
	Low	LOT	7	2	14	10	70	50	3500
	Low	MOT	6	1	6	5	30	50	1500
	Low	ST#	13	NA	0	NA	0	NA	0
	DD	UN^	12	2	24	10	120	18	2160
Gold	High	LOT	2	2	4	10	20	100	2000
	High	MOT	1	1	1	5	5	50	250
	Medium	VLOT	5	4	20	20	100	100	10000
	Medium	LOT	5	2	10	10	50	50	2500
	Medium	MOT	2	1	2	5	10	50	500
	Low	ST#	4	NA	0	NA	0	NA	0
	DD	UN^	4	2	8	10	40	18	720
<b>Total</b>				<b>130</b>		<b>650</b>		<b>40380</b>	

**Notes:** = Goldfields, CVU = Central Victorian Uplands, N/A= Not Applicable, VLOT = Very Large Old Tree, LOT = Large Old Tree, MOT = Medium Old Tree, ST = Small Tree, UN = Unknown (within Due diligence area).



**Table 3.** Summary of flora and fauna listed under the EPBC Act, FFG Act and DSE Advisory List that are present within the proposed alignment.

EPBC Act		FFG Act			DSE Advisory List	
Flora	Fauna	Flora	Fauna	Communities	Flora	Fauna
Trailing Hop-bush (x21)	Golden Sun Moth (29.92ha)	Trailing Hop-bush (x21)	Golden Sun Moth (29.92ha) Brush-tailed Phascogale* Barking Owl* Brown Toadlet^	VTWBC*	Trailing Hop-bush (x21) Rising-star Guinea-flower (x11) Emerald-lip Greenhood (x203) Rosemary Grevillea (x37)	Golden Sun Moth (29.92ha) Brush-tailed Phascogale* Barking Owl* Brown Toadlet^

**Notes:** Individual numbers for certain threatened fauna species not provided as assessment is based on habitat loss rather than species present. VTWBC = Victorian Temperate Woodland Bird Community.

\* Species habitat recorded throughout the study area. Species likely to make use of GDF, PGW, CGW, GW and HW (see Table 1a).

^ Species is widespread throughout the study area in many of the drainage lines, seeps, road ditches and culverts located within or adjacent to woodland vegetation.

## 9.4 Potential Strategies to Achieve Net Gain

The offset strategy for the Western Highway Project will address offset requirements under both The Framework and the EPBC Act Environmental Offset Policy. These requirements are discussed in further detail below.

### Offsets under The Framework

Given that the study area spans three different bioregions and includes five EVC's with varying conservation significance, considerable care should be taken to ensure that all losses are offset and that all offsets satisfy the like-for-like criteria described above. Once the road design and alignment are finalised, accurate Net Gain requirements can be determined and this will give a clearer indication of all offsets required within each bioregion.

### Offsets under the EPBC Act

Golden Sun Moth is listed as Critically Endangered under the EPBC Act. As such, any habitat removed as part of the Project will need to be offset. While there are no formal offset ratios defined under the EPBC Act, based on previous decisions by SEWPaC there is likely to be an offset ratio of approximately 4:1 (i.e. 4 hectares offset for every 1 hectare removed).

Trailing Hop-bush is listed as Vulnerable under the EPBC Act, as such there are not likely to be any offsets required for impacts to this species. However, individuals that are impacted will be required to be salvaged and translocated in accordance with an approved Salvage and Translocation Plan or Conservation Management Plan, with translocated individuals managed and secured in perpetuity.

### Offset Management Strategy

VicRoads Offset Strategy is based on the Three Step Approach outlined in the Framework. The three steps involved are, avoid, minimise and offset. Only after the first two steps have been achieved can offsetting native vegetation to be removed be considered.

Although VicRoads can enquire about the availability of offsets needed for the Project, offsets cannot be sourced until a final alignment, along with its footprint, is known. To date, the final alignment for the Western Highway Project (Section 3) is yet to be approved and as a result the exact impact to native vegetation is unknown. Estimates of impacts are based on the entire footprint of the proposed alignment. When the final alignment has been identified and the impacts potentially further minimised (through Steps 1 and 2 of the 3 Step Approach), VicRoads can begin to source offsets.

The required Net Gain offsets for the Project are achievable through a combination of sourcing offsets through the VicRoads NGB, Bushbroker, Trust for Nature, acquiring private land, securing road reserves, private offset brokers and local council.

## 10 IMPACT AND RISK ASSESSMENT

---

The Impact and Risk Assessment (Table 15 *in* Ecology and Heritage Partners Pty Ltd 2012) were assessed based on the consequence criteria, likelihood guide and risk matrix outlined in Tables 4, 5 and 6 of the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012). The impact pathways were described in Section 8.2 and the overall impact for all alignment options assessed in Table 15 of the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

A total of 116.62 hectares (64.54 habitat hectares) of Very High conservation significance vegetation, and 16.52 hectares (5.19 habitat hectares) of High conservation significance vegetation is proposed for removal. If the Best or Remaining 50% assessment is excluded, the total amount of Very High conservation significance vegetation decreases to 55.53 hectares (28.81 habitat hectares), while the total amount of High conservation significance vegetation increases to 57.72 hectares (30.30 habitat hectares).

The primary impact of the Project to ecological values arises from the removal of Very High and High conservation significance vegetation. The Risk Assessment residual consequence of this impact has been classified as Moderate, with between 0.1 and 1% of the EVCs within the bioregion proposed for removal. The removal of this vegetation will have implications for the threatened flora and fauna populations that have been recorded within the study area.

With the avoidance and minimisation measures applied at the design phase of the Western Highway Project, and with the implementation of mitigation measures, the Risk Assessment residual consequence for the majority of impacts has been classified as either Insignificant or Minor. The exceptions to this are impacts to Golden Sun Moth and scattered trees, which are both classified as Moderate.

## **11 MITIGATION MEASURES**

---

### **11.1 Construction and Operation**

VicRoads would require the construction contractor to develop and implement a Construction Environmental Management Plan (CEMP) for the Project. VicRoads standard environmental protection measures (as per Appendix 5.1, Ecology and Heritage Partners 2012), and some additional Project specific controls identified below, have been incorporated into the Environmental Management Framework for the Project. VicRoads would require the construction contractor to incorporate all of these measures into the CEMP.

As an additional note, areas for haul roads and laydown areas for construction have not been specified in the current alignment designs. Based on the ecological assessment and mitigation measures outlined in the Flora and Fauna Impact Assessment Report, all required construction activities outside the current alignment (including haul roads, works areas and equipment/material laydown) would need to be restricted to areas devoid of remnant vegetation and scattered trees (i.e. open farmland/paddocks). ‘No Go Zones’ around areas of remnant native vegetation and significant species habitat will be installed prior to any construction works being undertaken to ensure further impacts to native vegetation and habitat are not incurred. While there is sufficient area to accommodate these ancillary works and laydown areas within the current Right of Way, where remnant native vegetation and fauna habitat values are avoided, if areas of ecological value are proposed to be disturbed appropriate mitigation measures will be undertaken, and offsets located and managed to compensate for any losses (i.e. in accordance with the State’s Net Gain policy).

#### **VicRoads Standard Environmental Protection Measures**

It is understood that VicRoads standard environmental protection measures for Flora and Fauna would be adopted for this Project. These measures are presented in Section 9.1.1 and Appendix 5.1 of the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

#### **Project Specific Controls**

Additional Project specific controls are also proposed to reduce impacts to ecological values. These measures are presented in Section 9.1.2 of the Impact Assessment Report (Ecology and Heritage Partners Pty Ltd 2012).

In areas where impacts to woodland habitat or wildlife corridors cannot be avoided, additional mitigation measures for the operation of the project should be adopted (as per Section 9.2 of the Impact Assessment Report, Ecology and Heritage Partners Pty Ltd 2012).

## 12 RESPONSE TO SUBMISSIONS

The following are responses to the various submissions received as on the EES pertaining to terrestrial and aquatic flora and fauna (Table 4).

**Table 4.** Responses to submissions received.

Submission number	Date of submission	Outline of submission relevant to biodiversity (terrestrial and aquatic flora and fauna)	Response
1, 2, 4, 5, 6, 7, 10, 11, 12, 13, 15, 16			No ecological considerations.
3	12/02/2013	Removal of remnant native vegetation, fauna habitat and wildlife corridors.	<ul style="list-style-type: none"> <li>A number of factors and features within the project area influenced the development of the alignment options. In some cases, the protection of one area supporting significant ecological values required a compromise through impacting another area that also supported significant ecological values, or that required other considerations (e.g. environmental, road design, economics, safety, social or cultural). See Section 7.4.1 of the Flora and Fauna Impact Assessment Report for further details.</li> <li>Given the modified nature of the landscape within the area, roadside vegetation has been identified as important to avoid habitat loss and fragmentation within the landscape. Where it can be achieved, the avoidance of roadside vegetation will reduce the extent of impacts to important fauna habitat.</li> <li>Revegetation of areas affected by the construction of the road has been included as part of the remedial measures to reduce the overall impacts of the Project once construction has been completed. This will include the replacement of roadside vegetation through appropriate landscaping works using site indigenous flora species.</li> <li>In addition, required native vegetation offsets will be secured and managed for the removal and disturbance of native vegetation in this area.</li> <li>Road crossing structures have been recommended to facilitate the crossing of linear infrastructure by wildlife (e.g. arboreal mammals and larger macropods such as Eastern Grey Kangaroo) and increase the permeability of the landscape.</li> </ul>
8	14/02/2013	Numerous comments relating to biodiversity and offsets.	<p>Native vegetation</p> <ul style="list-style-type: none"> <li>1: Large Old Trees (LOTs) within patches have not been measured within the alignment, as the original area for assessment was extremely large (i.e. several alignment options with an alignment width up to 150 metres wide) with thousands of LOTs present within patches. As such, the number of LOTs proposed to be removed within the alignment was based on an estimate of LOTs present within each habitat zone which was determined during the detailed ecological assessment (Ecology and Heritage Partners 2011a). The estimate number of LOTs to be removed is likely to be an over-estimate given that the distribution of LOTs within patches varies</li> </ul>



Submission number	Date of submission	Outline of submission relevant to biodiversity (terrestrial and aquatic flora and fauna)	Response
			<p>and many areas have been impacted by logging in the past. Once a final design is determined for Section 3 of the Project, LOTs within habitat zones will be measured and an accurate number to be removed can be calculated.</p> <ul style="list-style-type: none"> <li>• 2: Comment noted. No response required.</li> <li>• 3: Comment noted. No response required.</li> <li>• 4: The loss of hollow-bearing trees from Victorian native forests has been listed as a threatening process under the FFG Act discussion. Scattered trees containing hollows have been identified within the alignment and have been avoided, where possible, through detailed design. As discussed in Comment 1, LOTs within patches have not been accurately recorded at this stage, additional assessment of these trees is required once a final alignment has been determined. Assessment of hollow-bearing trees within patches will be undertaken during this additional assessment.</li> <li>• 5-8: Comment noted. No response required.</li> </ul> <p>Rare and threatened species and communities</p> <ul style="list-style-type: none"> <li>• 9: A Conservation Management Plan, including Salvage and Translocation Plan will be prepared for the project. Refer to the plans prepared for Western Highway Project: Section 2 for an example. The plan will be developed in to the satisfaction of DSE and will included detailed measures to avoid impacts on significant and common flora and fauna species, and actions to successful salvage and translocate species during the initial clearing stages of the project. Monitoring and evaluation procedures will also be outlined in the Salvage and Translocation Plan.</li> <li>• 10: Comment noted. No response required.</li> <li>• 11: We discussed the presence of Small Milkwort <i>Comesperma polygaloides</i> with DSE at the time it was detected (3/01/13). This species was recorded north of Great Western near Metcalfe Road between the tip and the quarry. The species was detected very late in the flowering season (mid-summer) and therefore the likelihood of finding additional individuals at that time was relatively low. As further targeted surveys have been recommended once the final alignment is determined, it was agreed after discussions with DSE (Nick Jaschenko) that further surveys for this species can be undertaken at that time (i.e. Spring/Summer 2013). Targeted surveys for Small Milkwort will be undertaken at a suitable time of the year (i.e. during the species' flowering period) to maximise the detection of individuals. The location of any plants recorded will be marked with a GPS and, where possible these plants will either be avoided, or if avoidance cannot be achieved, plants will be salvaged and translocated to an appropriate site adjacent to the study area. Ongoing monitoring of any tanslocated plants will be required to determine the success or otherwise of salvage and translocation.</li> <li>• 12: Yellow Box <i>Eucalyptus melliodora</i> was present in many remnant patches within the study area. However, it is typically present with a suite of other eucalypt species (e.g. Yellow Box <i>E. leucoxyton</i>, Red Stringybark <i>E. macrorhyncha</i>, Long-leaf Box <i>E. goniocalyx</i>) i.e. not the dominant tree species. We have been in further discussion with SEWPaC regarding the characteristics and distribution of the White Box/Yellow Box/Blakely's Red-gum Woodland community and based on this discussion and relevant information provided by SEWPaC</li> </ul>

Submission number	Date of submission	Outline of submission relevant to biodiversity (terrestrial and aquatic flora and fauna)	Response
			<p>we have determined that this community is not present within the study area and will therefore not be impacted by the project. For this community to be present, Yellow Box would need to comprise at least 50% of the tree canopy cover within a patch of remnant native vegetation. However, this level of dominance is not present within the study area.</p> <ul style="list-style-type: none"> <li>• 13: Net Gain Assessment and Offset Management Strategies:               <ul style="list-style-type: none"> <li>○ As discussed above for Comment 1, LOTs present within remnant patches will be measured and updated once a final alignment has been determined. Net Gain offsets are calculated based on the conservation significance of the remnant patch in which the LOTs are present. For every LOT within a patch of remnant vegetation that is removed, there is a requirement to protect:                   <ul style="list-style-type: none"> <li>▪ 8 LOTs in patches of Very High conservation significance;</li> <li>▪ 4 LOTs in patches of High conservation significance; and,</li> <li>▪ 2 LOTs in patches of Medium conservation significance.</li> </ul> </li> <li>○ The validation of Degraded Treeless Vegetation must be undertaken by DSE. We have mapped areas that are considered likely to be Degraded Trees Vegetation based on the vegetation condition assessed and are awaiting confirmation of these sites from DSE. No additional information has been requested by DSE as part of this process / consideration and for this decision to be made.</li> <li>○ Golden Sun Moth surveys were completed along the entire alignment during the species' 2011/12 flight season. The results of these surveys are presented in the Flora and Fauna Impact Assessment Report.</li> </ul> </li> </ul>
9	13/02/2013	Red Gums west of Hurleys Lane.	<ul style="list-style-type: none"> <li>• Due to the extensive clearing of woodland habitat in the study area and across the landscape, remaining Large Old Trees and tree hollows are important in the life history of many woodland birds and mammals as they are scarce in the local area. Efforts have been made to retain large scattered trees within the landscape where possible.</li> </ul>
14	14/02/2013	Reinstatement of natural surroundings.	<ul style="list-style-type: none"> <li>• Item 7: Revegetation of areas affected by the road construction has been included as part of the remedial measures to reduce the overall impacts of the Project once construction has been completed. This will include replacement of roadside vegetation through appropriate landscaping works using site indigenous plant species (all vegetation layer will be used – i.e. canopy, shrub layer and understorey species).</li> </ul>
NA	7/3/2013	Directions Letter	<ul style="list-style-type: none"> <li>• As an additional note, areas for haul roads and laydown areas for construction have not been specified in the current alignment designs. Based on the ecological assessment and mitigation measures outlined in the Flora and Fauna Impact Assessment Report, all required construction activities outside the current alignment (including haul roads, works areas and equipment/material laydown) would need to be restricted to areas devoid of remnant vegetation and scattered trees (i.e. open farmland/paddocks). 'No Go Zones' around areas of remnant native vegetation and significant species habitat will be installed prior to any construction works being undertaken to ensure further impacts to native vegetation and habitat are not incurred. While there is</li> </ul>

Submission number	Date of submission	Outline of submission relevant to biodiversity (terrestrial and aquatic flora and fauna)	Response
			sufficient area to accommodate these ancillary works and laydown areas within the current Right of Way, where remnant native vegetation and fauna habitat values are avoided, if areas of ecological value are proposed to be disturbed appropriate mitigation measures will be undertaken, and offsets located and managed to compensate for any losses (i.e. in accordance with the State's Net Gain policy).

## 13 REQUIRED INFORMATION

---

### Name and Address

This report has been prepared by Aaron Organ, Director of Ecology and Heritage Partners Pty Ltd, 292 Mt Alexander Road, Ascot Vale, Ph (03) 9377 0100, aorgan@ehpartners.com.au

### Area of Expertise

Aaron Organ is an expert ecologist, with skills in all the major ecological environments of south-eastern Australia. He has particular expertise in the workings of ecological systems, both under natural conditions and when affected by unnatural disturbance regimes such as weed invasion and impacts of development projects. He has also considerable experience in the application and practical implementation of current Commonwealth and State environmental legislation and Government Policy. He has worked extensively on large scale EESs, including several large infrastructure projects across south-eastern Australia (e.g. the previous Western Highway Sections).

### Expertise to make the Report

Aaron Organ has considerable knowledge of the native flora and fauna in south eastern Australia, including in areas throughout western Victoria (including in and around Ballarat). Relevant past experience includes:

- Completed over 400 flora and fauna investigations/assessments.
- Aaron has also written many environmental reports and management plans for large scale infrastructure projects throughout Victoria.

A selection of past VCAT and Panel appearances include:

- 2013: Cherry Tree Wind Farm, Trawool, Victoria (VCAT)
- 2013: Lots 11 and 12 Boyes Road, Baranduda - Amendment C94 to the Wodonga Planning Scheme (Panel)
- 2012: Western Highway Duplication - Section 2, Beaufort to Ararat, Victoria - – Rigby Cook Lawyers Pty Ltd (Panel)
- 2012: Proposed Peninsula Link Freeway Service Centres, 83 Sages Road Baxter, Victoria – Rigby Cook Lawyers Pty Ltd (VCAT)
- 2011: Old Warrandyte Road, flora and fauna review and Panel hearing, Donvale – Norton Rose Australia Pty Ltd. (Panel)

- 2010: Marquands Road and Leakes Road (Lot 9), Truganina, Truganina South Precinct Structure Plan – Stockland (Panel)
- 2010: Proposed Eastern Golf Course relocation to ‘Windsor Park’, 215–217 Victoria Road, Yering, Victoria – for Best Hooper (VCAT)
- 2010: Truganina South Community Precinct Structure Plan – for Central Equity and Stockland Limited (Panel)
- 2010: Craigieburn R2 Precinct Structure Plan – for Peet Limited (Panel)
- 2010: Proposed Mortlake Wind Farm – for Accionia Oceania Limited (Panel)
- 2009: Grenda Vehicle Storage Depot, Springvale Road, Keysborough - for Urbis Pty. Ltd. (VCAT)
- 2009: 1280 Boneo Road, Cape Schanck, development a proposed barn – for Hansen Planning Services (VCAT)
- 2009: Melton Planning Scheme Amendment C65 – 489-555 Robyns Road South Precinct (Marksx Property), Truganina (Panel)
- 2008: Donald Mineral Sands Panel and associated works. Donald Mineral Sands project (Panel)
- 2008: Amendment C88 to the Bass Coast Shire Planning Scheme - Silverleaves, Phillip Island (Panel)
- 2008: proposed residential subdivision at 30-80 Seymour Road, Viewbank – for local landowner (VCAT)
- 2008: Proposed medium density development located on the corner of 1587-1589 Point Nepean Road and 1-1A Chatfield Avenue, Rosebud – for Fulcrum Town Planning Pty. Ltd. (VCAT)
- 2008: Residential development at 2 Rowe Street, Alphington – for Rob Wignall Architects (VCAT)
- 2008: Officer Service Centres, Officer – for Clayton UTZ Pty. Ltd. (VCAT)
- 2007: Anglesea Golf Club proposed Amendment C32 – for TGM Group Pty. Ltd. (Panel)
- 2007: Medium density housing at 2 Ramptons Road, Eltham – for Nillimbik Shire Council (VCAT)

- 2007: Medium density unit development in Frankston (adjacent to Kananook Creek) – for Gary Testro Lawyer (VCAT)
- 2007: Single dwelling development at 683 Great Ocean Road, Eastern Views, Victoria – for SJB Planning Pty. Ltd (VCAT)
- 2006: Construction of a dwelling at 8 Charlotte Court, Warrandyte - for Glossop Town Planning Pty. Ltd. (VCAT)
- 2005: Dollar Wind Farm, Gippsland – for Freehills Lawyers (Panel)

## Author's Declaration

I, Aaron Organ, have made all the inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from tribunal.



----- Date: 26/03/2013

## References

- AVW 2009. *Atlas of Victorian Wildlife*. Viridians Biological Databases Pty Ltd, Melbourne.
- DEWHA 1999. *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*. Department of Environment, Water, Heritage and the Arts, Canberra
- DEWHA 2009. *Policy statement 3.11: Significant impact guidelines for critically endangered spiny rice-flower*. Department of Environment, Water, Heritage and the Arts, Canberra. DNRE 2001. *Bovine Johne's Disease: a review bearing on "the science behind the policy"*. A report to the Secretary by the Chief Scientists of Department of Natural Resources and Environment, Melbourne.
- DSE 2004. *Vegetation Quality Assessment Manual: Guidelines for Applying the Habitat Hectares Scoring Method*. Biodiversity and Natural Resources Division, Department of Sustainability & Environment, Victoria.
- DSE 2010a. *Biodiversity Interactive Map 3.1*. Viewed online: [www.dse.vic.gov.au/about-dse/interactive-maps](http://www.dse.vic.gov.au/about-dse/interactive-maps)
- DSE 2010b, Department of Sustainability and Environment website: [www.dse.vic.gov.au](http://www.dse.vic.gov.au).
- Ecology Partners Pty Ltd 2008. *Desktop Flora and Fauna Assessment, of the Western Highway, Burrumbeet to Stawell, Victoria*. A report prepared for VicRoads.
- Ecology and Heritage Partners Pty Ltd 2011a. *Detailed Flora and Fauna Assessment and Preliminary Net Gain Analysis, Western Highway Project: Ararat to Stawell, Victoria*. A report prepared for VicRoads.
- Ecology and Heritage Partners Pty Ltd 2011b. *Targeted Terrestrial and Aquatic Fauna Surveys for the Western Highway Project: Ararat to Stawell*. A report prepared for VicRoads
- Ecology and Heritage Partners Pty Ltd 2011c. *Western Highway Project: Section 3, Beaufort to Ararat, Victoria – Existing Conditions Report – Flora, Fauna and Ecological Communities*. A report prepared for VicRoads.
- Ecology and Heritage Partners Pty Ltd 2012. *Western Highway Project: Section 3, Ararat to Stawell, Victoria. Biodiversity and Habitat Impact Assessment Report – Flora, Fauna and Ecological Communities*. A report prepared for VicRoads.
- FIS 2009. *Flora Information System*. Viridians Biological Databases Pty Ltd, Melbourne.
- NRE 2002. *Victoria's Native Vegetation Management: A Framework for Action*. Department of Natural Resources & Environment, Victoria.
- SEWPaC 2010. Department of Sustainability, Environment, Water, Population and Communities (SEWPaC); Environment Protection and Biodiversity Conservation Act 1999 Protected Matters Search Tool: <http://www.environment.gov.au/epbc/about/index.html>.
- SEWPaC 2011. Department of Sustainability, Environment, Water, Population and Communities; Final EPBC Act Environmental Offsets Policy, Canberra.
- VicRoads 2009. *Native Vegetation Removal Guidelines 2009*. VicRoads