

**9. Attachment I – Offset Potential at 195 Tonimbuk Road,
Garfield North**

Colin Hines
Project Development Manager
Hanson Construction Materials Pty Ltd
Ground Floor,
601 Doncaster Road
Doncaster, VIC 3108

Date: 28 November 2014

Our reference: 6427

Dear Colin,

Re: Offset Potential at 195 Tonimbuk Road, Garfield North

1. Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Hanson Construction Materials Pty Ltd (Hanson) to provide advice pertaining to the native vegetation credits which can be generated through the protection and enhanced management of remnant vegetation on a property located at 195 Tonimbuk Road, Garfield North (the study area)(Figure 1).

It is understood that Hanson owns this property, and are investigating the feasibility of protecting and managing the existing remnant vegetation to assist with meeting the offset obligations generated by the vegetation removal associated with the proposed adjacent Garfield Quarry development. Offset obligations generated by the proposed Garfield Quarry development were calculated in Ecology and Heritage Partners (2014a), and are summarised in Table 1.

The purpose of this report is to provide advice relating to potential offset credits that can be generated through the management and permanent protection of remnant vegetation within the study, and the viability of establishing an offset site within the study area.

2. Study Area

The study area is located at 195 Tonimbuk Road, Garfield North, approximately 80 kilometres south-east of Melbourne's CBD (Figure 1). The study area is currently used as an equestrian centre in the northern half, and for residential and agricultural purposes in the south. It is bound by private property containing agricultural land to the west and south, and Sanders Road to the east and north. The study area contains several discrete patches of moderate quality remnant vegetation and scattered trees through-out the property (Figure 1).

According to the Department of Environment and Primary Industries (DEPI) Biodiversity Interactive Map (DEPI 2014a), the study area occurs within the Highlands – Southern Fall bioregion. It is located within the

jurisdiction of the Port Phillip and Westernport Catchment Management Authority (CMA) and the Cardinia Shire municipality.

The study area is predominantly zoned Green Wedge Zone – Schedule 1 (GWZ1), and is covered by an Environmental Significance Overlay – Schedule 1 (ESO1) (DTPLI 2014).

3. Methods

Desktop Assessment

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

- The DEPI Biodiversity Interactive Map (DEPI 2014a) for:
 - modelled data for location risk, remnant vegetation patches, scattered trees and habitat for rare or threatened species; and
 - the extent of historic and current EVCs.
- DEPI’s Native Vegetation Information Tool (NVIM) (DEPI 2014b) for the modelled Strategic Biodiversity Score (SBS) of the study area;
- The Victorian Department of Transport, Planning and Linear Infrastructure’s (DTPLI) Planning Maps Online to ascertain current zoning and environmental overlays (DTPLI 2014); and,
- Aerial photography of the study area.

Site Inspection

A site inspection of the study area was undertaken by a qualified and DEPI accredited ecologist on 3 November 2014. The study area was assessed, with all observed flora species recorded, any significant records mapped and the overall condition and extent of vegetation noted (via the habitat hectare methodology). Remnant vegetation in the local area was also investigated to assist in determining the pre-European vegetation within the study area. EVCs were determined with reference to DEPI pre-1750 and extant EVC mapping and their published descriptions (DEPI 2014c).

Table 1. Offset requirements for the proposed Garfield Quarry development.

Offset requirements	General Offsets Required (BEU)	0.009
	Specific Offsets Required (BEU)	33.712 specific units of habitat for Spotted Gum 37.491 specific units of habitat for Cobra Greenhood 37.347 specific units of habitat for Green Scentbark
	Vicinity (catchment / LGA)	Port Phillip and Westernport CMA / Cardinia Shire Council (For General BEUs) No Restrictions (for Specific BEUs)
	Minimum Strategic Biodiversity Score*	0.125

Note: BEU = Biodiversity Equivalence Units; * Minimum strategic biodiversity score is 80% of the weighted average score across habitat zones where a general offset is required.

4. Results

The assessment recorded 20.269 hectares of remnant vegetation comprising three remnant EVCs within the study area: Lowland Forest (EVC 16), Riparian Scrub (EVC 191) and Swampy Riparian Woodland (EVC 83), broken up into 14 different quality zones (Appendix 1). This assessment is consistent with the extant (2005) DEPI mapping that shows the study area to be dominated by Lowland Forest, Swampy Woodland/Swampy Riparian Woodland Complex, Damp Heathy Woodland, and Clay Heathland/Wet Heathland/Riparian Scrub Mosaic (DEPI 2014a).

The vegetation within the study area is of varying quality with most patches showing some level of modification and disturbance (either by agricultural or equestrian activities).

Through the protection and management of 20.269 hectares of remnant vegetation, the native vegetation credits that can be generated, and their attributes are summarised in Table 2, and detailed in Appendix 2. It should be noted that scattered trees cannot be used for offset purposes under the current native vegetation policy (DEPI 2013). However, should an offset site be established, scattered trees may be able to be sold separately to the offsets detailed below (Table 2) to meet scattered tree and Large Old Tree (LOT) and Medium Old Tree (MOT) obligations (DEPI 2014d). This is discussed in further detail below.

Table 2 – Native vegetation credits generated by 195 Tonimbuk Road

Native Vegetation Credits	Offset Site type	Remnant Protection
	General BEUs*	0.879 BEUs*
	Specific BEUs	3.337 BEUs for Green Scentbark <i>Eucalyptus fulgens</i> 1.333 BEUs for Fringed Helmet-orchid <i>Corybas fimbriatus</i> 3.090 BEUs for Spotted Gum <i>Corymbia maculata</i> 1.783 BEUs for Cobra Greenhood <i>Pterostylis chlorogramma</i>
	Vicinity (catchment / LGA)	Port Phillip and Westernport CMA / Shire of Cardinia
	Strategic Biodiversity Score (SBS)	0.186 (average)
	Minimum SBS of a clearing site [#]	0.233

Notes: * BEUs = Biodiversity Equivalence Units; # Minimum strategic biodiversity score is 80% of the weighted average score across habitat zones where a general offset is required.

A total of **0.879 general BEUs, or 0.018 general BEUs and 3.337 BEUs for Green Scentbark, 1.333 BEUs for Fringed Helmet-orchid 3.090 BEUs for Spotted Gum, 1.783 BEUs for Cobra Greenhood** can be gained through the protection and management of 20.269 hectares of vegetation over a period of 10 years¹ (Appendix 2).

¹ Note that some biodiversity equivalence units may be alternates. The use of any biodiversity equivalence units of one type within a BCA will result in a proportional reduction in biodiversity equivalence units of other types within that BCA. See Appendix 1 for BEU breakdown details.

Native Vegetation Credits

Minimum management commitments/arrangements to generate native vegetation credits at a site with existing remnant vegetation, or a site proposed for revegetation can be broken up into two main strategies; 1) maintenance and 2) improvement. Some of these techniques include:

Maintenance

- Retention of all remnant trees (both alive and dead specimens).
- Removal of woody and herbaceous weeds.
- Foregoing allowed uses such as grazing and slashing activities.

Improvement

- Control/eradication of environmental or noxious weeds including those that are a threat to existing remnant vegetation.
- Fencing to restrict public/grazing access into areas of ecological value.
- Control of introduced animals such as foxes, rabbits and feral cats.
- Revegetation and/or supplement planting of locally indigenous tree, shrub and understorey species in appropriate areas (need to consider ecological function).

Enhanced management of on-site remnant vegetation

Retained native vegetation within a site which is considered protected can be used to generate native vegetation credits. Gain scoring through management of existing remnant vegetation operates by allocating a certain score based on the vegetation management actions that maintain vegetation quality, or at a higher level, improve vegetation quality, and from increasing the security arrangement, and from recognition of past management. The guidelines and methodology for gain scoring are presented in DEPI (2013) and are used to determine the 'gain' from activities such as, vegetation protection, maintenance and improvement activities, and increased security. Any offset site also requires management skills and long-term resourcing (at least a 10-year period).

Importance of the Strategic Biodiversity Score

The Strategic Biodiversity Score (SBS) is a modelled score between 0-1.000. The whole of Victoria has been allocated a modelled SBS, and it tends to be a reflection of the connectedness of the native vegetation and its significance to Victoria's biodiversity. The higher the SBS of the offset site, the higher the number of credits that will be generated (as the number of BEUs equals the site gain per habitat hectare x the SBS of the site) (See Appendix 2 for these details). Please note that Permit holders with offset requirements must purchase offsets which have an SBS of at least 80% of the SBS of the cleared native vegetation. Therefore, the higher the SBS of a credit/offset site, the more likely that those credits will be suitable for all offset requirements that arise within that CMA or LGA. The SBS of the study area is low (average < 0.2). Therefore, any potential credits generated at these sites are not likely to meet the offset requirements for the clearance

of higher value native vegetation elsewhere (i.e. grassland areas to the west of Melbourne, or woodland area to the north and east of Melbourne). However they will meet the general offset requirements for those general offset obligations generated by the proposed Garfield Quarry development.

Approximate costs to establish an offset credit site

A summary of approximate costs to establish an offset site with Bushbroker are summarised in the offset report for the Wallaby Court property (Ecology and Heritage Partners Pty Ltd 2014b)

5. Conclusion

As Hanson already own this site, it is considered prudent to utilize the available offsets towards meeting the general and specific offset target generated by the proposed Garfield Quarry. However, it should be noted that any agricultural and equestrian activities in patches protected and secured for the purposes of meeting the offset target would be required to cease. Further, the permanent protection of all or parts of the study area is likely to affect the future re-sale value of the property.

Although scattered trees are not able to be used to generate native vegetation credits under the current native vegetation policy, DEPI have recently extended the transition period to allow holders of past planning approvals issued prior to 20 December 2013 to have their offset requirements secured as per the Framework. As such, offset owners or potential offset owners are able secure new offset sites and trade the credits in both habitat hectares and trees, or Guideline metrics until the review of this approach is held in early 2016 (DEPI 2014d).

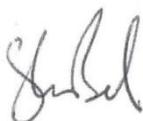
The Tonimbuk Road site contains approximately 31 scattered trees, many of which are likely to be worth between \$1,000 and \$3,000 each under this scheme.

It is also possible that the study area may provide habitat in parts for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed Southern Brown Bandicoot *Isodon obesulus obesulus*, and Growling Grass Frog *Litoria raniformis* and Dwarf Galaxias *Galaxiella pusilla*, and may therefore contribute towards potential offset prices for these species under the EPBC Act should they also be recorded.

A summary of offset credits generated under State legislation by the Wallaby Court property and the Garfield Quarry buffer area, and the contribution they make towards meeting the overall target is provided in Ecology and Heritage Partners Pty Ltd (2014b and 2014c) respectively.

Please feel free to contact me if you would like to discuss the implications of this report in further detail.

Yours Sincerely

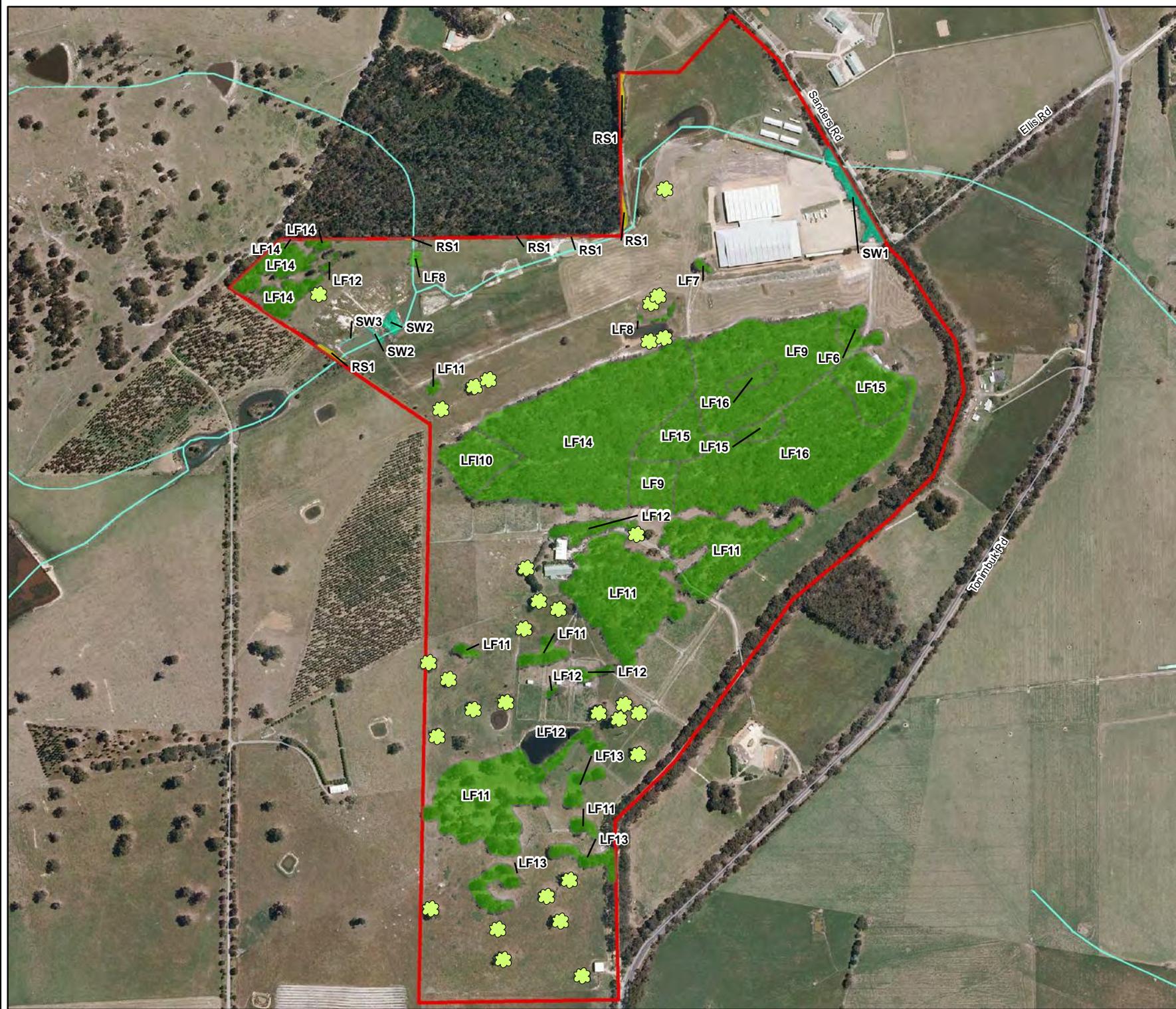


Shannon LeBel

Consultant Botanist - Ecology and Heritage Partners Pty Ltd

References

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- Ecology and Heritage Partners Pty Ltd 2014a. Ecological Assessment for a Proposed Quarry on Sanders Road, Garfield, Victoria Report prepared for Hanson Construction Materials Pty Ltd. November 2014.
- Ecology and Heritage Partners Pty Ltd 2014b. Offset Potential at 55 Wallaby Court, Garfield North. Report prepared for Hanson Construction Materials Pty Ltd.
- Ecology and Heritage Partners Pty Ltd 2014c. Offset Potential within the buffer area of the proposed Garfield Quarry, Sanders Road, Garfield North. Report prepared for Hanson Construction Materials Pty Ltd



Legend

- Offset site
 - ★ Scattered Trees (not included in offset calculations)
- Ecological Vegetation Classes**
- Lowland Forest
 - Riparian Scrub
 - Swampy Riparian Woodland



Figure 1
Ecological features in the proposed offset site
 195 Tonimbuk Road,
 Garfield North



VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Appendix 1 – Habitat Hectare Results

Table A1. Habitat Hectares results for remnant vegetation recorded within the study area.

Vegetation Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	1	14	15	16	
Bioregion	HSF																			
EVC / Tree	LF	SRW	SRW	RS	LF	LF	LF	LF												
EVC Number	16	16	16	16	16	16	16	16	16	16	16	16	16	83	83	191	16	16	16	16
EVC Conservation Status	LC	Vu	Vu	Vu	LC	LC	LC	LC												
Large Old Trees /10	9	9	0	5	5	9	10	0	7	5	10	0	10	0	0	0	5	9	5	5
Canopy Cover /5	5	5	2	4	4	4	4	3	4	5	5	4	4	4	5	5	4	5	4	4
Under storey /25	20	10	10	20	15	5	5	5	10	15	5	5	0	5	10	15	20	10	15	15
Lack of Weeds /15	11	7	7	9	9	6	7	6	3	4	4	4	2	4	9	9	9	7	9	9
Patch Recruitment /10	10	3	6	10	6	1	3	3	5	6	0	1	0	6	6	10	10	3	6	6
Condition Organic Matter /5	5	5	5	5	5	5	5	5	5	5	4	5	4	4	5	5	5	5	5	5
Logs /5	5	2	2	0	4	0	2	2	3	2	5	0	0	3	2	0	0	0	2	4
Treeless EVC Multiplier	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.25	1	1	1
Subtotal =	65	41	32	53	48	30	36	24	37	42	33	19	20	26	35	55	53	41	48	48
Landscape Value /25	12	12	12	12	12	8	1	1	8	8	8	6	6	4	4	8	8	8	8	8
Habitat Points /100	77	53	44	65	60	38	37	25	45	50	41	25	26	30	39	63	61	49	56	56
Habitat Score	0.77	0.53	0.44	0.65	0.6	0.38	0.37	0.25	0.45	0.5	0.41	0.25	0.26	0.3	0.39	0.63	0.61	0.49	0.56	0.56
Total Area (ha)	0.000	0.000	0.000	0.000	0.000	0.255	0.031	0.091	2.817	0.589	4.981	0.551	0.672	0.205	0.118	0.148	4.833	1.421	3.547	3.547

Appendix 2 – Offset Report – Tonimbuk Road



ADELAIDE 8 Greenhill Road,
Wayville, SA 5034
P (08) 8372 7829

BRISBANE Level 22, 127 Creek Street,
Brisbane, Qld 4000
P (07) 3221 3352

GEELONG

PO BOX 8048
Newtown, Vic 3220
P (03) 5221 8122

MELBOURNE

292 Mt Alexander Rd,
Ascot Vale, Vic 3032
P (03) 9377 0100
F (03) 9377 0199

Offset site report

This report provides information about native vegetation offset sites in accordance with the *Permitted clearing of native vegetation – Biodiversity assessment guidelines*. The information in this report is based on spatial information and site gain in habitat hectares, provided by the offset provider (or their representative), about the offset site to DEPI. Any changes to this input information will change the amount of offsets available at the offset site and will require this report to be reissued.

This report should be read in conjunction with the *Native vegetation offset market fact sheet* that provides information on how offsets are measured and categorised, and how they can be used to satisfy conditions on permits to remove native vegetation and traded as credits in the offset market.

Date of issue: 20/11/2014

DEPI ref: EHP_0101

Time of issue: 1:15 PM

Project ID	EHP6427_Garfield_SanOS
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Summary of offset site

Total extent	20.269 ha
Remnant patches	20.269 ha
Revegetation	0 ha
Number of biodiversity class areas (BCAs)	5
Catchment Management Authority and Municipal district	Port Phillip and Westernport CMA, Cardinia Shire Council

Summary of biodiversity equivalence units available at offset site

The offset site has the following general and specific biodiversity equivalence units.

General biodiversity equivalence units	0.879 general units*
Specific biodiversity equivalence units	1.333 specific units* of habitat for Fringed Helmet-orchid 3.090 specific units* of habitat for Spotted Gum 1.783 specific units* of habitat for Cobra Greenhood 3.337 specific units* of habitat for Green Scentbark

*Note that some biodiversity equivalence units may be alternates. The use of any biodiversity equivalence units of one type within a BCA will result in a proportional reduction in biodiversity equivalence units of other types within that BCA.

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

Offset site report

Offset site details

Biodiversity equivalence units available and attributes by BCA

The biodiversity equivalence units and attributes for each BCA are as follows:

BCA	Offset type	Biodiversity equivalence units	Offset attributes
1	General	0.018 general units	0.165 strategic biodiversity score Port Phillip and Westernport CMA or the local municipal district of the offset site

BCA	Offset type	Biodiversity equivalence units	Offset attributes
2	General	0.002 general units	0.146 strategic biodiversity score Port Phillip and Westernport CMA or the local municipal district of the offset site
	Specific	0.011 specific units	Habitat for 505175, Green Scentbark, Eucalyptus fulgens

BCA	Offset type	Biodiversity equivalence units	Offset attributes
3	General	0.008 general units	0.209 strategic biodiversity score Port Phillip and Westernport CMA or the local municipal district of the offset site
	Specific	0.026 specific units	Habitat for 501295, Spotted Gum, Corymbia maculata
	Specific	0.029 specific units	Habitat for 505175, Green Scentbark, Eucalyptus fulgens

BCA	Offset type	Biodiversity equivalence units	Offset attributes
4	General	0.324 general units	0.182 strategic biodiversity score Port Phillip and Westernport CMA or the local municipal district of the offset site
	Specific	1.333 specific units	Habitat for 500839, Fringed Helmet-orchid, Corybas fimbriatus
	Specific	1.358 specific units	Habitat for 501295, Spotted Gum, Corymbia maculata
	Specific	1.450 specific units	Habitat for 505175, Green Scentbark, Eucalyptus fulgens

Offset site report

BCA	Offset type	Biodiversity equivalence units	Offset attributes
5	General	0.527 general units	0.229 strategic biodiversity score Port Phillip and Westernport CMA or the local municipal district of the offset site
	Specific	1.706 specific units	Habitat for 501295, Spotted Gum, <i>Corymbia maculata</i>
	Specific	1.783 specific units	Habitat for 502798, Cobra Greenhood, <i>Pterostylis grandiflora</i>
	Specific	1.847 specific units	Habitat for 505175, Green Scentbark, <i>Eucalyptus fulgens</i>

Site gain in habitat hectares

Site gain in habitat hectares is calculated for each biodiversity class area (BCA) in the offset site using the extent and site gain per hectare scores in the GIS data provided.

BCA	Site gain per hectare*	Extent (ha)	Site gain in habitat hectares
1	0.207	0.532	0.110
2	0.123	0.114	0.014
3	0.168	0.229	0.039
4	0.210	8.449	1.769
5	0.211	10.945	2.311
TOTAL			4.243

* This value has been calculated using the site gain per hectare values for each habitat zone as provided with the GIS file of the offset site. The site gain per hectare value for a BCA is calculated from the weighted average of site gain per hectare values for all habitat zones that intersect with the BCA.

Offset site report

Offset site biodiversity equivalence unit calculations by biodiversity class area

The general biodiversity equivalence units for the biodiversity class area are calculated by multiplying the site gain in habitat hectares by the strategic biodiversity score.

Where a BCA has specific units for one or more rare or threatened species, the specific biodiversity equivalence units for each BCA is calculated by multiplying the site gain in habitat hectares by the habitat importance score for each of these species.

BCA	Site gain in habitat hectares	Offset type	General offset attributes	Specific offset attributes		Biodiversity equivalence units*
			Strategic biodiversity score	Species number, Species common name, Species scientific name	Habitat importance score	
1	0.110	General	0.165			0.018 general units
2	0.014	General	0.146			0.002 general units
		Specific		505175, Green Scentbark, Eucalyptus fulgens	0.770	0.011 specific units
3	0.039	General	0.209			0.008 general units
		Specific		501295, Spotted Gum, Corymbia maculata	0.683	0.026 specific units
		Specific		505175, Green Scentbark, Eucalyptus fulgens	0.753	0.029 specific units
4	1.769	General	0.182			0.324 general units
		Specific		500839, Fringed Helmet-orchid, Corybas fimbriatus	0.753	1.333 specific units
		Specific		501295, Spotted Gum, Corymbia maculata	0.766	1.358 specific units
		Specific		505175, Green Scentbark, Eucalyptus fulgens	0.819	1.450 specific units
5	2.311	General	0.229			0.527 general units
		Specific		501295, Spotted Gum, Corymbia maculata	0.737	1.706 specific units
		Specific		502798, Cobra Greenhood, Pterostylis grandiflora	0.771	1.783 specific units
		Specific		505175, Green Scentbark, Eucalyptus fulgens	0.799	1.847 specific units

*Note that biodiversity equivalence units within a BCA are alternates. The use of any biodiversity equivalence units of one type within a BCA will result in a proportional reduction in biodiversity equivalence units of other types within that BCA.

Offset site report

Next steps

Offset sites must meet eligibility criteria as outlined in the *Native vegetation gain scoring manual, version 1* available on the DEPI website and any other relevant requirements. Eligible offset sites that are intended to be banked or sold as credits must be registered on the native vegetation credit register. A habitat hectare assessment is required to be undertaken before any offset can be registered on the credit register.

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Appendix 1 – Images of marked native vegetation

Image 1. Aerial photograph showing marked native vegetation



Offset site report

Image 2. Strategic biodiversity score map

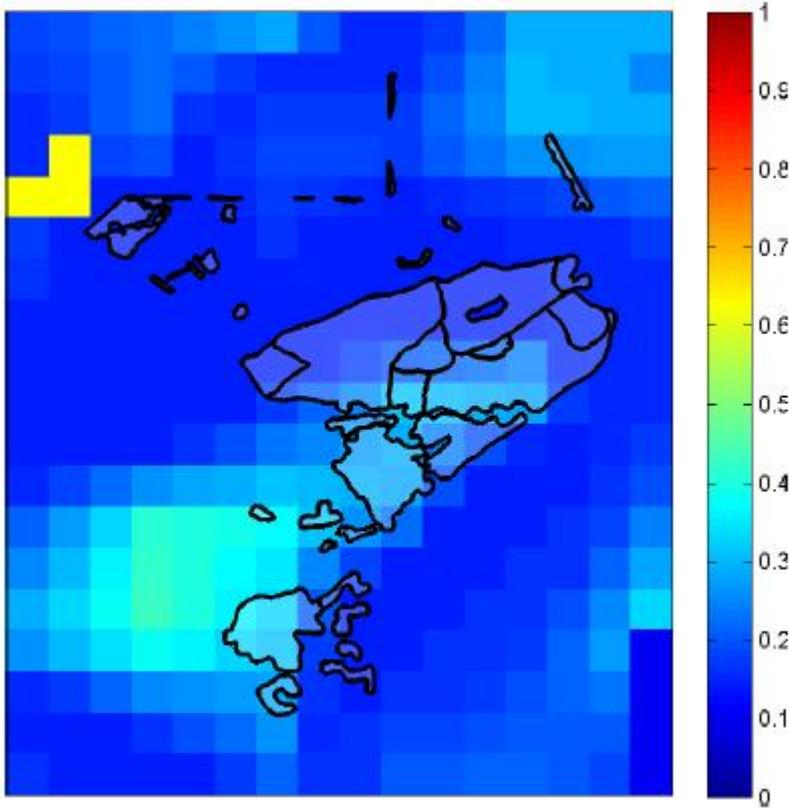
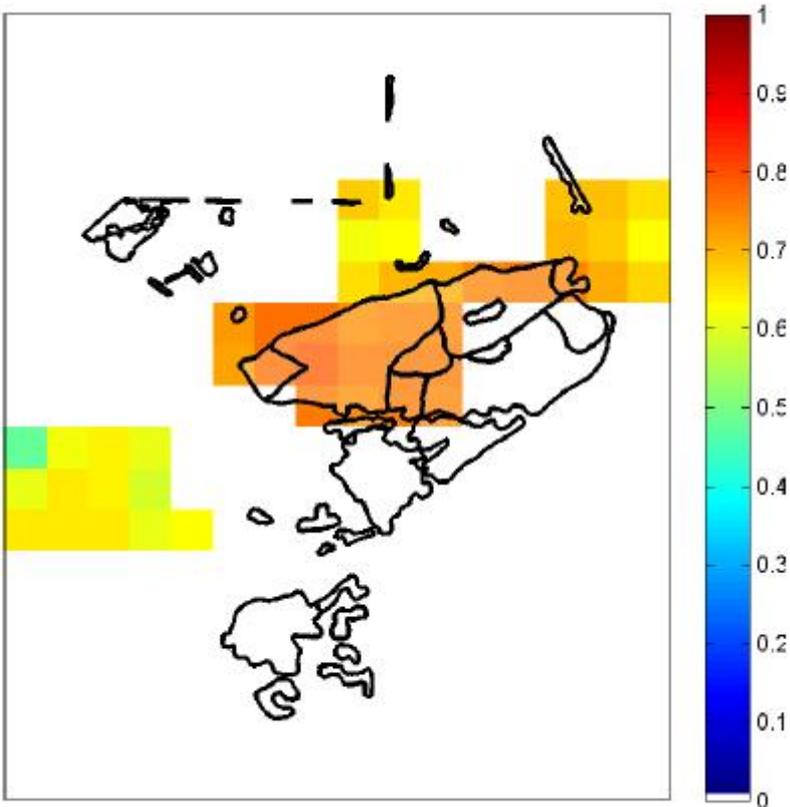


Image 3. Habitat importance map – 500839, Fringed Helmet-orchid, *Corybas fimbriatus*



Offset site report

Image 4. Habitat importance map – 501295, Spotted Gum, *Corymbia maculata*

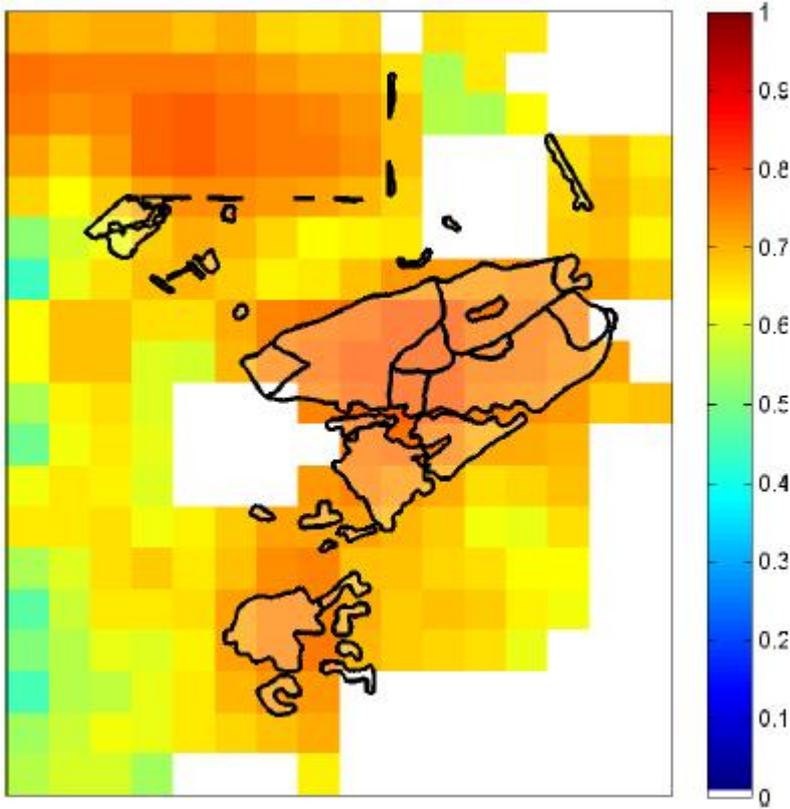
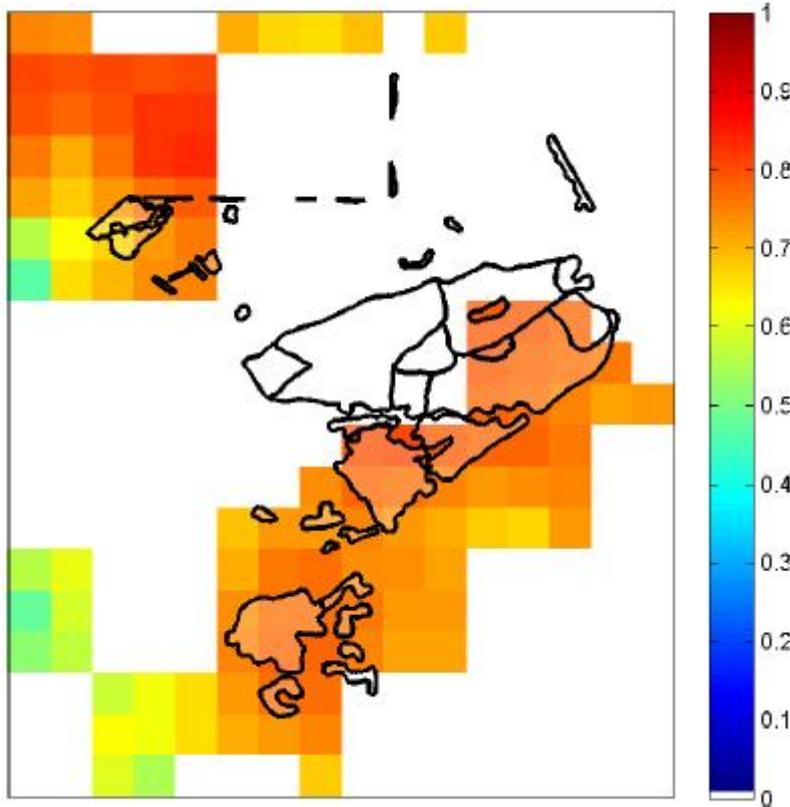
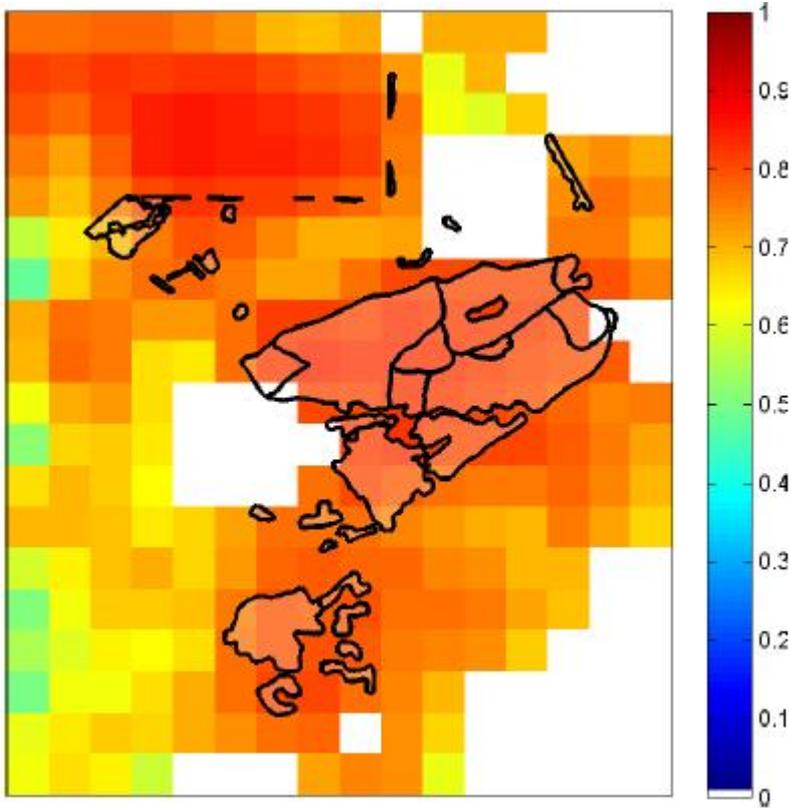


Image 5. Habitat importance map – 502798, Cobra Greenhood, *Pterostylis grandiflora*



Offset site report

Image 6. Habitat importance map – 505175, Green Scentbark, *Eucalyptus fulgens*



Offset site report

Glossary

Alternate offset types	Offset types within a biodiversity class area (BCA) are alternates. The use of one offset type will result in the proportional reduction of all other offset types within the BCA. For example, in a BCA that has 1 general unit and 2 specific units for a particular rare or threatened species, if all of the general units are used (100 per cent) there will be no specific units remaining, as these specific units will also reduce by 100 per cent. Alternatively, if in this same BCA only half the general units were used (50 per cent) then there will be 0.5 general units and 1 specific units remaining, half the original values.
Biodiversity Class Area (BCA)	The BCA is the organisational unit of an offset site. BCAs are determined by the unique combination of general and specific biodiversity equivalence units calculated across the offset site.
Condition score	This is the site-assessed condition score for the native vegetation. Each habitat zone in the offset site 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 submitted for processing.
General biodiversity equivalence units (general units)	<p>The general biodiversity equivalence units (general units) quantify the relative overall contribution that the protection and management of native vegetation at the offset site makes to Victoria's biodiversity. The general biodiversity equivalence units is calculated as follows:</p> $\text{General biodiversity equivalence units} = \text{site gain in habitat hectares} \times \text{strategic biodiversity score}$
General offset attributes	The attributes of a general offset site must match those in an offset requirement that is a condition on a permit to remove native vegetation, in order for that offset site to be used to satisfy the permit condition. General offsets 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 clearing site. The strategic biodiversity score of a general offset is determined by the biodiversity class area the units are sold from.
Habitat importance score	The habitat importance score is a measure of the relative importance of the habitat located on a site for a particular rare or threatened species, compared to all other habitat for that 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 biodiversity class area where the habitat importance map indicates that species habitat occurs and where the protection of habitat across the offset agreement is greater than the threshold test.
Habitat zone	Habitat zone is a discrete contiguous area of native vegetation that: <ul style="list-style-type: none">• is of a single Ecological Vegetation Class• has the same measured condition.
Offset type	There are two types of offsets, general offset and specific offsets. All offset sites can be general offsets. Sites that are mapped as habitat for specific rare or threatened species can be specific offsets for those species habitat.

Offset site report

Site gain in habitat hectares Site gain in habitat hectares is a site-based measure that combines extent and site gain per hectare of native vegetation at an offset site. The site gain in habitat hectares measures both the current status of native vegetation at a site and the potential site gain from the protection and management of the native vegetation at that site. The condition of a site, or the gain in condition due to protection and management actions are multiplied by the extent (area in hectares) of native vegetation to calculate the site gain in habitat hectares value. For a biodiversity class area the site gain in habitat hectares is determined using the following formula:

$$\text{Site gain in habitat hectares} = \text{total extent (hectares)} \times \text{site gain per hectare}$$

Site gain per hectare This is the site-assessed gain per hectare for the native vegetation based on the agreed management and security commitments. Each habitat zone in the offset proposal is assigned a site gain per hectare according to the habitat hectare assessment and gain scoring methods. This is a number between 0 and 1. This information has been provided by or on behalf of the applicant in the GIS file. These values are aggregated to the level of the BCA in order to calculate offset amounts at the offset site.

Specific offset attributes The attributes of a specific offset site must match those in an offset requirement that is a condition on a permit to remove native vegetation, in order for that offset site to be used to satisfy the permit condition. Specific offsets must be located in the mapped habitat for the species that has triggered the specific offset requirement.

Specific biodiversity equivalence units (specific units) Specific biodiversity equivalence units (specific units) are associated with a particular rare or threatened species habitat. The specific biodiversity equivalence units quantifies the relative overall contribution that the protection and management of native vegetation at an offset site makes to the habitat of the relevant rare or threatened species. Specific units are calculated for each species in each biodiversity class area where the result of the threshold test is greater than 0.0025 per cent. Specific units are calculated as follows:

$$\text{Specific biodiversity equivalence units}_{\text{species } x} = \text{site gain in habitat hectares} \times \text{habitat importance score}_{\text{species } x}$$

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 BCA. 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.

Threshold test By default, a threshold test is applied to offset sites to limit the number of rare or threatened species for which specific biodiversity equivalence units are calculated. This is done to make organising and trading credits more manageable. The test determines if the offset site can generate specific habitat protection for any rare or threatened species above a threshold. The threshold is set at 0.0025 per cent of the total habitat for a species. When the proportion of habitat protected is above the threshold, specific biodiversity equivalence units are calculated for that species.

Offset site report

**Total extent
(hectares) for
calculating site
gain in habitat
hectares**

This is the total area of offset site native vegetation in hectares.

The total extent of native vegetation is an input to calculating the site gain in habitat hectares at a site and in calculating the total gain in general and specific biodiversity equivalence units.