

**MODEINA ESTATE PRECINCT 2 – PROJECT
AREA B (SCHOOL SITE)**

EPBC ACT OFFSET MANAGEMENT PLAN

Dennis Family Corporation



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DOCUMENT CONTROL

Report no.	Date of submission	Revisions made	Author
7045 (35.1)	20 th October 2016	n/a	Mal Wright
7045 (35.1) – updated	8 th December 2016	Correction of EPBC Act conditions being addressed (Conditions 7 & 8, not 6) Correction to mapping of Karabeal Offset Zone 1 and Table 1	Mal Wright
7045 (35.2)	23 rd December 2016	Correction to Table 1 Correction to offset site areas – Sections 2.1.1 & 2.1.2 Additional site assessment details – Sections 2.1.1 & 2.1.2 Reference to offset site reports (x2) – provided with resubmission – Sections 2.1.1 & 2.1.2 Inclusion of Striped Legless Lizard targeted survey results – Section 3.3	Mal Wright
7045 (3.3)	13 th January 2017	Nomenclature change to Karabeal habitat zones	Mal Wright
7045 (3.4)	28 th February 2017	Re-allocation of area within Karabeal offset site to satisfy the Project Area B offset – renamed from Karabeal Offset Zone 1 to <i>Karabeal Project Area B Offset</i>	Mal Wright

1. BACKGROUND

Dennis Family Corporation engaged Brett Lane & Associates Pty Ltd (BL&A) to prepare an Offset Management Plan to account for the proposed loss of Matters of National Environmental Significance (MNES) within Project Area B, Precinct 2 of Modeina Estate, Burnside, Victoria. The vegetation is to be cleared to provide for the construction of a state school, approved by the Department of the Environment (DoE) following an assessment under the EPBC Act (EPBC 2011/6063).

The approval for Modeina Precinct 2 under the EPBC Act contains conditions to be met prior to the commencement of construction in Project Area B. This Offset Plan has been prepared to meet the following relevant conditions:

7. *The person taking the action must not commence construction activities in Project Area B until the following are met:*
 - a. *A direct offset containing a minimum of 100 Spiny Rice-flower plants has been secured;*
 - i. *An offset management plan has been prepared and submitted to the Minister for approval [...]; and*
8. *The person taking the action must not commence construction activities in Project Area B until the following are met :*
 - a. *A direct offset, consistent with the EPBC Act Environmental Offsets Policy, has been secured to compensate for the impacts to 1.824 hectares of NTGVP and 1.824 hectares of Striped Legless Lizard habitat;*
 - i. *An offset management plan has been prepared and submitted to the Minister for approval [...]*

This Offset Management Plan has been prepared to meet these EPBC Act offset requirements and provides:

- Details of the offset sites, including site location, extent and quality of native vegetation and presence and extent of MNES;
- Details of how the offset sites meet the requirements of the EPBC Act offset policy and the proposed means of offset security; and
- Management actions required at the offset sites.

This offset plan was prepared by Elinor Ebsworth (Senior Ecologist) and Mal Wright (Senior Ecologist and Project Manager) at BL&A.

2. OFFSET SITES SUITABILITY

2.1. EPBC Act offset strategy

The EPBC Act offset requirements will be achieved across two sites: in Karabeal and Campbelltown, Victoria. Offset site descriptions and survey results are provided in the following sections; a breakdown of offsets by property is provided in Section 2.2.

2.1.1. Karabeal offset site details

Landowner of offset site	Dennis Family Corporation
Type of offset	First party (offsite)
Location and address of offset site	RW McIntyres Road, Karabeal
Total area of offset site (ha)	55.33 hectares
Area of offset site pertinent to this offset plan (ha)	7.3 hectares of NTGVVP and Striped Legless Lizard habitat
Volume	05756
Folio	087
Parish	Pannyabyr
Allotment	71 and 72
Local Government Area	Southern Grampians
Bioregion	Victorian Volcanic Plain

Site assessment and biodiversity values

The Karabeal property was surveyed and assessed for native vegetation and fauna habitat by BL&A in January 2016. Targeted surveys for Striped Legless Lizard using the tile-grid method were undertaken in October 2016. The results of these assessments are provided in the BL&A Report 7045 (31.3) and summarised below.

Almost the entire 72 hectares of the property comprised the Victorian Ecological Vegetation Class *Heavier-soils Plains Grassland* (EVC 132_61). Of this habitat, 30.442 hectares meets the classification of the EPBC Act listed threatened ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP). The remainder of the *Heavier-soils Plains Grassland* recorded on the property is dominated by Weeping Grass – a non-tussocking native grass.

Targeted surveys recorded up to 20 Striped Legless Lizard (SLL) at four of five tile grids situated within NTGVVP throughout the property. An analysis of habitat for SLL within the property identified that SLL habitat coincides with the NTGVVP recorded, given the SLL requirement for tussocking grasses.

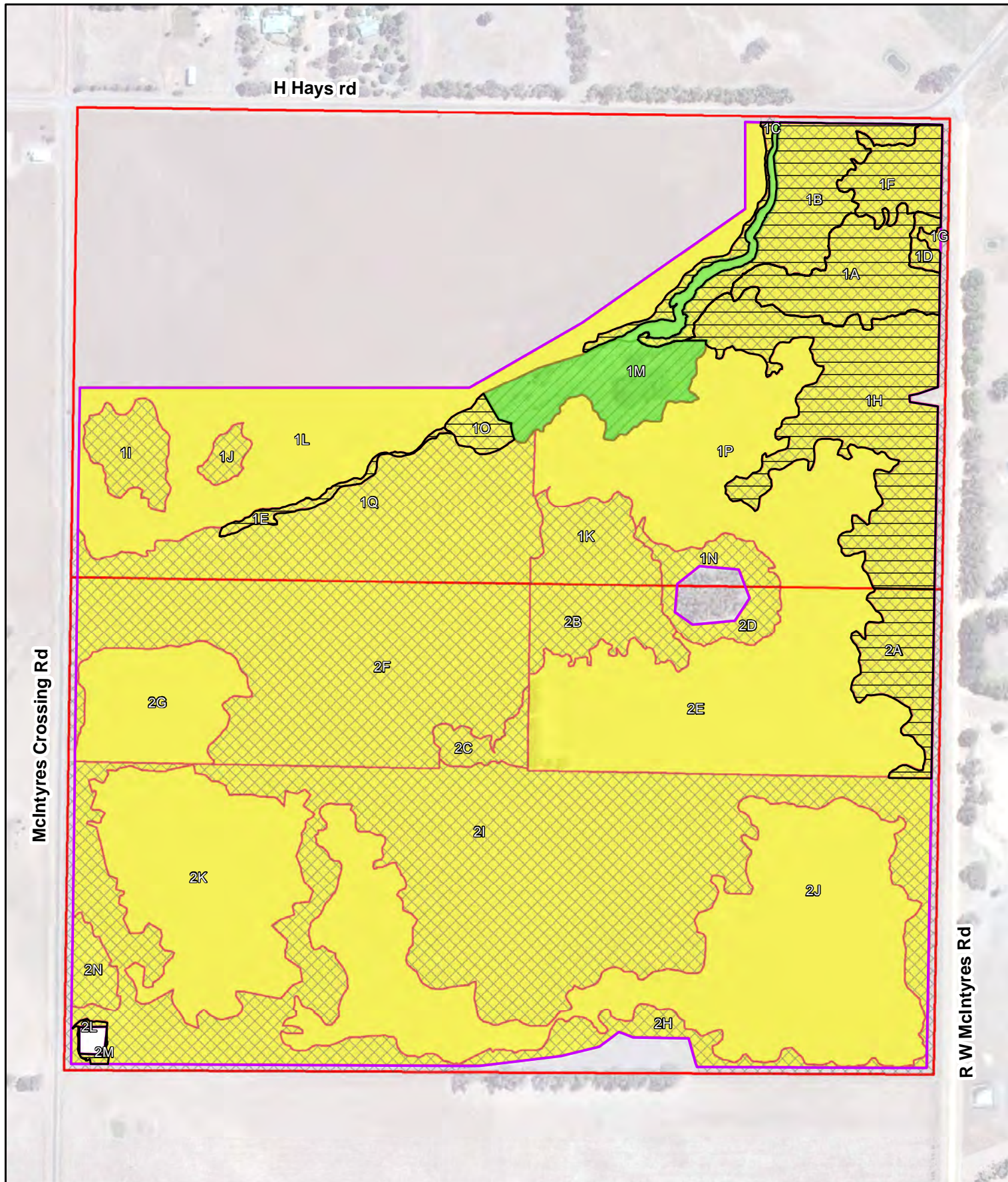
The majority of the property will be protected and managed in perpetuity for conservation. The total area to be used as an offset, 55.33 hectares in size and containing all NTGVVP on the site, is referred to herein as the 'Karabeal offset site'. Baseline habitat condition data collected on the offset site are detailed in a site-specific management plan, provided in Appendix 3 to this OMP.

The **Karabeal Project Area B EPBC Act Offset** (Figure 1) is allocated across eleven habitat zones to achieve the the EPBC Act NTGVVP and SLL offsets for Modeina Project Area B. This offset supports 7.3 hectares of NTGVVP and SLL habitat, as outlined in Table 1 . (Note: Victorian offset rules require that offsets exclude land within 6 metres of the property boundary to allow for fence maintenance and fire protection works.)

Table 1: Biodiversity values in the Karabeal Project Area B Offset

Habitat Zone	Biodiversity values	Area (ha)	Habitat score (out of 100)*
1A	NTGVVP SLL habitat	1.13	69
1B	NTGVVP SLL habitat	1.22	74
1C	NTGVVP SLL habitat	0.19	74
1D	NTGVVP SLL habitat	0.11	74
1E	NTGVVP SLL habitat	0.14	74
1F	NTGVVP SLL habitat	0.59	54
1H	NTGVVP SLL habitat	2.87	54
2A	NTGVVP SLL habitat	0.81	54
2L	NTGVVP SLL habitat	0.02	50
2M	NTGVVP SLL habitat	0.02	50
10	NTGVVP SLL habitat	0.20	61
Total area		7.30	

* Habitat Score based on Victorian *habitat hectare* methodology



Legend

- Property boundary
- Karabeal offset site
- Karabeal Project Area B Offset
- GEWVP
- NTGVVP/SLL habitat
- Heavier Soils Plains Grassland (EVC 132_61)
- Plains Grassy Woodland (EVC 55_61)

0 50 100 200 Metres

Figure 1: Karabeal offset site

Project: Modeina Estate

Client: Dennis Family Corporation

Project No.: 7045.28

Date: 28/02/2017

Created By: N. May / E. Ebsworth

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2.1.2. Campbelltown offset site details

Landowner of offset site	Dennis Family Corporation
Type of offset	First party (offsite)
Location and address of offset site	2169 Creswick-Newstead Road
Area of offset site (ha)	6.459 hectares
Area of offset site pertinent to this offset plan (ha)	0.35 hectares
Volume	11053
Folio	421
Parish	Campbelltown
Allotment	2\TP893627F
Local Government Area	Hepburn
Bioregion	Victorian Volcanic Plain and Goldfields

Site assessment and biodiversity values

Targeted surveys for Spiny Rice-flower were undertaken at the Campbelltown property by BL&A in July 2015, during which large numbers of Spiny Rice-flower plants were recorded, mapped and tagged with stainless steel tags. Areas of Ecological Vegetation Class Plains Grassy Woodland (EVC 55) were also recorded. The results of this assessment are provided in BL&A Report 7045 (28.1) and summarised below.

Areas of the property containing biodiversity values will be protected and managed in perpetuity for conservation. Four habitat zones, totalling 6.459 hectares in area, will be used as an offset and referred to herein as the 'Campbelltown offset site'. Baseline habitat condition data collected on the offset site are detailed in a site-specific management plan, provided in Appendix 4 to this OMP.

This offset site will be protected in perpetuity and managed for conservation as outlined detailed in a site-specific management plan (Appendix 4), and will contribute to both EPBC Act offsets for Modeina and future state and/or Commonwealth offsets. The Modeina Project Area B EPBC Act offset for Spiny Rice-flower, the subject of this Offset Management Plan, is:

The **Campbelltown Project Area B Offset** – comprising an area of 0.35 hectares that supports 100 Spiny Rice-flower (Figure 2).



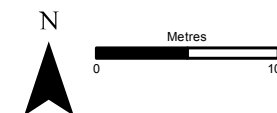
Figure 2: Campbelltown offset site

Project: Campbelltown Offset Site **Client:** Dennis Family Corporation **Date:** 20/12/2016

- ▭ Title boundary
- ▭ Campbelltown Project Area B Offset
- ★ Lot 2 Spiny Rice-flower plants

Habitat zones

- ▭ Plains Grassy Woodland (EVC 55)
- ▭ Plains Grassy Woodland (EVC 55_61)
- ▭ Spiny Rice-flower Management Zone (no EVC)



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2.2. Meeting EPBC Act offset requirements

A summary of the offsets to be provided is presented below for each MNES impacted by the proposed development.

Calculations for NTGVVP and SLL habitat were undertaken using the Offsets Assessment Guide (DSEWPC 2012) to assist in the determination of whether the offsets proposed for the development would satisfy the Commonwealth offset requirements (Appendix 1). Offsets will be met within the offset sites as described below and summarised in Table 2.

Table 2: Offset sites contributing to offsets

Conditions 7 & 8 requirement	How the offset will be met
A direct offset to compensate for the impacts to 1.824 hectares of NTGVVP and 1.824 hectares of Striped Legless Lizard habitat	Protection of 7.3 hectares of NTGVVP within the Karabeal offset site
	Protection of 7.3 hectares of SLL habitat within the Karabeal offset site
A direct offset containing a minimum of 100 Spiny Rice-flower plants	Protection of 100 SRF plants within Campbelltown offset site

Community

The protection and management of 7.3 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* within the Karabeal offset site is proposed to meet the offset requirements for the impacts to 1.824 hectares of this listed ecological community.

Threatened Species Habitat

The protection and management of 7.3 hectares of Striped Legless Lizard habitat within the Karabeal offset site is proposed to meet the offset requirements for the impacts to 1.824 hectares of this threatened species habitat.

Species

The protection and management of 100 Spiny Rice-flower plants within the Campbelltown offset site is proposed to meet the offset requirement for this threatened species.

The Commonwealth Offset Policy (DSEWPC 2012) was reviewed to determine whether the proposed offset is consistent with the Commonwealth requirements. The proposed offset sites have been assessed against the overarching principles of the Commonwealth Offset Policy in Table 3.

Table 3: Meeting the Commonwealth Offset principles

Commonwealth Requirement	Karabeal offset site	Campbelltown offset site
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The Karabeal offset site contains both NTGVVP and confirmed habitat for SLL.	The Campbelltown offset site contains Spiny Rice-flower.
Be built around direct offsets but may include other compensatory measures	The offset is a direct offset involving the security and management of existing native vegetation and threatened species habitat.	The offset is a direct offset involving the security and management of existing native vegetation and threatened species.
Be in proportion to the level of statutory protection that applies to the protected matter	The level of statutory protection is in proportion to the matter being impacted.	The level of statutory protection is in proportion to the matter being impacted.
Be of a size and scale proportionate to the residual impacts on the protected matter	The area of NTGVVP and SLL habitat proposed for offset has been determined using the EPBC Act Offset Guide.	The number of Spiny Rice-flower to be protected as a direct offset has been determined by the conditions of the EPBC Act approval.
Effectively account for and manage the risks of the offset not succeeding	Risks have been accounted for in the offset calculations (see Appendix 1).	Risks have been accounted for in the offset calculations (see Appendix 1).
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs	The Karabeal offset site currently has no covenants or security arrangements relating to biodiversity values. As such, the proposed offsets would be additional to current protections.	The Campbelltown offset site currently has no covenants or security arrangements relating to biodiversity values. As such, the proposed offsets would be additional to current protections.
Be efficient, effective, timely, transparent, scientifically robust and reasonable	This will be achieved by securing the site through a Section 69 agreement and management of the site by the landowner (Section 3.1).	This will be achieved by securing the site through a Section 69 agreement and management of the site by the landowner (Section 3.1).
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	This is achieved by securing and managing the site, consistent with any EPBC Act and planning permit conditions.	This is achieved by securing and managing the site, consistent with any EPBC Act and planning permit conditions.
Be informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty	Information of the clearing site and offset site has been compiled by experienced ecologists.	Information of the clearing site and offset site has been compiled by experienced ecologists.
Be conducted in a consistent and transparent manner.	All details of the offset site have been provided to allow for transparency. Documentation has been consistent throughout.	All details of the offset site have been provided to allow for transparency. Documentation has been consistent throughout.

3. OFFSET IMPLEMENTATION

3.1. Security mechanism for offset sites

The offset sites are to be secured and managed for the purposes of conservation in perpetuity.

OFFSET SECURITY AND MANAGEMENT RESPONSIBILITY	Karabeal Offset Site	Campbelltown Offset Site
Who is liable/responsible for meeting offset requirements?	Dennis Family Corporation	Dennis Family Corporation
Type of security	Section 69 agreement under the <i>Conservation, Forests and Lands Act 1987 (Vic)</i>	Section 69 agreement under the <i>Conservation, Forests and Lands Act 1987 (Vic)</i>
Date 10-year offset management to commence	On execution of agreement	On execution of agreement
Date 10-year offset management expires	On execution of agreement	On execution of agreement
Registered on title? (Yes/No)	Yes	Yes
Offset site management responsibility	Landowner	Landowner
Offset Monitoring Responsibility	DELWP	DELWP

3.2. Ongoing land-use commitments & management actions

In accordance with the prescriptions in DELWP's vegetation gain scoring manual (DEPI 2013), the landowner commits to the following in perpetuity:

- Retain all native vegetation;
- Exclude stock (except as required as part of the biomass management of the site);
- Control all on-site grazing threats (i.e. rabbits and other pests);
- Implement a biomass management strategy (periodic biomass reduction at agreed timing/frequency) – to the satisfaction of the Commonwealth and DELWP;
- Eliminate high threat woody environmental weeds and ensure that cover of other high threat weeds does not increase beyond the level it was prior to inception of the offset plan;
- Maintain the improvement gain achieved at completion of this offset plan such that:
 - Weed cover does not increase beyond the level attained at the completion of Year 10; and
 - Pest animals are controlled to the level attained at the completion of Year 10.

3.3. Baseline surveys

Baseline weed cover surveys have been undertaken by ecologists as part of offset site assessments in 2016 of the Karabeal and Campbelltown offset sites. These surveys determined:

- The cover of woody weeds; and
- The combined cover of other weeds.

This baseline data will be used as a benchmark against which management actions are measured and are contained in the management plans shown in the appendices to this OMP.

A targeted Striped Legless Lizard survey was undertaken at Karabeal by BL&A using five tile-grids (50 tiles in each, separated by 5 metres) deployed in winter and checked fortnightly on three occasions between late September and late October – the results of which are documented in BL&A Report 7045 (31.3). Four of the five grids were located in mapped areas of NTGVVP, the fifth was located in a large area of Plains Grassland dominated by Weeping-grass in the northwest of the site.

Each fortnightly check recorded Striped Legless Lizard beneath tiles in the four grids located in NTGVVP, with up to 20 individuals recorded across these tile grids per check. No SLL was recorded in the fifth tile grid.

3.4. Management actions to be undertaken

This section provides a description of the management actions to be undertaken within the Karabeal offset site and the Campbelltown offset site to meet the offset requirements of the state and Commonwealth. Management schedules are provided in the Karabeal Offset Site Management Plan (Appendix 3) and the Campbelltown Offset Site Management Plan (Appendix 4).

3.4.1. Fencing

The perimeter of the offset sites are to be fenced permanently to prevent inadvertent damage to vegetation or soil disturbance through stock or unauthorised vehicle access.

3.4.2. Weed control

This relevant Management Plans for the Karabeal offset site and Campbelltown offset site require the landowner to ensure that any high threat woody environmental weeds within the offset site are eliminated in the 10 year time period. A weed species is considered to be effectively eliminated when its foliage cover (excluding bare ground) is reduced to less than 1%.

Furthermore, the cover of all other non-woody (herbaceous) weeds must not exceed the level present at commencement of the plan. This applies to all species of weeds, regardless of their level of threat.

Methods such as burning and herbicide application are considered to be appropriate means to achieve the weed control targets. The means by which the above weed control targets are met will be ultimately determined by the land manager. Weed control methods are discussed further below.

Herbicide

The application of appropriate herbicide is to be undertaken as required to control weed species in the offset areas. Care must be taken to ensure that there are no impacts to any rare or threatened flora and fauna species when using herbicides.

Ecological burning

Burning should also be used as required as a means of weed and biomass control. Herbicide should be used prior to and following a burn, to maintain gaps between native grass tussocks and allow space for recruitment. The most appropriate time for burning is considered to be in autumn.

3.4.3. *Pest animal control*

All pest animals are to be monitored and controlled within the offset site for the life of the plan. Regular monitoring will be required throughout the year to inform the control methods used to eradicate the animals.

Suitable methods for the control of pest animals include:

- Shooting;
- Baiting (rabbits/hares);
- Fumigating and collapsing of warrens; and
- Removal of harbour (except for native vegetation).

Shooting (year-round) is a suitable fox control method and is suitable for rabbit control method where populations are low (DEPI 2013b). Baiting is an effective method for reducing pest rabbit populations and should be undertaken when their food source is low (February through May).

Fumigating when combined with hand collapsing of warrens is an effective control method. Warrens occurring within native vegetation will be destroyed using a shovel, mattock or pick to avoid damage to native vegetation (DEPI 2013b). Ripping of warrens using machinery is not permitted within areas of native vegetation.

The removal of harbour such as rubbish and woody weeds will also reduce the habitat for pest animals and assist in their control; however care must be taken to retain logs, fallen branches, leaf litter, rocks and indigenous shrubs that provide habitat for native species.

3.4.4. *Biomass management*

In high-rainfall grasslands, the absence of periodic biomass removal through either grazing or ecological burns increases the risk of the native grasses becoming dominant over time leading to a loss of the inter-tussock spaces that are important as habitat for a range of flora and fauna. If biomass is not removed then there can be a dramatic decline in overall vegetation quality within a 10-year period. As such, for high-rainfall grassland EVCs, avoiding a decline in site condition requires some form of active biomass management.

Ecological burns

Ecological burns may be implemented periodically for biomass control. The most appropriate time for burning is generally considered to be autumn (March through May) as the weather is cooler and will result in a low intensity burn and soil cracks still exist that may provide refuge to Striped Legless Lizard from the burn (DELWP 2013d; Williams *et al* 2015).

Patch burns should be conducted, with no more than one fifth to one third of the area burnt in any one year. This will ensure the vegetation has different age structures and the

unburnt areas will provide areas of refuge for any fauna present. Burns will only be undertaken at a low frequency – i.e. every 3 to 5 years.

As well as promoting regeneration of native species, a burn may also result in the growth of non-indigenous species. This will reduce the weed seed stored in the seed bank and enable greater access targeting them following a burn. To maintain and improve the condition of the offset site, ecological burns will be followed by targeted control of weeds (spot spraying).

3.4.5. Monitoring and reporting

Monitoring of native vegetation and associated MNES, along with pest plants and animals will be undertaken on a regular basis to ensure the successful implementation of this plan and to inform adaptive management processes. The landowner will be required to submit an annual report to DELWP during the first ten years of the plan. Monitoring will be undertaken by DELWP at least three times over the first ten years of the plan. The results from this monitoring can be made available to the Department of the Environment and Energy.

3.4.6. Adaptive management

The relevant management plan for each offset site provides actions for a period of 10 years. The timing of actions and whether they occur is based on adaptive management. By monitoring the outcomes of actions, management may be adapted to ensure the stated commitments in the plan are upheld. For example, new techniques for controlling high threat weeds may become available, or further information on the ecology and status of the vegetation communities may necessitate adjustment to management actions.

Fluctuation in vegetation condition is recognised in grasslands and derived grasslands both throughout the year, corresponding to seasonal cycles, and between years due to natural disturbance and variation in factors such as rainfall and temperature (Williams *et al* 2015). Seasonality and inter-annual variation are acknowledged in this offset plan by allowing for flexibility around timing of actions at the discretion of the land manager.

4. REFERENCES

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- Parkes, D, Newell, G, & Cheal, D 2003, 'Assessing the Quality of Native Vegetation: The 'habitat hectares' approach'. *Ecological Management and Restoration*, vol. 4, supplement, pp. 29-38.
- Williams NSG, Marshall A, Morgan JW (eds) 2015, *Land of sweeping plains: managing and restoring the native grasslands of south-eastern Australia*, CSIRO Publishing, Clayton, Victoria.

Appendix 1: EPBC Act Offset Calculator

Impact calculator				Offset calculator																		
Protected matter attributes	Quantum of impact		Units	Protected matter attributes	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?			
Ecological communities				Ecological Communities																		
Area of community (NTGWVP)	Area	1.824	Hectares	Area of community (NTGWVP)	0.73	Adjusted hectares	Karabeal Project Area B Offset	Risk-related time horizon (max. 20 years)	20	Start area (hectares)	7.3	Risk of loss (%) without offset	20%	Risk of loss (%) with offset	3%	1.24	95%	1.18	0.32	0.77	105.39%	Yes
	Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	5.8	Future area with offset (adjusted hectares)	7.1							
	Total quantum of impact	0.73	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	7	Future quality without offset (scale of 0-10)	6	Future quality with offset (scale of 0-10)	8	2.00	70%	1.40	0.88			
Threatened species habitat				Ecological Communities																		
Area of threatened species habitat (SLL)	Area	1.824	Hectares	Area of threatened species habitat (SLL)	0.73	Adjusted hectares	Karabea Project Area B Offset	Risk-related time horizon (max. 20 years)	20	Start area (hectares)	7.3	Risk of loss (%) without offset	20%	Risk of loss (%) with offset	3%	1.24	95%	1.18	1.13	1.71	234.71%	Yes
	Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	5.8	Future area with offset (adjusted hectares)	7.1							
	Total quantum of impact	0.73	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	7	Future quality without offset (scale of 0-10)	6	Future quality with offset (scale of 0-10)	8	2.00	70%	1.40	1.38			

Appendix 2: EPBC Act Offset Calculator justification of values

Offset guide attribute	Value for NTGVVP	Value for SLL habitat	Justification
Area of habitat	1.824 hectares	1.824 hectares	Based on the area removed from the Flora and Fauna Report 7045 (6.13) (BL&A 2014).
Quality	4	4	<p>A weighted average habitat condition score has been used as the quality score, determined using the following formula:</p> $\text{Quality} = \frac{\text{SUM (HZ score * HZ removal area within Project Area B)}}{\text{Total removal area}}$ <p>Habitat condition scores for the removal site were assessed using the habitat hectares method (Parkes <i>et al</i> 2003; DSE 2004), and can be found in Report 7045 (6.13) (BL&A 2014).</p>
Time over which loss is averted	20 years	20 years	The offset sites will be protected with a Section 69 agreement under the <i>Conservation, Forests and Lands Act 1987</i> (Vic.), which will result in perpetual protection of the offset site for the purpose of conservation. The offset site will be actively managed for conservation outcomes for ten years, and as such it is expected that the loss can confidently be considered to be averted for 20 years.
Area of offset	7.3 hectares	7.3 hectares	This offset area has been determined based on the other parameters in the calculator.
Risk of loss (%) without offset	20%	20%	The offset site occurs in a relatively remote area of Victoria; however without the proposed offset threats including inappropriate grazing regimes, weed invasion, domination by a small number of species and biomass accumulation pose a real threat to NTGVVP and SLL habitat within the offset site.
Risk of loss (%) with the offset	3%	3%	The residual risk of protecting a property in perpetuity is considered to be 3%.
Time until ecological benefit	7 years	7 years	It is expected that within seven years management actions such as weed control and ecological burning would have resulted in a measurable improvement to quality.
Start quality	7	7	<p>A weighted average habitat condition score has been used as the quality score, determined using the following formula:</p> $\text{Quality} = \frac{\text{SUM (HZ score * HZ protection area within Karabeal Project Area B Offset)}}{\text{Total protected area}}$ <p>Habitat condition scores for the Karabeal offset site were assessed using the habitat hectares method (Parkes <i>et al</i> 2003; DSE 2004)</p>
Future quality without offset	6	6	A one-point decrease in the quality of the offset site could be expected without implementation of the offset through changes in vegetation and habitat quality including weed invasion, domination by a small number of species, removal of species diversity through inappropriate grazing and biomass accumulation.
Future quality with offset	8	8	A one-point increase in the quality of the offset site could be expected with implementation of the offset through changes in vegetation and habitat quality including weed control, increase in species diversity through removal of grazing and biomass management through ecological burning.
Confidence in results of offset covenant	95 %	95%	A Section 69 agreement under the <i>Conservation, Forests and Lands Act 1987</i> (Vic.) agreement will be entered into for the offset site. This type of agreement has been demonstrated to adequately secure offset sites. As this type of agreement is permanent (lasting forever) and secure (that is, they are difficult to change or alter), there is 95% confidence that the offset site will be protected in perpetuity.
Confidence in results for the improvement in vegetation quality	70 %	70%	There is evidence that grassland communities benefit from management (Williams <i>et al</i> 2015); however, a 70% confidence in the results for improvement in vegetation quality is considered reasonable to allow for inherent ecological variation that may affect the success of management actions.

Appendix 3: Karabeal offset management plan

MANAGEMENT PLAN FOR CREDIT APPLICATIONS

Remnant vegetation

MANAGEMENT PLAN 1

Credit Site Details

Address of credit site	Allotments 71 and 72 in the Parish of Panyyabyr RW McIntyres Road, Karabeal
Land tenure	Private
Assessor details	
Site assessor	Elinor Ebsworth – Brett Lane and Associates Pty Ltd
Assessment date	12/01/2016
Credit site details	
Total area of sites (ha)	55.336
Number of zones	31
Asset type	Protection of remnant vegetation

Site 1

Habitat zone details									
Asset Type *	RP	RP	RP	RP	RP	RP	RP	RP	RP
Habitat zone number	1A	1B	1C	1D	1E	1F	1G	1H	1I
Habitat zone area (ha)	1.130	1.223	0.191	0.108	0.141	0.589	0.029	2.874	0.549

Habitat zone details								
Asset Type *	RP	RP	RP	RP	RP	RP	RP	RP
Habitat zone number	1J	1K	1L	1M	1N	1O	1P	1Q
Habitat zone area (ha)	0.153	0.777	3.827	1.381	0.345	0.200	3.875	3.234

Site 2

Habitat zone details								
Asset Type *	RP	RP	RP	RP	RP	RP	RP	RP
Habitat zone number	2A	2B	2C	2D	2E	2F	2G	2H
Habitat zone area (ha)	0.810	0.862	0.305	0.311	4.309	5.379	1.461	0.560

Habitat zone details						
Asset Type *	RP	RP	RP	RP	RP	RP
Habitat zone number	2I	2J	2K	2L	2M	2N
Habitat zone area (ha)	10.355	6.687	3.353	0.018	0.023	0.277

* RP = Remnant Patch

Credit site description

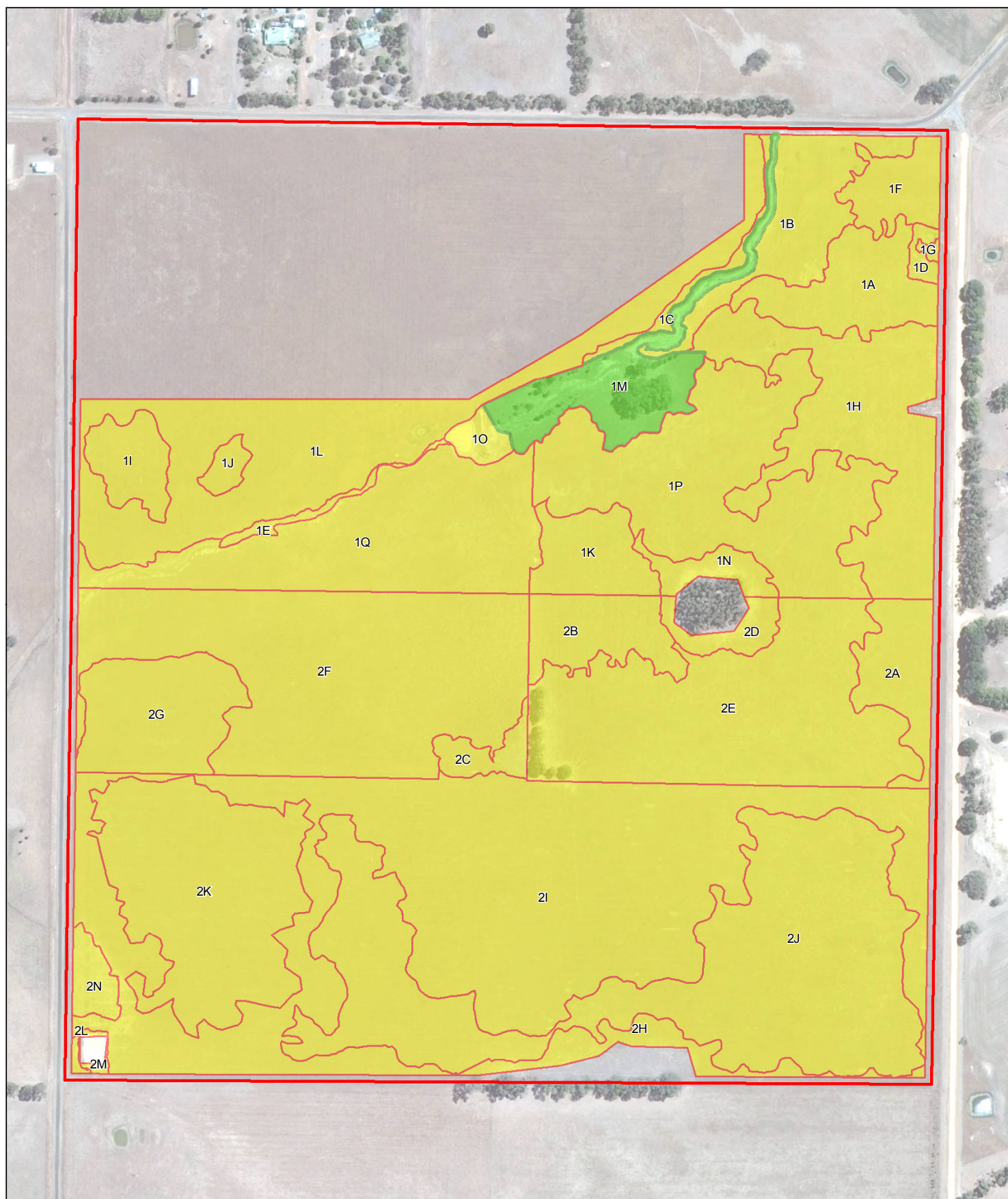
The credit site is located in an approximately 72-hectare property at Karabeal, 12 kilometres northwest of Dunkeld, in western Victoria. The property is bounded to the west by McIntyres Crossing Road, to the north by H Hays Road, to the east by R W McIntyres Road and by private property to the south. The northern half of the property is dissected by an ephemeral, unnamed creekline that flows south-west to north-east. The property supports heavy basalt soils on a gently undulating plain. Some embedded basalt was exposed on the hill slopes rising above the unnamed ephemeral creek. Soils across the site were clays and duplex soils.

The credit site covers the majority of the property with a 6-metre offset from the property boundary – except for an area of land in the northwest. It contains two land parcels; however, the landowner intends to allocate offset credits across the internal parcel boundary to satisfy offsets for a single project. For this reason, 6-metre offsets are not applied to the internal parcel boundary and Allotment 2 (south) will be almost fully allocated to offsets, making future subdivision of the property at this internal boundary impossible.

The credit site supports mainly grassland vegetation, with variation in species composition, diversity and cover determined by inundation during the wetter months and aspect. Lower-lying and south-east facing areas away from the creek line generally had higher weed cover and lower species diversity, dominated by Weeping Grass with scattered native herbs. Higher and north-west facing areas generally supported a diversity of tussock grasses dominated by wallaby grasses, Kangaroo Grass and Common Wheat-grass with native herbs. The site supports two patches of planted trees and one patch of remnant mature and recruiting River Red-gums along the creekline and floodplain of the unnamed creek. Evidence on site suggested that it has previously been subject to grazing, although it was not stocked at the time of the site assessment (January 2016).

Surrounding land predominantly supports similar land uses to those in the credit site, with evidence of cropping and more intense grazing in properties adjacent to the study area. The unnamed ephemeral creek is a tributary of the Wannon River, which occurs 500 metres north-east of the credit site. The Bryan Swamp Wildlife Reserve occurs 1.7 kilometres north-northeast of the study area, and is linked to the study area by riparian vegetation associated with the Wannon River and tributaries. The Grampians National Park occurs 7 kilometres to the north and east of the study area, with habitat linkages along roadside vegetation and native vegetation remnants on farmland, although these are fragmented.

The credit site lies within the Victorian Volcanic Plain bioregion and falls within the Glenelg Hopkins catchment. It is located within the Southern Grampians local government area and is zoned Farming Zone in the Southern Grampians Planning Scheme.



Aerial plan BB-3005, Crown Allotments 71 & 72, Parish of Panyyabyr

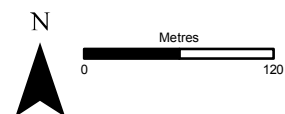
Project: Karabeal credit site **Client:** Dennis Family Corporation

Date: 10/01/2017

 Crown Allotments 71 & 72, Parish of Panyyabyr
EVC

Heavier Soils Plains Grassland (EVC 132_61)

Plains Grassy Woodland (EVC 55_61)



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Landowner's ongoing management commitments

From the commencement of the agreement, the landowner agrees to undertake the following management commitments in perpetuity:

Ongoing management commitments	
Habitat zone(s)	Commitment
All	<ul style="list-style-type: none"> eliminate all woody weeds < 1 % cover ensure that other weed cover does not increase beyond the current overall level monitor for any new and emerging weeds and eliminate to < 1% cover exclude stock from within 50 metres of creekline control rabbits
AA	<ul style="list-style-type: none"> retain all standing trees (dead or alive) retain all logs and fallen timber exclude stock
All except 1M	<ul style="list-style-type: none"> undertake periodic biomass management at agreed timing/frequency.

Fencing

Threats including stock and unauthorised vehicle access must be excluded from the site at all times by adequate fencing around the site perimeter.

The perimeter of the property is currently fenced with five wire strands (top one or two strands barbed). This fencing method differs from the standards outlined in *BushBroker Information Sheet 12 - Standards for Management – Fencing*; however, the use of barbed wire is in keeping with stock control measures employed in adjacent properties and throughout the district. During the 2016 site assessment this fencing was observed to provide effective stock exclusion from the habitat zones without adversely affecting native wildlife. This perimeter fence is to be maintained in good condition, with any necessary repair undertaken in accordance with the standards detailed in *BushBroker Information Sheet 12* - Standards for Management – Fencing*.

If, at any time in the future, stock is introduced or a dwelling is constructed in the area of land in the northwest corner of the property (which does not form part of the credit site), fencing must be erected along the boundary between this area and the credit site. This fencing will be in accordance with the above standards. Whilst land use in this northwest area is consistent with that being undertaken in the credit site (i.e. management for conservation), this fence is not required.

Table 1: Fencing method and timing

Site(s)	Method	Location for fencing and length	Timing
Property boundary	Maintain fencing around boundary of property in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for Management – Fencing.	Entire boundary around property where fencing exists or is required	Ongoing
Site boundary	Erect fencing on credit site northwest boundary according to the standards detailed in information sheet 12 - Standards for Management – Fencing, and maintain in good condition.	Northwest credit site boundary – 750 metres	Erect if stock introduced or a dwelling constructed in northwest of property changes. Maintain in an ongoing fashion.

*DEPI 2013, *BushBroker information sheet 12 – Standards for management – fencing*. Department of Environment, Land, Water and Planning, East Melbourne

Woody weeds

Elimination of all woody weeds

All woody weeds on site must be eliminated. Aim to eliminate all woody weeds listed in Table 2 by the end of the second year of management using the methods outlined in Table 2. Indigenous plants should not be impacted during treatment. Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull).

Refer to BushBroker Information Sheet 8* - Standards for Management – Weeds.

New and emerging woody weeds

Monitoring for new and emerging woody weeds should be conducted throughout the year for the term of the agreement, and any new and emerging woody weeds eliminated.

Refer to Information Sheet 8* - Standards for Management – Weeds

Table 2: Woody weeds to be eliminated – method and timing

Common name	Scientific name	Habitat zone(s)	Method	Timing
African Box-thorn	<i>Lycium ferocissimum</i>	1M	Cut and paint adult plants with an appropriate herbicide. Spot-spray seedlings with appropriate herbicide.	Autumn and spring
		All	Monitor and eliminate all new and emerging woody weeds	Ongoing

*DEPI 2013, BushBroker information sheet 8 – Standards for management – weeds. Department of Environment, Land, Water and Planning, East Melbourne

Herbaceous weeds

Control of all herbaceous weeds:

Ensure that herbaceous (non-woody) weed cover does not increase beyond current levels. Weeds listed in Table 3 were found on site and should be monitored each year to ensure their cover is not increasing. Increasing cover of these weeds should be controlled using the methods outlined in Table 3. Treat weeds before the plant has flowered and set seed. Indigenous plants should not be impacted during treatment.

Refer to BushBroker Information Sheet 8* - Standards for Management – Weeds.

New and emerging herbaceous weeds

Monitoring for new and emerging herbaceous weeds should be conducted throughout the year for the term of the agreement, and any new and emerging weeds eliminated.

Refer to BushBroker Information Sheet 8* - Standards for Management – Weeds.

Table 3: Herbaceous weeds to be controlled – method and timing

Common name	Scientific name	Habitat zone(s)	Method	Timing
Yorkshire Fog	<i>Holcus lanatus</i>	1A, 1M, 1S, 2I, 2L, 2M	Spot-spray using a non-selective or grass-selective herbicide.	Autumn and spring.
Paspalum	<i>Paspalum dilatatum</i>	1B, 1C, 1D, 1E, 1Q, 2F	Spot-spray using a non-selective or grass-selective herbicide.	Spring to early summer
Toowoomba Canary-grass	<i>Phalaris aquatica</i>	1B, 1C, 1D, 1E, 1N, 1Q, 2D, 2F, 2H, 2I, 2L, 2M, 2N	Spot-spray using a non-selective or grass-selective herbicide.	Autumn and spring.
Spear Thistle	<i>Cirsium vulgare</i>	1A, 1B, 1C, 1D, 1E, 1L, 1N, 1M, 1P, 1Q, 1O, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N	Remove any flower heads before they go to seed. Spot-spray leaves using an appropriate herbicide.	Autumn and spring.

*DEPI 2013, BushBroker information sheet 8 – Standards for management – weeds. Department of Environment, Land, Water and Planning, East Melbourne

Table 4: Total cover of herbaceous weeds in Habitat Zones

Habitat zone(s)	Total cover of all herbaceous weeds (%) (including Gain Scoring Target Weeds)	Habitat zone(s)	Total cover of all herbaceous weeds (%) (including Gain Scoring Target Weeds)
1A	15	2A	40
1B	10	2B	40
1C	10	2C	40
1D	10	2D	20
1E	10	2E	40
1F	5	2F	20
1G	40	2G	30
1H	40	2H	25
1I	40	2I	40
1J	40	2J	40
1K	40	2K	40
1L	45	2L	10
1M	25	2M	10
1N	20	2N	15
1O	10		
1P	40		
1Q	20		

Pest animals

The *Catchment and Land Protection Act 1994* lists rabbits and foxes as established pest animals and requires that all landowners take reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land.

Rabbits should be monitored and controlled throughout the year. If rabbit activity is detected on the site, use an integrated approach in accordance with BushBroker Information Sheet 7* - Standards of Management - Rabbits, which would involve fumigation and baiting, and manual collapsing of rabbit warrens within Habitat Zones 1A-1L and 1N-1Z. Any carcasses should be removed to prevent poisoning of native predators. Rabbit warrens in Habitat Zone 1M should be fumigated and filled (not collapsed).

Note: Rabbit warrens within Habitat Zone 1M should not be collapsed but instead filled, to protect the population of Clover Glycine that occurs within this zone.

Foxes are a threat to native fauna and should be controlled if found on the property. Fox dens where present are required to be destroyed.

Remove rubbish. Disperse artificial piles of logs and rocks that may be used as harbour by pest animals. Do not remove indigenous plants, fallen logs or rocks from the site.

Continue to monitor and control rabbits and foxes all year round as well as any new and emerging pest animals.

Table 5: Pest animals to be controlled – species, method and timing

Habitat zone(s)	Common name	Method	Timing
M	Rabbits & Foxes	Fumigation of rabbit burrows and fox dens, filling of burrows and dens within Habitat Zone 1M and collapsing in other zones	Ongoing
All except 1M	Rabbits & Foxes	Fumigation of rabbit burrows and fox dens and hand-collapsing	Ongoing
All	Rabbits	Baiting (when baiting collect and dispose of carcasses to prevent poisoning of native predators)	Ongoing
All	Rabbits & Foxes	Remove or disperse surface harbour	Ongoing
All	Rabbits & foxes	Monitor and control	Ongoing
All	New & Emerging pest animals	Monitor and control	Ongoing

*DEPI 2013, *BushBroker information sheet 7 – Standards for management – rabbits*. Department of Environment, Land, Water and Planning, East Melbourne

Biomass management for high rainfall plains grassland

Biomass within patches of high rainfall plains grassland (all Habitat Zones except M) should be managed through the implementation of ecological mosaic burning. In accordance with BushBroker information sheet 14* – Standards for management - ecological burns should follow a mosaic pattern, with one fifth of high rainfall plains grassland within the site burnt per annum. This will provide refuge for fauna species during the burn, and allow for a five-year fire frequency within high rainfall plains grassland. Burning in autumn means that soil cracks are still present to some extent, providing further refuge for fauna.

Ecological burning is not appropriate in the patch of Plains Grassy Woodland (Habitat Zone M), and this area should not be burnt for the protection of the population of Clover Glycine recorded within this patch.

Table 6: Biomass management - method and timing

Habitat zone(s)	Method	Timing
All except 1M	Ecological mosaic burning of one fifth of high rainfall plains grassland per annum.	Autumn

**DEPI 2013, BushBroker information sheet 14 – Standards for management – ecological burning. Department of Environment, Land, Water and Planning, East Melbourne*

Annual Reporting

This Landowner Agreement requires the landowner to submit a report annually for each year of the ten years of this management plan and thereafter at the reasonable request of the Secretary. Reports are to be submitted at least 2 months following the anniversary date of the execution of the agreement.

The Annual Report addresses progress against the commitments set out in this agreement. Annual Reports should provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for each zone.

Table 7: Management Actions Table**Year from Commencement: Year 1**

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
Fencing				
All site	Maintain fencing around boundary of site in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for Management – Fencing.	Table 1	Ongoing	Any fence repairs undertaken to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for Management – Fencing
Woody Weeds				
All	Eliminate all woody weeds. Refer to Table 2 for list of woody weeds, their control method and timing of actions Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull)	Table 2	Refer to Table 2	Aim to eliminate all listed woody weeds by end of Year 2 <1% cover of all listed woody weeds at the end of Year 10 Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging woody weeds	n/a	Ongoing	<1% cover of all woody weeds at the end of Year 10
Herbaceous Weeds				
All	Control all herbaceous weeds. Refer to Table 3 for list of herbaceous weeds, their control method and timing of actions	Table 3 and Table 4	Refer to Table 3	No increase in cover beyond the cover listed in Table 4 for each Zone for all herbaceous weeds Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging herbaceous weeds	n/a	Ongoing	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
All	Control rabbits and foxes. Refer to Table 5 for a list of control methods and timing of actions	Table 5	Refer to Table 5	No surface disturbance within the credit site No active rabbit warrens to be present

Year from Commencement: Year 1

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
				No active fox dens to be present No rubbish Minimal artificial piles of logs and rocks
All	Monitor and control rabbits and foxes	n/a	Ongoing	Control numbers of rabbits and foxes
All	Monitor and control all new and emerging pest animals	n/a	Ongoing	Control numbers of any new & emerging pest animals
Biomass Management for high rainfall plains grassland				
All except 1M	Ecological mosaic burning of one fifth of high rainfall plains grassland per annum.	Table 6	Autumn	One fifth of higher rainfall plains grassland burnt per annum in autumn
Annual reporting				
All	Prepare and submit an annual report to the Responsible Authority that is a signatory to the on-title agreement	n/a	Submit no more than 2 months following the agreement anniversary date	Annual report is signed, dated and submitted by the landowner no more than 2 months following the anniversary date of the agreement Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for each zone

Year from Commencement: Year 2

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
Fencing				
All site	Maintain fencing around boundary of site in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for Management – Fencing.	Table 1	Ongoing	Any fence repairs undertaken to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for Management – Fencing
Woody Weeds				
All	Eliminate all woody weeds. Refer to Table 2 for list of woody weeds, their control method and timing of actions Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull)	Table 2	Refer to Table 2	Aim to eliminate all listed woody weeds by end of Year 2 <1% cover of all listed woody weeds at the end of Year 10 Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging woody weeds	n/a	Ongoing	<1% cover of all woody weeds at the end of Year 10
Herbaceous Weeds				
All	Control all herbaceous weeds. Refer to Table 3 for list of herbaceous weeds, their control method and timing of actions	Table 3 and Table 4	Refer to Table 3	No increase in cover beyond the cover listed in Table 4 for each Zone for all herbaceous weeds Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging herbaceous weeds	n/a	Ongoing	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
All	Control rabbits and foxes. Refer to Table 5 for a list of control methods and timing of actions	Table 5	Refer to Table 5	No surface disturbance within the credit site No active rabbit warrens to be present No active fox dens to be present

Year from Commencement: Year 2

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
				No rubbish Minimal artificial piles of logs and rocks
All	Monitor and control rabbits and foxes	n/a	Ongoing	Control numbers of rabbits and foxes
All	Monitor and control all new and emerging pest animals	n/a	Ongoing	Control numbers of any new & emerging pest animals
Biomass Management for high rainfall plains grassland				
All except 1M	Ecological mosaic burning of one fifth of high rainfall plains grassland per annum.	Table 6	Autumn	One fifth of higher rainfall plains grassland burnt per annum in autumn
Annual reporting				
All	Prepare and submit an annual report to the Responsible Authority that is a signatory to the on-title agreement	n/a	Submit no more than 2 months following the agreement anniversary date	Annual report is signed, dated and submitted by the landowner no more than 2 months following the anniversary date of the agreement Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for each zone

Year from Commencement: Year 3–10

Habitat zone	Management Action Description	Reference Table for action	Timing	Standard to be achieved
Fencing				
All site	Maintain fencing around boundary of site in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for Management – Fencing.	Table 1	Ongoing	Any fence repairs undertaken to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for Management – Fencing
Woody Weeds				
All	Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull)	Table 2	Refer to Table 2	<1% cover of all listed woody weeds at the end of Year 10 Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging woody weeds	n/a	Ongoing	<1% cover of all woody weeds at the end of Year 10
Herbaceous Weeds				
All	Control all herbaceous weeds. Refer to Table 3 for list of herbaceous weeds, their control method and timing of actions	Table 3 and Table 4	Refer to Table 3	No increase in cover beyond the cover listed in Table 4 for each Zone for all herbaceous weeds Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging herbaceous weeds	n/a	Ongoing	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
All	Control rabbits and foxes. Refer to Table 5 for a list of control methods and timing of actions	Table 5	Refer to Table 5	No surface disturbance within the credit site No active rabbit warrens to be present No active fox dens to be present No rubbish Minimal artificial piles of logs and rocks
All	Monitor and control rabbits and foxes	n/a	Ongoing	Control numbers of rabbits and foxes

Year from Commencement: Year 3–10

Habitat zone	Management Action Description	Reference Table for action	Timing	Standard to be achieved
All	Monitor and control all new and emerging pest animals	n/a	Ongoing	Control numbers of any new & emerging pest animals
Biomass Management for high rainfall plains grassland				
All except 1M	Ecological mosaic burning of one fifth of high rainfall plains grassland per annum.	Table 6	Autumn	One fifth of higher rainfall plains grassland burnt per annum in autumn
Annual reporting				
All	Prepare and submit an annual report to the Responsible Authority that is a signatory to the on-title agreement	n/a	Submit no more than 2 months following the agreement anniversary date	Annual report is signed, dated and submitted by the landowner no more than 2 months following the anniversary date of the agreement Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for each zone

Appendix 4: Campbelltown offset management plan

MANAGEMENT PLAN FOR CREDIT APPLICATIONS

Remnant vegetation

MANAGEMENT PLAN 1

Credit Site Details

Address of credit site	2169 Creswick-Newstead Road, Campbelltown
Land tenure	Private
Assessor details	
Site assessor	Verity Fyfe
Assessment date	16 th July 2015
Credit details	
Total area of site (ha)	6.459
Number of zones	5
Asset type	Protection of remnant vegetation (3 zones) & protection of threatened species zones (2 zones)

Habitat zone details					
Asset Type *	RP	RP	RP	RP [^]	RP [^]
Habitat zone number	1A	2A	3A	4A	4B
Habitat zone area (ha)	1.428	0.642	1.993	2.046	0.350

* RP = Remnant Patch

[^] Contains population of threatened species (Spiny Rice-flower); cover below threshold for remnant patch

Credit Site Description

The Campbelltown Credit Site is located within a 29.8-hectare parcel of private land located at Campbelltown, 100 kilometres north-west of Melbourne. The parcel is bordered by Creswick-Newstead Road to the west, private agricultural land to the north, Deep Creek Road to the east, and private agricultural land to the south. The parcel is described as Lot 2, TP893627 and forms part of a 110-hectare property at 2169 Creswick-Newstead Road.

The credit site supports two main geological substrates, separated by Blind Creek which runs north-south through the centre of the site. The western section supports sedimentary yellow earths and yellow duplex soils, while the eastern side supports heavy basalt clay and clay-loam soils. The landscape is gently undulating. Sedimentary soils to the west of Blind Creek were lighter in colour and less prone to cracking than those in the east. Relief was lowest in the middle third of the property.

Vegetation in the credit site is dominated by a mixture of treeless areas with native grass understorey and areas of introduced grasses. Plains Grassy Woodland was also present, characterised by Yellow-Box, Grey-Box or River Red-gum. Treeless areas with native understorey were dominated by Kangaroo Grass (in the elevated rocky areas) or co-dominated by spear grasses, wallaby grasses and Common Wheat-grass (at lower elevations). Indigenous forbs were diverse in less-disturbed areas, particularly where historic grazing had occurred at lower intensities and possibly where fertilizer application had not occurred.

High threat woody weeds Hawthorn and Sweet Briar-rose were scattered throughout the site.

An area of the site supports a large population of Spiny Rice-flower (Habitat Zones 4A & 4B in the Zone Plan). While this area also contained a mixture of native and introduced grasses, the cover of native species was not sufficient to conform to the Victorian definition of a remnant patch.

Past land management of the credit site includes sheep and cattle grazing. Surrounding properties have experienced similar land-use history, though this is likely to have been more intensive and extensive on some properties.

Land to the west of Blind Creek lies within the Goldfields bioregion, while the eastern section lies within the Victorian Volcanic Plain bioregion. The credit site is located in the North Central Catchment Management Authority area.

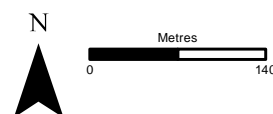


Aerial plan BB-3004, Lot 2 of TP 893627F

Project: Campbelltown Offset Site **Client:** Dennis Family Corporation **Date:** 21/12/2016

Habitat zones

- Plains Grassy Woodland (EVC 55)
- Plains Grassy Woodland (EVC 55_61)
- Spiny Rice-flower Management Zone (no EVC)



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Landowner's ongoing management commitments

From the commencement of the agreement, the landowner agrees to undertake the following management commitments in perpetuity:

Ongoing management commitments	
Habitat zone(s)	Commitment
All	<ul style="list-style-type: none"> eliminate all woody weeds < 1 % cover ensure that weed cover does not increase beyond the current level monitor for any new and emerging weeds and eliminate to < 1% cover control rabbits
1A	<ul style="list-style-type: none"> retain all standing trees (dead or alive) retain all logs and fallen timber monitor annual weed cover. If proportion of annual weeds \geq 25 percent of the total vegetation cover, control by strategic grazing in late summer to early winter. At all other times, exclude stock
2A, 3A	<ul style="list-style-type: none"> monitor annual weed cover. If proportion of annual weeds \geq 25 percent of the total vegetation cover, control by strategic grazing in late summer to early winter. At all other times, exclude stock OR undertake biomass management through ecological mosaic burning in autumn, with each patch burnt every three years/as required
4A, 4B	<ul style="list-style-type: none"> undertake biomass management through ecological mosaic burning in February/March, with each patch burnt every three years/as required

10 year management commitments

Fencing

Threats including stock must be excluded from areas within the site where strategic grazing is not being used for biomass management. Fencing is also intended to prevent unauthorised vehicle access.

The perimeter of the broader property containing the credit site is currently fenced with five wire strands (with the top strand barbed). This fencing method differs from the standards outlined in BushBroker Information Sheet 12* - Standards for management – fencing; however, the use of barbed wire is in keeping with stock control measures employed in adjacent properties and throughout the district. During the 2016 site assessment this fencing was observed to provide effective stock exclusion from the credit site without adversely affecting native wildlife. This perimeter fence is to be maintained in good condition, with any necessary repair undertaken in accordance with these standards.

An internal fence is to be erected along the eastern edge of Blind Creek and joining with existing fences (perimeter and internal) to allow for variation in management requirements between treed vegetation to the west and derived grassland to the east. This fence is to be erected according to the standards outlined above. This fence is to be completed within 3 months of signing the Agreement and prior to the introduction of stock.

Existing internal fences occur in the south-western and north-eastern corners of the broader property, separating sections of the offset site from the broader property; these are to be upgraded according to the above standards within 3 months of signing the Agreement and prior to the introduction of stock.

If the landowner wishes to introduce strategic grazing in land to the east of Blind Creek during the Spiny Rice-flower's flowering season (April and August inclusive), Site 4 (Habitat Zones 4A & 4B) must be fenced according to the above standards prior to introduction of stock.

Table 1: Fencing method and timing

Location	Method	Location for fencing and length	Timing
Broader property	Maintain fencing around the perimeter of the property in good condition, with any necessary repairs undertaken according to the standards detailed in information sheet 12*.	Entire boundary around property where fencing exists or is required. Perimeter fence is approximately 3900 metres in total	Ongoing
South-western and north-eastern corners of property	Upgrade fencing within the south-western and north-eastern corners of the property according to the standards detailed in information sheet 12*	South-western internal fence - approximately 700 metres North-eastern internal fence – approximately 200 metres	Within 3 months of commencement of the agreement

Location	Method	Location for fencing and length	Timing
Eastern side of Blind Creek	Erect a new fence according to the standards detailed in information sheet 12* along the eastern side of Blind Creek and joining with existing fencing.	Eastern edge of Blind Creek, a minimum of 10 m from top edge of bank – approximately 290 metres. Connecting new internal fences to existing: 300 metres (northern boundary of parcel);	Within 3 months of commencement of the agreement
Around existing Spiny Rice-flower population in broader property	Erect a new fence according to the standards detailed in information sheet 12* around the population.	Around entire Spiny Rice-flower population in broader property (including the credit site) – 800 metres.	If strategic grazing to be introduced east of Blind Creek between April and August inclusive.

*DEPI 2013, *BushBroker information sheet 12 – Standards for management – fencing*. Department of Environment, Land, Water and Planning, East Melbourne.

Woody weeds

Elimination of all woody weeds

All woody weeds in the credit site must be eliminated. Aim to eliminate all woody weeds listed in Table 2 by the end of the second year of management, using the methods outlined in Table 2. Indigenous plants should not be impacted during treatment. Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull).

Refer to BushBroker Information Sheet 8* - Standards for management – weeds.

New and emerging woody weeds

Monitoring for new and emerging woody weeds should be conducted throughout the year for the term of the agreement, and any new and emerging woody weeds eliminated. Refer to Information Sheet 8 - Standards for management – weeds.

Table 2: Woody weeds to be eliminated – method and timing

Common name	Scientific name	Habitat zone(s)	Method	Timing
Hawthorn	<i>Crataegus monogyna</i>	All	<u>Cut and paint with suitable herbicide:</u> Cut stem and paint cut stump immediately (within 20 seconds) with systemic herbicide. <u>Spot spray seedlings with appropriate herbicide.</u>	Spring
Sweet Briar-rose	<i>Rosa rubiginosa</i>	All	<u>Cut and paint with suitable herbicide:</u> Cut stem and paint cut stump immediately (within 20 seconds) with systemic herbicide. <u>Spot spray seedlings with appropriate herbicide.</u>	Autumn and spring
Other woody weeds		All	Monitor and eliminate all new and emerging woody weeds.	Ongoing

*DEPI 2013, *BushBroker information sheet 8 – Standards for management – weeds*. Department of Environment, Land, Water and Planning, East Melbourne.

Herbaceous weeds

Control of all herbaceous weeds:

Ensure that weed cover does not increase beyond current levels. Weeds listed in Table 3 were found in the credit site and should be monitored each year to ensure their cover is not increasing. These weeds should be controlled using the methods outlined in Table 3. Treat weeds before the plant has flowered and set seed. Indigenous plants should not be impacted during treatment.

Refer to BushBroker Information Sheet 8* - Standards for management – weeds.

New and emerging herbaceous weeds

Monitoring for new and emerging herbaceous weeds should be conducted throughout the year for the term of the agreement, and any new and emerging weeds eliminated. Refer to BushBroker Information Sheet 8* - Standards for management – weeds.

Table 3: Herbaceous weeds to be controlled – method and timing

Common name	Scientific name	Habitat zone(s)	Method	Timing
Canary-grass	<i>Phalaris</i> spp.	All	<u>Spot-spraying</u> : Spot spraying selected weeds with appropriate herbicide (refer to herbicide label) ensuring that due care is taken to minimise impacts on non-target species.	Spring
Spear Thistle	<i>Cirsium vulgare</i>	All	As above	
St John's Wort	<i>Hypericum perforatum</i>	All	<u>Spot-spraying</u> : Spot spraying selected weeds with appropriate herbicide (refer to herbicide label) ensuring that due care is taken to minimise impacts on non-target species. <u>Spot-burning</u> : Use a hand-held weed burner before seed set, be mindful of environmental conditions. Burning will not be recommended if it poses an unacceptable risk.	Spring Any time prior to seed drop. Note total fire ban.

*DEPI 2013, BushBroker information sheet 8 – Standards for management – weeds. Department of Environment, Land, Water and Planning, East Melbourne.

Table 4: Total cover of herbaceous weeds in the Habitat Zone

Habitat zone(s)	Total cover of all herbaceous weeds (%)
1A	25
2A	70
3A	70
4A	70
4B	70

Pest animals

The *Catchment and Land Protection Act 1994* lists rabbits and foxes as established pest animals and requires that all landowners take reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land.

Rabbits should be monitored and controlled throughout the year. If rabbit activity is detected on the site use an integrated approach in accordance with BushBroker Information Sheet 7* - Standards of Management - rabbits, which would involve fumigation, hand collapsing of burrows and baiting. Remove any carcasses to prevent poisoning of native predators.

Foxes are a threat to native fauna and should be controlled if found on the property. Fox dens, where present, are to be removed.

Remove rubbish. Disperse artificial piles of logs and rocks that may be used as harbour by pest animals. Do not remove indigenous plants, fallen logs or rocks from the site.

Continue to monitor and control rabbits and foxes year-round, as well as any new and emerging pest animals.

Table 5: Pest animals to be controlled – species, method and timing

Habitat zone(s)	Common name	Method	Timing
All	Rabbits & Foxes	Fumigation and hand collapse of rabbit burrows and fox dens if present	Ongoing
All	Rabbits	Baiting as required	Late summer / early autumn
All	Rabbits	When baiting, collect and dispose of carcasses to prevent poisoning of native predators.	Ongoing
All	Rabbits & Foxes	Remove or disperse surface harbour if present	Ongoing
All	Rabbits & foxes	Monitor and control	Ongoing
All	New & Emerging pest animals	Monitor and control	Ongoing

*DEPI 2013, *BushBroker information sheet 7 – Standards for management – rabbits*. Department of Environment, Land, Water and Planning, East Melbourne.

Strategic grazing for biomass management and annual weed control

Ecological grazing (or 'pulse grazing') can be a useful tool for biomass management and annual weed control in vegetation with a grassy understorey. A relatively high stocking rate for a short period of time at a strategic time of year (when sensitive species are dormant) results in the more palatable annual weeds being grazed, and protects sensitive species and woody vegetation from stock. Strategic grazing will be undertaken in late summer to early winter where it is determined that the proportion of annual weeds is $\geq 25\%$ of the total vegetation cover. Grazing will be removed in early winter or if total vegetation cover falls below 70% (whichever is sooner). Refer to BushBroker Information Sheet 13* - Standards for management – ecological grazing.

Table 6: Strategic grazing for biomass management and annual weed control - method and timing

Habitat zone(s)	Method	Timing
1A	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. Also a weed control method if it is determined that the proportion of annual weeds is $\geq 25\%$ of the total vegetation cover.	As required, with grazing removed in early winter or if total vegetation cover falls below 70% (whichever is sooner).
2A, 3A	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. Also a weed control method if it is determined that the proportion of annual weeds is $\geq 25\%$ of the total vegetation cover. Alternatively, biomass and weed management can be implemented in this area through ecological burning (see below).	As required, with grazing removed if total vegetation cover falls below 70% (whichever is sooner).
4A, 4B	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. Also a weed control method if it is determined that the proportion of annual weeds is $\geq 25\%$ of the total vegetation cover. Alternatively, biomass and weed management can be implemented in this area through ecological burning (see below).	As required – <i>excluding</i> the Spiny Rice-flower's flowering season (April to August inclusive) – with grazing removed if total vegetation cover falls below 70% (whichever is sooner).

*DEPI 2013, *BushBroker information sheet 13 – Standards from management – ecological grazing*. Department of Environment, Land, Water and Planning, East Melbourne.

Ecological burning for biomass reduction

Biomass within patches of grassy vegetation within the Victorian Volcanic Plain (Habitat Zones 2A, 3A, 4A and 4B) should be managed through the implementation of ecological mosaic burning (although Habitat Zones 2A, 3A, 4A and 4B could also be managed through the implementation of strategic grazing, described above). If required in Habitat Zones 4A and 4B, ecological burning will be undertaken prior to the Spiny Rice-flower plant's flowering period, which is April to August (inclusive).

In accordance with BushBroker Information Sheet 14* – Standards for management – ecological burning, ecological burns should follow a mosaic pattern, with each patch burnt every three years. This will provide refuge for fauna species during the burn, and allow for a three-year fire frequency, which is preferable for Spiny Rice-flower. Burning in autumn means that soil cracks are still present to some extent, providing further refuge for fauna.

Table 7: Ecological burning for biomass reduction – method and timing

Habitat zone(s)	Method	Timing
2A, 3A	Ecological mosaic burning, with each patch burnt every three years. Alternatively, biomass and weed management can be implemented in this area through ecological grazing (see above).	Autumn
4A, 4B	Ecological mosaic burning, with each patch burnt every three years. Alternatively, biomass and weed management can be implemented in this area through ecological grazing (see above).	February/March, prior to the Spiny Rice-flower having flowered or set seed

*DEPI 2013, *BushBroker information sheet 14 – Standards for management – ecological burning*. Department of Environment, Land, Water and Planning, East Melbourne.

Annual Reporting

This Landowner Agreement requires the landowner to submit a report annually for each year of the ten years of this management plan and thereafter at the reasonable request of the Secretary. Reports are to be submitted at least 2 months following the anniversary date of the execution of the agreement.

The Annual Report addresses progress against the commitments set out in this agreement. Annual Reports should provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for each zone.

Table 8: Management Actions Table
Year from Commencement: Year 1

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
Fencing				
All	Maintain fencing around boundary of property (see Fencing Plan) in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for management – fencing.	Table 1	Ongoing	Any fence repairs undertaken to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for management – fencing
South-western corner of property	Upgrade fencing within the south-western corner of the property (see Fencing Plan) according to the standards detailed in information sheet 12 - Standards for management – fencing.	Table 1	Within 3 months of commencement of the agreement	Upgrade to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for management – fencing
Eastern side of Blind Creek	Erect a new fence according to the standards detailed in information sheet 12 - Standards for management – fencing along the eastern side of Blind Creek, as shown in the Fencing Plan.	Table 1	Within 3 months of commencement of the agreement	Erect fencing to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for management – fencing
Woody Weeds				
All	Eliminate all woody weeds. Refer to Table 2 for list of woody weeds, their control method and timing of actions Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull)	Table 2	Refer to Table 2	Aim to eliminate all listed woody weeds by end of Year 2 <1% cover of all listed woody weeds at the end of Year 10 Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging woody weeds	n/a	Ongoing	<1% cover of all woody weeds at the end of Year 10
Herbaceous Weeds				
All	Control all herbaceous weeds. Refer to Table 3 for list of high-threat herbaceous weeds, their control method and timing of actions	Table 3 and Table 4	Refer to Table 3	No increase in cover beyond the cover listed in Table 4 for each Zone for all herbaceous weeds

Year from Commencement: Year 1

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
				Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging herbaceous weeds	n/a	Ongoing	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
All	Control rabbits and foxes. Refer to Table 5 for a list of control methods and timing of actions	Table 5	Refer to Table 5	No surface disturbance within the credit site No active rabbit warrens to be present No active fox dens to be present No rubbish Minimal artificial piles of logs and rocks
All	Monitor and control rabbits and foxes	n/a	Ongoing	Control numbers of rabbits and foxes
All	Monitor and control all new and emerging pest animals	n/a	Ongoing	Control numbers of any new & emerging pest animals
Biomass management and annual weed control				
1A	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock.	Table 6	Late summer to early winter	Annual weeds reduced to <25% of the total vegetation cover, with total vegetation cover maintained above 70%
2A, 3A	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. OR Ecological mosaic burning, with each patch burnt every three years.	Table 6 (ecological grazing) OR Table 7 (ecological burning)	Late summer to early winter (ecological grazing) OR Autumn (ecological burning)	Annual weeds reduced to <25% of the total vegetation cover, with total vegetation cover maintained above 70% OR Each patch burnt every three years
4A, 4B	Following 24 hours in a holding paddock, graze for short periods as required	Table 6	As required –	Annual weeds reduced to <25% of the total

Year from Commencement: Year 1

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
	(5–10 days), and then remove stock. OR Ecological mosaic burning, with each patch burnt every three years.	(ecological grazing) OR Table 7 (ecological burning)	<i>excluding</i> the Spiny Rice-flower's flowering season (ecological grazing) OR February/March prior to the Spiny Rice-flower having flowered or set seed (ecological burning)	vegetation cover, with total vegetation cover maintained above 70% OR Each patch burnt every three years
Annual reporting				
All	Prepare and submit an annual report to the Responsible Authority that is a signatory to the on-title agreement	n/a	Submit no more than 2 months following the agreement anniversary date	Annual report is signed, dated and submitted by the landowner no more than 2 months following the anniversary date of the agreement Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for each zone

Year from Commencement: Years 2–10

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
Fencing				
All	Maintain fencing around boundary of property (see Fencing Plan) in good condition. Where repairs are required, these are to be undertaken according to the standards detailed in information sheet 12 - Standards for management – fencing.	Table 1	Ongoing	Any fence repairs undertaken to DELWP fencing standards in BushBroker Information Sheet 12 - Standards for management – fencing
Woody Weeds				
All	Eliminate all woody weeds. Refer to Table 2 for list of woody weeds, their control method and timing of actions Monitor for any re-sprouting or seedlings and eradicate (either spot spray or hand pull)	Table 2	Refer to Table 2	Aim to eliminate all listed woody weeds by end of Year 2 <1% cover of all listed woody weeds at the end of Year 10 Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging woody weeds	n/a	Ongoing	<1% cover of all woody weeds at the end of Year 10
Herbaceous Weeds				
All	Control all herbaceous weeds. Refer to Table 3 for list of high-threat herbaceous weeds, their control method and timing of actions	Table 3 and Table 4	Refer to Table 3	No increase in cover beyond the cover listed in Table 4 for each Zone for all herbaceous weeds Minimise off-target damage (avoid all native plants)
All	Eliminate all new & emerging herbaceous weeds	n/a	Ongoing	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
All	Control rabbits and foxes. Refer to Table 5 for a list of control methods and timing of actions	Table 5	Refer to Table 5	No surface disturbance within the credit site No active rabbit warrens to be present No active fox dens to be present No rubbish

Year from Commencement: Years 2–10

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
				Minimal artificial piles of logs and rocks
All	Monitor and control rabbits and foxes	n/a	Ongoing	Control numbers of rabbits and foxes
All	Monitor and control all new and emerging pest animals	n/a	Ongoing	Control numbers of any new & emerging pest animals
Biomass management and annual weed control				
1A	Graze for short periods as required (5–10 days) following 24 hours in a holding paddock and then remove stock.	Table 6	Late summer to early winter	Annual weeds reduced to <25% of the total vegetation cover, with total vegetation cover maintained above 70%
2A, 3A	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. OR Ecological mosaic burning, with each patch burnt every three years.	Table 6 (ecological grazing) OR Table 7 (ecological burning)	Late summer to early winter (ecological grazing) OR Autumn (ecological burning)	Annual weeds reduced to <25% of the total vegetation cover, with total vegetation cover maintained above 70% OR Each patch burnt every three years
4A, 4B	Following 24 hours in a holding paddock, graze for short periods as required (5–10 days), and then remove stock. OR Ecological mosaic burning, with each patch burnt every three years.	Table 6 (ecological grazing) OR Table 7 (ecological burning)	As required – <i>excluding</i> the Spiny Rice-flower's flowering season (ecological grazing) OR February/March prior to the Spiny Rice-flower having flowered or	Annual weeds reduced to <25% of the total vegetation cover, with total vegetation cover maintained above 70% OR Each patch burnt every three years

Year from Commencement: Years 2–10

Habitat zone(s)	Management Action Description	Reference Table for action	Timing	Standard to be achieved
			set seed (ecological burning)	
Annual reporting				
All	Prepare and submit an annual report to the Responsible Authority that is a signatory to the on-title agreement	n/a	Submit no more than 2 months following the agreement anniversary date	Annual report is signed, dated and submitted by the landowner no more than 2 months following the anniversary date of the agreement Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for each zone