Copernicus Way EPBC Act (EPBC 2016/7734) Offset Management Plan: 6165 Hamilton Highway Cressy

Prepared for Soho Living Pty Ltd

19 July 2018

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- Sonika Kumar for mapping

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Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Stephen Mueck
Senior Consultant Botanist
Biosis Pty Ltd

Summary

Biosis Pty. Ltd. was commissioned by Soho Living Pty Ltd (Soho) to prepare an Offset Management Plan (OMP) for a section of a pastoral property at 6165 Hamilton Highway, Cressy in Victoria. The section assessed (covering 5.0 ha) was part of Lot 3 TP414211 within the Parish of Cressy (the offset area). The property is currently owned by Deep Lead Property Pty Ltd (DLP).

The 5.0 ha offset area meets the quantity and quality requirements for an offset of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) as prescribed by Department of the Environment and Energy (DoEE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and in association with referral 2016/7734. It concurrently provides the direct offset requirements for the protection of Golden Sun Moth *Synemon plana* (GSM) and Striped Legless Lizard *Delma impar* (SLL) habitat prescribed with that referral.

Specifically this plan addresses the approval under the EPBC Act for the residential mixed use development of 7B Copernicus Way, Keilor Downs, Victoria as outlined under referral 2016/7734. Under the conditions of approval, Conditions 2, 3 and 4 are relevant to the offsets provided at 6165 Hamilton Highway, Cressy. These conditions read as follows:

2. The approval holder must legally secure the environmental offset of five (5) hectares at Habitat Zone 1 B prior to the commencement of the action.

3. *The approval holder must submit an Offset Management Plan for the written approval of the Minister. The approved Offset Management Plan must be implemented. The Offset Management Plan must be prepared by a suitably qualified person in accordance with the Department's Environmental Management Plan Guidelines and be specific to Habitat Zone 1 B. The Offset Management Plan must include:*

- ***a.*** *a baseline description of the current ecological condition (prior to any management activities) of Habitat Zone 1 B, including existing vegetation, for the NTGWP ecological community, Golden Sun Moth (*Synemon plana*) habitat and Striped Legless Lizard (*Delma impar*) habitat;*
- ***b.*** *a description and map (including shapefiles) to clearly define the location and boundaries of Habitat Zone 1 B, accompanied by the offset attributes;*
- ***c.*** *a description of the management measures (including timing, frequency and duration) that will be implemented in Habitat Zone 1 B;*
- ***d.*** *a discussion of how proposed management measures take into account relevant approved conservation advices and are consistent with the measures contained in relevant recovery plans and threat abatement plans;*
- ***e.*** *a description of the potential risks to the successful implementation of the environmental offset and contingency measures that would be implemented to mitigate against these risks;*
- ***f.*** *completion criteria and performance targets for evaluating the effectiveness of the Offset Management Plan implementation, and criteria for triggering corrective actions; and*
- ***g.*** *a program to monitor, report on and review the effectiveness of the Offset Management Plan.*

4. *The approval holder must not commence the action until the Minister has approved the Offset Management Plan.*

A suitable offset site has been identified at 6165 Hamilton Highway, Cressy. The offset area is located within a larger area of NTGVVP, and management prescriptions within this plan are consistent with the plan for the broader property. The offset area has been the subject of targeted surveys for both GSM and SLL which have been recorded at numerous locations across the property including within the defined offset area.

The proposed 5.0 ha offset provides about 4.3 times the impact to NTGVVP and GSM habitat, and 2.6 times the impact to SLL habitat associated with the development of 7B Copernicus Way, Keilor Downs.

This OMP requires that some non-biodiversity oriented land use rights are relinquished and that management actions have the primary objective aimed at the conservation and ecological improvement of defined areas of NTGVVP and its associated habitat values for both GSM and SLL. The management actions outlined in this plan consider key management issues identified for this EPBC Act listed community and the associated fauna habitat.

The offset area will be secured in-perpetuity by a covenant as to part Section 3A *Victorian Conservation Trust Act 1972* managed by the Trust for Nature (TfN). Gains in vegetation quality through on-ground actions are expected over the duration of the 10 year offset management plan, and through the permanent requirements for ongoing land-use commitments to manage the offset site for biodiversity conservation.

This plan specifies a range of management actions for the offset area, including weed management and protection of the habitat values of the offset site from degradation by stock and unauthorised access. The plan documents an adaptive management framework, in which management actions are modified based on the results of monitoring and auditing activities in order to keep management focussed on the outcome of protecting and enhancing ecological values associated with NTGVVP, and both GSM and SLL habitat. The risk assessment also includes triggers for plan review, following environmental events such as significant wildfire and weed invasion that has the potential to significantly alter the character and condition of the offset site.

1. Introduction

1.1 Project Background

Biosis Pty Ltd was commissioned by Soho Living Pty Ltd (Soho) to prepare an Offset Management Plan (OMP) for an offset site required for losses associated with the residential mixed use development of 7B Copernicus Way, Keilor Downs, Victoria as outlined under referral 2016/7734 (Figure 1).

An ecological assessment of the Copernicus Way site, including a habitat hectare assessment, is documented by Biosis (2016). That report identifies the condition and extent of native vegetation, including areas of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) and both Golden Sun Moth *Synemon plana* (GSM) and Striped Legless Lizard *Delma impar* (SLL) habitat to be impacted in association with the proposed development (Figure 2). Biosis (2016) was used, in conjunction with the *Environment Protection and Biodiversity Conservation Act 1999* EPBC Act offsets policy, to identify the extent of NTGVVP, GSM and SLL habitat to be protected outside the project area.

A Planning Permit application has been approved by the City of Brimbank for the proposed development (Permit no. P201/2016). Clearing associated with the development of the subdivision was also assessed by the Department of Environment, Land, Water and Planning (DELWP) as part of the development approvals process. The development has also been assessed and approved by the Department of the Environment and Energy (DoEE) under the EPBC Act through referral 2016/7734.

The plans approved by Brimbank Council will result in clearing of 1.208 hectares of native vegetation of which 1.15 ha is equivalent to NTGVVP. This area is also considered to be GSM habitat while 1.9 ha was assessed as SLL habitat (Figure 2).

Offsets for the proposed development are prescribed by both state (DELWP) and federal (DoEE) regulators. Offsets prescribed from the EPBC Act and the Victorian Guidelines cannot be generated concurrently and will therefore be sourced separately. Offsets proposed under the EPBC Act involve securing an offset supporting 5.0 ha of NTGVVP which concurrently provides habitat for both GSM and SLL. Securing the offset excludes the use of the offset site for any purpose other than the conservation of the Matters of National Environmental Significance (MNES) present.

The EPBC Act offset for NTGVVP and both GSM and SLL habitat is a 5.0 ha section of Lot 4 of LP4563 at 6165 Hamilton Highway, Cressy (Figure 3). An ecological assessment of the proposed external offset area was conducted by EHP (2017). This report provides the basic ecological information to support this OMP and identified one remnant, largely contiguous patch of NTGVVP supporting a significant population of both GSM and SLL (Figure 4).

Management of the EPBC Act offset will involve protection and active ecological management of 5.0 ha of high quality remnant of the Ecological Vegetation Class (EVC) Plains Grassland (EVC 132) which also corresponds to the EPBC Act listed community NTGVVP.

The overall development of 7B Copernicus Way will be conducted in a manner such that the existing natural habitats will be lost in a single event. The project is expected to begin in mid to late 2018 and, depending on economic conditions, be completed within one to two years.

Both 7B Copernicus Way and Cressy offset site are within the Victorian Volcanic Plain (VVP) Bioregion (www.delwp.vic.gov.au). The Cressy offset site is approximately 105 km west of the Copernicus Way development site.

A glossary of technical terms used throughout this OMP is provided in Appendix 3.

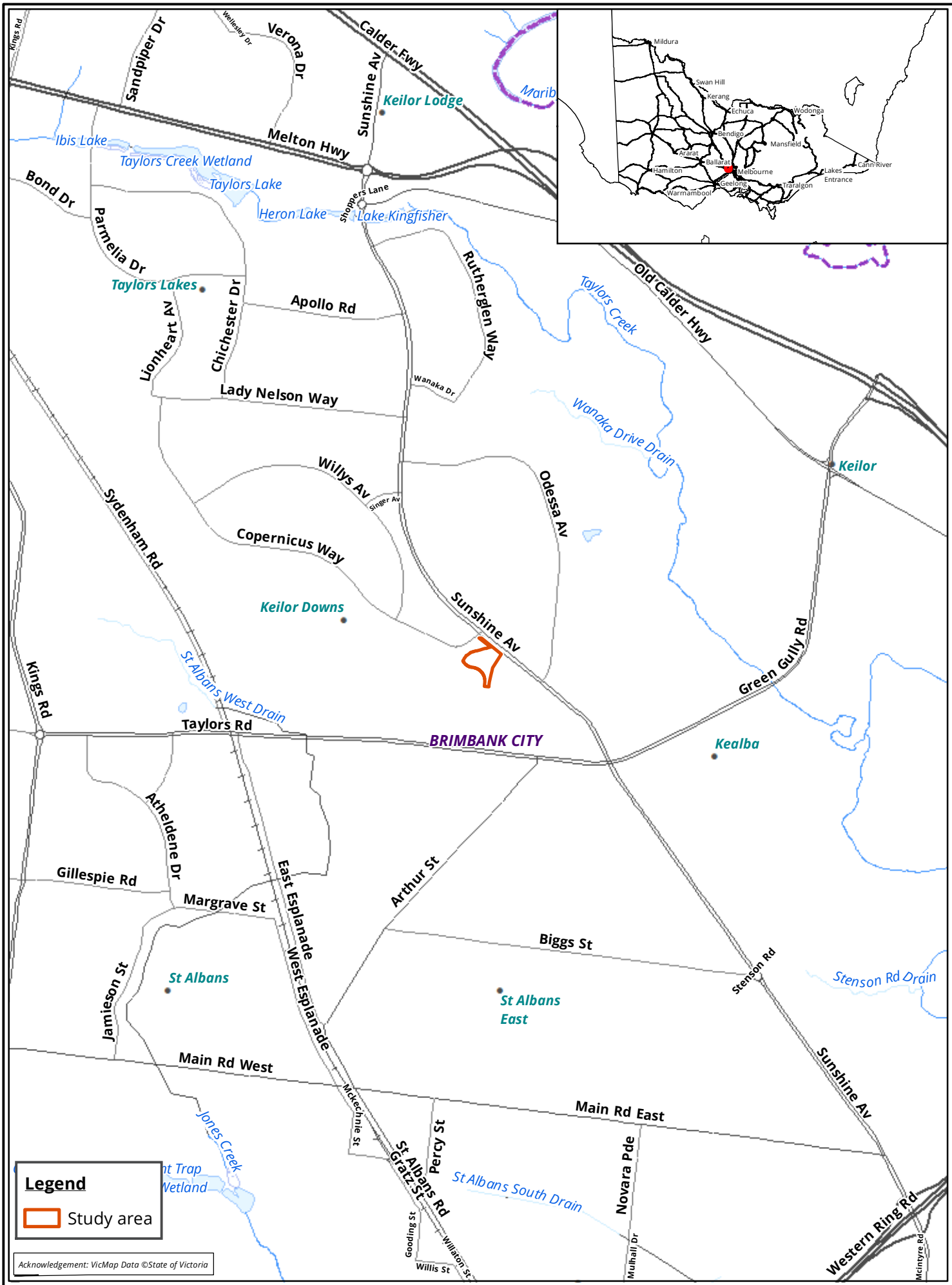

Figure 1: Location of the Copernicus Way development Project, Keilor Downs, Victoria

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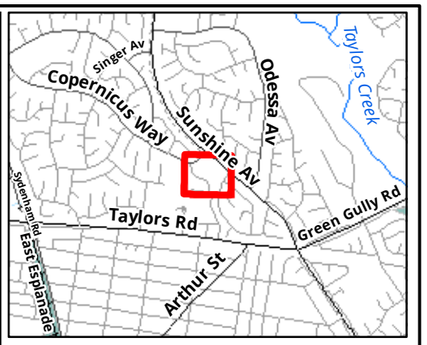
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 25448,
Date: 05 April 2018,
Checked by: SGM, Drawn by: SSK, Last edited by: skumar
Location:P:\25400s\25448\Mapping\25448_F1_Locality_StudyArea



Legend

- Study area
- Plains Grassland
- Golden Sun Moth habitat
- Striped Legless Lizard habitat

Figure 2: Grassland, Golden Sun Moth and Striped Legless Lizard habitat within the Copernicus Way Project, Keilor Downs Victoria

0 10 20 30 40 50

Metres
Scale: 1:1,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

N

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Matter: 25448,
Date: 16 April 2018,
Checked by: DG, Drawn by: SSK, Last edited by: skumar
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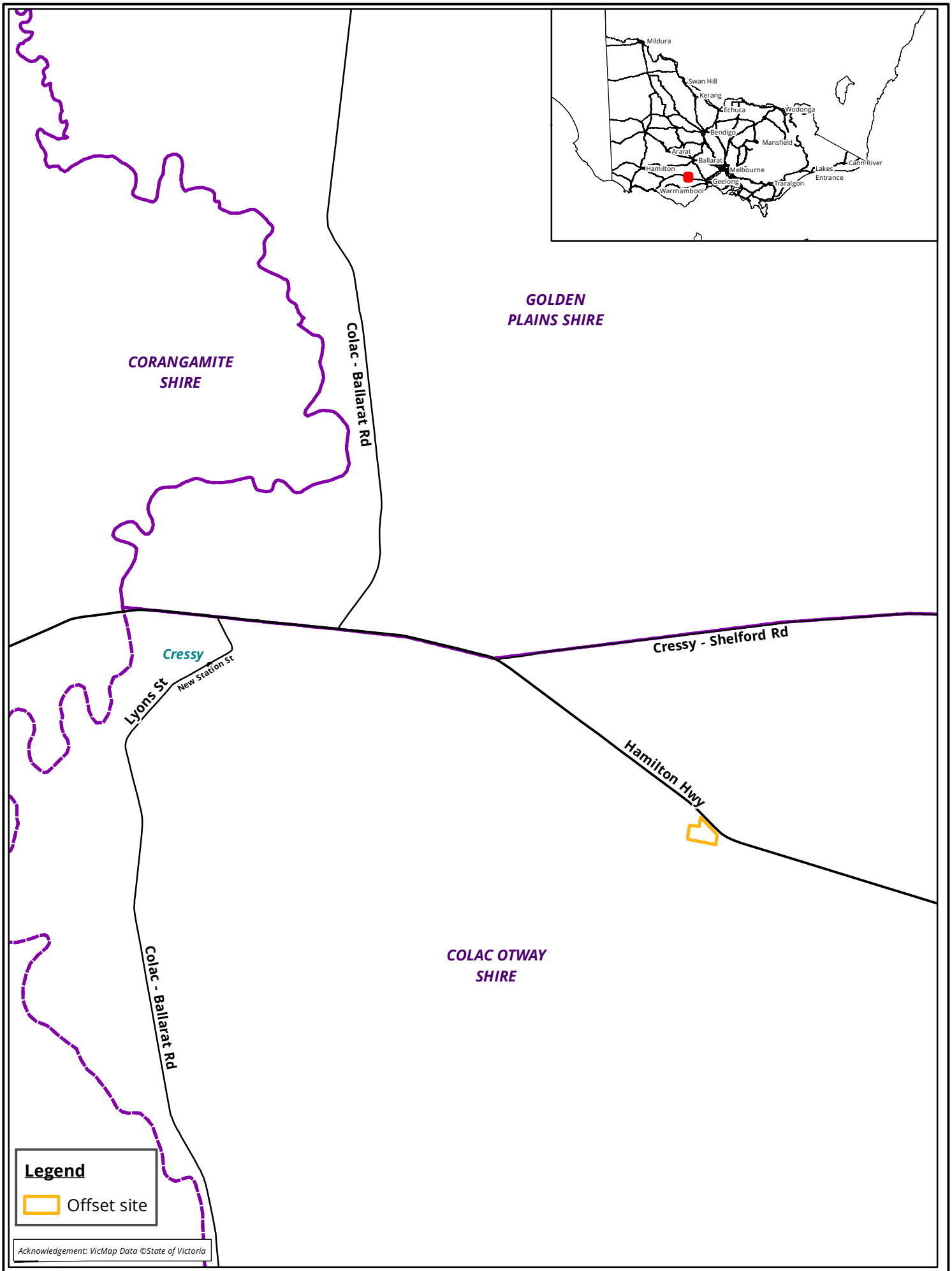

Figure 3: Location of the Hamilton Highway offset site, Cressy Victoria

0 500 1,000 1,500 2,000 Metres

N

Scale 1:50,000 @ A4, GDA 1994 MGA Zone 55

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Matter: 25448,
Date: 05 April 2018,
Checked by: SGM, Drawn by: SSK, Last edited by: skumar
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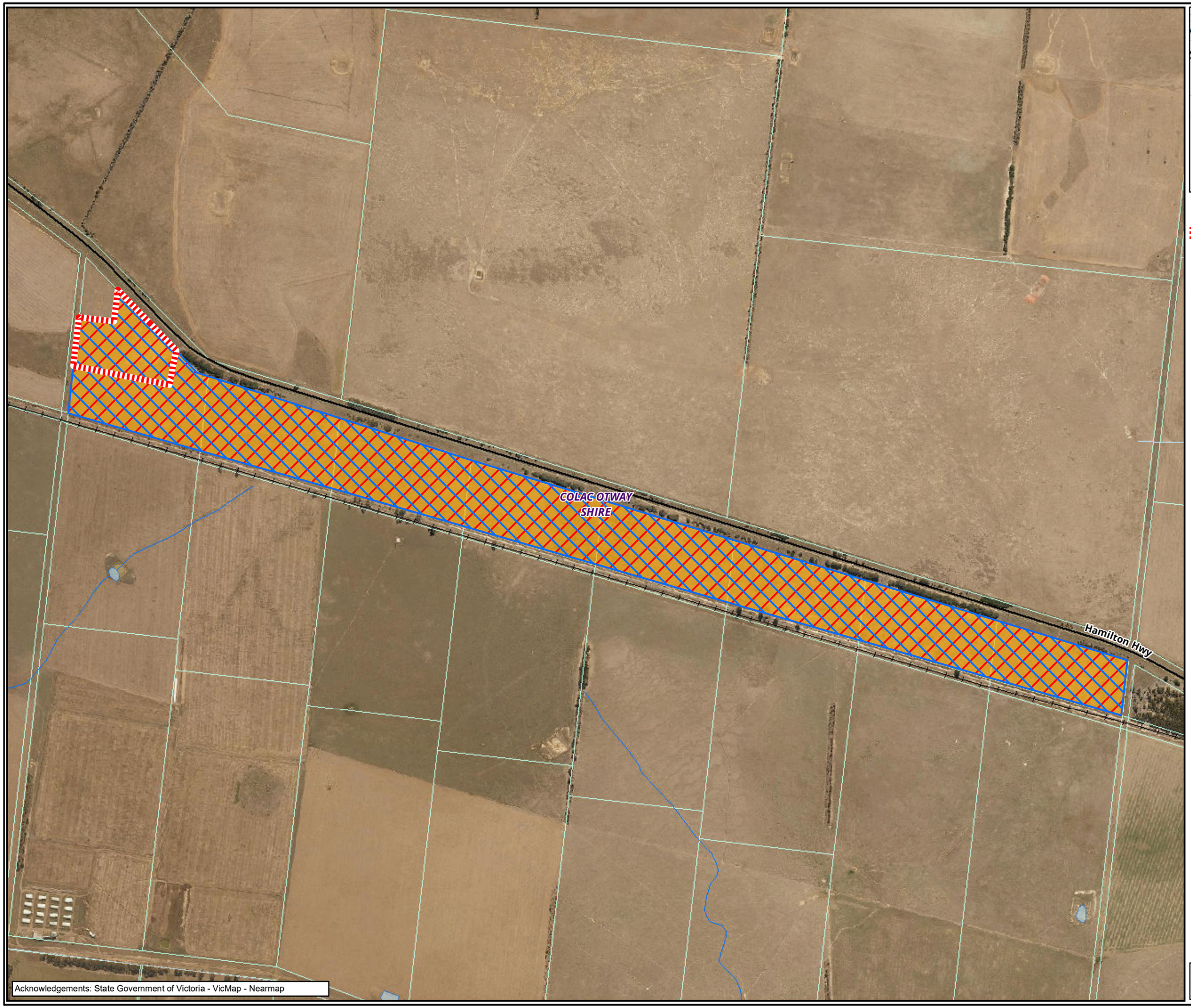

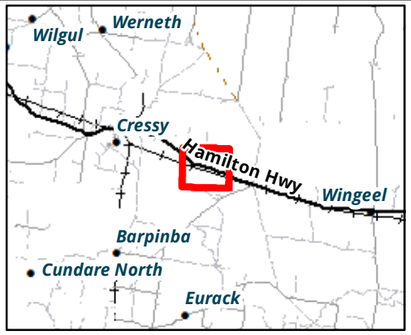

Legend

- Offset site
- Parcel boundary
- Striped Legless Lizard
- Golden Sun Moth
- Grassland

Figure 4: The distribution of NTGVVP and GSM and SLL records at the Hamilton Highway offset site, Cressy Victoria

0 100 200 300 400 500

Metres
Scale: 1:10,464 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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Date: 27 June 2018,
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Location:P:\25400s\25448\Mapping\25448_F4_OA_Grassland_GSM_SLL.mxd

1.2 Objectives

The aim of this OMP is to protect and improve NTGVVP and habitat for SLL and GSM within the designated offset site. The objectives of this plan are to:

- Identify 5.0 ha within the Offset Property that provides the direct EPBC Act offset, and:
  - Protect 5. 0 ha of NTGVVP and habitat for both SLL and GSM in a manner consistent with the EPBC Act Environmental Offsets Policy;
  - Implement legal security arrangements for the in perpetuity protection of the offset site;
  - Undertake management actions to protect and improve the quality of native vegetation (NTGVVP) and fauna (GSM & SLL) habitat within the offset site;
  - Provide a timetable of management actions, outcomes and progress reviews;
  - Detail appropriate monitoring and evaluation of management actions and completion criteria; and
  - Attain and maintain the target condition criteria for the life of the EPBC Approval.

1.3 Report structure

The structure and content of the OMP is consistent with the requirements of the 'Standard Offset Plan' template provided by the Department of Environment, Land, Water and Planning (DELWP) and is organised in three parts:

- **Introduction** - This section summarises the background information relevant to the Project, including the purpose and scope of the work and the assessment methodology.
- **Part A: Offset Suitability** - This section assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. Part A should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. covenant).
- **Part B: Offset Implementation** - This section describes how the offset is to be implemented. Part B includes details regarding landowner commitments, management activities, monitoring and reporting. This section is intended for those responsible for implementing the plan, including future landowners. Information in this section is intended to be placed on title.

The plan also incorporates the requirements of guidelines for the preparation of an offset management plan under the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2014).

2. Part A: Offset Suitability

This section provides details of the clearing site, assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. This section should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. Covenant under the *Victorian Conservation Trust Act 1972*). The location of the clearing site and the proposed offset site are provided in Figures 1 and 2 respectively.

2.1 Clearing Site Details

Landowner of clearing site	Soho Living (Keilor Downs) Pty Ltd
Location and address of clearing site	7B Copernicus Way Keilor Downs
Local Government Area	City of Brimbank
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
Permit applicant	Soho Living Pty Ltd
Planning Permit Number (ID)	P201/2016
Date Approved	23/12/2016

2.2 Vegetation Approved for Removal

Vegetation removal associated with the development of 7B Copernicus Way (Figure 1) has been approved under Brimbank Planning Permit P201/2016. Vegetation to be removed is described in the biodiversity assessment prepared by Biosis (2016) and the condition of this vegetation is summarised in Table 1. A total of 1.208 ha of native vegetation identified as *Heavier soils* Plains Grassland (EVC 132-61) has been approved for clearing of which 1.15 ha is classified as NTGVVP. This 1.15 ha is also classified as GSM habitat while a broader area of 1.9 ha is classified as SLL habitat (Figure 2).

2.3 Offset Prescription and suitability

Vegetation losses and offset requirements were calculated using the spreadsheet provided under the EPBC Act offset policy (DSEWPaC 2012). Prescribed offsets for impacts to NTGVVP, SLL and GSM are presented in Appendix 1.

Offsets prescribed under the EPBC Act Environmental Offsets Policy (DSEWPaC2012) amount to the protection and management of 5.0 ha of NTGVVP and the same area of GSM habitat. This plan outlines the location of the prescribed NTGVVP offset to also concurrently serve as 5.0 ha of both GSM and SLL habitat, the condition of the native vegetation to be protected, the management actions required to be implemented and the condition targets for that vegetation at the end of the ten year management period.

Detail of the habitat quality used for each MNES in the EPBC Act offset calculator are provided in Table 2.

Table 1 Habitat scores for patches of NTGVVP at 7B Copernicus Way and the Cressy offset site

Site			Copernicus Way	Cressy
Habitat Zone ID			1A	1A
EVC: Name / Number			Plains Grassland 132-61	Plains Grassland 132-61
		Max Score	Total	Total
Site Condition	Large Old Trees	10	Not Applicable	Not Applicable
	Canopy Cover	5	Not Applicable	Not Applicable
	Lack of Weeds	15	4	6
	Understorey	25	15	15
	Recruitment	10	3	10
	Organic Matter	5	2	4
	Logs	5	Not Applicable	Not Applicable
	Total Site Score		24	35
	Standardised Score (x75/55)		32.73	47.73
Landscape Value	Patch Size	10	1	8
	Neighbourhood	10	0	1
	Distance to Core	5	1	4
	Total Landscape Score		2	13
HABITAT SCORE		100	34.73	60.73
Habitat points = #/100		1	0.35	0.61
Habitat Zone area (ha)			1.151	5.0
Habitat Hectares (Hha)			0.403	3.05
HZ (ha) Development Zone			1.151	Not Applicable
Development Zone (Hha)			0.403	Not Applicable

Notes to table: Plains Grassland also corresponds to NTGVVP

2.4 Description of the Cressy Offset Site

The offset area (5.0 ha) is located at Lot 3 TP414211 and is bounded to the north by the Hamilton Highway and to the south by an abandoned railway line (Western SG line). The site is on the western margin of land known as 6165 Hamilton Highway, Cressy. The site is approximately 5.5 km east of Cressy and approximately 110 km west of the Melbourne central business district (Figure 3). The property is currently zoned Farming Zone and is not covered by any overlays relating to biodiversity or inundation. The land is owned and managed by Deep Lead Property Pty Ltd (DLP) who also hold broader areas of farmland in this area. The site has historically been used for domestic stock grazing but is currently managed for conservation values on a voluntary basis.

The offset area assessed is part of a larger parcel of land of approximately 75 ha (Figure 4). This parcel includes substantial areas dominated by NTGVVP (identified as Plains Grassland (EVC 132)) in relatively uniform condition (Table 1). Other parts of this parcel of land have been or are in the process of being secured as offsets for other development projects, although this offset area is not a designated offset area at this point in time. The broader paddock includes internal and boundary fencing to control stock movements between the balance of the property and other adjacent properties.

Table 2 Offset assessment guide calculations

Parameter	Value	Notes
Impact to NTGVVP (critically endangered community)		
Area of impact	1.15	Total area (hectares) of NTGVVP cleared
Quality	4	Scale of 0 – 10. Habitat hectare score (from the Biosis assessment) has been used as a surrogate for vegetation quality.
Total quantum of impact	0.46	1.15 x 0.4
Impact to GSM habitat (critically endangered species)		
Area of impact	1.15	Total area (hectares) of direct habitat loss
Quality	5	Scale of 0 – 10. Estimate of habitat values based on population size and isolation. (Note that DoEE included GSM in the offset assessment process as reports indicating the species was not present could not be provided. A score of five was selected as no other information is available and the mid-point seemed appropriate.)
Total quantum of impact	0.46	1.15 x 0.4
Impact to SLL habitat (vulnerable species)		
Area of impact	1.90	Total area (hectares) of direct habitat loss
Quality	4	Scale of 0 – 10. Estimate of habitat values based on population size and isolation.
Total quantum of impact	0.76	1.9 x 0.4
Offset calculations – offset site		
Offset area	5.0	Hectares of NTGVVP / GSM / SLL habitat
Time until ecological benefit	10	Years
Time over which loss is averted	20	Years
Start quality	6	Scale of 0 – 10. Score based on EHP (2017) habitat hectare assessment for NTGVVP and GSM habitat assessment (note that as these MNES are critically endangered they demand the highest offset requirements and any offset area requirements for SLL which is listed as vulnerable will be lower).
Future quality without offset	3	Potential for decline in quality through weed invasion and uncontrolled grazing, which is currently an existing permitted use.
Future quality with offset	6	Improvement in condition of vegetation/habitat based on improvements prescribed (note this is maintained as a 6 although the management works will target an improvement to a score of 7).
Risk of loss (%) without offset	10%	Low risk of loss without deliberate or accidental actions.
Risk of loss (%) with offset	2%	Lower risk of loss with covenant and landowner awareness and vigilance.
Confidence in results	85%	
% of impact offset	>100%	Exceeds minimum of 90% direct offset requirements for NTGVVP and GSM; provides in excess of 100% of the offset requirement for SLL

NTGVVP within the broader 75 ha property is relatively isolated from other remnants of NTGVVP as this community has largely been cleared from this agricultural region. However, another roughly 250 ha remnant of NTGVVP occurs on the northern side of the Hamilton Highway adjacent to this site.

The offset area (the area subject to this OMP) is at the western end of this broader 75 ha parcel (Figure 4). The offset area supports one habitat zone which will be managed to provide all of the MNES offsets required for development of land at 7B Copernicus Way Keilor Downs (EPBC 2016/7734).

A detailed description of the flora and habitat hectare values within the broader property is included in EHP (2017) which identifies a total of 42 indigenous and 17 introduced plant species. More indigenous and weed species are likely to be present as seasonal conditions and survey intensity typically prevent the detection of all species present within a defined area.

The study area has no known history of cultivation, significant pasture improvement or intensive fertilizer application. However, at present pasture improvement activities and fertiliser application remain existing rights for the use of this land.

The grassland contained a diversity of native species, including Common Tussock-grass *Poa labillardierei*, Spear-grass *Austrostipa* spp., Wallaby-grass *Rytidosperma* spp., Kangaroo-grass *Themeda triandra*, Lemon Beauty-heads *Calocephalus citreus*, Wiry Buttons *Leptorhynchos tenuifolius*, Blue Devils *Eryngium ovinum*, Blushing Bindweed *Convolvulus angustissimus*, Milkmaids *Burchardia umbellata*, Common Woodruff *Asperula conferta* and Kidney-weed *Dichondra repens* (EHP 2017).

A moderate cover of weeds was present, predominantly comprising low threat grasses such as Quaking-grass *Briza* spp., Onion-grass *Romulea rosea*, Squirrel-tail Fescue *Vulpia myuros*, Narrow-leaf Clover *Trifolium angustifolium* and Cat's Ear *Hypochoeris radicata*. Scattered occurrences of the high threat weed Toowoomba Canary-grass *Phalaris aquatica* was present, in addition to the noxious weed Spear Thistle *Cirsium vulgare*.

A detailed assessment of the abundance and location of weed infestations will be conducted as part of the baseline monitoring exercise required as part of this OMP (Section 3.10). This baseline monitoring exercise will also provide information on the species and specific management issues and targets relating to this five hectare offset site.

2.4.1 Other Threatened species

The broader 75 ha parcel is known to support a number of threatened flora species (EHP 2017) including:

- Spiny Rice-flower *Pimelea spinescens subsp. spinescens* (Critically Endangered in Australia);
- Small Milkwort *Comesperma polygaloides* (vulnerable in Victoria); and
- Plains Yam Daisy *Microseris scapigera s.s.* (vulnerable in Victoria)

The offset site is also known to support a population of GSM and SLL (EHP 2016a&b).

2.5 Gains Available within the Offset Site

The condition of native vegetation within the proposed offset site is described Section 2.4 and its extent presented in Figure 4. Detailed descriptions and assessment of this specific five hectare area will be documented by a detailed baseline monitoring assessment (Section 3.10). This area is not included in any existing biodiversity offset arrangement, State or federal. The site can be improved by providing a focus on management to enhance its ecological values. This will be achieved through biomass management using the controlled grazing of sheep or careful application of ecological burning, the elimination of all woody weeds and the targeted control of annual and perennial grassy weeds through grazing and targeted herbicide application. The site will be a designated offset site under the EPBC Act and legally secured in perpetuity under a Trust for Nature covenant. The site will therefore no longer be eligible as an offset under any other biodiversity offset program.

Targets for the improvement of the condition of NTGVVP present will be achieved through:

- Active conservation management including pulse grazing by sheep at defined times to control the accumulation of ground-cover biomass (maintain the cover of open ground at about 30%);
- Pulse grazing by sheep at defined times (see section 3.9.5) to control weedy annual grasses;
- The controlled use of fire to manage ground-cover biomass and annual grassy weeds as considered appropriate for the conservation of SLL and GSM;
- Use of herbicides to target perennial weeds (and annuals as appropriate) (reduce cover from 30% to less than 1%);
- Use of herbicides to maintain an absence of woody weeds (maintain a zero presence of woody weeds); and
- Active control of pest animals.

2.5.1 Assessment of offset site using EPBC Act Offset Assessment Guide

Offset requirements were determined in accordance with the EPBC Act Offsets Policy (October 2012). Offset calculations have been undertaken using the EPBC Act Offset Assessment Guide spreadsheet for both NTGVVP and GSM (Appendix 1). A conservative set of parameters have been specified. The provision of a 5.0 hectare offset area results in a direct offset of over 100% of the impact on NTGVVP, GSM and SLL. The parameters used are shown in Table 2 and Appendix 1.

The detailed justification of these figures is provided in the preliminary documentation for Referral 2016/7734.

2.6 Recovery Plans, Threat Abatement Plans and Conservation Advices

There is a published recovery plans for SLL and separate conservation advice for both GSM and NTGVVP (http://www.environment.gov.au/). Sections of each plan or conservation advice relevant to this OMP are outlined below.

2.6.1 SLL Recovery Plan objectives

Specific objectives for the recovery of SLL relevant to this OMP include:

- **Objective 3.** Determine the current distribution and abundance of *D. impar* in Victoria, New South Wales, the Australian Capital Territory and South Australia.
- **Objective 4.** Establish a series of reserves and other managed areas such that viable populations are maintained across the known distribution of the species.
- **Objective 5.** Determine the habitat use and ecological requirements of *D. impar*.
- **Objective 7.** Undertake a program of research and monitoring to provide a basis for adaptive management of *D. impar*.
- **Objective 8.** Increase community awareness and involve the community in aspects of the recovery program.

This offset site contributes directly to these recovery objectives by providing information of a known population (Objective 3), contributing to the conservation of a viable population (Objective 4), monitoring a population in response to a defined management plan and providing opportunities for adaptive management in response to any monitoring data (Objective 7). The offset also provides a small but low level contribution to an increased community awareness through the involvement of a private land owner and the Trust for Nature (Objective 8).

2.6.2 GSM Conservation advice and impact guidelines

The proposed offset site is consistent with Regional/Local Priority Actions outlined in the conservation advice to support the recovery of GSM (Approved Conservation Advice 2013). This includes actions to:

- Seek formal conservation arrangements, management agreements and covenants on private land;
- Monitor known populations;
- Monitor the effectiveness of management actions and the need to adapt them if necessary;
- Control weed invasions; and
- Raise community awareness.

Management actions proposed are also consistent with known habitat requirements, methods for managing habitat and the life cycle of GSM as outlined in the Significant Impact Guidelines (DEWHA 2009). This includes maintaining or improving the abundance of known food plants (Wallaby-grasses *Rytidosperma* spp. and Spear-grasses *Austrostipa* spp.) and habitat structural preferences (providing inter-tussock space).

Monitoring requirements also include methods and data collection requirements based on the survey detection guidelines for GSM (DEWHA 2009).

2.6.3 NTGVVP Conservation advice

This OMP is also consistent with the priority recovery and threat abatement actions outlined within the approved (29 May 2008) conservation advice for this community. This includes protecting remnants of the listed ecological community through the development of conservation agreements and covenants, active management of weeds and the development of appropriate fire and grazing regimes for biodiversity conservation.

The proposed covenant will exclude fertilizer application, monitor weed control works and raise local awareness of the community in a manner consistent with the objectives of the approved conservation advice.

2.6.4 Other Threat Abatement Plans

Other threat abatement plans considered in the preparation of this plan include plans relating to the control of rabbits (DoEE 2016), the European Red Fox (DEWHA 2008) and feral cats (DoE 2015).

The control of pest animals is an integral part of this OMP and provides a local contribution to the abatement of these threats.

3. Part B: Offset Implementation – Cressy

This section presents the actions required to implement the OMP. The OMP details methods for the management and conservation of native vegetation (NTGVVP) at the offset site for other protected matters (GSM and SLL). These actions are required over the initial ten year management period and for the life of the EPBC Approval and from thereon in perpetuity.

The OMP aims to achieve vegetation improvement gains through on-ground actions and therefore is required to be achievable, straightforward and practical. All of the management actions specified must be measurable against the commitments made in the calculation of improvement over time to achieve the target conservation gains for the protected matter under the EPBC Act. Note however, that the extent of the offset site (5 ha) has been calculated on the basis of maintaining the initial condition of the offset site and targeting improvements will therefore provide additional benefits to the MNES being managed as well as providing management benefits through reduced input requirements (i.e. less weedy environments provide lower reinfestation opportunities and therefore less management inputs to control smaller infestations).

The OMP will be implemented either before, or at the same point in time as, the impact arising from the action. This timing is distinct from the time it will take an offset to yield a conservation gain for the protected matter, which will be a point in the future (designated as at the end of 10 years in the EPBC Act offset calculator).

All works would be conducted by a suitably qualified and experienced contractor and/or the landholder. Prescribed management actions are, where relevant, in accordance with the Victorian BushBroker standards for management (DSE 2012a, DSE 2012b and DSE2012c).

3.1 EPBC Act approval conditions

This OMP has been formulated to comply with the conditions specified in the approval for the mixed used development of 7B Copernicus Way, Keilor Downs, (EPBC 2016/7734). Relevant conditions, including references to corresponding sections of this plan, are detailed in Table 4.

3.2 Offset Site Details

Landowner of offset site	Deep Lead Property Pty Ltd (ABN 43355 032 074)
Location and address of offset site	6165 Hamilton Highway, Cressy
Area of offset site (ha)	5.0 ha
Volume / Folio	5736 / 059
Parish	Cressy
Allotment	Lot 3 TP414211
Local Government Area	Colac Otway
Responsible Authority	Trust for Nature (TfN)
Bioregion	Victorian Volcanic Plain

3.3 Strategy for Offset Site

The offset site is to be secured and managed for the purposes of conservation in perpetuity. This offset area is a smaller component of a larger area of native grassland which will be managed in a sympathetic manner on a voluntary basis. The current land owners have secured formal offset agreements to protect other portions of this broader area of native grassland but the nominated section of this parcel has not been

allocated for the provision of any other offsets, either under the EPBC offsetting policy or for provision of offsets under Victorian policy, including the Biodiversity Assessment Guidelines or the Net Gain Framework.

Table 3 EPBC 2016/7734 approval conditions

Condition	Condition details	OMP response	OMP section
2	An offset of five (5) hectares from HZ 1B as prior to the commencement of the action.	Five hectare area defined as offset site	Figure 4, Section 2.3
2	The approval holder must legally secure the environmental offset of five (5) hectares at Habitat Zone 1B prior to the commencement of the action	Trust for Nature covenant	Section 3.4
3	The OMP must be prepared by a suitably qualified person in accordance with the Department's Environmental Management Plan Guidelines and be submitted for the written approval of the Minister. The Offset Management Plan must include:	Prepared by Biosis for submission to the Minister for approval.	Declaration of accuracy and Summary
3a	A baseline description of the current ecological condition (prior to any management activities) of Habitat Zone 1B, including existing vegetation, for the NTGVVP ecological community, GSM and SLL habitat.	Brief description of offset site provided. Requirement for baseline monitoring to provide detailed description of vegetation, habitat condition and existing populations of GSM and SLL	Sections 2.4 3.10.1, 3.10.6 and 3.10.7
3b	A description and map (including shapefiles) to clearly define the location and boundaries of Habitat Zone 1B, accompanied by the offset attributes.	Written descriptions provided; general and specific location maps provided. Shape files to be provided to DoEE when offset plan is approved.	Sections 2.4 & 3.2; Figures 3 & 4
3c	A description of the management measures (including timing, frequency and duration) that will be implemented in Habitat Zone 1B.	Section 3.9 outlines the proposed management measures to be applied to this offset site	Table 7
3d	A discussion of how proposed management measures take into account relevant approved conservation advices and are consistent with the measures contained in relevant recovery plans and threat abatement plans	Text included in this plan.	Section 2.6
3e	A description of the potential risks to the successful implementation of the environmental offset and contingency measures that would be implemented to mitigate against these risks	Adaptive management strategy put in place to respond to potential risks	Section 3.13 Table 8

Condition	Condition details	OMP response	OMP section
3f	Completion criteria and performance targets for evaluating the effectiveness of the Offset Management Plan implementation, and criteria for triggering corrective actions	Criteria and targets listed	Section 3.6.2
3g	A program to monitor, report on and review the effectiveness of the Offset Management Plan	Sections dedicated to monitoring and reporting	Sections 3.10 and 3.11 Tables 10 & 11
4	The approval holder must not commence the action until the Minister has approved the Offset Management Plan	OMP ten year period does not begin before the minister has approved the plan	Table 5

All easements noted on the current title have been excluded from the net offset area. No future easements can be applied to the offset area as these are likely to conflict with the objectives of this OMP.

3.4 Offset Security and Management Responsibility

Soho has located a suitable offset site and negotiated an agreement with the owner(s) of the property. The proposed offset area is located within a larger property on the Hamilton Highway, Cressy. The property is owned by Deep Lead Property Pty Ltd (or other future owner), who will be responsible for ongoing management of the offset site for the life of the EPBC Approval.

The offset site will be secured and managed for the purposes of conservation in perpetuity via covenant as to Section 3A *Victorian Conservation Trust Act 1972* managed by the Trust for Nature (TfN). The management strategy for the offset site consists of implementing this OMP incorporating the management of ground cover biomass using the timed grazing of domestic stock, weed and pest animal control and regular monitoring. Management and improvement of the condition of the NTGVVP present will in turn maintain and improve the habitat condition for GSM and SLL as all three are intrinsically linked. Details of security and management responsibility are shown in Table 4.

3.5 Ongoing Land-use Commitments

The entire offset site will be managed for an improvement in quality over 10 years. After this period of management, the land will be required to be managed in a manner which at a minimum requires the site to be maintained in at least the condition specified by Table 2 and Section 3.6, in perpetuity.

The deed will specifically state the in-perpetuity land-use commitments across the site are to:

- Retain and manage all native vegetation as directed by this offset management plan;
- Exclude domestic stock except as permitted by this plan;
- Exclude the use of stock food such as hay or grain that is sourced from outside the offset area;
- Maintain the absence of any woody weeds and ensure that the cover of other high threat weeds does not increase beyond levels achieved at Year 10 of management (targeted to reduce from 30% to less than 1%);
- Ensure that pest animals are controlled to the level attained at the completion of Year 10 of management.

- Exclude pasture improvement and fertilizer application;
- Control the accumulation of ground cover biomass through either the controlled grazing of sheep or the controlled application of fire; and
- Maintain a progressive annual works plan which caters to current conditions and prescribes ongoing management with maintenance of the native grassland community as its primary objective.

Table 4 Security and Management Responsibility and Reporting Requirements

Responsibility	
Who is liable/responsible for meeting offset requirements?	Soho Living (Keilor Downs) (ACN 618 009 019)
Type of security	Covenant as to part Section 3A *Victorian Conservation Trust Act 1972*
Date of commencement for the covenant	To be completed in 2018 before works commence at 7B Copernicus Way
Date 10-year offset management to commence	To be completed
Date 10-year offset management expires	To be completed
Date covenant registered on-title	To be completed in 2018
Offset site management responsibility	Deep Lead Property Pty Ltd
Offset Monitoring Responsibility	Deep Lead Property Pty Ltd
Auditing	Soho
Reporting responsibility (to TfN)	Deep Lead Property Pty Ltd
Reporting responsibility (to DoEE)	Soho
Plan review	Soho

Implementation of this management plan is the overall responsibility of the land owner (Deep Lead Property Pty Ltd). However, direct management responsibility may be delegated to a designated site manager and/or managing ecologist. The land owner is responsible for engaging a qualified ecologist to conduct monitoring (Section 3.7) with reports submitted to TfN, Soho and DoEE. Management actions by the land owner will be overseen by the TfN as part of the legal protection over the site. Monitoring, auditing and review of the plan will be undertaken by suitably qualified persons (as defined in the Approval Conditions).

The TfN is responsible for:

- Undertaking site inspections at least 4 times over the 10 year management period and provide input into the annual works program.
- Review of ecological monitoring reports including an assessment of targets achieved.

Implementation of the management plan will be monitored by the TfN. TfN will verify that the actions have been carried out appropriately.

Implementation of the plan will begin upon registration of the covenant or the approval of this OMP whichever comes first.

3.6 Environmental outcomes to be achieved

The key environmental outcomes to be achieved through protection and management of the offset area are:

- Legal protection of 5.0 hectares of NTGVVP and habitat for GSH and SLL in perpetuity;
- Physical protection of the habitat area from manageable threats including uncontrolled stock grazing, weed infestations and degradation by pest animals.
- Improvement in the condition of NTGVVP and GSM and SLL habitat, as measured by habitat and population monitoring.

3.6.1 Future condition classes

The offset calculations used to define the size of the offset area (Appendix 1), specify the maintenance in average habitat condition throughout the life of the EPBC Approval at an assessed score of 6/10. The condition of NTGVVP will be assessed using the habitat hectare assessment protocols (DSE 2004). The habitat quality for GSM and SLL will be assessed using the habitat features known to support these species, including the presence of an open tussock grassland structure (with about 30% open ground or inter-tussock spaces) and the abundance of known food plants such as spear-grasses *Austrostipa* spp. and wallaby-grasses *Rytidosperma* spp. Note that the habitat condition for both GSM and SLL is intrinsically linked to the habitat condition of the NTGVVP and the maintenance of a high quality grassland will also maintain high quality habitat for both fauna MNES. While populations of both species may vary within the offset site over time due to conditions outside of the control of this OMP (i.e. rainfall), the maintenance of a diverse and well-structured grassland will provide high quality habitat for both of these species.

Habitat assessments will be undertaken in marked quadrats distributed through the offset site as described in Section 3.10.2. A key target will be a decline in the average abundance of perennial introduced pasture grasses such as Canary-grass species and Cocksfoot. For SLL and GSM key targets will also include regular detection in targeted monitoring surveys and maintaining or increasing their detected abundance.

Maintenance of the open tussock structure across the site, the exclusion of woody weeds and a decline in the average cover of perennial grassy weeds (including Canary-grass species and Cocksfoot) from the current estimate of 30% (EHP 2017) to less than 1% after 10 years of management (in comparison to baseline monitoring data) will be taken as a successful attainment of the nominated future condition class.

Habitat condition assessments relating to the diversity and cover of different lifeforms in the grassland (current score is 15/25), the presence of suitable habitat structure to provide opportunities for species recruitment (current score is 6/10), the cover of weed species present (current score is 6/15) and the abundance of organic litter (current score is 4/5), all provide opportunities to improve the condition of the NTGVVP present within the offset site. Proposed management actions are expected to provide improvements in all of these assessment criteria. However, maintenance of these values will satisfy the EPBC Act offset requirements.

3.6.2 Performance and completion criteria

Key performance and completion criteria are:

- Establishment of legal protection via a covenant.
- Maintenance in average site condition as described in Section 3.6.1 (although management will target improvements).
- Successful management of threats, including the control of stock grazing, weeds and pests as specified in Section 3.9.

- Maintenance of GSM and SLL populations (Sections 3.10.4 & 5)
- Maintenance of GSM and SLL habitat condition at a score of 8/10 (Sections 3.10.1)
- Completion of scheduled management actions (Section 3.9 and Table 7).
- Completion of scheduled monitoring activities (Section 3.10 and Table 10).
- Completion of scheduled reports and audits (Section 3.11, 3.12 and Table 11).

3.7 Limitations and uncertainty

This management plan has been formulated using information from recently conducted site inspections of the broader property by EHP (2017). While the vegetation is described as broadly uniform the results of a prescribed baseline monitoring exercise (Section 3.10) will define the specific targets for weed control and biomass management.

The OMP has been subject to external review and quality assurance by TfN as part of the process to register the site covenant. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate.

To date, the proposed offset area supports records of GSM and SLL from targeted surveys by EHP (2016a & b). However, the available information is not adequate to provide a measureable baseline for the specific monitoring requirements outlined in this OMP. This data will be collected as part of the prescribed baseline surveys to collect information specific to this offset site.

The offset calculations have been performed using conservative estimates of site improvement, and the area to be reserved provides an offset in excess (100%) of the offset area required to balance the impacts (refer to Section 2.3 and Appendix 1 for details of the calculations). While the proposed management actions will at very least maintain the quality of the NTGVVP and GSM and SLL habitat present, there is scope for the condition of the NTGVVP to achieve a score of 7/10. However, to provide a conservative target the condition value of 6/10 is retained after ten years of management.

3.8 Ongoing Management Commitments

The main threats to this native grassland are outlined in the approved conservation advice for this community and include the existing permitted uses associated with normal farming practices such as inappropriate grazing regimes, pasture improvement and fertiliser application. Other threats include the expansion of the existing high threat weed populations, weed invasion in general and the accumulation of ground cover biomass. Currently the ground cover biomass is managed through grazing by domestic stock (mainly sheep but there are no current restrictions on what domestic stock may be grazed on site) and this is proposed to continue as a strictly controlled management practice. In addition, ecological burning guidelines have been developed to be implemented at the discretion of the landowner but within the parameters outlined within this OMP. These management actions are based on the guidelines provided in the conservation advice and current best practice for the management of this community and its constituent species (i.e. Morgan 2015). This includes the legal protection of remnants, active weed control works and appropriate biomass control.

The prescribed management actions outlined below are intended to achieve a conservation outcome which improves and maintains the viability of the offset site. This will be achieved through active ecological management (maintenance and improvement) and permanent protection of the offset site. Table 7 details these prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area identified in Figure 4.

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

- Maintaining the existing fencing within the broader land parcel, and limiting access to the existing access gates unless otherwise authorised by the TfN as appropriate.
- Controlling weeds to improve the quality of the NTGVVP present as outlined in this OMP (noted as a priority in the conservation advice for NTGVVP);
- Monitoring for any new and emerging weeds and eliminate to < 1% cover;
- Ensuring that overall weed cover does not increase beyond the levels attained at the end of the first ten years of managements as outlined in this OMP;
- Managing organic litter (must not exceed the EVC benchmark cover of 10%);
- Biomass control through high intensity pulse grazing of domestic stock (sheep only) with grazing excluded from 31st August to 31st January (unless otherwise approved by TfN in writing because of unusual seasonal conditions);
- Controlling pest animals, particularly rabbits, hares, foxes and cats;
- Exclude the use of stock feed such as hay or other material which could support weed seeds that is sourced from outside the offset area;
- Exclude pasture improvement, any type of cultivation and cropping; and
- Exclude fertilizer application.

3.9 Management actions and land use commitments

This section presents the actions required to implement the management strategy for the offset site to satisfy the requirements of the EPBC Act approval condition(s). The offset site is to be secured and managed for conservation purposes in perpetuity. Management actions described below are to be implemented for a period of 10 years in accordance with the EPBC Act approval conditions that pertain to the defined offset site. The OMP will be revised after the end of the initial ten year period to ensure it remains appropriate for the condition of the vegetation and habitat at that time. The revised OMP will continue to apply to the land and the landowner will continue to manage the offset site after the completion of year 10 as specified under the covenant. Formal reporting to DoEE will be required until the end of the EPBC Act approval period (February 2033) but the offset will be managed for conservation in perpetuity.

The broad objective of site management will be to produce a decrease in the abundance of perennial weeds with a commensurate increase in the abundance of perennial native species, particularly grasses which are known food plants for GSM.

Offsets will be achieved through:

- Weed control:
  - Ensuring that weed cover does not increase beyond current levels.
  - Ensuring that the cover of introduced perennial grasses decreases from 30% (the baseline assessed cover) to less than 1%.
  - Maintaining the absence of all woody weeds (<<1% cover).
  - Monitoring for any new and emerging weeds and eliminate to <<1% cover.

- Managing biomass accumulation to prescribed standards (i.e. target an inter-tussock space of 30%).
- Controlling rabbits, hares, cats and foxes.
- Monitoring and controlling new and emerging pest animals.
- Excluding stock except as otherwise prescribed by this plan.

The management actions listed below outline the prescribed actions for achieving the required gains through active management (maintenance and improvement) and permanent protection of the offset site. Table 7 details these prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area as identified in Figure 4.

Prior to works being undertaken each year an annual works program (based on Table 7) will be developed by a suitably qualified person. The person undertaking the works will prepare a detailed works program in consultation with TfN. The works program for the coming year will also address issues that may not have been anticipated in formulating this original management plan. The OMP will be updated as required with any revised versions of the OMP to be submitted to the DoEE for approval.

3.9.1 Fencing, information and access control

Permanent fencing able to exclude domestic stock already exists around the boundary of the broader 75 ha parcel and other subsets thereof. Additional fencing around the 5.0 ha offset area (Figure 4) is not required as it is proposed that grazing within the broader paddock will be managed in accordance with the prescriptions outlined within this OMP. Temporary fencing may be used within the offset area where negligible impacts to native vegetation associated with the placement and removal of that fencing can occur.

Additional permanent fencing is also not recommended for the following reasons:

- to avoid the need for establishing stock water access points which will displace native vegetation;
- to avoid funnelling of traffic through access gates and associated disturbance to soil; and
- to discourage trampling of native vegetation by stock along fence boundaries. Instead, sheep will be allowed to graze the offset area as part of the broader existing paddock structure, with limitations described in the following text.

Posts marking the boundary of the offset site will be set up to clearly identify the area for monitoring and management purposes. Posts will be located in accordance with advice from a qualified ecologist to ensure impacts to native vegetation are avoided.

Where grazing and fire are both used for biomass control, temporary stock fencing will be established and maintained around the boundary of any burnt area within the offset site for at least 6 months post-burn to prevent stock access and damage to regenerating vegetation from grazing. This is because burning and grazing combined are known to be detrimental to NTGVVP and would therefore also be detrimental to SLL and GSM habitat conditions.

The offset area remains private property and access or disturbance to the offset site by unauthorised persons is prohibited. The existing access gate and security (locked gates) arrangement is adequate to service the access management requirements of this offset area.

If existing land-use rights are to be fully exercised in the remainder of the broader parcel, fencing to control stock access to the offset site will be required. Fencing should meet the minimum standard set by DELWP's fencing standards in BushBroker Information Sheet 12 - Standards for Management – Fencing, to establish a sturdy stock proof fence. If rabbit populations impacting the site cannot be controlled to an adequate level (based on advice from TfN) then fencing protecting the offset site will need to be upgraded to a rabbit proof standard.

No additional signs identifying the property as an offset site are proposed. Explicit signage may inadvertently attract undesirable impacts. However signs identifying the property as a protected area of native vegetation will be considered by the owner.

Monitoring of access and threats will be conducted on an ongoing basis with fencing repaired or upgraded as required to control threats which can be mitigated through fencing.

Where fencing exists or is required to control threats, ensure all fencing around the perimeter of the property is maintained in good condition according to the standards detailed in BushBroker Information Sheet 12 – Standards for Management – Fencing (DSE 2012c), for the term of the OMP.

3.9.2 Weed control

Weed control works are required to achieve biodiversity gains for an offset under the EPBC Act and DoEE requires a habitat improvement for NTGVVP and both GSM and SLL habitat. Targets identified below therefore require a reduction in the cover of woody, perennial and annual weeds. As part of this process the land owner will develop an annual works plan designed to schedule an adequate level of activity to achieve the prescribed goal outlined in this report.

Annual grassy weeds are prominent and typically the total weed cover (annuals and perennials) is about 30% (to be more accurately defined by baseline monitoring as required under Section 3.10). The annual weeds, which are predominantly grasses, such as Fescue *Vulpia* spp., Quaking Grass *Briza* spp., Soft Brome *Bromus hordeaceus* and Hair Grass *Aira* spp., which not considered a significant threat in this environment, will be managed using grazing in an attempt to reduce their prominence. Direct active management using targeted grazing is expected to have an impact on the abundance of these species. However it is possible in relatively wet years that grazing may not be able to have a large enough impact on ground cover biomass and in this situation the application of ecological burning will be evaluated. Application of fire prior to the seed set for weedy annual grasses is known to have a significant negative impact on these weeds. The timed application of fire is therefore strongly encouraged by this OMP. Note, however, that the extent of any burning needs to consider the habitat for SLL and therefore the extent of burning in any single year is strictly controlled (see Section 3.9.4).

An overall target for weed reduction (both annual and perennial) is set from the current estimated level of 30% to 10%. At an absolute minimum, management must prevent annual weeds from increasing their current cover and all perennial species must decrease in extent by over 90% of their baseline monitoring condition.

All high threat weeds are to be controlled to minimise or reduce their occurrence and ensure no further spread of weeds. The total cover of perennial grassy and broad-leaf weeds on site will have a reduction target from the current level of 30% to no more than 1%. This includes specific performance targets for high threat species identified in Table 5. Perennial grassy weeds will be reduced to less than 1% total cover and broadleaf weeds will be reduced to no more than 1% of the cover by the end of Year 10.

The emphasis for weed control is the prevention of weed seed production with the goal being the reduction in the total weed cover with specific targets for high threat species on site. Weed control works will be timed appropriately in accordance with Tables 5, 6, & 7.

Weed levels will be monitored and management methods adapted over time in response to changing conditions. New and emerging high threat weeds will be monitored and controlled (to less than 1% cover) if found. Any other significant environmental weeds identified during the ongoing site monitoring will also be controlled. A significant weed is one which has an ecology known or suspected to be a threat in grassland ecosystems.

If other high threat weeds, such as Serrated Tussock *Nassella trichotoma*, are found to occur in surrounding areas owned by the offset land owner, it would be prudent and cost effective to eliminate such species from nearby areas to reduce any potential invasion into the offset area. The offset owner will contact the land owner of any public land (i.e. council managed road reserves adjacent to the offset site) where high threat weeds occur within the vicinity of the offset area, with the aim to have these weeds controlled.

The cover of woody weeds within the offset site will be maintained at zero to negligible in perpetuity.

Table 5 High threat weeds for priority control (EHP 2017).

Scientific Name	Common Name	% baseline cover	Control Proposed	Target Outcome^
Annuals (*Vulpia*, *Briza*, *Bromus*, *Aira*)	Annual Grasses	10%*	Controlled pulse grazing by sheep to prevent seed set. Spot spraying appropriate herbicide to prevent seeding as required.	10% cover
Phalaris aquatica	Toowoomba Canary-grass	5%*	Spot spraying appropriate herbicide (early spring).	<1% cover
Phalaris arundinacea	Reed Canary-grass	5%*	Spot spraying appropriate herbicide (early spring).	<1% cover
Dactylis glomerata	Cocksfoot	5%*	Spot spraying appropriate herbicide (early spring).	<1% cover
Cirsium vulgare	Spear Thistle	<1%*	Spot Spraying appropriate herbicide (prevent flowering).	<1% cover

^ Desired outcome after the first 10 years of intensive ecological management
** to be more accurately defined by baseline monitoring*

Spot spraying with appropriate herbicide is the main method for reducing high threat weed cover. Spot spraying will be undertaken regularly (at least one day per month, particularly in spring and early summer, with a focus on killing weed plants prior to seed set. Biomass control is also considered as an effective method for controlling and reducing weed levels. Biomass control at the site will include controlled sheep grazing and, when considered appropriate, ecological burning. Spot spraying will be completed in a manner which minimises non-target damage. Spot spraying will not occur during high wind days or in close proximity to threatened flora without protective measures in place (i.e. physical shielding).

Burning is particularly effective at reducing weed cover, especially for species that are difficult to control such as perennial weedy grasses. Burning and/or grazing will allow greater access and efficiency for weed control and increased natural regeneration of indigenous plant species (Sections 3.5.4 and 3.5.5 below). Periodic burning (see Section 3.9.4) that is followed by spot spraying will be important for weed species that are difficult to control until they are replaced by native species.

Target species are likely to change over time in response to seasonal conditions, the result of pulse grazing or the conduct of any controlled burns (e.g. likely flush of broad-leaf weeds to be treated post-burn). Weed cover and species will therefore be monitored and management adapted in response to achieve desired outcomes outlined in this management plan. TfN will be consulted and approve the control techniques for any new or emerging weeds identified within the offset area.

The offset area is not in close proximity to any named waterway although a number of seasonal wetlands occur within this parcel and its surrounds. While there maybe localised surface water flows during high

rainfall events, any wetland within the site is ephemeral and no specific runoff risk is identified for the application of herbicides to this area.

Refer to BushBroker Information Sheet 8 – Standards for Management – Weeds (DSE 2012b) as appropriate.

New and emerging herbaceous weeds

Monitoring for new and emerging herbaceous weeds will be conducted throughout the year in perpetuity, and any new and emerging weeds eliminated. In addition to any high threat weeds, this must include any noxious weeds listed under the CaLP Act.

3.9.3 Pest Animals

The control of vermin including rabbits and other pest herbivores beyond the legal duty of care outlined under the *Catchment and Land Protection Act 1994* is a requirement of this OMP. Therefore pest animal control works are required within the offset site. Pest animal control works will be scheduled in the annual works plan.

Grazing by European Rabbits *Oryctolagus cuniculus* and European Hares *Lepus europeaus* is evident and is likely to have a significant impact within the offset site. However, no active rabbit warrens have been noted within the offset site (EHP 2017).

Currently, while populations are at low levels, rabbits and hares will be controlled by shooting. If this changes (i.e. rabbits become locally common), baiting and fencing can be considered as control options for these pests.

Control within the offset site would effectively be achieved through a reasonable level of works to eliminate any active warrens in the local area (i.e. land within the owners control and within 500 m of the offset site). Control will in part be achieved through the removal and destruction of the shelter provided by any shrubby weeds within the broader area managed by the same landowner. The landowner will therefore control all shrubby environmental weeds on their land in and within 500 m of the offset site. Control of rabbits will be undertaken in accordance with current guidelines provided by the relevant Victorian Government Department of the Environment and within the limitations specified in this plan (i.e. no ripping).

Rabbits and hares will be monitored and controlled throughout the year. If significant rabbit activity (i.e. the presence of warrens) is detected on the site during other management activities, an integrated approach in accordance with BushBroker Information Sheet 7 – Standards of Management – Rabbits (DSE 2012a) will be implemented. This involves fumigation, hand collapsing of burrows and baiting. Carcasses will be removed promptly to prevent poisoning of native predators.

Ripping of rabbit warrens within the offset site is not permitted. If any warrens develop within the offset site they will be treated by low impact measures such as fumigation or implosion.

Other problem pest animals include cats and foxes although the general lack of shelter and harbour for these species reduces the likelihood that any animals are resident in the local area. Control techniques such as poisoning are therefore likely to be ineffective. The landowner will select from the range of control techniques available and apply the most effective in the local conditions.

Any observations of pest animals within the offset site during other activities must be recorded. Pest animal will be formally monitored annually in November through the conduct of spotlight transects across the offset site. This is expected to require about 1 to 2 hours of walking across the site. This assessment of the presence and abundance of each pest species will be included in the annual report. Control works will ensure that the abundance of any pest species is maintained at negligible levels.

Active control works targeting pest animals are not expected to have any negative impact on any MNES.

3.9.4 Biomass control

Biomass management is essential to maintain indigenous flora and fauna values throughout the offset site and is a key component of the conservation advice for NTGVVP. Biomass management is also required to maintain inter-tussock spaces and prevent excessive competition to grassland forbs and to provide open display areas for GSM while also providing shelter for SLL. While there are no specific guidelines for habitat management for GSM and SLL within the relevant recovery plan for SLL or conservation advices for GSM and NTGVVP, habitat degradation for NTGVVP is a known threat for all these matters.

Where there is a sustained build up in ground cover biomass over any one year, resulting in a reduction of inter grass tussock space to an average of less than 30%, biomass will need to be actively reduced. Site productivity is a key determinant of ecosystem responses to disturbance regimes and in productive systems frequent disturbance (i.e. 1 to 5 year intervals) are commonly required to maintain diversity. This is because potentially dominant species, predominantly grasses, can rapidly re-establish between disturbances causing the sub-dominant inter-tussock species to be outcompeted (Morgan 2015).

Judgements on the cover of inter-tussock space and the build-up of groundcover biomass will be made by the landowner in consultation with the TfN and include an assessment of relevant monitoring data. Biomass accumulation will be measured using the 'Golf Ball Method' (Morgan 2015) with measurements of high biomass accumulation requiring a management response. The independent ecological monitoring undertaken by suitably qualified ecologist will also assess the effectiveness of the biomass control techniques applied and the need for any adjustments to the management regime to provide the prescribe outcome.

Controlled grazing will be applied to reduce biomass and maintain an open tussock-grass structure for this grassland, and where appropriate, ecological burning will also be utilised at an appropriate scale (i.e. as required to maintain the presence of SLL within the offset site).

Biomass control works will also reduce the potential for uncontrolled wildfire to impact this site.

Use of grazing for ecological management

Currently the offset site is subject to unrestricted grazing by sheep. Given the diversity of native species found within the native grasslands of this site, this method of disturbance regime (grazing by domestic stock) is seen as a reliable and conservative action to maintain and improve the ecological values associated with the area. While grazing by domestic stock will continue to be used at this site as a method of biomass and weed reduction, it will be undertaken in a controlled manner following a grazing management plan. Biomass accumulation control using grazing at this site will therefore focus on preventing inter-tussock spaces falling below a threshold ideal cover of 30%. This target considers the requirements for biodiversity within NTGVVP, open space for GSM and shelter for SLL and seeks to maintain optimal habitat condition for all three matters of national environmental significance.

In this context pulse grazing (i.e. using high numbers of sheep over short periods) in the offset area to maintain an open tussock grassland structure is seen as a precautionary management method to maintain the species richness of these native grasslands. Grazing of domestic stock will be restricted to the use of sheep. Grazing by other domestic stock including but not restricted to cattle, goats and horses is to be excluded from the offset site by this plan.

The timing of grazing will be strictly controlled to allow native species to grow and set seed over the spring to mid-summer period (DSE 2009). Stock will be excluded from the end of August to the end of January annually, in perpetuity. Table 6 provides targets to be met for ongoing management of grazing within the offset area. The landowner will keep records of the number of sheep and duration of grazing within the offset area. This data will be provided to the TfN on an annual basis. This data and the resultant impact on biomass will provide the basis for an on-going grazing strategy to be approved by the TfN. The grazing

exclusion period may be varied by TfN in response to seasonal conditions but any variation must be approved in writing and not have the potential to impact negatively on MNES.

Grazing will occur over a short duration and significantly exceed the standard stocking rate to prevent selective grazing and allow for periods of grazing exclusion. The maximum length of continuous grazing is 4 weeks with at least 2 weeks rest between cycles. Biomass management objectives are that inter-tussock space will be maintained to an average of 30% and the total vegetation cover will not fall below 50%. At least 3 pulse grazing cycles will occur within the grazing period, one of which will occur immediately prior to the exclusion period (weather permitting). However, flexibility is provided to the land manager as climatic conditions, and therefore site productivity, can vary dramatically in this environment and management actions will need to be able to respond to both wet and dry extremes. Table 6 is therefore provided as a guide although deviations from these restrictions will need to be approved by TfN in consultation with an experienced ecologist.

The only exception to requirements specified for pulse grazing (Table 6) is if an ecological burn is planned during or following the pulse grazing period. In this instance a fire management plan produced by a qualified contractor will inform when grazing will be removed to allow for a build-up in biomass to establish a burn. Note that the biomass management requirements to maintain a high quality grassland can vary significantly in response to climatic conditions. A high accumulation of biomass in NTGVVP is severely detrimental to biodiversity if allowed to persist for between 5 and 7 years. Therefore no areas within the offset site will be allowed to retain a high level of biomass for more than three years (see Section 3.10.2).

Stock transfer into the offset site will be selected and timed to minimise the potential for weed seed transport via mud, attachment to their fleece or within their faeces (i.e. stock movements into the offset site will be excluded within two days of rainfall and stock new to the property will be excluded from use in pulse grazing until shorn). This will include using sheep shorn for use in pulse grazing which will otherwise be kept in paddocks with low to negligible high threat weed levels. The 5.0 ha offset site will need to be monitored daily by the landowner during wet periods to prevent excessive soil disturbance in seasonally wet areas. Following any high rainfall events, stock will be removed immediately. If weather predictions indicate the potential for a high rainfall event then stock will be removed from the offset area prior to rain.

Table 6 Requirements and limit of grazing activities within the offset area.

Period where grazing by domestic stock is not permitted*	31st August to 31st January annually in perpetuity
Pulse grazing cycles required*	3 (Dependent on biomass levels and the cover of inter-tussock spaces as defined below)
Grazing required prior to exclusion period	15th August to 30st August (unless site is too wet)
Minimum rest from grazing between pulse grazing	2 weeks
Maximum continuous pulse grazing	4 weeks
Biomass management thresholds	Total vegetation cover of no greater than 70% or no less than 50%
Target inter-tussock space	Minimum 30% of total site cover

* Note that the times where grazing is permitted and the number of grazing cycles applied can be varied based on advice from an ecologist in response to atypical seasonal conditions or additional ecological information which would result in a positive ecological outcome.

Use of fire for ecological management

Burning within the offset area will be undertaken only with due consideration to relevant health and safety issues, in consultation with the Country Fire Authority and in line with a fire management plan completed by a suitably qualified consultant. Any approved fire plan will also be provided to DoEE at least three weeks prior to any burning event identified within that plan. The following provides guidelines for use of burning only in an ecological sense.

While grazing by domestic stock will be the typical manner in which ground cover biomass will be regulated, the controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grassy ecosystems such as those that occur within the offset site. Importantly, burning (c.f. grazing or slashing) allows greater access and efficiency for weed control and increased natural regeneration of indigenous plant species. While burning may enhance germination of indigenous species, it can also be expected to promote certain exotic species and as such post-burning weed-control will be vital in maintaining remnant vegetation. However stimulating the soil stored weed seed bank is seen as positive as this allows this seed bank to be exhausted through active management.

Burning is acknowledged as an important component of the natural disturbance regime in NTGVVP but because of the size of remnants and the need to maintain habitat condition for other matters such as GSM and SLL which have conflicting habitat requirements, it is important to restrict the implementation of these management practises within the scale of the NTGVVP area being protected. This allows management to be consistent with all the conservation advice relating to all these matters

The controlled application of fire will be used for biomass reduction in all or parts of the offset site. Selected areas of grassland may be burnt to tackle particular weed issues or to assist in the lowering of soil nitrogen and phosphorous which would also assist in weed control works. However no area is to be burnt more frequently than every three years (unless approved by TfN in consultation with a qualified ecologist). The application of a mosaic burning regime is also considered advantageous and therefore any individual burn will not necessarily burn the entire site.

The landowner will prepare maps identifying the fire history of the offset area to ensure biomass control efforts are well documented. Details of fire and grazing within the offset will also be documented in the annual reporting as outlined in Section 10.

The extent, intensity and timing of burns must take into account the presence of threatened species, in particular GSM and SLL. Fire may kill individuals of both species during the warmer months of the year when they are active above the soil surface. Timing of burns should only be undertaken outside the GSM flight season (generally November to January in Victoria) and not occur adjacent to any areas without a cover of vegetation considered adequate for SLL to avoid high levels of predation. Late spring burns can be implemented if less than 20% of the site is impacted.

Any ecological burns will be conducted during benign (nil to low wind and mild temperature) weather conditions and are likely to be patchy (i.e. not result in the uniform burning of all areas). Patchy burns are a desirable outcome and an array of small patches covering up to a hectare is an appropriate target. Given a requirement to maintain SLL within the defined offset area, rather than managing for this species on the property scale, a target of burning one half hectare in an array of scattered small patches (i.e. 5 patches each of 0.1 ha) within every six months with no adjacent patches burnt within 12 months of each other, is considered an effective strategy in providing an adequate cover for SLL to minimise any mortality from management associated with ecological burning. Burns will have a maximum target width of 60 metres to provide opportunities for animals to escape into nearby unburnt fire refugia.

This means that no portion of the offset site can be burnt at a frequency of more than three times over the decade covered by this OMP. This is considered a low fire frequency for the management of NTGVVP.

Any burning strategy will consider minimising impact to GSM and particularly SLL and will also minimise the potential for fire to spread in an uncontrolled manner. Ecological burning may only occur outside the prescribed declared fire danger period for this region.

Burnt areas will be protected from grazing for at least 6 months to allow species regeneration and recruitment to occur. A cover of vegetation above 60% would be required before grazing can be re-introduced.

3.9.5 Understorey Diversity and Recruitment

The major threats to understorey diversity in these grasslands are over-grazing by domestic stock and other introduced herbivores, competition from introduced plant species and the accumulation of biomass over a prolonged period (greater than two or three years). These areas of NTGVVP retain between 50 and 90% of the expected number of understorey life-forms for this vegetation community (see EVC benchmarks for Plains Grassland EVC 132-61 and Plains Grassy Wetland EVC 125), and are generally not considered deficient in terms of the species diversity of the life-forms that are present. Missing or deficient elements are typically the large herbs and this is largely a function of the growth stage of the plants present. Enrichment planting is therefore not currently proposed as part of this OMP although this will be reviewed by the independent ecologist monitoring the site after five years of active ecological management.

Controlled grazing by domestic stock and the control of rabbits and hares are required to maintain understorey diversity and encourage recruitment of threatened species. The application of fire as a biomass reduction tool would also facilitate the regeneration of indigenous species, remove the dead biomass associated with weed control works and maintain inter-tussock spacing. The use of fire could be implemented at a number of scales. Within this offset site it would take the form of a managed patch burn covering up to one hectare or in smaller patches localised burning covering up to half a hectare or even tens of square metres using a hand held weed burner. Biomass control works will also reduce the potential for uncontrolled wildfire to impact this site.

Active management will seek to significantly reduce the cover of all exotic species with specific targets for high threat species given in Table 5.

3.10 Monitoring

3.10.1 Baseline Site Condition

While the condition of the broader area of grassland is documented by EHP (2017) details of the specific matters relating to the selected offset area of 5 ha will be established by the collection of baseline condition data. This data will provided the baseline information for future comparisons and assessments to define the efficacy and progress of the management of the offset site.

Upon approval of this plan (within three weeks of approval and prior to the commencement of any management activities) a suitably experienced botanist will systematically walk over the site and collect information on the species (native and introduced) present and maintain a complete list of all vascular species observed. Notes will be taken on the distribution and location of weed species with GPS waypoints recorded to provide detailed information on the location, extent and severity of target pest plant infestations. This information will be mapped to provide a guide to both management activities and allow a visual assessment of management progress over each year.

GPS locations will also be recorded and mapped to identify the location of threatened species and the location of any other survey and monitoring infrastructure (i.e. tile grids for monitoring SLL and the location of any individuals of Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*, to inform other management activities of the presence of these matters.

Ten, permanent five by five metre vegetation monitoring quadrats will be established with a focus on locations where significant weed control works are required. These locations will be defined during the baseline site inspection prior to the commencement of other management works. Quadrats will be clearly marked and accurately located by GPS or similar within the offset site. These quadrats will be used to assess and record the percentage total vegetation cover, the percentage cover of inter-tussock spaces, the average height of vegetation and the cover of native and exotic life-forms. These areas will also include the collection of a biomass data using the golf ball method (Morgan 2015). This data will be collated and, in conjunction with the observations made on herbaceous weeds collected in association with woody weed location data collected during the systematic site survey, used to report on the baseline current condition of the offset and used to assess progress in the management of weeds (including grasses) and biomass over the entire offset site.

Five of the permanent vegetation monitoring quadrats established by the botanist will also serve as permanent photo points. Photo points will be located to adequately characterise the current vegetation condition, and include a range of weed species. Using a selected marker point for the vegetation monitoring quadrat, a photo will be taken facing the four points of the compass (N, S, E & W). These baseline photos will be used to provide a visual document and for monitoring the vegetation response to management until 2033.

The baseline condition of habitat for GSM and SLL all relate to the condition of the NTGVVP. GSM are dependent on the presence of food plants, these being species of Spear-grass *Austrostipa* and Wallaby-grass *Rytidosperma*. While GSM prefer relatively open grassland habitat, SLL require cover from predators to provide them with optimal habitat. As such the maintenance of NTGVVP with an abundance of inter-tussock spaces with a cover of about 30% is considered optimal for all three MNES (i.e. this will provide a habitat condition score of 10/10 for both SLL and GSM). In this instance the habitat condition for GSM and SLL will be measured as a single parameter scored out of 10 with the objective for management being to maintain the habitat score at or above 8/10. While this is score is based on the maintenance of a defined average level of open space, this target intrinsically provides for other biodiversity values such as species richness, recruitment and habitat diversity. In combination with other management targets relating to weed control, maintaining this openness target contributes to the overall improvement target for the condition of NTGVVP as outlined in Table 2.

The average level of open inter-tussock spaces (as determined by the ten monitoring plots will be taken as the average open space available across the offset site unless the broad observations taken during the annual vegetation monitoring indicate this result is atypical. Each 5% lower from the ideal open space measure of 30% will be scored as a two unit deduction from the ideal SLL and GSM habitat value (i.e. measured open space of 20% will score 6/10). Each 5% above this 30% threshold will be scored as a one unit deduction on the habitat condition (i.e. 35% open space will score 9/10).

Maintaining the presence of offset site Spear-grass and Wallaby-grass as defined in the baseline vegetation condition assessment will be taken as maintaining the relevant food resources for GSM. The abundance of these plant genera will be measured in the ten monitoring plots established for vegetation condition monitoring. Maintenance of these levels will be taken as the maintenance of food resources for GSM. A 50% reduction in the cover of these species will be taken as a trigger for corrective management action.

3.10.2 Ongoing monitoring

Monitoring of the site is an integral component of the regular site management activities. Such monitoring identifies changes early, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the OMP. This includes observations by the landowner during normal activities within the offset site and broader property. Such observations are important for

maintaining things such as the integrity of fencing and site security. While these are normal land management activities they have also been formalised in this OMP (See Table 7 Action 1.2 and X.1).

Regular site inspections (of about three hours at least every two months) to provide general condition observations are also a requirement of this plan (See Table 7 Action 1.7 and X.10). At a minimum the landowner must keep a diary of any works conducted within the offset site and record any observations which could influence or initiate a management response (i.e. observed seedlings of a new woody weed in the middle of the offset site today. Will spot spray these with an appropriate herbicide by the end of the week). These details provide valuable information on the management of the site and detail the commitment of the landowner to the OMP.

More general supervision/monitoring of the grassland will be undertaken by the TfN to ensure the grasslands response to management actions produce the desired outcome outlined by this plan. TfN will visit the site a minimum of four times over the 10 year management period (at least the spring of years 1, 3, 6 and 10) and will liaise with the land owner annually regarding the development of an annual works plan.

The progress of management works will be inspected by the land owner on a regular basis (at a minimum once every 2 months). The land owner will provide a management progress report to TfN on an annual basis (or more frequently as required).

Records of all management actions must be kept to provide evidence of completed works and management tasks.

A list of plant species observed, noting which, if any, weed species have become extinct will be maintained for the offset site. While all data collection will be the responsibility of the landowner, all data collected will be provided to TfN and become the property of TfN.

Annual vegetation monitoring assessments conducted by suitably qualified ecologists will include a broad assessment of the entire offset site including the conduct of a habitat hectare assessment to document the general overall condition of the of the site and the ability of management works to maintain the general vegetation and habitat condition as assumed in the offset calculations provided in Appendix 1.

3.10.3 Fence condition

Inspections of all property boundary fences must be conducted quarterly, and when visiting the site to conduct other monitoring or management actions. Any damage to the fence that may allow vehicles or stock to enter outside of the parameters outlined in this OMP must be repaired immediately.

3.10.4 Weed and biomass monitoring

Weed monitoring will be conducted annually in spring (November). There will be four components to the monitoring:

- Inspection of the entire offset area for woody weeds, by walking transects at ten metre intervals throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the offset site will likely require at least two hours of survey. All infestations or individual woody weeds will be mapped with a GPS, and the locations will be supplied to the weed management contractor/landholder for treatment. Subsequent monitoring will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire offset site for new infestations.
- While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, and cover will be estimated to the nearest five percent cover. Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/landholder for treatment.

- Ten, permanent five by five metre vegetation monitoring quadrats will be established with a focus on locations where significant weed control works are required. These locations will be defined by a site inspection prior to the collection of the baseline data. Quadrats will be clearly marked and accurately located by GPS or similar within the offset site. These quadrats will be used to assess and record the percentage total vegetation cover, the percentage cover of inter-tussock spaces, the average height of vegetation and the cover of native and exotic life-forms. These areas will also include the collection of a biomass data using the golf ball method (Morgan 2015). This data will be collated and, in conjunction with the observations made on herbaceous weeds collected in association with woody weed monitoring, used to report on progress in the management of weeds (including grasses) and biomass over the entire offset site.
- Five of the vegetation monitoring quadrats will also serve as permanent photo points established by the ecologist. Photo points will be located to adequately characterise the current vegetation condition, and include a range of weed species. Using a selected marker point for the vegetation monitoring quadrat, a photo will be taken facing the four points of the compass (N, S, E & W). These photo points will be used to monitor the vegetation for at least the 10 year period covered by this plan.

3.10.5 Pest animal monitoring

Pest animals are known to be present at low levels in this environment. Signs of pest animals (rabbits, hares and foxes) will be recorded during weed monitoring surveys, and at all other times when visiting the offset site. In particular, the locations of any active rabbit warrens must be mapped using GPS, and the locations supplied to the pest animal management contractor/landholder for treatment. Subsequent monitoring (Section 3.10.2) will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the offset area.

More formal monitoring for the presence of pest animals will occur annually in November. This will include a systematic spotlight survey of the offset site lasting approximately one to two hours. The results of this survey will be included in the annual report.

3.10.6 Golden Sun Moth Monitoring

Monitoring the population of Golden Sun Moth within the offset site will occur in the first flight season after the approval of this OMP by DoEE (expected to be the 2018/19 flight season). This information will provide the baseline documentation of the GSM population present. Monitoring will record the number of individuals observed from set monitoring transects.

As the species is known to occur at the offset site no reference site is required for monitoring the population of GSM. However, prior to surveys being conducted, reports of GSM flying in or around Melbourne are likely to provide a useful indicator to identify the start of the flight season around Cressy.

Monitoring will occur every year during the flight season. While some information on the abundance of GSM within the offset site is provided by EHP (2016) these surveys are not evenly distributed across the site and do not record information relating to habitat condition within the offset. Baseline monitoring data on the distribution and abundance of GSM within the offset site is therefore required to be collected during the 2018/19 flight season. Repeated monitoring of these transects every year for the duration of this OMP will be required to evaluate the persistence and relative abundance of Golden Sun Moth at this site. Ongoing monitoring every second year is also required until 2033.

A monitoring event includes four GSM surveys (i.e. the site is assessed four times during a flight season) to document the occurrence and abundance of GSM within the offset site. The results of these surveys will be compared to the original baseline surveys (2018 /19 flight season) and those of the previous monitoring event. Surveys are prescribed for every year over the ten year management period outlined by this OMP.

Surveys will be undertaken during the GSM flight season, which in this region is expected to be between October and December. As the timing of the flight season varies annually and geographically, surveys need to be initiated from when warm weather is considered likely to stimulate emergence. In this region this is expected to occur anytime from early October onwards. Any observations of GSM during monitoring for vegetation condition and during inspections by the land owner or TfN will also be recorded.

Surveys within the flight season are to be spaced at least one week apart to allow for variations in emergence patterns. Survey will take place when conditions were suitable for male flight (generally >20^{o}C, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs.

Each survey will systematically walk over the entire offset site using two zoologists separated by about 50 metres. Each pair of transects will then be separated by another 50 metres and be located to cover all sections of the offset site. The beginning and end of each transect will be recorded as a GPS waypoint. Tracks will be recorded using a GPS and a waypoint taken for each location where GSM are observed. Each transect is expected to take approximately 30 to 60 minutes to complete.

Any obvious changes to the habitat characteristics of the offset area will be recorded during the GSM survey. This will be supported by relevant photos of the habitat or management issues identified.

The results of each survey will be reported to TfN and DoEE. The report will also include an assessment of any changes or trends noted in either the habitat condition or population size note by the zoologist.

3.10.7 Striped Legless Lizard Monitoring

Monitoring is required to determine if SLL has persisted within the offset site and to ensure that habitat management actions and are suitable for the maintenance of a viable SLL population.

Detection monitoring of SLL will be occur annually for the period of this plan followed by monitoring every 3 years for the remainder of the life of the EPBC Approval (February 2033). If the results indicate a decline in the population or degradation to habitat is evident, actions within this management plan will be re-evaluated.

A decline is defined as the failure to detect SLL within the monitoring grids for two successive monitoring events. If any changes to management are considered necessary, a revised management strategy must be approved by TfN and DoEE prior to implementation.

Monitoring of SLL tile grids and habitat must be undertaken by a suitably qualified ecologist(s). Specific survey procedures will follow those approved monitoring guidelines for SLL prepared by DSEWPaC (2011).

The following measures will be undertaken as part of population and habitat monitoring for Striped Legless Lizard:

- Establishment of two (2) monitoring tile grids within the offset site.
- Each grid will consist of 50 tiles, at 5 metre spacing between tiles, arranged in a grid of 10 tiles by five
- Shelter sites will be checked when ambient temperatures do not exceed 28°C. Grids may be checked during summer/autumn for the presence of shed skin;
- Shelters will be checked a minimum of six times over between October – November; and
- Checking more frequently than once a week may lead to Striped Legless Lizard abandoning the artificial shelters, as such, tile checks at this frequency will be avoided.

All individuals captured will have a photograph taken of the dorsal head-scale detail and a data-sheet completed which must include the following information:

- Location details (roof tile number, GPS coordinates)
- Snout-vent length measurement (mm)
- Tail length measurement (mm)
- Weight (g)
- Sex (if possible)

These photographs can then be compared to the dorsal head scales of all captured SLL to determine if individuals are repeat captures. The results of these surveys will be compiled into a report (see Section 3.11) which will include an assessment of any recognisable trend in the population.

3.11 Reporting

The landowner must submit a report annually to TfN and DoEE for each year for the first ten years. Reports are to be submitted at least two months prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed before the anniversary date. After this 10 years, annual reports will be compiled for the remainder of the life of the EPBC Approval (February 2033) and published on the Soho Living website within 3 months of every 12 month anniversary.

The Annual Report addresses progress against the commitments set out in this OMP. Annual Reports will 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 the offset site.

The annual report must include:

- Details of management actions, including on ground works, undertaken within the reporting period.
- Results of monitoring activities, including fence condition, weeds, pest animals, habitat quality, vegetation quality and ground cover biomass accumulation / the cover of open ground.
- Tracking of results in comparison to performance targets and completion criteria
- Site photographs including from five defined photo points.
- Details of compliance or non-compliance with the schedule of management actions (Table 7).
- Details of compliance or non-compliance with performance targets (Section 3.6.2).
- Details of any incidents or new and emerging management issues, with recommendations for corrective action and plan review.
- Any triggers exceeded and which corrective actions were implemented
- Details of any GSM and SLL monitoring events including an assessment of the relevant results.

The reporting schedule is detailed in Table 9.

3.12 Auditing

The approval holder (Soho) is responsible for auditing the implementation and effectiveness of the OMP. Audits will be conducted by an independent suitably qualified ecologist at the following stages:

- At the end of the first year of site management - this is to ensure that initial management actions are conducted to the satisfaction of the approval holder and DoEE, including implementing the legal security mechanism, ensuring the property is securely fenced, and that other initial management actions have commenced.

- At the end of the fourth year of site management – this will involve a review of four annual monitoring and management reports, as well as an independent assessment of the condition of GSM and SLL habitat within the site.
- At the end of the eighth year of site management – as per the four year audit.
- Following the completion of the 10 year management period – to be a final audit of the implementation and effectiveness of this OMP. Note that DoEE may also require the proponent to randomly conduct additional audits at any time up until the end of the approval period.

The timing of scheduled audits is detailed in Table 9. Additional audits may be triggered as a result of a plan review (Section 3.14) or following an environmental incident resulting in significant change to site conditions, as identified in the risk assessment (Table 8).

3.13 Risk assessment and adaptive management

Active ecological management is reasonably expected to provide a high probability of generating improvements in the condition of the vegetation present. Note however that the extent of this offset has conservatively been based on the assumption that management will, at a minimum, maintain the condition of the condition of vegetation and habitat. The management actions proposed in this plan are based on a combination of experience in the management of native grasslands, documents prepared by Victoria's Department of Environment, Land, Water and Planning (DELWP) (i.e. DSE 2009) and other publications (i.e. Marshall 2013, Williams et al. 2015).

The proposed strategies for the management of this site are consistent with established practices for the management of NTGVVP elsewhere including State conservation reserves and offset sites. The proposed management strategies are therefore considered best practice.

The active involvement of TfN is also reasonably expected to provide high quality guidance and advice to the landholder in their management of the site.

The monitoring protocols documented in this plan are considered adequate to detect changes/ improvements in the condition of the NTGVVP and habitat for SLL and GSM.

The plan includes a basic strategy (pulse grazing) for ground-cover biomass control which is considered a major ecological management requirement for the site. Where this fails to deliver the prescribed outcome in any one year, ecological burning provides an option to achieve the required biomass management target (i.e. maintaining an open grassland environment dominated by native species). The application of one or both of these management actions will provide the biomass control outcome required.

It is acknowledged that the management of natural environments can be unpredictable and management activities need to be flexible to respond to changing conditions and unpredictable events. Examples of potential risks are outlined in Table 8 and discussed below.

There is some risk that biomass control is not properly managed in any one year. This has the potential to occur in response to above average rainfall years when ground cover growth is persistently high and wet conditions restrict stock access and the potential use of ecological burning. If such events occur, TfN will ensure additional efforts are made in subsequent years to maintain the rate of improvement required.

Another major ecological management requirement is weed control, with the objective of reducing the overall presence of weeds and reducing biomass. Varying seasonal conditions will provide triggers for changes in the abundance of different species, particularly weeds. The greatest risk to achieving the required outcomes is a failure to conduct an appropriate level of work at an appropriate time or the occurrence of persistent adverse conditions restricting an appropriate management response. The regular

site inspections will allow land managers to anticipate changes in seasonal conditions and respond accordingly. Persistent, well timed management actions will be able to take advantage of seasonal fluctuations to achieve the prescribed condition outcomes.

Woody weeds in particular are currently absent from the offset site and it will be relatively simple management exercise to maintain this condition. While woody weeds will probably colonise the site from near-by infestations, seedlings will be detected by monitoring exercises and controlled by the proposed on-going works. If live, woody weeds are detected in the offset area beyond Year 2 of the plan corrective actions would be required.

Similarly control works will target perennial weeds including Canary-grasses and Cocksfoot. Persistent herbicide application is an effective control measure for these species and while these species are likely to reinvade from surrounding infestations, ongoing works are planned to cope with the associated management requirements. If adequate resources are not allocated to these tasks, the cover of these species may remain static or increase. Any observations or monitoring which detect an increase in perennial weeds above the baseline assessed conditions and percentage cover will trigger a requirement for a greater management input (the required corrective action being targeted increased management actions). In that context monitoring and site observations collected by TfN (or an independent ecologist) is essential in providing feedback on the efficacy of management.

Another significant risk associated with the management of this site is the occurrence of climatic triggers which would increase the abundance of weed species by triggering the germination of any soil stored seed reserves. In the first instance management will over allocate resources to weed control as the more comprehensive control achieved by such works the lower the ability these species have to recover / recolonise. Integrating herbicide control works with biomass control works (grazing and/or fire) increases the efficacy of both actions and the plan has been developed to encourage this. Given persistent management occurs it is considered a relatively low risk that habitat improvements will fail to eventuate.

If after the first 10 years of management, the monitoring results indicate that the completion criteria are unlikely to be achieved, DoEE will be contacted to determine future offset requirements. If the offset area fails to attain and maintain all completion criteria for the life of the EPBC Approval, then a new offset area will be provided to account for the impact and the failed offset. DoEE will be consulted with to determine the suitability of the replacement offset.

Active management to target the control of pest plants and to manage the accumulation of ground-cover biomass is advantageous to both the health of NTGVVP but also to the ability of GSM to persist within this environment. As such the proposed management regime is considered unlikely to have a negative impact on GSM. This has been our experience where Biosis has managed other grassland reserves in metropolitan Melbourne. If the GSM monitoring detects significantly fewer GSM observations (i.e. a decline of over 50%) in successive monitoring events potential causes for such a decline would be investigated and appropriate corrective actions implemented. Such an outcome resulting from the implementation of this OMP is considered highly unlikely (i.e. low risk).

This Plan provides actions for a period of 10 years. At the end of that period it will be reviewed in light of the new condition of the offset and any new information relating to the management of NTGVVP. Note that active management is required until 2033 and the high quality of the vegetation needs to be maintained in perpetuity. The timing of actions is based on adaptive management. By monitoring the outcomes of actions, management will be adapted to ensure the stated commitments in the OMP are adhered to. Also over time, new management techniques may become available, or further information on the ecology and status of the vegetation communities onsite may necessitate adjustment to management actions. TfN will continue to advise the landowner on any developments in grassland management and require any updates to the OMP in perpetuity.

Seasonal conditions can also vary greatly from year to year and influence offset site management actions in any one year. While the timeframes specified within this OMP will be adhered to, this seasonality is recognised in this OMP. Therefore there will be flexibility around timing of actions at the discretion of the land manager in consultation with TfN and based on advice provided by an experienced grassland ecologist provided it can be show to be advantageous to the relevant MNES.

Section 4 includes tables of management actions (Table 7) and a risk assessment (Table 8) with associated monitoring (Table 9) and reporting (Table 10) programs.

Key risks identified in Table 8 include:

- Failure to attain and maintain performance criteria and completion criteria
- Unauthorised entry of domestic stock, vehicles or people into the offset area;
- Woody weed infestations;
- Expansion of new or existing weeds at uncontrollable levels;
- Excessive accumulation of ground cover biomass for periods exceeding three years;
- Stochastic disturbance events such as wildfire, drought or flood;
- Rabbit or other feral herbivore infestations;
- A reduction in the extent or quality of NTGVVP; and
- A decline in the abundance of GSM and / or SLL.

Failure of the adaptive management approach to adequately respond to risks, as identified in monitoring reports (Section 3.11) or audits (Section 3.12), will result in a review of this plan, as discussed in Section 3.12 and Table 11.

3.14 Plan review

This plan includes an adaptive management framework, where management actions may be triggered by events occurring within the offset site, or the results of monitoring activities. In that context the plan will be examined for potential minor review on a continuous basis. A formal review of the OMP will only be necessary in the event of a major incident that makes a significant change to the character or condition of the offset area. The most likely such event is a major wildfire, as described in Table 8.

If a plan review is triggered, this will be conducted by Soho in consultation with the offset site owner, an independent suitably qualified ecologist and DoEE. Any future adaptive management changes will be incorporated into the OMP and an updated version of the OMP will be supplied to DoEE for approval.

The OMP review will involve changes to any part of the OMP, in order to adequately respond to the trigger and re-direct management actions towards achieving the environmental outcomes under potentially altered site conditions.

This could involve changes to:

- Specific details of offset site management methods.
- Monitoring methodology.
- Schedules of monitoring, reporting and auditing.

3.15 Emergency Contacts and procedures

Should any environmental emergency occur on-site that poses a risk to the objectives of this plan, the relevant contacts (listed below) must be notified as soon as possible, and no later than 12 hours following

any event. DoEE, TfN and the landholder must be notified; CFA and Victoria Police should be notified should assistance be required from these emergency services (e.g. control of wildfire). Emergency services must be advised of the on-site protections to avoid inadvertent damage to ecological values (e.g. creation of graded earthen fire breaks within the site, which unless absolutely necessary, must be avoided).

Emergency Contact Details

Country Fire Authority (CFA) (Bushfire emergency) - Phone 000

Victoria Police (Various issues i.e. illegal dumping or trespass) - Phone 000

Department of the Environment and Energy (DoEE): Federal authority - Phone 1800 803 772

Trust for Nature (TfN): Offset advisor phone 03 8631 5888

Deep Lead Property Pty Ltd: Site Owners

4. Schedules of management actions, risks, monitoring and reporting

Table 7 Management plan actions and timing for offsets on the Cressy offset site.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
0	0.1	-	Establish offset area.	Upon registration of the Covenant. This action is a key requirement defining the start of the prescribed management period.	5.0	ha	Land Owner	Covenant as to part Section 3A Victorian *Conservation Trust Act 1972* covering 5.0 ha.
0	0.2	-	Ensure appropriate fencing is established. Fencing already protects a broader parcel within which the offset site is located. The offset area allocated to this specific offset management plan does not need to be fenced separately unless existing land-use rights are fully exercised in the remainder of the broader parcel.	No action required as existing fencing adequately protects the site.	-	-	Land Owner	Site isolated from activities excluded by this plan (i.e. construction works, uncontrolled grazing by domestic stock).
0	0.3	-	Establish markers to identify boundary of the offset site to assist with management and monitoring of the area.	This action is a key requirement at the start of the prescribed management period.	-	-	Land Owner in consultation with qualified ecologist	Markers established to identify the boundary of the offset site. Guidance provided by a qualified ecologist to ensure impacts to native vegetation are avoided.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
0	0.4	-	Where appropriate identify a person/company to control pest plants and animals. In this instance the Trust for Nature (TfN) will provide appropriate supervision and advice for the land owner to conduct the pest plant and animal control works.	Upon registration of the covenant between land owner and TfN.	-	-	Land Owner	Appropriate personnel appointed to conduct works. TfN available to advise the landowner for the life of the EPBC Act approval.
0	0.5	-	Qualified ecologist to undertake baseline monitoring, establish monitoring points, photo points and refine management actions based on baseline results. Prepare annual works plan. Ensure two SLL monitoring grids are established before the end of June.	Oct-Nov monitoring	1	Report	Qualified ecologist	Prepare standard monitoring report including photos and confirm agreed performance measures outlined in Section 3.5. Documented Annual works plan.
1	1.1	0.1-0.5	Land owner to review annual works plan in consultation with the TfN based on a site inspection.	Upon registration of the covenant.	-	-	Land Owner and TfN	Annual works plan approved for implementation by TfN.
1	1.2	1.1	Maintain fences and gates around broader offset area and markers around offset site in good working order. Remove any rubbish present within the offset site.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded or controlled. Boundary markers remain in place and in good condition All fences and gates in good repair

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.3	1.1	Undertake pulse grazing to reduce biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing period at any one time is four weeks with a minimum two week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	31st January – 31st August	5.0	ha	Land Owner	Maintain an open tussock grassland with at least 30% cover of inter-tussock space.
1	1.4	1.1	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible). Annual spotlight monitoring of 1 to 2 hours in November.	Feb–Apr, Sep–Nov	-	-	Land Owner in consultation with ecological restoration contractor	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks). No populations of pest animals established within the offset area Document monitoring results in the annual report.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.5	1.1	Control all high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 4 for percentage cover of high threat weeds at inception. Eliminate any woody weeds (see Section 3.9.3). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	Monthly but mainly July–Nov as detailed in the annual works plan	5.0	ha	Land Owner in consultation with vegetation management contractor	Minimise the occurrence of weeds, with a reduction in total cover of weeds, including high threat weeds, beyond current levels. Target is a total perennial weed cover of no more than 2% with reduced cover of high threat weeds listed in Table 6, <1% perennial grassy weeds and no more than 1% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.
1	1.6	1.1	Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 20% of the offset area at least ten times during 10 year management period. Conduct burns in different seasons to promote regeneration of a variety of species. Any burn adjacent to another burn must be separated in time by at least 12 months.	Sep-Oct or March - May (or as specified in the burn plan)	1	ha	Qualified contractor in consultation with CFA and TfN	Medium to low intensity burn over 20% of the 5.0 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every three years. Follow up weed control will be undertaken within the burn area in accordance with section 3.9. Burns must also be undertaken to generate a mosaic pattern of burnt and unburnt areas (See section 3.9.4.)

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.7	0.5	Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. TfN to participate in site inspections at least four times over offset period.	Site inspections (about 3 hours) at an appropriate frequency (minimum of every two months)	-	-	Land Owner and TfN	Reporting of management activities as defined. This will include a series of notes of observations made by the land owner during site inspections.
1	1.8	0.5	Qualified ecologist to undertake vegetation and SLL monitoring (including Habitat hectare, SLL and GSM habitat and golf ball biomass assessments), and refine management actions based on results. Identify any new weeds for priority control. Review annual works plan.	Oct-Nov monitoring Dec Reporting	1	Report	Qualified ecologist to be engaged by the Land Owner	Prepare standard monitoring report including results from photos and agreed performance measures outlined in Section 3.9. Vegetation and SLL monitoring report provided to TfN, Soho & DoEE. Documented annual works plan.
1	1.9		Conduct baseline GSM (4 surveys) and SLL (6 surveys) monitoring and document results.	Oct - Dec	1	Report	Qualified ecologist	Document baseline GSM/SLL population and distribution
1	1.10	1.7	Include information collected during site inspections conducted throughout the year in annual monitoring report. Information from site visits to be provided to ecologist undertaking monitoring	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to monitoring ecologist for inclusion in annual report.
1	1.11	1.8-1.10	Review and update Annual Works Plan in consultation with TfN.	Dec	1	Report	Land owner in consultation with TfN	Following year's management tailored to current site conditions.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
Recurrent Activities (years 2 -10)								
2-10	X.1	1.2	Maintain fences and gates around broader offset area and markers around offset site in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.
2-10	X.2	1.3	Undertake pulse grazing to reduce biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing length at any one time is four weeks with a minimum two week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	31st January – 31st August	5.0	ha	Land Owner	Maintain an open tussock grassland with an average 30% cover of inter-tussock space.
2-10	X.3	None	Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 20% of the offset area at least ten times during 10 year management period. Conduct burns in different seasons to promote regeneration of a variety of species. Any burn adjacent to another burn must be separated in time by at least 12 months.	Sep-Oct or March - May (or as specified in the burn plan)	1	ha	Qualified contractor in consultation with CFA and TfN	Medium to low intensity burn over 20% of the 5.0 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every three years. Follow up weed control will be undertaken within the burn area in accordance with section 3.9. Burns must also be undertaken to

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
								generate a mosaic pattern of burnt and unburnt areas (See section 3.9.4.)
2-10	X.4	1.4	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible). Annual spotlight monitoring of 1 to 2 hours in November.	Feb–Apr, Sep–Nov	-	-	Land Owner in consultation with ecological restoration contractor	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks). No populations of pest animals established within the offset area. Document monitoring results in the annual report.
2-10	X.5	1.5	Control all high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 4 for percentage cover of high threat weeds at inception. Eliminate any woody weeds (see Section 3.5.2). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	July–Nov as detailed in the annual works plan	5.0	ha	Land Owner in consultation with vegetation management contractor	Minimise the occurrence of weeds, with a reduction in total cover of weeds, including high threat weeds, beyond current levels. Target is a total perennial weed cover of no more than 2% with reduced cover of high threat weeds listed in Table 4, <1% perennial grassy weeds and no more than 1% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
2-10	X.6	1.8	Qualified ecologist to undertake vegetation and SLL monitoring (including Habitat hectare, SLL and GSM habitat and golf ball biomass assessments), and refine management actions based on results. Identify any new weeds for priority control. Review annual works plan.	Oct-Nov monitoring Dec Reporting	1	Report	Qualified ecologist to be engaged by the Land Owner	Prepare standard monitoring report including results from photos and agreed performance measures outlined in Section 3.9. Vegetation and SLL monitoring report provided to TfN, Soho & DoEE. Documented annual works plan.
2-10	X.7	1.9	Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. TfN to participate in site inspections at least four times over offset period.	Site inspections (about 3 hours) at an appropriate frequency (minimum of every two months)	-	-	Land Owner and TfN	Reporting of management activities as defined. This will include a series of notes of observations made by the land owner during site inspections.
2-10	X.8	2.5	Include information collected during site inspections conducted throughout the year in annual monitoring report. Information from site visits to be provided to ecologist undertaking monitoring	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to monitoring ecologist for inclusion in annual report.
2,-10	X.9	1.9	Conduct GSM monitoring surveys	GSM flight season (November to December)	1	Report	Qualified Zoologist	Report documenting the results of the survey and comparisons with past surveys (see Section 3.10.4)

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
2-9	X.10	2.6	Review and update Annual Works Plan in consultation with TfN.	Dec	1	Report	TfN and land owner	Following years management tailored to current site conditions
Year Specific Activities								
10	10.10	10.8	Revise this offset management plan (OMP) in consultation with TfN to identify management actions required to maintain the offset site in perpetuity.	Dec	1	OMP	Qualified ecologist	Updated offset management plan to aid ongoing maintenance of the offset site.
10	10.11	10.9	Identify and allocate resources for ongoing management and continue to implement active ecological management to maintain the offset site.	Dec			Land Manager in consultation with TfN	Ongoing ecological management to maintain and improve the ecological values of the Protection Site in perpetuity.
Beyond Year 10								
10+			Maintain fences and gates around broader offset area in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.
10+			Evaluate ground cover biomass and manage using pulse grazing and ecological burning	As prescribed by the revised OMP.	5.0	ha	Land owner	Maintain an open tussock grassland structure (30% inter-tussock spacing) using fire and pulse grazing, and ensure areas with high levels of dead weeds are subject to biomass reduction.
10+			Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area.	Feb – Apr, Sept – Nov	-	-	Land Owner	Absence of evidence of grazing/browsing by pest animals.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
10+			Control all high threat grass / herb weeds before seed set using appropriate methods to ensure existing weed levels, at the minimum, do not increase. Eliminate all woody weeds. Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	July - Nov	5.0	ha	Land Owner	Minimise the occurrence of weeds, with no increase in cover of weeds, including high threat weeds, beyond current levels. Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.
10+			Undertake monitoring and refine management actions based on results. Identify any new high threat weeds for priority control. Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. These inspections will be conducted by the land owner.	Oct–Nov monitoring Site inspections at an appropriate frequency			Land Owner	Land Owner to undertake monitoring as required and site inspections biannually (at a minimum).

Note: X as a designated year indicates that the activity can occur in any or all years, as identified in the Year number column.

Table 8 Risk assessment and management

This risk assessment uses the risk framework from the DOEE EMP guidelines. The likelihood and consequence classification is summarised in Appendix 2.

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
0.2, 1.2, 1.3, X.1	Unauthorised or inappropriate entry of domestic stock to the offset area. Grazing, browsing and trampling damage to vegetation and/or soil. Damage to or loss of native herbs and grasses. Increased opportunities for weed invasion.	Unlikely	Minor	Low	Domestic stock sighted on offset site outside approved timeframe. Signs of recent stock access during exclusion periods. Damaged fencing and/or gates.	Remove stock within 2 days. Repair fencing within 1 week. Monitor vegetation for impacts and recovery. Monitoring requirements designed in response to impacts observed.	Inspection and management
0.2, 1.2, X.1	Entry of vehicles or unauthorised access to offset area. Damage to vegetation, soil compaction.	Unlikely	Minor	Low	Vehicle observed on offset site. Evidence of recent vehicle access. Evidence of dumping.	Repair fencing within 1 week. Assess adequacy of fencing and gates within 2 weeks. Any required improvements will be implemented within 1 month..	Inspection and management
1.5, 1.7, X.4	Woody weeds are present within offset area. Herbaceous weed cover exceeds current levels (30-35%). New high threat weeds resists control efforts	Possible	High	Medium	Woody weed cover exceeds 1%. Herbaceous weed cover exceeds baseline levels. Weeds appear to be degrading NTGVVP and GSM habitat values.	Increase weed control efforts. Minimise off-target damage (avoid all native plants) Undertake control works for new and emerging weed as appropriate.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
					Introduction of new high threat weed		
1.4, X.3	Pest animals observed within offset site. Damage to ground cover vegetation, spread of weeds.	Possible	Mod.	Medium	Fresh ground disturbance or scats of pest animals observed in the offset area. Active rabbit warrens observed within offset area. Active fox dens observed within offset area. New and emerging pest observed within offset area.	Destroy fox dens and rabbit warrens through fumigation and hand collapse. Undertake control works for new and emerging pests as appropriate. Increase pest animal control frequency and intensity until follow-up monitoring indicates a reduction in relative abundance in comparison to baseline levels or previous monitoring event (whichever is lower).	0.5, 1.7, X.5
1.3, 1.6, 1.10, X.2,	Wildfire. May temporarily impact ground cover condition and natural regeneration. May impact upon weed recruitment patterns. May destroy fencing. May locally eliminate SLL population.	Possible	Major	Low	Wildfire observed within offset area.	Review weed control program and prepare for elevated level of control works. Inspect fence condition and repair any damage. Exclude grazing as for planned ecological burning. Monitor for SLL recolonization using existing tile grids.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
1.3, 1.6, 1.10, X.2,	Controlled burns. May get out of control and burn more area than intended. May impact upon weed recruitment patterns. May destroy fencing. May locally eliminate SLL population.	Possible	Low	Low	Controlled burn escapes control lines within offset area.	Review weed control program and prepare for elevated level of control works. Inspect fence condition and repair any damage. Exclude grazing as for planned ecological burning. Monitor for SLL recolonization using existing tile grids.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)
1.3, 1.5, 1.6, X.2, X.4	Two or more drought / wet years May impact upon weed abundance, condition of NTGVVP and habitat suitability for GSM.	Possible	Mod.	Medium	Significant fluctuation in ground cover biomass	Monitor vegetation condition in line with defined protocols. Exclude or increase grazing as appropriate. Consider burning if biomass levels are excessive. May require review of the OMP to adjust actions and targets.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)
1.3, 1.6, X.2	Impact of grazing associated with unpredictable weather conditions.	Possible	Mod.	Medium	Unpredicted pugging or other damage caused to NTGVVP.	Monitor vegetation condition in line with defined protocols. Exclude grazing as appropriate (i.e. based on weather warnings). Consider burning as a more prominent biomass control tool. May require review of the OMP to adjust actions and targets.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Table 9 Monitoring schedule

#	Monitoring activity	Parameter/s measured	Survey / monitoring guidelines	Where	When	Reliability
1	Fence condition	Condition of boundary fences.	Survey the perimeter of the offset site to ensure fences are intact and assess evidence of domestic stock, vehicle access or firewood harvesting. Refer to Section 3.9.1 and 3.10.3 for details.	Offset site perimeter	Quarterly	High
2	Weed monitoring	Cover of woody and herbaceous weed species present.	Vegetation survey to be conducted to identify woody and herbaceous weed species and determine cover. Woody species to be mapped using GPS. Herbaceous weed cover (percentage cover) to be estimated for defined sections of the offset site. All weed species present identified to species level. Refer to Section 3.9.2 and 3.10.4 for details.	Offset area.	Annual - Spring	High
3	Pest animal monitoring (Rabbits, Hares and Foxes, and new and emerging pest animals)	Presence of pest animals or signs e.g. scats, diggings, browsing or grazing	Signs of pest animals to be recorded during vegetation surveys. Locations of rabbit warrens to be mapped using GPS. Refer to Section 3.9.3 and 3.10.5 for details.	Offset area.	Annual – Spring During vegetation condition survey	High
4	Striped Legless Lizard population and habitat condition monitoring	Number of individuals of SLL observed. Subjective condition of habitat	Refer to Section 3.10.7 for details.	Offset area.	Annual	High
5	Golden Sun Moth population and habitat condition monitoring	Number of GSM observed. Subjective condition of habitat	Refer to Section 3.10.6 for details.	Offset area.	Annual after baseline survey.	High

Table 10 Reporting schedule

#	Type of report	Approval condition	Responsibility	Timing	Reporting authority	Trigger (if any)
1	Annual management actions report Tabulates management actions completed within the offset area (Section 3.11).	3, 3a & 6	Offset site owner	Report to be completed by August 31 so information is available prior to spring monitoring.	DoEE TfN	OMP
2	Annual monitoring report. Presents results of offset site monitoring activities (Section 3.11).	3 & 6	Offset site owner (otherwise prepared by Suitably qualified ecologist)	Annual monitoring to be completed in spring. Report to be completed by November 30 of each year.	DoEE TfN	Completion of annual monitoring
3	Review of offset management plan (Section 3.13).	3	Offset site owner (otherwise prepared by Suitably qualified ecologist)	After 10 years or otherwise as required.	DoEE TfN	Significant environmental event causing widespread impact to habitat within the offset site e.g. Wildfire.
3	GSM and SLL population and habitat condition assessment.	3 & 3a	Offset site owner (otherwise prepared by Suitably qualified ecologist)	Every year for 10 years and every two years thereafter.	DoEE TfN	Baseline in 2018/19 flight season. Annual till end of year 10. Otherwise as requested by DoEE.
3	Audit report (Section 3.12).	3	Approval holder (Soho)	End of years 1, 4, 8 and 10.	DoEE	OMP

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Appendices

Appendix 1

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	NTGVVP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Site remnants	**Area**	1.208	Hectares	site survey
			Quality	**4**	Scale 0-10	
			Total quantum of impact	0.48	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	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?	Cost ($ total)	Information source
Ecological Communities																					
Area of community	Yes	0.48	Adjusted hectares		**Risk-related time horizon (max. 20 years)**	20	**Start area (hectares)**	5	**Risk of loss (%) without offset**	10%	**Risk of loss (%) with offset**	2%	0.40	85%	0.34	0.09	0.65	134.33%	Yes		Previous offset agreements and management plans associated with Trust for Nature covenants.
									Future area without offset (adjusted hectares)	4.5	**Future area with offset (adjusted hectares)**	4.9									
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**6**	3.00	85%	2.55	1.32					
Threatened species habitat																					
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**										
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0									
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**										
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**		**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Threatened species																					
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	0.4832	0.65	134.33%	**Yes**	$0.00	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Golden Sun Moth
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Site remnants	**Area**	1.208	Hectares	site survey
			Quality	**5**	Scale 0-10	
			Total quantum of impact	0.60	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	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?	Cost ($ total)	Information source
Ecological Communities																					
Area of community	Yes	0.60	Adjusted hectares		**Risk-related time horizon (max. 20 years)**	20	**Start area (hectares)**	5	**Risk of loss (%) without offset**	10%	**Risk of loss (%) with offset**	2%	0.40	85%	0.34	0.09	0.65	107.46%	Yes		Previous offset agreements and management plans associated with Trust for Nature covenants.
									Future area without offset (adjusted hectares)	4.5	**Future area with offset (adjusted hectares)**	4.9									
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**6**	3.00	85%	2.55	1.32					
Threatened species habitat																					
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**										
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0									
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**										
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**		**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Threatened species																					
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	0.604	0.65	107.46%	**Yes**	$0.00	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Striped Legless Lizard
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Recent translocation harvesting has shown that the popualtion is restricted to areas defined as NTGVVP and thus the area of habitat for the species on the site has been reduced to match that area	**Area**	1.21	Hectares	Survey and on site assessment
			Quality	**4**	Scale 0-10	
			Total quantum of impact	0.48	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	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?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	0.48	Adjusted hectares		**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	5	**Risk of loss (%) without offset**	15%	**Risk of loss (%) with offset**	5%	0.50	85%	0.43	0.41	0.64	132.22%	Yes	
									Future area without offset (adjusted hectares)	4.3	**Future area with offset (adjusted hectares)**	4.8								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**7**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.83				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0.484	0.64	132.22%	**Yes**	$0.00	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Appendix 2

A2.1 DoEE EMP Guidelines Risk Framework

Risk Framework

		Consequence				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**Highly Likely**	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Likelihood

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented	
Highly Likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely
Rare	May occur in exceptional circumstances

Consequence

Qualitative measure of consequences (what will be the consequence / result if the issue does occur)	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive effort
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Appendix 3

A3.1 Glossary

This appendix contains definitions of technical terms used in this OMP.
Items marked with an asterisk (*) are cited from DELWP (2007b)

Benchmark*

A standard vegetation –quality reference point, dependent on vegetation type, which is applied in Habitat hectare assessments. Represents the average characteristics of a mature and apparently long undisturbed state of the same vegetation type.

Biodiversity*

The variety of all life forms, the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part.

Bioregion*

Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values. A landscape based approach to classifying the land surface using a range of environmental attributes such as climate, geomorphology, lithology and vegetation.

BushBroker

A program coordinated by DELWP to match parties that require native vegetation offsets with third party suppliers of native vegetation offsets.

Canopy Tree

Defined in the Habitat Hectare (DSE 2004) vegetation quality assessment method, as a mature tree that is greater than three metres in height, and is normally found in the upper layer of the relevant vegetation type.

DBH (Diameter at Breast Height)*

The diameter of the main trunk of a tree measured 1.3 m above ground level.

Ecological vegetation class (EVC)*

A native vegetation type classified on the basis of a combination of its floristic, life form, environmental and ecological characteristics.

EPBC Act

Environmental Protection and Biodiversity Conservation Act 1999

Gain

Predicted improvement in the contribution to Victoria's biodiversity achieved from an offset, calculated by combining site gain with the strategic biodiversity score or habitat importance score of the site. Gain is measured with biodiversity equivalence scores or units.

Habitat hectares*

Combined measure of condition and extent of native vegetation. This measure is obtained by multiplying the site's condition score (measured between 0 and 1) with the area of the site (in hectares).

Habitat score*

The score assigned to a habitat zone that indicates the quality of the vegetation relative to the ecological vegetation class benchmark – sum of the site condition score and landscape context score, usually expressed as a percentage or on a scale of 0 to 1.

Habitat zone*

A discrete area of native vegetation consisting of a single vegetation type (EVC) within an assumed similar quality. This is the base spatial unit for conducting a Habitat hectare assessment. Separate *Vegetation Quality Assessments* (or Habitat hectare assessments) are conducted for each habitat zone within the designated assessment area.

Improvement gain*

This is gain resulting from management commitments beyond existing obligations under legislation to improve the current vegetation quality. Achieving improvement gain is predicated on maintenance commitments being already in place. For example, control of any threats such as grazing that could otherwise damage the native vegetation must already be agreed.

Indigenous vegetation*

The type of native vegetation that would have normally been expected to occur on the site prior to European settlement.

Large Old Tree (LOT)*

A tree with a DBH equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

Offset*

Protection and management (including revegetation) of native vegetation at a site to generate a gain in the contribution that native vegetation makes to Victoria's biodiversity. An offset is used to compensate for the loss to Victoria's biodiversity from the removal of native vegetation.

Offset Management Plan (OMP)

A document which sets out the requirements for establishment, protection and management of an offset site.

Medium Shrub

A shrub life-form used in the Habitat Hectare (DSE 2004) vegetation quality assessment method. The life-form includes shrubs between 1 and 5 m high.

Revegetation*

Establishment of native vegetation to a minimum standard in formerly cleared areas, outside of a remnant patch.

Scattered tree*

An indigenous canopy tree that does not form part of a remnant patch of native vegetation (see definition of remnant patch of native vegetation).

Site

An area of land that contains contiguous patches of native vegetation or scattered trees, within the same ownership.

Site gain

Predicted improvement in the condition, or the condition and extent, of native vegetation at a site (measured in Habitat hectares) generated by the landowner committing to active management and increased security.

Recruitment*

The production of new generations of plants, either by allowing natural ecological processes to occur (regeneration etc.), by facilitating such processes such as regeneration to occur, or by actively revegetating (replanting, reseeding). See Revegetation.

Remnant vegetation*

Native vegetation that is established or has regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance such as some clearing or cultivation (or even the activities of the nineteenth century gold rushes) but do not include man-made structures such as dam walls and quarry floors.

Supplementary planting

Establishment of overstorey and/or understorey plants within a remnant patch. Typically includes the planting or direct-seeding of understorey life forms.

Understorey*

Understorey is all vegetation other than mature canopy trees – includes immature trees, shrubs, grasses, herbs, mosses, lichens and soil crust. It does not include dead plant material that is not attached to a living plant. More information on understorey life forms is set out in the Vegetation Quality Assessment Manual (DSE 2004).

Victoria Planning Provisions

A list of planning provisions that provides a standard template for individual planning schemes.