EPBC Act referral 2015/7516
Lindum Vale Residential Development,
Mickleham Road, Mickleham:

Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat:

1960 Mickleham Road, Mickleham, Victoria

Prepared for Satterley Property Group

26 June 2020

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Biosis staff involved in this project were:

- Sally Mitchell (mapping)

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Declaration of accuracy

Lindum Vale Residential Development Project, Mickleham Road, Mickleham,

Victoria

EPBC 2015/7516

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

06/04/2020

Summary

Biosis Pty Ltd was commissioned by Satterley Property Group (SPG) to prepare an Offset Management Plan (OMP) for the Woodland Conservation Reserve at Lindum Vale Residential Development Project (LVRD), Mickleham Road, Victoria. The LVRD was declared a controlled action under the EPBC Act and will be assessed via preliminary documentation.

The purpose of this OMP is to describe how SPG will compensate for residual impacts on 97.05 hectares Golden Sun Moth *Synemon plana* habitat and 0.226 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) by providing Environmental Offsets under in accordance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the EPBC Act Environmental Offsets Policy. In summary, these conditions will be met in part by securing for conservation and improving the condition of the existing remnant of GEWVVP and highest quality GSM habitat within an on-site Woodland Conservation Reserve covering 7.21 hectares. This would satisfy the offset requirement for GEWVVP, with the balance of GSM offsets, totalling about 301 hectares, to be secured within third party offset areas at 235 Muncktons Lane, Glenaroua (121.0 hectares), Sievers Lane, Glenhope (37.9 hectares) and 5066 Western Highway, Beaufort (137.2 hectares).

The specific objectives for the Offset area result from the inputs into and the outputs from the Offsets Assessment Guide. The specific objectives form the basis of the management commitments that the Landholder has agreed to when reviewing earlier versions of this OMP. The management commitments will be implemented on the ground using defined management actions that are practical and feasible within an urban conservation reserve. Each of the individual management actions will have a management target based on maintenance or improvement of the current condition of the Offset area.

The specific objectives of the Offset area will be assessed using the following key performance indicators:

- Permanent legal protection of 7.21 hectares of GSM habitat and 2.59 hectares of GEWVVP via a Trust for Nature (TfN) covenant.
- Permanent exclusion of all agricultural practices and any recreation activities other than passive recreation.
- Completion of the 10-year program of intensive management, including monitoring and reporting.
- Improving the Quality of GEWVVP and GSM habitat from 5 (out of 10) to 6 (out of 10).
- Annual works plan in place for on-going management actions from Year 11 onwards.

The broad approach of the management actions is to produce a decrease in the abundance of perennial weeds and maintain open grassy groundcover conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs. The increased abundance of native grasses will also improve food availability for GSM.

A risk assessment has been undertaken to address potential threats to the success of the Offset area. Surveillance of the Offset area is an integral component of risk management for the Offset area and includes both routine inspections by the Landholder and ecological monitoring by a qualified ecologist. These activities allow for early identification of changes, appropriate and timely management responses, and adaptive management to changing conditions. Regular reporting to regulatory bodies will track the improvement of the Offset area over time.

Schedules for management actions, monitoring and reporting are provided at the end of this document. The table on the following page summarises the OMP specific objectives, key performance indicators (KPIs) and management actions to be implemented according to the details in this OMP.

Summary Table Specific objectives, KPIs and management actions

Specific objective	Offsets Assessment Guide	KPI / Measureable target	Management actions		
			Upon commencement	Year 1 to Year 10	Year 11 onwards
Offset area protection (security)	Provide 7.21 ha Offset area	On-title protection via TfN covenant	Register TfN covenant on-title		
Offset area protection (threat abatement)	Risk of loss reduced from 10% to 1%	• No loss of GEWVVP or GSM habitat or preventable weed introductions over 20 year time horizon of OMP • No unauthorised access or unapproved works within offset area	Exclude all agricultural practices	Routine inspections and maintenance of: • Fencing • Signage and access	Routine inspections and maintenance of: • Fencing • Information and access
Offset area improvement	Quality score for GSM habitat and GEWVVP improved from 5/10 to 6/10.	• Average Habitat hectare Site score improves by at least 10 points for GSM habitat and GEWVVP • GSM stocking rate is maintained or improved	Conversion from agricultural management to active ecological management: • Signage & markers • Convert to active weed control • Install monitoring plots	Intensive program of management actions for: • Weeds • Pest animals • Biomass & organic litter • Routine inspections by Landholder and TfN. • Ecological monitoring of GSM and GEWVVP	
Offset area maintenance	Quality scores achieved at the end of Year 10 maintained from Year 11 onwards	Habitat Hectares score and GSM stocking rate achieved at the end of Year 10 maintained			Maintenance of Year-10 condition with annual works plan for: • Weeds • Pest animals • Biomass & organic litter • Routine inspections by Landholder and TfN

Structure of this document

The structure and content of the Offset Management Plan (OMP) is organised as follows: Sections 1 and 2 are aimed at technical professionals at DAWE, SPG, and ecologists undertaking monitoring of the Offset area; meanwhile, Sections 3, 4 and 5 are also aimed at the Landholder who will implement the OMP as well as technical professionals. Appendix 1 is contains the detailed schedule of management actions, including monitoring and reporting, to enable implementation of the OMP.

1. Introduction: summarises the background information leading up to the requirement for this OMP, including the purpose and scope of the OMP and who is responsible for its implementation.
2. Offset area description: provides information about the property on which the offset is located and describes the Offset area itself. This section also defines the specific objectives as they arise from the Offset Assessment Guide, rather than detailed management targets.
3. Specific management actions: details the management actions to achieve the specific objectives of the OMP including weed, pest and biomass control targets.
4. Monitoring actions: describes how the progress of the Offset area will be tracked over the 10 year timeframe to achieve the specific objectives.
5. Risk assessment and adaptive management: details how management of the Offset area will adapt to changes conditions, the results of monitoring and any unforeseen events or Incidents.
6. Appendices: provides schedule for management actions and background information.

For common terms, a list of terms and their definitions is provided on the following page. A glossary of technical terms used throughout this OMP is provided in Appendix 5.

Definition of terms

The following terms are taken from previous EPBC Act approval documents:

Credit Trading Agreement means a legal agreement between the approval holder, Trust for Nature (TfN) and the owner of the Offset area to outline the arrangements for the Offset area in accordance with the Offset Management Plan.

Conservation covenant means a binding agreement registered on the title of the property that provides enduring protection of the environmental values of the property.

Environmental services means services including: (i) entering into and registering a conservation covenant over the Offset area; and, (ii) managing the Offset area in accordance with the OMP.

EPBC Act Environmental Offsets Policy means the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy,* October 2013 or any document published by the Australian Government which supersedes this document.

Golden Sun Moth or **GSM** means the EPBC Act listed threatened species *Synemon plana.*

Golden Sun Moth habitat or **GSM habitat** means the habitat for the Golden Sun Moth as defined in the species approved conservation advice.

Grassy Eucalypt Woodland of the Victorian Volcanic Plain or GEWVVP means the EPBC Act listed ecological community: the Grassy Eucalypt Woodland of the Victorian Volcanic Plain ecological community.

Incident means any event which has the potential to, or does, impact on protected matter(s).

Independent audit(s): means an audit conducted by an independent and suitably qualified person as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2015).

Monitoring data means the data required to be recorded under the conditions of this approval.

Offset area means the area of land to be secured and managed for Golden Sun Moth habitat.

Offset Management Plan or **OMP** means the document outlining the management and protection of the Offset area, or any subsequent version approved by the Minister under section 143A of the EPBC Act.

Preliminary Documentation means the document titled *Lindum Vale Residential Development, Mickleham Road Mickleham, Victoria: Preliminary Documentation (EPBC 2015/7516).*

Protected matter(s) means a matter protected under a controlling provision in Part 3 of the EPBC Act for which this approval has effect.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

Trust for Nature (TfN) means the Victorian based not-for-profit organisation working to protect native plants and wildlife in cooperation with private landowners (ABN: 60 292 993 543).

The following terms are defined below for use in this OMP:

Key performance indicator or **KPI** means a measureable change that provides evidence that the Offset area has achieved/is progressing towards achieving the specific objectives.

Management commitment(s) means the overall changes to land management practices that will be undertaken by the Landholder within the Offset area.

Management action(s) means the works that will be undertaken within the Offset area to improve and maintain GSM habitat within the Offset area.

Management target means a measureable change that provides evidence that the management action has achieved/is progressing towards achieving the improvement in GSM habitat.

Quality means the score out of 10 used in the Offset Assessment Guide to define the conservation values present within an area of listed threatened species habitat or ecological community.

Specific objectives means the requirements for the performance of the Offset area as defined by the Offsets Assessment Guide.

The following list of the entities are referred to in this document:

Satterley Property Group (SPG) is the proponent applying for approval and is the current landowner.

Department of Agriculture, Water and Environment (DAWE) means the Commonwealth Government department responsible for the Environment *Protection and Biodiversity Conservation Act 1999* (EPBC Act). The name of the department may undergo changes throughout the life of this document but it is assumed the department responsible for the EPBC Act will remain the regulator of the approval.

Trust for Nature (TfN) means the statutory body enacted under the *Victorian Conservation Trusts Act 1972* and is responsible to covenants enacted as a result of that Act. Regardless of any future name changes, this document assumes that a successor organisation would take responsibility for and be bound by the covenants should TfN be dissolved.

Landholder means the current (Satterley Property Group) or future owner of the Offset area or their legal representative or their delegate, where the delegate is the person responsible for land management within the Offset area (e.g. managing ecologist).

1. Introduction

1.1 Background information / description of the action

The Satterley Property Group (SPG) is undertaking the Lindum Vale Residential Development (LVRD), Mickleham Road, Mickleham, Victoria (Figure 1). The LVRD was declared a controlled action under the *Environment* Protection *and Biodiversity Conservation Act 1999* (EPBC Act) and is being assessed via Preliminary Documentation (EPBC Act referral number 2015/7516). An ecological assessment of the development site and an environmental impact assessment of the LVRD is provided in the Preliminary Documentation by which EPBC Act referral 2015/7516 is assessed. The controlling provisions on the action are summarised as significant impacts on *Listed Threatened Species and Communities* protected under Section 18 and Section 18A of the EPBC Act.

The impacts on *Listed Threatened Species and Communities* were described in detail in the Preliminary Documentation and are summarised here. The Preliminary Documentation identified that there would be a significant impact on two Matters of National Environmental Significance (MNES):

- 97.05 hectares of Habitat for Golden Sun Moth *Synemon plana* (GSM).
- 0.226 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plain community

The impact area considered to be GSM habitat and GEWVVP is outlined in Figure 2.

The details of the development site are provided Table 1.

Table 1 Development Site Details

Site details:	
Applicant	Satterley Property Group
Location/address of Development Site	1960 – 2040 Mickleham Road Mickleham 3733
Local Government Area	City of Hume
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
EPBC Act referral	2015/7516

1.2 Purpose

The purpose of this OMP is to describe how the provision of Environmental Offsets under EPBC Act referral 2015/7516 will be met in part by an Offset area established at the conservation area located at 1960 Mickleham Road, Mickleham 3733 (VPA 2018). The specific objectives of this OMP are as follows:

- Offset area protection (security): In-perpetuity, legal protection of the conservation values of the Offset area.
- Offset area protection (threat abatement): in-perpetuity management commitments for removing the threats posed by agricultural production and current land use rights.
- Offset area improvement: An intensive 10-year program of management actions to be implemented from the commencement of the OMP to improve GSM habitat Quality.
- Offset area maintenance: In-perpetuity management actions that will ensure that the improvement achieved in the first 10 years of the OMP is maintained over time.

The management actions are described in the sections that follow and are supported by schedules at the end of this document (Appendix 1).

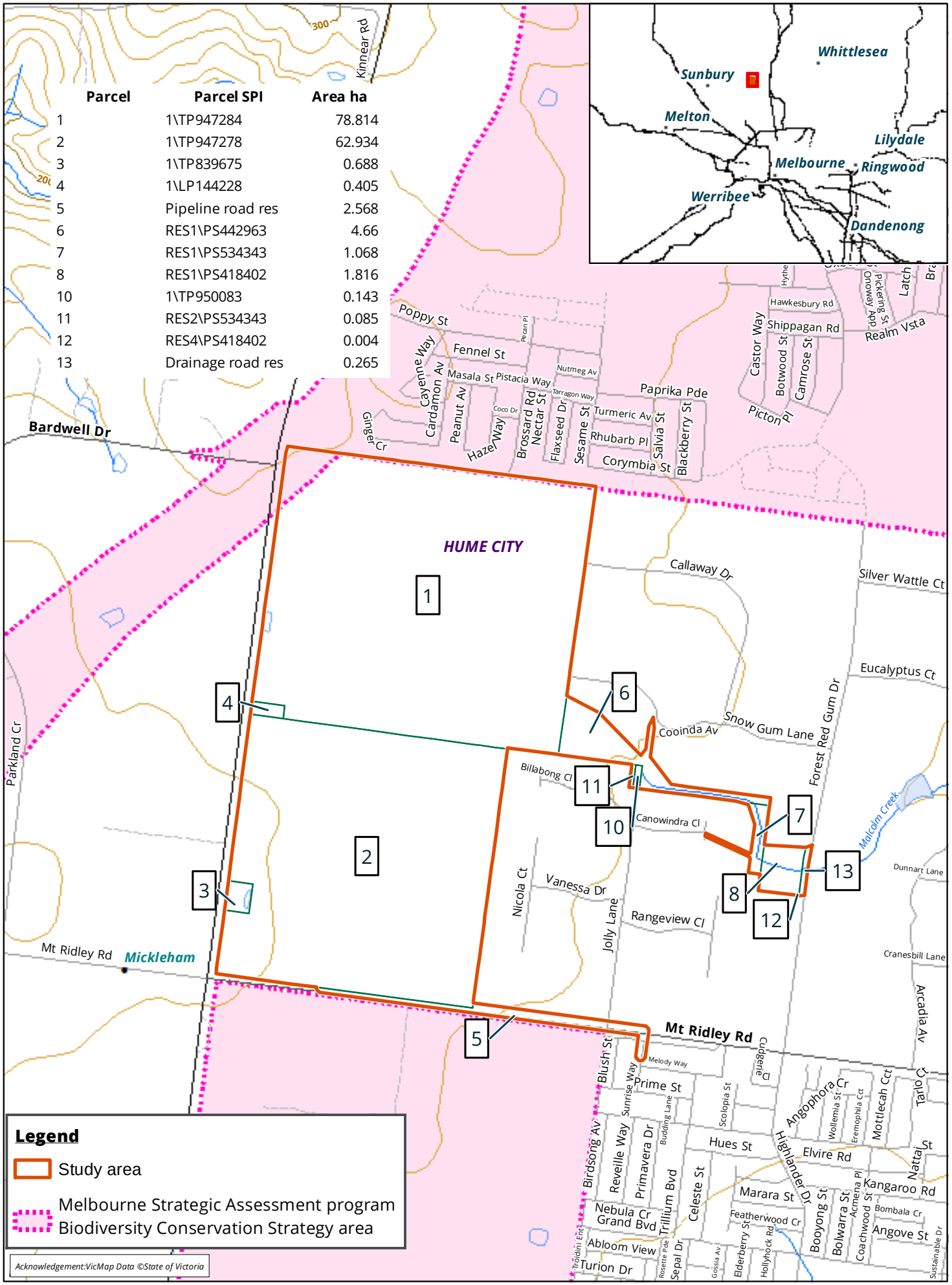

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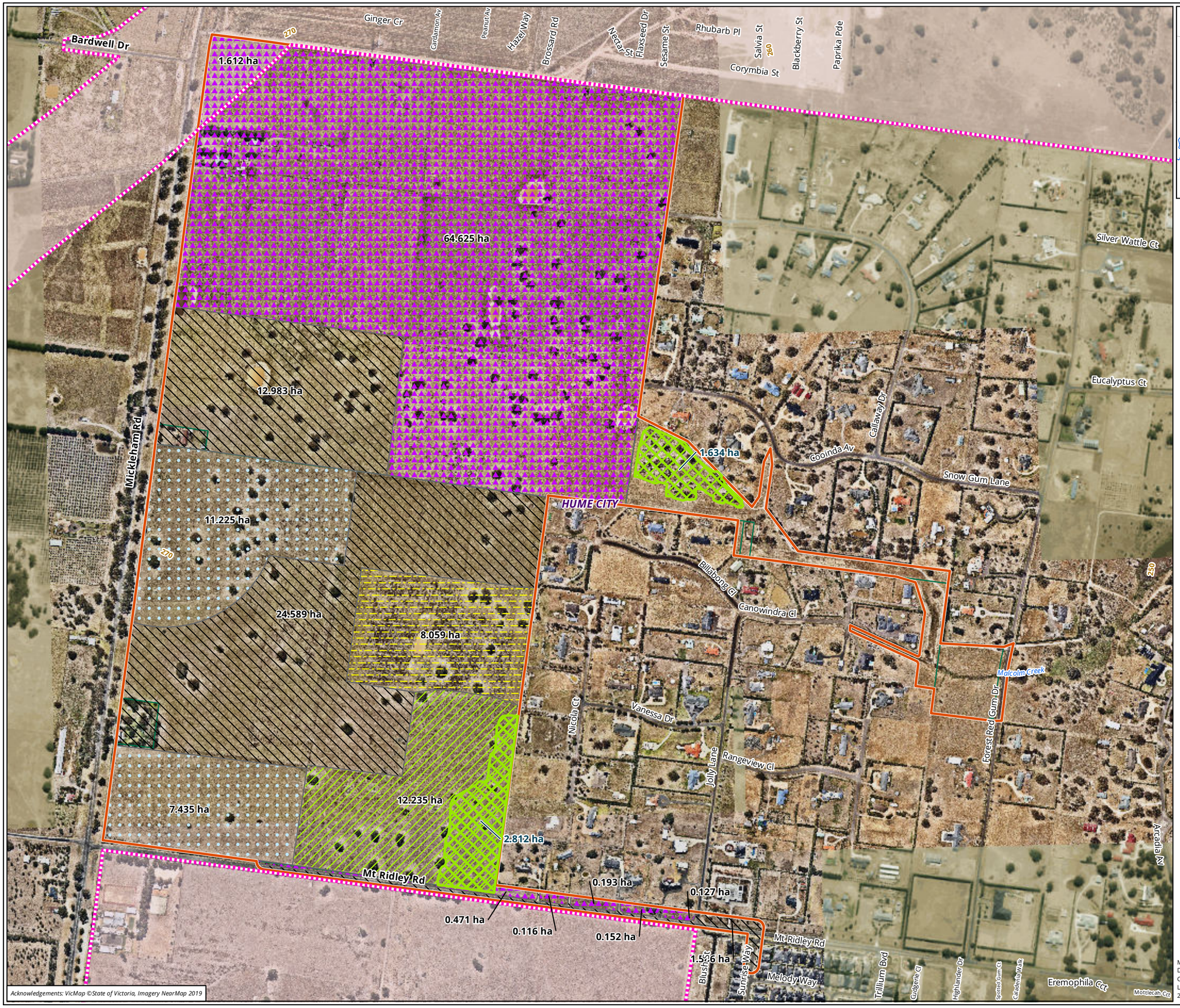
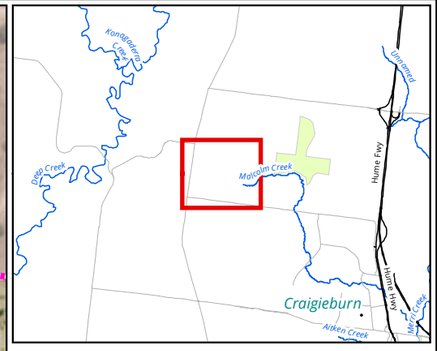
Figure 1: Location of Lindum Vale, Mickleham, Victoria

Matter: 27761,
Date: 08 April 2020,
Checked by: LJS, Drawn by: SKM, Last edited by: smitchell
Location:P:\27700s\27761\Mapping\27761_F1_Locality.mxd





Legend

- Study area
- Parcel boundary
- Melbourne Strategic Assessment(MSA) program Biodiversity Conservation Strategy (BCS) area
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain

Golden Sun Moth habitat

Suitability Score with area summary

- 0 - 39.158 ha
- 2 - 67.297 ha
- 4 - 8.059 ha
- 5 - 18.660 ha
- 8 - 12.235 ha

Figure 2 Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) within Lindum Vale

0 50 100 150 200 250

Metres

N

Scale: 1:7,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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Matter: 27761,
Date: 08 April 2020,
Checked by: SGM, Drawn by: SKM, Last edited by: smitchell
Location: P:\27700s\27761\Mapping\
27761_PrelimDoc_F2_GEW_GSM_habitat.mxd

1.3 Objectives

This OMP has the following objectives:

- Provide supporting documentation for the establishment of a conservation covenant for the Offset area;
- Describe the Offset area including location, size, condition, environmental values present and surrounding land uses and provide maps of the Offset area.
- Document the presence and baseline quality of GEWVVP and GSM habitat within the Offset area.
- Define specific objectives to demonstrate GEWVVP and GSM habitat quality improvement.
- Describe specific management actions, and timeframes for implementation, to be carried out to meet specific objectives.
- Define key performance indicators to demonstrate the improvement to the quality of GEWVVP and GSM habitat.
- Detail the nature, timing and frequency of monitoring to determine the success of management actions against key performance indicators.
- Provide information on indicative corrective actions that will be implemented in the event monitoring activities indicate key performance indicators are not or are unlikely to be achieved.
- Explain the roles and responsibilities for implementing the management actions.

All management actions are consistent with conservation advice for GEWVVP and GSM, and threat abatement plans relevant to both protected matters. These documents are referenced throughout where necessary.

1.4 Roles and responsibilities

This section is important because it provides the details of which entities (see Definition of terms section above for the full list of entities listed in this document) are responsible for the various components of this OMP. An OMP must include the roles and responsibilities for implementing the management actions. However, this section expands on this requirement to include the execution of the conditions themselves. Note that the Credit Trading Agreement (CTA) and Trust for Nature (TfN) covenant have further contractual obligations defined as part of their terms and conditions and should be referred to as necessary.

Table 2 provides a list of the responsibilities allocated to each entity and further description is provided below. The legal liabilities associated with these responsibilities are not directly controlled by this document but are conferred through an approval under the EPBC Act for EPBC Act referral 2015/7516, the CTA and the TfN covenant.

Table 2 Offset area responsibilities

Notes to table: SPG: Satterley Property Group. Landholder: refers to the Landholder or their delegate (e.g. managing ecologist).

Responsibility	Responsible entity	Obligation arising from	Person who will undertake the work
Executing approval Conditions for EPBC 2015/7516 when provided (i.e. providing offsets)	SPG	Statutory approval conditions for LVRD	SPG or their representative Ecological consultant
Implementation of OMP (i.e. conservation and maintenance works in Offset area)	Landholder	TfN covenant on Offset area	Landholder or their contractor
Routine inspections of Offset area	Landholder	TfN covenant on Offset area	Landholder or their contractor
Keeping records of conservation and maintenance works, and results of routine inspections in Offset area	Landholder	TfN covenant on Offset area	Landholder or their contractor
Ecological monitoring of Offset area	SPG	Statutory approval conditions for LVRD	Experienced ecologist engaged by the SPG/ Landholder with the costs invoiced to SPG
Auditing of compliance with approval conditions for EPBC 2015/7516	SPG	Statutory approval conditions for LVRD	An independent and suitably qualified person as detailed in the EPBC Act Independent Audit and Audit Report Guidelines (2015).
Records and reports of works and routine inspections for TfN	Landholder	TfN covenant on Offset area	Landholder or their contractor
Ecological monitoring reports	Landholder	TfN covenant on Offset area	Experienced grassland ecologist to provide report to Landholder
Annual compliance reporting to DAWE	SPG	Statutory approval condition for LVRD	Landholder or their contractor to provide annual report to SPG as per management action. SPG to provide annual compliance report to DAWE (N.B. will include details of both the development site and Offset area).
Reporting non-compliance to DAWE	SPG	Statutory approval condition for LVRD	Landholder to inform TfN, SPG and DAWE in the event of an Incident. Incident means any event which has the potential to, or does, impact on protected matter(s) occurring in the Offset area. Minor seasonal issues like fluctuations in weed cover can be discussed with TfN in the course of routine works planning but does not meet the description of an Incident.
Review of OMP (in accordance with the adaptive management provisions of OMP)	Landholder	TfN covenant on Offset area	Landholder in consultation with TfN
Providing advice on and monitoring compliance with TfN covenant	TfN	TfN covenant on Offset area	Staff members of TfN

Satterley Property Group (SPG): An approval for EPBC Act referral 2015/7516 will be granted to the approval holder, who is SPG. As the approval holder, SPG, will be ultimately responsible for execution of the approval conditions for their project, the LVRD. Unless otherwise agreed in a legally binding document, SPG retains ultimate responsibility for ensuring the approval conditions are met to the satisfaction of DAWE including providing compensation for loss of GEWVVP and GSM habitat via implementation of the OMP, ecological monitoring, reporting to DAWE, and ensuring adequate oversight (e.g. auditing). SPG will engaged an experienced ecologist / land manager to deliver Environmental Services on their behalf, including implementation of the management actions in this OMP.

Trust for Nature (TfN): The responsible authority for the conservation covenant under the *Victorian Conservation Trust Act 1972* (VCT Act) is Trust for Nature (TfN). TfN has authority under the VCT Act to enforce restrictions contained in the covenant but also provides advice on land management to the Landholder (both during the 10 year management period and from Year 11 onwards). TfN will bear no responsibility for the execution of approval conditions for EPBC Act referral 2015/7516.

Landholder: The TfN covenant binds the current (and future) Landholder to the standard restrictions in the TfN covenant and to the requirements described in this OMP. As agreed with SPG and TfN, the Landholder will be responsible for carrying out the works and associated reporting to manage the Offset area. The Landholder will also facilitate access to the Offset area for ecological monitoring and auditing, as required. The Landholder can engage suitably qualified contractors to carry out the works on the Landholder's behalf. The Landholder can deputise responsibility for carrying out the works to a designated site manager and/or managing ecologist, however, the Landholder remains responsible for ensuring the works are undertaken (Table 2).

Funding arrangements: Financial liabilities have been agreed between SPG, TfN and the Landholder, who are parties to the TfN agreement. In general terms, TfN will retain sufficient funding to ensure that the Offset area can be managed according to the 10-year management period described in this OMP. A portion of the funds held in trust are released each year to the Landholder, with the exact arrangements stipulated in the TfN agreement. The CTA has further arrangements pertaining to financing the management and monitoring of the Offset area, however, the details of the financial arrangements associated with the Offset area are beyond the scope of this OMP.

1.5 Other offset requirements

The clearing of native vegetation associated with the LVRD was also assessed by the Department of Environment, Land, Water and Planning (DELWP) as part of planning scheme amendment C205 and will also require a planning permit issued by the City of Hume. Any permit issued by the City of Hume will require environmental offsets prescribed under the Victorian *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017). Where possible, the environmental offsets provided to fulfil any approval conditions for EPBC 2015/7516 will contribute to the offset requirements under the relevant planning permit. However, additional environmental offsets may be required to meet all the requirements of any planning permit and these would not be relevant to this OMP and are not mentioned further.

1.6 OMP commencement

The implementation of this OMP will begin on execution of the CTA and release of the agreed funds to the Landholder. The funds due to the Landholder are for the purchase of the offsets and for the costs associated with the establishment tasks for the Offset area (Section 3.5). TfN will retain sufficient funds in trust to provide for the 10-year management of the Offset area as well as a contingency for unexpected events or costs.

The registration of the covenant will be completed as soon as possible thereafter noting that administrative requirements may mean that the registration of the covenant with the titles office (currently called Land Use Victoria) takes a further 12 months to be completed and signed-off by the Commonwealth Minister for the

Environment. This registration process is an administrative process only and will not prevent the commencement of the management actions of the OMP once the CTA is executed since the funds are non-refundable.

1.7 Financial disclaimer

Please note that any information provided in this OMP regarding financial arrangements is for information purposes only. This OMP is not designed to govern any financial arrangements regarding purchase, management or monitoring of the Offset area. The financial arrangements are governed by TfN agreement and the CTA.

2. Offset area description

This section provides a description of the Offset area including location, size, condition, environmental values present and surrounding land uses. This section also describes the current ecological condition of GEWVVP and the GSM habitat using baseline data and other supporting evidence that documents the presence and baseline condition of these MNES.

2.1 Environmental offsets requirements

The Offsets Assessment Guides for the approved impacts were confirmed as meeting the EPBC Act Environmental Offsets Policy. The resulting offset requirements amounted to the external provision of 293.8 hectares of GSM habitat and the onsite protection of a 7.21 hectare conservation reserve representing 7.21 hectares of GSM habitat and 2.59 hectares of GEWVVP.

As no single site is large enough to provide the entire 301 hectare offset requirement, SPG will secure third party offsets at four locations to provide this total area. This OMP covers 2.4% of total GSM requirements (7.21 hectares) for confirmed GSM habitat and over 100% of the GEWVVP offset. The remainder of the offsets that cannot be provided under this OMP will be provided by three other locations, each of which will be the subject of a separate OMP.

2.2 Description of the Offset area

2.2.1 Location and surrounding land uses

This first party Offset area is located at 1960 Mickleham Road, Mickleham 3373 (Figure 3). The Offset area is defined as the conservation reserve identified within the Native Vegetation Precinct Plan prepared for the development site (VPA 2018b and Figure 3). It is located within the Victorian Volcanic Plains Bioregion and supports a range of uses including cattle and sheep grazing on native pasture. The conservation area does not include other Victorian biodiversity offset sites. The details of the land titles on which the Offset area is located are provided in Table 3.

The Offset area is located in the south eastern corner of the property (Figure 4). The property is otherwise surrounded by agricultural land and land otherwise zoned for residential development and for rural residential use. Land around the offset site is progressively being developed for residential purposes as part of its inclusion within an expanded Melbourne Urban Growth Boundary.

The Offset Area has a blocky shape to minimise the edge-to-interior ratio of the Offset area. Because the Offset area is relatively close to other reserves (i.e. the Mount Ridley Woodland Reserve) and open space (VPA 2018a) the landscape values of the Offset area also add to its conservation value.

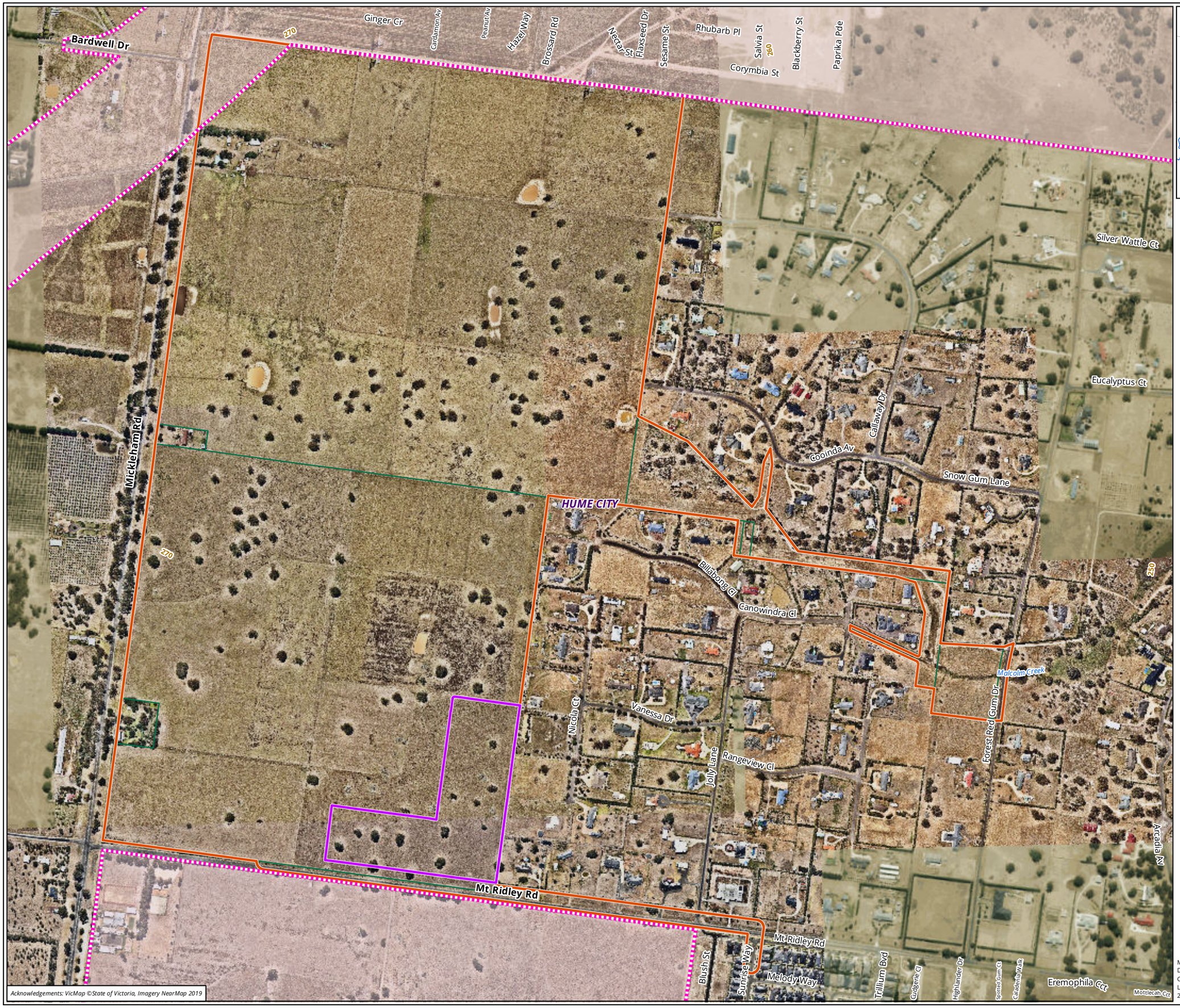
2.2.2 Size

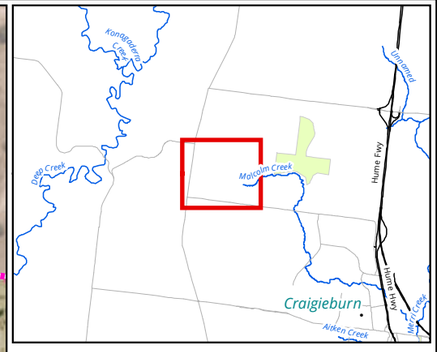
The Offset area provides a total of 7.21 hectares of GSM habitat and 2.59 hectares of GEWVVP (Figure 4).

2.2.3 General description of environmental values present

The Offset area has no known history of cultivation, intensive fertilizer application or significant pasture improvement. The offset area is grazed with sheep and cattle, which manages biomass to a level suitable for GSM breeding.

The Offset area supports an open cover of eucalypts but overall canopy cover is less than 10%.





Legend

- Study area
- Parcel boundary
- Melbourne Strategic Assessment(MSA) program Biodiversity Conservation Strategy (BCS) area
- Conservation reserve

Figure 3 Location of the Conservation Reserve1960 Mickleham Road, Mickleham, Victoria

0 50 100 150 200 250

Metres

N

Scale: 1:7,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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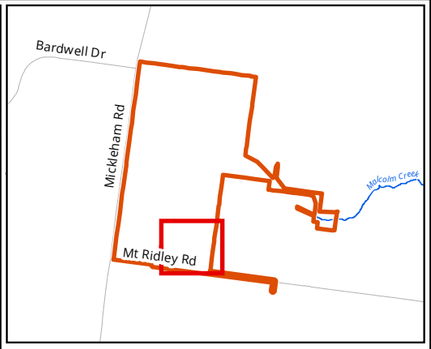
Matter: 27761,
Date: 08 April 2020,
Checked by: SGM, Drawn by: SKM, Last edited by: smitchell
Location: P:\27700s\27761\Mapping\
27761_OMP_F3_ConsRes.mxd



Legend

- Study area
- Parcel boundary
- Melbourne Strategic Assessment(MSA) program Biodiversity Conservation Strategy (BCS) area
- Conservation reserve
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain

Golden Sun Moth habitat

Suitability Score with area summary

- 8 - 7.201 ha

Figure 4 The extent of Grassy Eucalypt Woodland of the Victorian Volcanic Plain(GEWVVP) and Golden Sun Moth(GSM) habitat within the offset site, 1960 Mickleham Road, Mickleham, Victoria

0 10 20 30 40 50

Metres

N

Scale: 1:1,500 @ A3

Coordinate System: GDA 1994 MGA Zone 55

biosis

Matter: 27761,
Date: 08 April 2020,
Checked by: SGM, Drawn by: SKM, Last edited by: smitchell
Location: P:\27700s\27761\Mapping\
27761_OMP_F4_ConsRes_wHabitat.mxd

Table 3 Offset area and property details

Site details:	
Type of offset	First party
Landholder of Offset area	Satterley Property Group Pty Ltd
Landholder Contact	Andrew Jones (State Development Manager (Vic))
Location and address of Offset area	1960 Mickleham Road, Mickleham 3373
Area of Offset area (ha)	7.21 ha
Allotment(s)	Lots 7, 8, 12 and RES1(parts thereof)
Parcel identifier (SPI)	RES1\PS700494
Local Government Area	Hume
Security mechanism	Trust for Nature covenant registered on title
Bioregion	Victorian Volcanic Plain

There are no formal easements within the net Offset area and areas designated as a future road reserve have been excluded. No future utilities or road easements can be applied to the Offset area as these would conflict with the objectives of this OMP.

The offset site (conservation reserve) supports an open canopy of River Red-gum *Eucalyptus camaldulensis*. Typically there would be an open shrub layer of various wattles but shrubs are largely absent from the reserve due to long-term cattle grazing although Tree Violet *Melicytus dentatus* survives in small numbers. The ground layer supports grasses such as Common Wheat-grass *Anthosachne scabra*, Slender Wallaby-grass *Rytidosperma racemosum*, Brown-back Wallaby grass *Rytidosperma duttonianum* and Common Tussock-grass *Poa labillardierei*. In more degraded areas, herbs usually found within this EVC are poorly represented because of grazing pressure. The relatively intact areas identified as GEWVVP support a range of herbs including Grassland Wood-sorrel *Oxalis perennans*, Slender Dock *Rumex brownii*, Kidney-weed *Dichondra repens*, Blue Devil *Eryngium ovinum* and Slender Speedwell *Veronica gracilis*.

Common weeds include Brown-top Bent *Agrostis capillaris*, Chilean Needle-grass *Nassella neesiana* and Spear Thistle *Cirsium vulgare* and introduced annual grasses.

Woody weeds within the Offset area include relatively small infestations of African Box-thorn *Lycium ferocissimum* and Sweet Briar *Rosa rubiginosa*.

High threat weeds within this offset area include Toowoomba Canary-grass, Brown-top Bent, Needle-grasses, Soursob Oxalis pes-caprae and Paspalum *Paspalum dilatatum*.

The relative abundance of Wallaby-grasses, Spear-grasses and Needle-grass provides good quality habitat for GSM.

Targeted surveys for GSM were undertaken by Biosis during the 2008/09 and 2014/15 summer survey seasons (Biosis 2009, 2015). The GSM surveys were undertaken using the field methods stipulated in the Commonwealth EPBC Act Policy Statement 3.12 (DEWHA 2009) for the entire Offset area.

GSM were distributed throughout the offset area (Figure 5).

The Offset area is not known to support one other state listed threatened flora species, Austral Crane's-bill *Geranium solanderi* var. *solanderi* (Biosis 2016).

2.3 Current condition

The vegetation condition of the Offset area was estimated using the Habitat Hectares method (Parkes *et al.* 2003). The suitability and quality of GSM habitat was assessed against the descriptions provided in (DEWHA 2009). The condition assessments were used in conjunction with consultation with DAWE to calculate the Quality score used to calculate the required offsets.

2.3.1 Vegetation current condition

The vegetation within the Offset area was assessed using the Habitat Hectares method, as assessed against the Plains Grassy Woodland (EVC 175) benchmark. Table 4 records the scores for the area of GEWVVP and other areas of Plains Grassy Woodland within the conservation reserve. Appendix 4 provides the explanation of the GSM Quality scoring method.

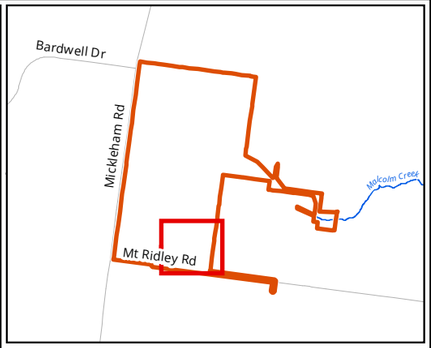
2.3.2 GSM habitat current condition

GSM habitat was assessed against the habitat characteristics provided in DEWHA (2009) (Table 5).

Table 6 provides the Quality scoring for the Mickleham GSM offset. Appendix 4 provides the explanation of the GSM habitat Quality scoring method. The Quality score utilises the Site condition components of the Habitat hectares method only since site context is already accounted for in the first parameter.

Table 4 Habitat Hectares results, 1960 Mickleham Road, Mickleham.

EVC #: Name			EVC 55Plains Grassy Woodland (GEWVVP)	Plains Grassy Woodland (EVC 55)	
		Max Score	Score	Score	Total
Site Condition	Large Old Trees	10	3	4	
	Canopy Cover	5	3	3	
	Lack of Weeds	15	4	4	
	Understorey	25	15	5	
	Recruitment	10	5	5	
	Organic Matter	5	3	3	
	Logs	5	2	2	
	Total Site Score		35	26	
Landscape Value	Patch Size	10	6	6	
	Neighbourhood	10	1	1	
	Distance to Core	5	3	3	
	Total Landscape Score		10	10	
HABITAT SCORE		100	45	36	
Habitat points = #/100		1	0.45	0.36	
Habitat Zone area (ha)			2.590	4.311	



Legend

- Study area
- Parcel boundary
- Melbourne Strategic Assessment(MSA) program Biodiversity Conservation Strategy (BCS) area
- Conservation reserve/ Offset area
- Golden Sun Moth record 2008 labelled with number of moths
- Golden Sun Moth record 2014 labelled with number of moths
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain

Figure 5 The distribution of Golden Sun Moth(GSM) and Grassy Eucalypt Woodland of the Victorian Volcanic Plain(GEWVVP) at the Mickleham Road Offset area, Mickleham, Victoria

0 10 20 30 40 50

Metres

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Scale: 1:1,500 @ A3

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27761_OMP_F5_GSM_GEWVVP_Distribution.mxd

Table 5 GSM habitat condition results, Mickleham

Habitat characteristic	Assessment
Size of patch	Patch size of the Conservation Reserve will be less than 10 hectares
Cover of food plants	Cover of food plants appeared scattered throughout at time of 2018 assessment, although exact amount of cover difficult to measure, it is estimated to provide an average cover of at least 20%
Distance to nearest source population	Final configuration will mean the site is greater than 200 metres from another confirmed population/existing GSM population
Amount of shading	Minor
Aspect	Relatively flat
Amount of bare ground	Cover of bare ground less than ideal (less than 20%)
Presence of rocky areas	Surface rocks still present, site generally has shallow basalt derived soils
Soil characteristics	Cracking clay, basalt derived shallow soils
Land use history	Long history of sheep and cattle grazing, current grazing pressure low to moderate

Table 6 Mickleham GSM habitat Quality score

Parameter	Score	Justification
Site context	1/3	The Offset area is smaller than 10 hectares. The offset area is of a blocky configuration which is appropriate for reducing edge effects. The offset relatively flat with some shading.
Site condition	2/3	The Offset area supports moderate quality native vegetation over most of the site. As a mostly treeless version of a woodland community, the VQA site condition score for the Offset area is calculated in two main parts as 45/75 & 36/75 (Table 4). Both annual and perennial weeds were present throughout noting however that the offset area and the property as a whole supports a substantial cover of Chilean Needle Grass *Nassella neessiana* such that more than 20% of the ground cover supports known food plants for GSM. Therefore the Offset area cannot qualify for a score of 3/3 and just fails the criteria for 2/3.
Species stocking rate	2/4	Biosis (2015) recorded 7.1 GSM per hectare for vegetation associated with the offset site.
Quality score	**5/10**	A score out 5 (out of 10) indicates that the offset area is of already favourable to the species. There are opportunities to improve Quality by decreasing weed cover and allowing Wallaby-grass and Spear-grass cover to increase and provide overall habitat improvements through appropriate ecological management.

2.4 Suitability of Offset area to provide a conservation gain

Under Section 7.6 of the EPBC Act Environmental Offsets Policy (DSEWPaC 2012), *environmental offsets must deliver a conservation gain for the impacted protected matter, and that conservation gain must be new, or additional to what is already required by a duty of care or to any environmental planning laws at any level of government*. The following sections confirm that the proposed Offset area meets this requirement having no existing environmental offsets, on-title protections or other proposed conservation protections outside what will be provided for as part of this development process. In addition, the Offset area has current permitted land uses under the Hume Planning Scheme that are also recognised threats to GSM habitat as described below. Under these conditions, it was assessed that the risk of loss of GSM habitat from the Offset area was 10%.

2.4.1 Permitted land uses

The property was, prior to the VPA precinct planning process, zoned as Farming Zone (FZ) under the Hume Planning Scheme. However, 1960 and 2040 Mickleham Road have now been rezone to be included within the UGB as land subject to residential development. The original zoning, prior to this development application, allowed the site to be subject to normal farming activities such as grazing of domestic stock and the application of fertilizer.

Within Victoria, removal of native vegetation is controlled under Clause 52.17 of the Victoria Planning Provisions. Some removal of native vegetation is currently permitted (exempt from a planning permit requirement – See Clause 52.17-7) to the minimum extent possible, for activities including:

- Removal of dead vegetation.
- Removal of vegetation for construction of a boundary fence.
- Mowing of understorey grass vegetation to a height of 100 mm above ground level.
- Grazing by domestic stock.
- Timber harvesting of 'reasonable amounts' for personal use, including firewood and construction of fences or buildings.
- Pruning of up to 1/3 of the foliage of individual plants.
- Treatment of pest animal burrows or weed infestations.
- Stone exploration or extraction.
- Fire protection, including periodic fuel reduction burning or construction of firebreaks and fire fighting access tracks.

The property is also subject to an Environmental Significance Overlay, which imposes additional conditions on permit application requirements to clear native vegetation.

As part of the development application process which has proceeded over the past few years, impacts to native vegetation is now controlled by the Native Vegetation Precinct Plan (VPA 2018b).

2.4.2 Existing offset arrangements

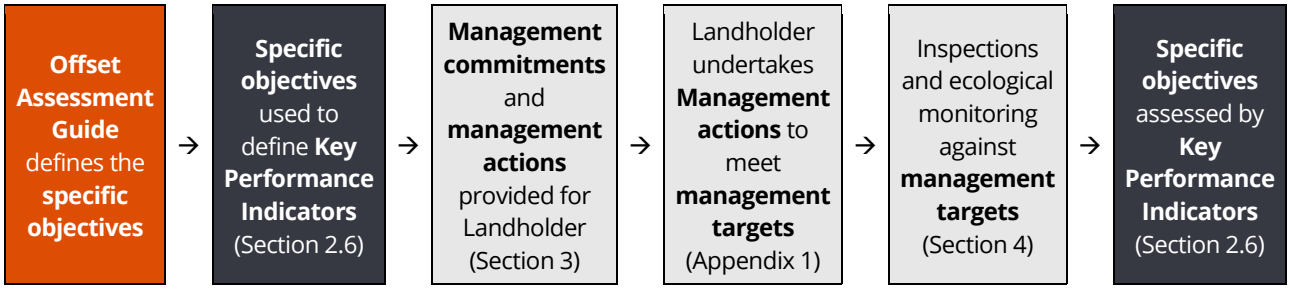
A title search has been completed and the Offset area is not affected by any conservation related encumbrances. The Offset area therefore has not been allocated for the provision of any other offsets, either under the EPBC Act Environmental Offsets Policy or for provision of offsets under any current or past Victorian policy.

2.5 Specific objectives

This section presents the specific objectives to demonstrate GEWVVP and GSM habitat quality improvement over the period of the OMP's implementation. The specific objectives arise from the Offsets Assessment Guide and are used to determine the overall improvements required to be achieved at the end of 10 years. The specific objectives are broader scale objectives than the management commitments and management actions that are specified in Section 3.

Figure 6 below shows how the specific objectives relate to the management commitments, management actions, and management targets.

Figure 6 Specific objectives and their relationship to the management commitments



2.6 Specific objectives and key performance indicators

Table 7 below describes the specific objectives for the Offset area that result from the inputs into and the outputs from the Offsets Assessment Guide (a.k.a offsets calculator). Achieving the specific objectives will therefore ensure that an environmental offset that meets the requirements of the conditions of approval and the EPBC Act Environmental Offsets Policy will be provided. The Offset area as a whole will be assessed against key performance indicators that will determine if the specific objectives have been met (Table 7). The key performance indicators use technical terminology and so are broken down into management targets in for the Landholder to implement on the ground in Section 3.

2.7 Measuring improvement in Quality

The following sections explain how improvements in quality are to be measured given the limitations of the Habitat hectares and Quality scoring systems.

2.7.1 Vegetation condition

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average quality for the whole area. The GSM Quality scoring method was used to obtain the quality score of the Offset area in the Offsets Assessment Guide while the habitat hectare score (DSE 2004) was used for GEWVVP. These will be replicated to determine the final Quality score for each MNES.

Since the Habitat Hectares method uses categories (which are converted to numeric scores) there is a limited number of ways in which the increase in Quality can be attained within the Habitat Hectares scoring system:

- The Landscape score is not influenced by on-site management actions and so is not expected to change during the 10-year management period.
- Large Trees is scored out of 10 but is a function of time (decades to centuries) and so cannot be influenced by the management actions. However, changes to the grazing regime should provide benefit to the remaining large old trees by reducing grazing pressure and ensuring their protection from agricultural development. Management actions should therefore maintain the existing scores.
- Canopy cover is scored out of 10 against a benchmark of 15% cover. Since GSM require open grassland, the aim of management will be to continue biomass management in a manner which prevents shrub and eucalypt encroachment and shading out of GSM habitat. The target is therefore to maintain a canopy cover at about the current level with natural recruitment potentially increasing this in a controlled manner to reach the maximum of 15% over the 10 year management period.
- Recruitment is scored out of 10 and is based on the adequate recruitment of woody species. While the offset area supports a low number of woody species when compared to the EVC benchmark, revegetation works will improve this score. The removal of grazing and re-introduction of fire will control eucalypt regeneration and some of the more grazing sensitive species are expected to recruit naturally. This has potential to increase the score to one of the higher possible values, 6 or 10 (out of 10). The controlled recruitment of woody species is an aspect of site condition that is relevant to the improvement of GEWVVP and so will a focus of management activities. However, management

actions need to control the amount of shade to maintain adequate habitat suitability for GSM. Note that if a mass germination event occurs (i.e. of eucalypts), monitoring should track the progress of any mass seedling establishment to ensure large areas of native tussock grass cover isn't shaded out in the long term.

Table 7 Offset area management specific objectives and Key performance indicators

Offset Assessment Guide	Specific objective	Key performance indicators (measureable through ecological monitoring)
Start area: 7.21 ha GSM habitat and 2.586 ha of GEWVVP	Offset area protection (security): Provide permanent protection for the conservation values of the Offset area with a conservation covenant.	• TfN agreement registered on relevant land titles
Risk of loss : 90%* confidence that the risk of loss decreases from 10%* to 1%* risk of loss **Time over which loss is averted: 20 years****	Offset area protection (threat abatement): permanently exclude agricultural production except as directed by this OMP. Risk management: minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.	• No loss of GEWVVP or GSM habitat or preventable weed introductions over 20 year time horizon • No unauthorised access or unapproved works within offset area
Gain: **GSM:** **90%* confidence GEWVVP habitat score can be improved from 5* to 6* (out of 10) with GSM habitat Quality at least maintained at the current level of 6.** **Time to ecological benefit: 10* years**	Offset area improvement: Landholder commits to implementing the intensive 10-year program of management actions, routine inspections and facilitating annual ecological monitoring in accordance with the OMP. Risk management: minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.	• Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results. • Large tree score (out of 10): – *maintained at current levels* • Tree canopy cover score (out of 5): – *maintained at 3* • Lack of Weeds score (out of 15): – *increases from 4 to 9* • Understorey score (out of 25): – *increases to 20* • Recruitment score (out of 10): – *maintained at 3* • Organic litter score (out of 5): – *increases from 3 to 5* • No active rabbit warrens or fox dens, minimal evidence of pest animal impacts • Tussock cover always sufficient to provide GSM habitat • New weeds eliminated, emerging weed problems controlled to <1% cover, new pest animals eliminated • Ecological monitoring undertaken in accordance with OMP • Reporting undertaken in accordance with OMP • Emergency management undertaken in accordance with OMP
Time over which loss is averted^: 20 years**	Offset area maintenance: Landholder commits to implementing the management commitments to maintain the improvement achieved in the first 10 years.	• Habitat hectares score achieved at the end of Year 10 is maintained over next 10 years (to achieve 20 year time horizon) • OMP adapted to changing circumstances or ineffective management actions

*input used in approved Offset Assessment Guide **Maximum value permitted to be used in Offset Assessment Guide

^No directly relevant input or output. 20 year time horizon assumed to be the most logical time period for maintenance to be applied

- Organic matter is scored out of 5 and is weighted by whether organic matter is non-native or of native plant origin. Organic matter scoring is therefore a result of biomass build up and weed cover. The current score of 3 (out of 5) can only be improved to a score of (5 out of 5) under the habitat hectares method. It is expected that this can be achieved using management actions for biomass control and weed control.
- Lack of Weeds is scored at 4 out of 15 with possible improvements for the offset area being 7, 9, 11 or 13 (out of 15). The scores 11, 13 or 15 (out of 15) requires there to be <5% weed cover, which is not a practical target for this area due to the high starting weed cover and because the highly modified landscape supports a relatively high cover of weeds. The improvement target is therefore set at 7 (out of 15). This minimum target requires average cover of weeds to be reduced from the current level of 25% - 50% cover with the target to be <25%, with more than 50% of the weeds being high threat. Sub-groups of weeds will have lower targets within the overall target e.g. all woody weeds to be <1%.
- The Understorey is scored out of 25 and is a function of species diversity but also growth stage. The Understorey score is being supressed by cattle grazing and weeds, and this is expected to improve once grazing pressure is controlled, revegetation works are performed and herbs can mature to their full height providing a greater variety of lifeforms. The target improvement is from 15 to 20 (out of 25) within the existing area of GEWVVP and from 5 to 15 in the balance of the offset site.
- The Logs score (out of 5) is a function of tree cover but is also reduced by activities that remove woody debris such as tidying up of paddocks or wildfire. The cover of logs is not a habitat requirement for GSM so will not be the target of management actions. However, since course woody debris provides habitat for a range of native fauna species and is not known to be detrimental to GSM populations, general conservation principals should be applied to management of the Offset area so that logs are retained within the Offset area. Logs can be placed within the offset site sourced from tree clearing elsewhere within Lindum Vale but the extent of this activity needs to avoid physical soil disturbance within the offset area.

The Habitat Hectares scores that can be expected to be achieved at the end of the 10-Year management period are shown in Table 8 below.

2.7.2 GSM habitat

Quality improvement will be measured using the results for site score described above and the results of targeted surveys for GSM.

The scoring methods used to obtain the Quality score of the Offset area in the Offsets Assessment Guide is shown in Appendix 4 and should be replicated to determine the final Quality score. There is a limited number of options for recording an improvement in GSM habitat Quality under the 10 point system:

- Site context is not influenced by on-site management actions and so is not expected to change of the 10-year management period (Table 8).
- The expected improvement in GSM habitat quality (i.e. from 6 to 7 out of 10) will be provided by an increase in vegetation condition by 1 point (see above).
- The management actions have the potential to produce increased cover of GSM food plants and improve the tussock structure, with suitable inter-tussock spaces. Note however, that GSM populations fluctuate naturally in response to seasonal conditions outside the Landholder's control and since GSM are already in high numbers, it is unknown if an already large population will respond to the proposed management actions with further population increases.

Table 8 Vegetation condition target improvement Habitat hectares scores (bold scores show improvement, italicised scores are mainentance)

Time			Baseline	Post ten years management
EVC Name - #			Plains Grassy Woodland (EVC 55)	Grassy Woodland (EVC 175)
		Max Score	Score	Score
-Site Condition	Large Trees	10	3/4	*3/4*
	Canopy Cover	5	3	*3 (canopy cover will increase but not to the extent where it significantly shades GSM habitat)*
	Lack of Weeds	15	4	**7**
	Understorey	25	15/5	**20/15**
	Recruitment	10	5	**6**
	Organic Matter	5	3	**5**
	Logs	5	2	*2 (no increase target set)*
	Site Score		35/26	**46/41**
Landscape Value	Patch Size	10	8	*8*
	Neighbourhood	10	3	*3*
	Distance to Core	5	4	*4*
	Landscape Score		15	*15*
HABITAT SCORE		100	45	61/56
Habitat points = #/100		1	0.45	0.6
GSM Site condition score		3	2	3

2.8 Limitations and uncertainty

It is impossible to eliminate all uncertainty from natural systems. However, this OMP has been formulated using the best available information at the time. The information used includes the results of site inspections, and the experience of the authors in grassland /grassy woodland management and research. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate. The OMP has been subject to external review and quality assurance by TfN and the Landholder as part of the process to register the TfN covenant.

More than one option is available for the required one point quality score increase for GSM (i.e. an increase in GSM population size, or an increase in habitat quality based on three site condition components) (Table 9) and GEWVVP (improvements in Lack of Weeds score, Understorey Score and Recruitment Score), and management is expected to provide at least one of these outcomes.

Management action results

The Offset area (7.21 hectares) already supports a large GSM population and 2.59 ha of GEWVVP, which provides certainty that conservation values are already present within the Offset area on which management actions can improve. The OMP includes a reasonable expectation that weed control combined with an ecological burning regime will reduce weed cover and impede weed seed production, which in turn, will provide increased recruitment, growth and seed production opportunities for the native grasses and herbs still in place, as well as the recruitment of woody species which will assist in habitat stabilisation and an increased site condition score. There is therefore a reasonable expectation that the management actions will result in an increase in the abundance and cover of native flora species. Since the dominant native grasses present are also GSM food plants, this management strategy along with management of biomass accumulation is expected to improve GSM habitat condition.

Table 9 Mickleham GSM habitat Quality score improvement target

Parameter	Baseline Score	Target improvement Score	Justification
Site context	1/3	1/3	(N/A management actions are not expected to influence the site context)
Site condition	2/3	**3/3**	It is expected that the cover of weeds will decrease and the ground-layer flora will be able to mature and reach a more natural growth form. The current site condition score of 30 is just below the threshold for obtaining a score of 2/3. Options to increase the habitat site condition score are available from improvements to the Lack of weeds, Understorey and Organic litter scores.
Species stocking rate	2/4	2/4 (3/4)	It is expected that the GSM population will remain stable and may increase over the 10 year management period. The current stocking rate is within 5 – 20 moths per hectare category. To achieve the 21 – 50 moths per hectare category, 2982 moths need to be recorded from four surveys, equivalent to a greater than 250% increase in records. There is no way to know if such a large increase is possible in 10 years so Quality score will principally be increased by improving site condition.
Quality score	**5/10**	**6/10 (7/10)**	It is expected that the Quality will increase from 5/10 to 6/10 over the 10 years.

Recruitment and growth of native species occurs in response to seasonal conditions so there is a possibility that the recruitment and growth of native species will be slower than expected or may be inhibited altogether in the case of prolonged drought conditions. Such a situation would influence the condition score of the GSM habitat but would be outside the control of the Landholder. Contingencies for these events are dealt with under the adaptive management section of this OMP.

The results of the management actions themselves are also influenced by external factors that cannot be controlled including: annual variation in weather conditions, human-induced climate change, and fluctuations in pest animals and weeds. Contingencies for these events are dealt with under the adaptive management section of this OMP. Especially with unprecedented events expected under human-induced climate change, allowance must be made for the influence of external factors with regard to the assessing the outcomes achieved where in all other respects the OMP has been adhered to satisfactorily.

Vegetation condition

It is acknowledged that the condition of the grassy ground cover varies with micro-topography (gilgais, rocky rises etc.) and it is not expected that ground cover condition will be uniform across all monitoring plots but all plots should show improvement from the Year 1 surveys. If average Quality of the Offset area has improved by 5 points after 10 years, the key performance indicators will be considered to be met.

GSM population

Native flora and fauna are adapted to variable seasonal conditions and many display boom and bust cycles of reproduction. As such, it may not be possible to differentiate between a bust cycle and a decrease in GSM numbers due to management actions in any one particular year. The overall trend in GSM numbers should be referred to when assessing the success of the Offset area after 10 years.

3. Management commitments and actions

This section presents the specific management commitments, management actions, and timeframes for implementation, to be carried out to meet specific objectives to improve the Quality of the GEWVVP and GSM habitat within the Offset area. The detailed schedule of management commitments, management actions and management targets is provided in Appendix 1.

The OMP aims to achieve gains in the Quality score of GEWVVP and GSM habitat through on-ground actions undertaken by the Landholder and with a high degree of certainty of success. As a result, the management actions are designed to be straightforward, practicable and achievable within the existing land management context.

The specific management actions of the OMP have two distinct stages for improvement and then maintenance of GEWVVP and GSM habitat Quality as follows:

- An intensive, 10-year program of management actions to be implemented from the commencement of the OMP. The management actions are directed at achieving an improvement in the ecological condition of the Offset area equivalent to an average 5 point increase in the habitat score as a measure of vegetation and habitat Quality.
- A set of in-perpetuity land management commitments that will ensure that the improvement achieved in the first 10 years of the OMP is maintained over time.

These stages are described in the sections that follow and are supported by schedules of actions at the end of this document.

The prescribed management actions are in accordance with the *DELWP Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015).

3.1 Management commitments

The management commitments are the over-arching land use commitments made by the Landholder with regard to the in-perpetuity management of the Offset area. The management commitments contribute to fulfilling the specific objectives for the Offset area and apply as long as the conservation covenant is registered on-title. The management commitments also direct what on-ground actions will be undertaken during the 10 Year intensive management and in-perpetuity management periods.

The following commitments have been reviewed and agreed to by the current Landholder. These commitments will be placed on title by the attachment of the OMP to the TfN covenant. Most commitments will apply immediately from the start of the OMP management period and continue in-perpetuity. In addition to the commitments applicable immediately, the grassland condition achieved as a result of the 10 year period of management, will be required to be maintained, in perpetuity.

The in-perpetuity management commitments of the OMP are as follows:

1. **Retain all native vegetation:**

    1.1 Permanently exclude all activities that would result in direct mechanical removal of native vegetation (excavation, geological exploration, ploughing of fire breaks, cultivation etc.). Direct-driving of posts to mark out the Offset area, monitoring plots or install low-impact fencing is permitted to the minimum extent necessary.

    1.2 Permanently exclude all activities that would knowingly introduce new weeds, weed seeds or other non-indigenous vegetation into the Offset area. It is acknowledged that not all weed invasions are within the control of the landholder.

1.3 Permanently exclude all grazing by domestic stock.

1.4 Exclude all broad-acre herbicide application use for purposes not related to weed control for conservation as specified in this OMP (e.g. maintaining fence lines or other easements, creating fire breaks).

1.5 Exclude installation of any infrastructure or associated easements (e.g. drainage, sewer, power or communication easements are not allowed).

2. Protect native herb diversity and native groundcover tussock structure:

2.1 Permanently exclude all fertilizer application.

2.2 Permanently exclude domestic stock of any kind.

3. Implement management actions as detailed in this OMP:

3.1 Secure Offset area for conservation via TfN conservation covenant registered on-title.

3.2 Years 1 to 10: implement works according to the OMP to achieve a minimum 5 point gain in Quality for native vegetation condition. The annual works plan must address:

- Fencing, signage & access
- Adaptive management
- Woody weeds
- Herbaceous weeds
- Pest animals
- New or emerging threats
- Revegetation
- Ecological burning
- Inspections, monitoring and reporting
- Emergency management

3.3 *Years 11+: Maintain an annual works plan for the ongoing maintenance of the condition (Habitat Hectares score) of the GEWVVP and GSM habitat that was achieved at the end of Year 10. The annual works plan must incorporate methods to ensure that management actions continue to adapt to current conditions for weeds, pest animals, and biomass control as well as*:

- Maintain fencing and signage.
- Continued protection of large trees, herb diversity and native tussock grass structure.
- Woody weeds maintained at <1% cover with no adult plants present
- Cover of herbaceous weeds does not increase beyond levels achieved at Year 10
- Pest animals do not increase beyond levels achieved at Year 10
- Biomass is maintained to achieve >20 to 40% cover of bare ground
- Continued management of woody vegetation to maintain open GSM habitat.

3.4 Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency.

The implementation of these commitments provides the reasonable expectation that the Offset area will meet the specific objectives of habitat Quality improvement over the period of the OMP's implementation.

3.2 Offset area management strategy

The key threats to the Offset area derive from the existing permitted uses associated with normal farming practices and the uncertainty created by a change in Landholder. The existing use rights are detailed in Section 2.4.1 and the associated threats are summarised as: inappropriate grazing regimes, pasture improvement, weed invasion and fertiliser application.

Other threats to the Offset area derive from natural processes that must be managed with on-going works. In particular, expansion of the cover of existing high threat weeds, invasion of new high threat weeds, an explosion in pest animal numbers and the excessive accumulation of dead plant material through the over-growth of ground-layer plants (referred to generically throughout as 'biomass').

The broad objective of the management actions is to produce a decrease in the abundance of perennial weeds, maintain an open grassy groundcover structure, revegetate areas not identified as native vegetation or poorer quality native vegetation with appropriate species and maintain conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs, including native grasses that are known food plants for GSM. Other parts of the broader subdivision that are not within the Offset area are to be managed in a manner sympathetic to the broad objectives of this OMP.

Currently weeds and biomass are managed through grazing by cattle for much of the year. Grazing will be excluded to provide improved conservation management of the ecological values of the Offset area. Ecological burning will be introduced as the main management technique for biomass control as needed, however more intensive follow up weed control will be essential.

The management actions each have a target to be achieved by the end of the 10-year management period. The management actions and their targets apply to the entire Offset area. However, it is acknowledged that topographic variation (e.g. gilgais and rocky areas) over the extent of the Offset area will produce variation in condition of the Offset area. This variation will be captured in the placement of the permanent monitoring plots and each target will be measured as an average across the whole Offset area. The results of the individual management actions will together provide the improvement in Quality required under the management commitments.

3.3 Offset area protection (security)

At the commencement of this OMP, the Offset area will be secured in-perpetuity via a conservation covenant registered on-title under Section 3A *Victorian Conservation Trust Act 1972*. The statutory body that regulates the *Victorian Conservation Trust Act 1972* is TfN and the covenant is known as a Trust for Nature covenant.

A TfN covenant has standard provisions, which bind the owner to managing the land for conservation purposes. In addition, this OMP will be registered on-title as an attachment to the covenant. As a result, the OMP will be binding on the current and any future owners of the Offset area. Details of the security arrangement are shown in Table 10 below.

3.4 Offset area protection (threat abatement)

The following actions will be undertaken by the landholder or their contractor to establish the Offset area as a conservation area (Appendix 1). The actions are once-off tasks that are required to set up the Offset area. These tasks are considered separately from the yearly management works that will be required after the Offset area is established.

Table 10 On-title conservation covenant arrangements

Details of security mechanism	Date or other details
Type of security:	Covenant under part Section 3A *Victorian Conservation Trust Act 1972*
Trust for Nature covenant registered on-title:	DD / MM / 2020
Commencement date for on-title protection:	Upon the on-title registration of the covenant
Commencement date for OMP management actions to improve offset Quality:	Upon the on-title registration of the covenant
Expiry date for OMP management actions to improve offset Quality:	10 years after the on-title registration of the covenant
Expiry date for maintenance of offset Quality at end of 10 management period	Nil - see in-perpetuity commitments in Section 3.1
Review of OMP in response to event or changing conditions	As required

3.4.1 Boundary fencing

The Offset area is currently not fenced to exclude the surrounding subdivision works. Fencing should meet the minimum standard set by DELWP detailed in *Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015).

Where fencing is installed on the boundary of the Offset area, the following requirements for the installation of fencing must be followed to ensure minimal disturbance to the Offset area:

- Fencing will use plain wire or electric wire only. Barbed wire is not permitted as it is a hazard to wildlife.
- All fence posts (strainer posts and stays) are to be direct-driven into the ground. Excavation for concrete footings is not allowed within Offset areas.
- Any gates are to be adequate to allow the access of expected management vehicles.
- No fencing will be installed within the Offset area.

Temporary fencing (1.8 metre tall mesh fencing panels supported on moveable concrete pads) is appropriate protection from construction works, prior to the installation of approved landscape fencing (i.e. bollards with wire rope).

3.4.2 Signage and access control

The Offset area remains private property and access or disturbance to the Offset area by unauthorised persons is prohibited. Fencing, access gates and security arrangements must be adequate while the management is being undertaken by the Landholder and his regular staff and contractors. Signage should clearly identify the offset site as a construction NO GO zone. Signs should therefore be placed at regular intervals on temporary fencing during the subdivisions construction period. The signs will alert workers to the protected status of the offset area and that works are strictly limited to the management actions described in this OMP. At a minimum, the signs will identify the offset site as a “No Go Zone”.

No external signage identifying the property as an offset site is proposed in this OMP but could be considered by the Landholder at their discretion. Conservation-related signage has potential to inadvertently attract undesirable impacts.

Monitoring of access will be conducted on an ongoing basis with fencing repaired or upgraded as required.

The northern and western perimeter of the site will be bordered with a road and associated walking/cycling shared path. This will be on the outside of the reserve boundary fencing which will be designed to exclude vehicles. No other formal access would be provided. The supervision and public nature of the reserve frontage would therefore discourage illegal dumping. Any illegal dumping into the reserve would be made difficult by the landscaping and design of the fencing and interface between the road, shared path and reserve fencing. Signs would identify the reserve as a conservation reserve and exclude access by dogs. While domestic cats would likely utilise the site to some extent this is almost impossible to prevent, even in the lands current configuration.

3.5 Offset area improvement (Year 1 to Year 10)

This section provides the specific management actions and timeframes for implementation, to be carried out to meet specific objectives to improve the Quality of the GSM habitat within the Offset area. The detailed schedule of management commitments, management actions and management targets is provided in Appendix 1.

3.6 Annual works plan

The annual works plan is the key process for implementing the principle of adaptive management used to minimise the risk of the Offset area being unsuccessful. Adaptive management is discussed in greater detail in section 3.7.2 and section 5. Prior to works towards the management actions being undertaken each year, the annual works plan (based on the schedule in Appendix 1) will be reviewed and updated in consultation with TfN. The updates will be based on the results of the management actions implemented the previous year and any new research or advice that may arise. To enable adaptive management, the review should identify which management actions in the previous year were successful in contributing to achieving the management target but also which actions were ineffective. The annual works plan will need to be updated based on what actions were effective and where relevant, to address any ineffective management actions.

If the management actions were ineffective, it will be necessary to determine the reason why they were ineffective. The most common reasons why a management action was ineffective include the following:

- Incorrect implementation (e.g. herbicides applied at the incorrect rate).
- Insufficient time has passed to determine effectiveness (The management action was not expected to work yet).
- There were seasonal conditions that rendered the management action ineffective (e.g. drought year).
- Management action produced an unexpected result (e.g. emergence of a new weed after ecological burning).

It may also be determined that the management action is generally not the most effective method for achieving the management target and would be better achieved using a different method. Where the management action is deemed to be generally not effective, the Landholder should discuss alternatives with TfN.

The annual works plan will also address any new or emerging issues, even if not anticipated in this OMP or not listed in the schedule in Appendix 1.

The Landholder should be consulted and sign-off on the annual works plan if it is prepared by their manager or other delegate.

3.7 Strategy for biomass / organic litter control

Biomass management is essential to maintain indigenous flora and fauna values throughout the Offset area. The term biomass relates to the amount of plant material (dead or alive) covering the ground. Once the biomass has died, it forms a layer of dried organic litter on the soil surface of the grassy ground cover. The amount of biomass in one year therefore determines the amount of organic litter build up that carries over to the next year. Management of biomass and litter are therefore interrelated.

In the absence of a process to reduce biomass or the resultant litter, the dry conditions experienced in Australia mean that the organic litter builds up over time and threatens the condition of the grassy groundcover. Factors that influence the amount of biomass and organic matter include: seasonal conditions, presence/absence of fire, amount of grazing by herbivores, and the plant species present, with weeds generally growing faster and producing more biomass than native plant species. Biomass management is therefore required regardless of whether weed control is also required. However, controlling highly productive weeds can also assist in biomass management.

In native grassy woodlands, biomass management is required to ensure that grasses do not dominate all the space in the ground cover so that inter-tussock spaces are maintained. Where there are insufficient inter-tussock spaces, native grasses will shade out native herbs and prevent them from photosynthesising, flowering and setting seed. Sufficient inter-tussock spaces are also required by GSM, which favours an open groundcover for breeding. Biomass management is also a method of weed control as discussed in section 3.8.

3.8 Use of fire for ecological management

The controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grasslands/ grassy woodlands and can be effective at reducing weed cover, especially for species that are difficult to control. Periodic burning that is followed by spot spraying can be an important strategy for difficult to control weed species such as perennial grassy weeds or widespread annuals. 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 native species, it can also promote weed species to germinate, however, stimulating the soil stored weed seed bank and then applying follow-up weed control is seen as positive as this allows this seed bank to be exhausted over time.

However, burning also has risks involved that must be managed carefully to avoid creating further problems. The reduction in biomass, increased open space, increased soil nutrients that can follow an ecological burn means that weeds often germinate in high numbers shortly after a burn. Because weeds generally grow faster than native species, if weeds are not controlled immediately after a burn, then there is a risk that weed cover will increase as a result of the burn. The timing of any burning also needs to consider the habitat requirements of GSM and therefore burning is prohibited from the beginning of the GSM flight season (typically about November) until the end of January.

3.8.1 Ecological burning for biomass control

Ecological burning will be used to manage biomass and organic litter. The general ecological burning requirements described in the section below apply to all burns undertaken.

The management target for biomass/organic litter will contribute to maintaining the vigour of the grassy ground cover and allowing adequate space for recruitment of native flora. Biomass management will also improve the openness of the sward to encourage a greater amount of GSM breeding activity and therefore increase the GSM population. The management targets are as follows:

- Inter-tussocks spaces maintained within the range of 20 to 40%.

- Organic litter at 10 to 30% cover. Where there is a sustained build up in biomass over any one year, resulting in a reduction of inter-tussock space to an average of less than 20%, biomass will need to be actively reduced.

3.8.2 General ecological burning requirements

The following section provides guidelines for use of burning for the purposed of ecological management of biomass and weed control. Fuel hazard reduction burning is excluded from the Offset area. It should be noted that in some wet years burning may not be possible prior to seed set due to a combination conditions and restrictions.

A fire management plan is to be completed in consultation with TfN and/or the advising ecologist as part of the annual works plan. Any approved fire plan will be provided to TfN at least three weeks prior to any burning event identified within that plan.

Eecological burns will be conducted during benign (low wind and mild temperature) weather conditions. Burning within the Offset area will be undertaken only with due consideration to relevant health and safety issues. Ecological burning should only occur outside the prescribed declared fire danger period for the region and therefore is unlikely to require a permit. However, the Council and Country Fire Authority should be consulted if there is any doubt about the permit requirements to undertake planned burning. The Landholder is responsible for ensuring the requirements of this OMP are carried out only if compliant with all other government planning requirements and permits. Planned burns will minimise the potential for fire to spread in an uncontrolled manner.

All parts of the Offset area are suitable for burning, however, the extent of the burn needs to determined based on what is feasible for follow up weed control (as could be determined by a trial burn) as well as the extent of biomass accumulation. For weed control, selected areas of grassy ground cover 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. For biomass control, selected areas of grassy ground cover will be those where biomass is approaching the upper limit allowed under this OMP (70 to 80% cover).

No area is to be burnt more frequently than every two years. After each burn, the Landholder will prepare maps identifying the fire history of the Offset area to ensure the time since an area was last burnt can be documented. If wildfire should happen to occur in the Offset area, this will also need to be recorded in the fire history.

At no time should the entire Offset area be burnt in a single season and burning should never be done in a manner which could endanger the large old trees present. Large trees should be protected from burning because they are likely to be severely damaged or killed if they ignite and fire is carried to the crowns via hollow trunks.

The application of a mosaic burning regime is the preferred burn pattern. Nevertheless, any burns must be planned to meet the requirement to maintain adequate habitat characteristics for GSM within the Offset area. Planned burns therefore will be restricted to no more than 50% of the Offset area within any 12 month period. Patchy burns are a desirable outcome and an array of small burnt and unburnt patches covering up to a hectare is an appropriate scale on which to gauge the success of the burn.

The extent, intensity and timing of burns must take into account the presence of threatened species, in particular GSM. Fire may kill individuals of GSMs 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) unless fires are conducted at a small and limited scale. Late spring burns can be implemented if less than 20% of the Offset area is impacted.

Burnt areas may need to be protected from grazing by kangaroos for at least 6 months to allow species regeneration and recruitment to occur. If required temporary fencing should be erected around burn areas if grazing by kangaroos is considered problematic.

3.9 Weed control

The management targets for weed control are shown in Table 11 below and further information is provided in the sections that follow.

The weed control strategy is a multi-pronged approach that takes advantage of the ecological conditions of the Offset area. The weed control strategy focuses on ensuring that the ecological conditions stay favourable to native plant species while limiting the growth and reproduction of weed species as well as directly treating weed infestations. This strategy provides the native species with opportunities to recolonise the areas that were previously occupied by weeds once the weeds have been killed. The weed control strategy is comparable to that used for well-managed grassy woodland reserves making the weed control strategy practical and feasible within the conservation reserve context of the Offset area.

Table 11 Management targets for weed control

Scientific Name	Common Name	Average cover	Proposed control measures	Management Target for cover 2030
Woody weeds				
Lycium ferocissimum	African Box-thorn	2%	Cut and paint, hand pull, spray with approved herbicide	Eliminated
Rosa rubiginosa	Sweet Briar	1%	Cut and paint, hand pull, spray with approved herbicide	Eliminated
Short-lived perennial grasses				
Anthoxanthum odoratum#	Sweet Vernal-grass	<1%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<1% (prevent any expansion of existing infestations but preferably eliminate)
Annual grasses				
***Vulpia* spp., *Briza* spp., *Bromus* spp., *Aira* spp. & *Hordeum* spp.**	Fescue, Quaking-grass, Brome, Hair-grass& Barley-grass	20%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and destroy standing seed. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<10%
High threat herbaceous weeds				
Perennial tussock grasses: *Phalaris aquatica, Paspalum dialatatum, Holcus lanatus, Nassella* species	Toowoomba Canary-grass, Paspalum, Yorkshire Fog and Needle-grasses	10 - 30%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and facilitate herbicide spraying. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<5%
Broad-leaved weeds: *Cirsium vulgare#*, *Hypochaeris radicata, Leontodon saxatilis* and *Acetosella vulgaris*	Primarily Spear Thistle, Flatweed, Hairy Hawkbit and Sheep Sorrel	5%	Spot Spraying appropriate herbicide (prevent flowering). Ecological burning to germinate seed. Areas with a high cover of Sheep Sorrel and little or no cover of other broad-leaf natives could be broad area sprayed with a broad-leaf specific herbicide.	1%
Perennial mat-forming grasses:	Brown-top Bent	10%	Controlled burning. Spot spraying appropriate herbicide (early spring).	<5%

Scientific Name	Common Name	Average cover	Proposed control measures	Management Target for cover 2030
Agrostis capillaris				
Total		**50-70%**		**<20%**

**It is expected that seedlings may re-establish from time to time due to the re-introduction of seeds by birds and other animals or re-sprouting of trunks after previous year's treatment. Inspections at Year 10 should not detect any established adult plants

The weed control strategy aims to achieve the following outcomes:

- Maximise recruitment opportunities for native plants species by providing decreased competition from weeds for space, light, nutrients and water.
- Minimise recruitment and reduce recruitment conditions that favour weeds by:
  - *Maintaining sufficient (60% to 80%) ground cover. Insufficient ground cover, resulting in excess bare ground, from over-grazing, post-fire or drought provides increased opportunities for weed seeds to germinate and grow.*
  - *Minimising nutrient enrichment.*
  - *Directly killing weeds prior to seed set with herbicide or physical removal. Other chemical free methods of weed control such as steam weeding or flame weeding can also be used.*
  - *Limiting the yearly growth of weeds to minimise the total space they occupy in the Offset area and to prevent excessive build-up of organic litter (i.e. dead grass) that can smother the growth of seedlings and other plants.*
  - *Limiting the yearly growth of weeds at the correct time to also prevent seed set.*
  - *The use of fire to encourage germination of soil stored weed seed and exhaust the soil weed seed bank.*

Note that while this OMP lists management targets for particular weed species, the target species are likely to change over time. The abundance of weeds will change in response to seasonal conditions, in response to grazing or in response to controlled burns (e.g. post-burn flush of broad-leaf weeds) and new weeds may emerge as a result of wind or animal-mediated seed dispersal or germination of soil-stored seed. The management actions for weed control must be adapted to meet the changing conditions. Weed cover and weed species will need to be monitored by both the Landholder and in yearly ecological monitoring with management adapted in response to the monitoring results. The document DELWP *Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015) provides information about acceptable weed control activities for conservation activities. However, for any new or emerging weeds or weeds requiring new management methods, TfN will be consulted for site-specific advice and approve the control techniques.

3.9.1 Woody weeds

Woody weeds were recorded within the Offset area but all species were recorded as isolated or small groups (<20) plants only. The total cover of woody weeds was less than 5% of the Offset area. Woody weeds are considered easier to control that herbaceous weeds due to their larger size, slower growth/recruitment, and their occurrence as small numbers of plants. The elimination of all established adult woody weeds is therefore considered practical within the 10 year management period.

Woody weeds are generally spread by animals, including birds that have ingested the fruit / seeds, which makes the permanent elimination of all woody weeds unlikely. However, after the adults have been eliminated, weed control will focus on detection and treatment of new seedlings or any re-sprouting stumps that may occur following weed control. Woody weeds that are detected either incidentally during site management or as part of monitoring activities, should be recorded with GPS and controlled / eliminated as soon as possible and before flowering and seed set. Using this approach, the cover of woody weeds is to be maintained at negligible levels in-perpetuity.

3.9.2 Annual weeds

Annual weeds were recorded throughout the Offset area. Annual grasses are present throughout the Offset area including Fescue *Vulpia* spp., Quaking Grass *Briza* spp., Bromes *Bromus* spp., Hair Grass *Aira* spp. and Barley Grasses *Hordeum* spp.. Annual pasture species such as Cape Weed *Arctotheca calendula* and Clover *Trifolium* spp. are present throughout.

Annual weeds are not considered a key threat to the conservation values of the Offset area. However, uncontrolled growth of annual weeds can reduce the vegetation condition and Habitat Hectares score by decreasing the Lack of Weeds score, and Organic Litter score. Given this is the case, management will be directed at minimising the annual weed cover, at worst maintaining it at the existing level and minimising its growth and reproduction. Management using targeted ecological burning is expected to have an impact on the abundance of these species. However, seasonal conditions such as a wet winter followed by a late warm spring may produce growth rates in excess of what can be controlled.

If ecological burning has not been able to constrain the spread of annual weeds, direct weed control methods should be applied as discussed below. If chemical weed control is proposed for annual weeds, its use should be evaluated against the risk of damage to non-target (native) plant species prior to application.

3.9.3 High threat herbaceous weeds (perennial tussock grasses, perennial broad-leaved weeds)

High threat herbaceous weeds are those that have potential to displace native species of the same type. For example, perennial grassy weeds like Toowoomba Canary-grass and Paspalum have potential to replace native perennial tussocks grasses like Kangaroo Grass *Themeda triandra*. The overall management objective is to ensure that all high threat herbaceous weeds are controlled to ensure that there is no increase in their cover where they currently occur, no further spread of these weeds into new areas of the Offset area, and to actively reduce their cover and abundance. The management targets for high threat weeds are set for weed species grouped according to growth form and status (Table 11).

As discussed above, ecological burning and herbicide application will be the principal control methods for these species. Weed control will be a regular activity and undertaken generally in accordance with the schedule in Appendix 1.

3.9.4 Use of herbicide

Spot-spraying involves applying herbicide using a small nozzle so that only the target plant is treated. All spot spraying must be completed in a manner that minimises non-target damage by following all manufacturer's directions regarding rainfall and wind speed on the day of application. There will be no spot spraying in close proximity to threatened flora without protective measures in place (i.e. physical shielding). Spot spraying will be undertaken regularly, particularly in spring and early summer, with a focus on killing weed plants prior to seed set.

There are also a number of chemical-free weed control methods that could be trialled including steam weeding and flame weeding. The Landholder does not have experience with these methods so it is not a requirement that they be used. If, in consultation with TfN, a trial of chemical-free weed control is considered worthwhile, this can be done within the requirements for adaptive management within this OMP since a move away from chemical usage would be considered to be of general benefit to the local environment.

Given the long history of herbicide use in the surrounding cropping areas, there is no specific runoff risk is identified for the application of herbicides to the Offset area if used in accordance with the manufacturer's directions.

3.9.5 New and emerging weed problems

A key management action will be to ensure procedures are in place that can detect any new weed species or emerging weed problems in time to take preventative action. The management actions are described in

Appendix 1. The requirements comprise routine inspections by the Landholder (or a manager appointed by the owner), visits from TfN (on-going) and annual ecological monitoring (first 10 years of OMP). Any new or emerging weed problems are to be recorded with GPS or clearly marked in the field and treated as soon as possible. Records are to be kept of any new or emerging weeds identified, the treatment applied and follow up inspections of the treated weeds. Where possible, new and emerging high threat weeds (noxious weeds or known environmental weeds) will be eradicated from the Offset area. However, if the weed is already established by the time it is detected and cannot be eradicated in must be controlled to less than 1% cover.

The surrounding landscape is the most likely source of new weeds so that it is advisable to have weed monitoring and treatment schedules for the rest of the property (although this cannot be enforced via the OMP or TfN covenant). This is likely to be a cost effective way to reduce weed loads in the Offset area. Public land can also be a source of weeds (e.g. council managed road reserves) and it would be prudent for the Landholder to alert the relevant authority to any weed problems on public land adjoining the property.

3.10 Pest animals

The *Catchment and Land Protection Act 1994* requires that Landholders must take all reasonable steps to prevent the spread of - and as far as possible eradicate - established pest animals on their land. In addition to this legal duty, the control of declared pest animals including rabbits and other pest herbivores is a requirement of this OMP.

Foxes, rabbits and hares must be monitored and controlled throughout the year. Activity by European Rabbits *Oryctolagus cuniculus* was not evident during site visits.

Pest management should use an integrated approach such as is described in *Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015). For rabbits, an integrated approach involves fumigation, hand collapsing of burrows and baiting. Ripping of rabbit warrens within the Offset area is not permitted. If any warrens develop within the Offset area, they are to be treated by low impact measures such as fumigation or implosion. Remove any carcasses to prevent poisoning of native predators. In the event of an explosion in the rabbit population, rabbit-proof fencing of the Offset area will need to be considered as control options for these pests.

Other problem pest animals may include mice, cats and foxes that may find shelter in crops, rock formations and rock walls within and adjacent to the Offset area. The Landholder will select from the range of control techniques available and apply the most effective in the local conditions. Control works targeting these pest animals are not expected to have any negative impact on any MNES.

3.11 Understorey diversity and recruitment

The grassy ground cover of the Offset area already supports a relatively high number and diversity of native plant species. The management actions associated with plant diversity therefore aim to protect the existing plant diversity and encourage its growth and recruitment.

The main risks to understorey diversity in the Offset area once it is protect by the TfN covenant will be: over-grazing by herbivores such as kangaroos, uncontrolled weed growth and the accumulation of biomass over a prolonged period (greater than a year). Since all three risks are addressed in the previous management actions no further mitigation measures are required to manage native plant diversity and recruitment.

3.12 Supplementary planting / Revegetation

The Conservation Reserve supports a number of mature trees and associated regeneration of various ages. The recruitment of River Red-gum is not considered to be restricted within the reserve. However, over

abundant recruitment may place undesirable stress on the existing mature trees. While selected sapling trees will be retained within the reserve, to maintain a level of canopy cover roughly equal to the DELWP benchmark for Plains Grassy Woodland (15% canopy cover), most eucalypt regeneration will be subject to burning or slashing to prevent the establishment of high densities of saplings.

Ground cover revegetation works are also required within the area of the Conservation Reserve not identified as native vegetation (Figure 4). However, a dense contiguous ground-cover of grasses is inappropriate for the objectives of this reserve. This area can be subject to high intensity weed control works in year 1 followed by the seeding and planting of indigenous grasses and herbs collected from the local area (within 50 km).

Potential species for ground cover revegetation works are listed in Appendix 2. This list is not comprehensive and other locally indigenous species can also be included in any revegetation works. The reintroduction of other ground cover species throughout the Conservation Reserve is also encouraged as a high species richness of the indigenous flora would provide a greater resilience to weed invasion.

Risks associated with revegetation works include:

- Introducing new weeds or plant diseases, which can be brought in on potting mix from nursery-grown seedlings;
- Disturbance to the Offset area by digging holes to plant seedlings; and
- Introduction of weed seeds in seed mixes or machinery.

These risks will need to be appropriately managed during these works.

Revegetation works will be planned for year 2 of management, after the collection of adequate material to implement the required revegetation works in areas of non-native vegetation (Figure 4).

Initial works will include the design of the revegetation program within three months of the initiation of this OMP. Implementation of the plan will depend on the seasonal condition at the end of the planning phase but seed and propagule collection will begin at the end of the planning phase.

Initial works will include high intensity weed control works and burning as required. By the end of year 4 it is expected that these works would establish a 50% cover of indigenous grasses and herbs. A target of at least 10 indigenous herbs are to be established in this area.

3.13 Offset area maintenance (Year 11-onwards)

At the end of Year 10, ecological monitoring will determine the condition of the GSM habitat using Habitat Hectares and the results of GSM surveys. The condition measured at the end of 10 years must be maintained in perpetuity to ensure that GSM continue to be provided with a conservation benefit. The following ongoing management actions will apply in-perpetuity and align with the management commitments listed in Section 3.1.

As the responsible authority for TfN covenant, it will be the responsibility of TfN to ensure the land under covenant continues to be managed in accordance with their requirements.

The Landholder agrees to undertake the following on-going management actions listed in the following table (Table 12).

3.14 Contractor requirements

Due to the sensitive nature of the working environment, contractors working with Offset area are required to be suitably qualified and experienced. All workers should be familiar with the restrictions association with working within a conservation area prior to starting works. This can be in the form of a site induction or supervision by the Landholder. Note that the contractor requirements apply to all of the establishment, improvement and on-going management actions.

Table 12 Summary of on-going management actions (Year 11 onwards)

Management action	On-going requirement
Access and signage	• Routine inspections to check the condition of fencing and any signs. • Maintaining the fencing and signage including the arrangement of gates, unless otherwise authorised by TfN as appropriate.
Weeds	• Routine inspections to look for and detect 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 10-year management period either.
Pest animals	• Routine inspections to look for and detect pest animals, particularly rabbits, hares, foxes and cats; • Ensuring that size of the pest animal population does not increase beyond the levels attained at the end of the 10-year management period.
Biomass	• Manage biomass so that bare ground stays at around benchmark levels of 20 to 40% cover. • Manage organic litter to meet the EVC benchmark cover of 10% - 20%.
Ecological burning	• Ensure the application of ecological burning regimes required to facilitate biomass control and weed control activities.

3.14.1 Required qualifications

All management works are to be carried out by the Landholder (their delegate) or their contractor. All unsupervised contractors should be suitably qualified and experienced and familiar with the Offset area. For labourers being supervised by a suitably qualified contractor, the labourers should be carefully supervised until the Landholder or supervisor is satisfied that the contractor is suitably skilled at the required tasks.

All ecological monitoring of vegetation should be undertaken by a suitably qualified professional ecologist who has at least 3 years of experience in assessment of native grasslands and grassy woodlands. All GSM surveys should be overseen by a suitably qualified ecologist who has experience in identifying GSM for field surveys.

DAWE defines suitably qualified person as follows:

- Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

3.14.2 Required independence

The suitably qualified ecologist undertaking the monitoring must have sufficient independence to objectively assess the results of management actions and therefore cannot be employed by the same contractor engaged to implement the management actions. DAWE also has requirements for auditors to be independent. Please refer to any approval conditions for EPBC Act referral 2015/7516 for auditor requirements.

3.14.3 Site inductions

For contractors that are unfamiliar with the Offset area, the Landholder (or delegate) should provide site inductions to ensure that any contractors undertaking management works within the Offset area are aware of the allowed activities and work methods. Site inductions should include the following key information:

- The Offset area is a conservation area that is protected by federal legislation.
- There are fines associated with damage to the grasslands and grassy woodlands.
- A work order with specific tasks or a list of works permitted in the Offset area.

- A list of works prohibited in the Offset area.
- Weed hygiene protocols to avoid introducing new weeds on boots, vehicles, plant or equipment.
- All vegetation within the Offset area is protected (other than weeds). Protected vegetation includes native grasses and wildflowers, sedges and rushes, mosses and lichen.
- Surface rocks should not be disturbed as these provide habitat for native reptiles.
- Works will have a minimal impact on the grassy ground cover and every effort will be made to avoid leaving wheel ruts due to driving in wet conditions or otherwise disturbing the grassy ground cover.
- The emergency management and reporting procedures for Incidents. Note to contractors that possible or actual damage to the grassy ground cover counts as an Incident along with weather-related, bushfire, accidents or medical emergencies.

3.14.4 Contracts

For engagement of new contractors, the Request for Tender or Request for Quote should include a requirement to comply with the relevant provisions in the OMP. The Landholder should request details of the contractor's experience with undertaking works in native grasslands. The services contract should include requirements for compliance with the relevant provisions on the OMP or include requirements to comply with all instructions regarding protection of native plants and animals on site.

4. Monitoring actions

This section presents the nature, timing and frequency of monitoring to determine the success of management actions against key performance indicators. The detailed schedule of monitoring actions is provided in Appendix 1.

Surveillance of the Offset area is an integral component of the regular management actions. Routine inspections and ecological monitoring are separate activities in the OMP but both are important for early identification of changes, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the OMP. Routine inspections include observations by the Landholder during normal activities within the Offset area and broader property and which are important for maintaining a record over the entire year that is not possible during annual ecological monitoring events. Ecological monitoring is undertaken by qualified ecologists who will collect data from repeat surveys of permanent monitoring plots to assess the overall improvement in Quality over time.

4.1 Routine inspections undertaken by Landholder

The progress of management works will be surveyed and recorded by the Landholder or their representative on a regular basis. Most of these records are normally kept in the course of land management activities but the requirement to keep these records has been formalised in this OMP for the Offset area specifically.

The Landholder will provide a progress report to TfN and DAWE on an annual basis. The report will utilize the compiled records of observations and management works as described below.

4.1.1 Records of management works

The Landholder or their representative must keep a diary of any management actions/works undertaken within the Offset area. The works will include weed control, pest animal control, fence maintenance and burning activities. These records of all management actions must be kept to provide evidence of the implementation of the OMP.

4.1.2 Records of routine inspections

The Landholder is to undertake regular site inspections in accordance with the schedule in Appendix 1 (at a minimum once every 3 months, with additional requirements to inspect the results of ecological burns, Appendix 1). During the site inspections the Landholder is to record general observations including on fence condition, weed levels, progress of revegetation works and biomass levels and well as the location and management requirements of any problems observed during the inspections.

As part of these notes, the Landholder must record any observations that could influence or initiate a management response. It is helpful to allocate a timeframe to undertake the identified management response. e.g. "*seedlings of a new woody weed seen in the middle of the Offset area today. Will spot spray these with glyphosate by the end of the week*". The Landholder should also record any new or emerging weed problems or if any weed species have been eradicated. These details provide valuable information on the management of the Offset area and contribute to the records that detail the commitment of the Landholder to the OMP.

Some specific requirements are detailed in Table 13 below.

Table 13 Routine inspection requirements each quarter

Management action	Routine inspection requirement
Fence condition	Surveys of the property boundary fence must be conducted quarterly, and when visiting the Offset area to do other monitoring or management actions. Any damage to the fence that may allow vehicles or any entry outside of the parameters outlined in this OMP must be repaired immediately.
Weed monitoring	Once a year in spring, the entire Offset area should be surveyed for woody weeds, by walking throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the Offset area will likely require at least three 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 surveys will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire Offset area for new infestations. While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, (estimated to the nearest 5%). Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/Landholder for treatment.
Biomass and fire related inspections	To inform the annual works plan, the Offset area should be inspected to determine biomass, ecological burning requirements for the coming season and the results f any previous burns. The Landholder will inspect the offset site to evaluate biomass and weed levels, and to determine future management requirements for previously burnt areas. Records are to be kept on post fire regeneration on a monthly basis.
Pest animal monitoring	Signs of pest animals (rabbits, hares and foxes) will be recorded when visiting the Offset area. 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 will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the Offset area.

4.2 Routine visits and oversight provided by Trust for Nature

More general supervision/monitoring of the offset site will be undertaken by TfN to ensure the management actions produce the desired outcome outlined by this OMP.

On an annual basis, TfN will liaise with the Landholder regarding the development of an annual works plan in accordance with management actions in Appendix 1. TfN will visit the Offset area a minimum of four times over the 10 year management period (of years 1, 3, 7 and 10). This level of monitoring is the minimum that TfN can commit to as advised in their review of a previous draft of the OMP. TfN can commit to at least one site visit to be undertaken in spring with the other visits undertaken throughout the year, although spring is the best time to assess grassland condition. Further site visits can be requested by the Landholder as needed to address specific management problems or to discuss the progress of the Offset area. During Years 11 to 20, TfN will visit the Offset area a minimum of once every five years. Further site visits can be requested by the Landholder as needed during Years 11 to 20.

On an annual basis, the Landholder provides an annual report to TfN, which is in the form of a template based on the schedule of management actions in Appendix 1. TfN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period or funds are withheld until the works are completed to a satisfactory standard. After the 10 year management period has been completed, TfN has a statutory responsibility to ensure compliance with the TFN covenant. Since the OMP is attached to the covenant, TfN also provides oversight of the OMP.

4.3 Ecological monitoring undertaken by qualified ecologists

Suitably qualified ecologists as defined in section 3.14 must be engaged to undertake ecological monitoring on a regular basis according the schedule in Appendix 1. The monitoring will include assessments that require expert skills such as Habitat Hectares assessment that cannot be undertaken by the Landholder.

4.3.1 Control plots

To determine if management actions have been effective, it is necessary to have a baseline and a control against which to compare the treatment areas. Monitoring done without control plots can only record change over time but does not provide a way to link the management actions to the changes recorded. To address this problem, the Landholder will allow some small exclusion plots to be installed prior to any management actions being undertaken. two exclusion plots placed by an ecologist within the Offset area will be installed in the offset area. These will be 20 metres x 20 metres and fenced with chicken wire to prevent any herbivore grazing. No weed control works will be undertaken in these plots. The plots will be removed at the end of the 10 years of management.

4.3.2 Vegetation condition

Ecological monitoring of the condition of vegetation (which includes GEWVVP) will be undertaken annually in spring, ideally at the peak flowering time for native grasses. The first monitoring event should occur in 2020 prior to introduction of conservation management. This will provide a baseline or "before" measure against which the results of future management actions can be compared.

The monitoring will consist of the following components:

- General site inspection and average Habitat hectare assessment. The walkover will take at least 5 hours and make notes on woody weed abundance, evidence of biomass management, herbaceous weed cover for target weed species and general condition (evidence of pests, new weeds etc.). This assessment will document the general overall condition of the Offset area and the ability of management works to maintain the condition of GSM habitat.
- Permanent monitoring points (5 over and above the controls) will be established throughout the Offset area, stratified by weed cover and topography. The plots will be a square 20 m by 20 m in size to allow for the detection of herb diversity during the monitoring. The plots will be clearly marked and their location accurately recorded using GPS.
- The following data will be collected from each plot and the control plots. It is estimated an hour will be required to collect these data from each plot:
  - *List of native and introduced species.*
  - *Total vegetation cover (%)*
  - *Total cover of native perennial vegetation (%)*
  - *Total cover of native herbs (%)*
  - *Total cover of perennial weeds (%)*
  - *Total cover of annual weeds (%)*
  - *Cover of bare ground (%)*
  - *Cover of organic litter (%)*
  - *Average height of vegetation (cm).*
  - *Habitat Hectares score.*
- A photo of each plot will also serve as permanent photo points. Using the NE corner of the plot for the photo point, a photo will be taken facing the four points of the compass (N, S, E & W).

Information will be collated as part of the annual reporting requirements (Section 4.4). The objective of this OMP is to have the entire offset site classifiable as GEWVVP by the end of the first ten years of management.

4.3.3 Golden Sun Moth monitoring

Monitoring during the flight season for GSM is necessary to evaluate the size of the population over time.

Baseline surveys of the GSM population will be undertaken in the summer of 2020. It is recommended that subsequent GSM monitoring surveys be undertaken after one year of management has been achieved and then every second year thereafter for the duration of the 10 year management period. It is unlikely that management actions to encourage increased growth of GSM food plant species will have an immediate effect on GSM numbers, therefore, surveys every second year are considered sufficient to monitor the health of the GSM population. GSM surveys area therefore required in the following summers:

- 2020/21
- 2021/22
- 2023/24
- 2025/26
- 2027/28
- 2029/30

Monitoring will record the number of individuals observed from set monitoring transects. A team of 2 people will survey the entire Offset area in one day using 50 metre wide transects. The chosen method must be repeated exactly the same for each of the four surveys completed in a survey year (i.e. it is not acceptable to assess a quarter of the Offset area once in order to survey the whole Offset area in four visits).

Monitoring for GSM will be undertaken in accordance with the requirements of DEWHA (2009) with regard to survey season and weather conditions on the day of survey. As GSM are known to occur at this site no reference sites are required. The Landholder is likely best placed to watch for when the flight season has started but other GSM sites within the district can also be used. A monitoring event requires four visits to the Offset area on four days approximately one week apart. Surveys will take place when conditions are suitable for male flight (generally >20°C, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs. Tracks will be recorded using a GPS receiving device and a waypoint taken for each location where GSM are observed. Notes on habitat condition including cover of food plants and inter-tussock spaces will also be recorded.

The results of these surveys will be compared to the original baseline surveys (2019 /20 flight season) and those of the previous monitoring event.

Any observations of GSM during monitoring for vegetation condition and during inspections by the Landholder or TfN will also be recorded.

4.3.4 Monitoring report

Once monitoring is complete, a monitoring report with the following information will be provided:

- Assessment of condition improvement of vegetation
- Results of GSM surveys (every second year).
- Advice on planned burning and weed/biomass control approach for the coming year.

The monitoring report is to be provided to the Landholder, SPG and TfN. It will be the responsibility of SPG to supply the ecological monitoring reports to DAWE as their annual compliance report.

4.3.5 Independent audits

The approval holder (SPG) must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister. In addition, as the approval holder, SPG is responsible for ensuring the implementation and effectiveness of the OMP.

If required, audits will be conducted by an independent ecologist appointed by SPG 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 DAWE, 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 habitat within the Offset area.
- 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 the OMP.

Additional audits may be triggered as a result of a review of the OMP or following an environmental Incident resulting in significant change to site conditions, as identified in the risk assessment.

4.4 Reporting

The approval holder (SPG) must submit an annual compliance report to DAWE for the period of the approval. The detailed schedule of reporting is provided in Appendix 1.

As part of this reporting, the Landholder will prepare an Annual Report to address 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 management commitments and completion criteria for the Offset area. Reports will be submitted prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed.

The annual report will include:

- Details of management actions undertaken within the reporting period.
- Results of at least four routine inspections, including fence condition, weeds, pest animals, and biomass accumulation.
- Details of compliance or non-compliance with the schedule of management actions (Appendix 1).
- Details of compliance or non-compliance with management targets (Appendix 1).
- Details of any incidents or new and emerging management issues, with required corrective action.
- Any triggers exceeded and which corrective actions were implemented.
- Details of ecological monitoring results including photos from photo points and GSM survey results in relevant years.

The reporting schedule is detailed in Appendix 1.

5. Risk assessment and adaptive management

5.1 Risk assessment

Table 14 on the following pages uses the DAWE risk framework to assess the risk of the KPIs not being met. The risk of the KPIs not being met is assessed by comparing two scenarios: a situation with an approved OMP and a situation without an approved OMP. This is done by identifying a hazard based on each KPI. The risk assessment then provides a summary of how the management actions provide control measures for each of the hazards identified. This allows the risk of the offset failing to meet the KPI's to be reduced. The risk assessment also details the residual risk after the control measures in the OMP are put in place. A strategy for addressing the residual risk is provided in the last column.

The likelihood and consequence classification is summarised in Appendix 2.

5.2 Emergency management

There is residual risk posed by emergency events such as wildfire, floods or unexpected pest outbreak. These events present a risk of damage to the Offset area, because emergency activities may involve any of the following:

- Extreme change in conditions requiring rapid adaptation of management actions and/or management targets (e.g. rapid change from unburnt to burnt in the case of wildfire).
- Emergency works such as earthworks to plough or excavate firebreaks.
- New threats previously absent to the Offset area (e.g. new weeds brought in during emergency works).
- Previously controlled threats becoming more prevalent (e.g. rapid increase in existing weed cover).
- Unauthorised access, livestock grazing or trespass (i.e. as a result of fences being destroyed).

While the likelihood of an emergency management scenario occurring over the life of the OMP is rare, the consequences could be Major and resulting in a risk assessment of Medium. The risk assessment of Medium is based on the impacts that emergency management actions can have on the protected matters, especially during a wildfire event.

5.3 Emergency Contacts and procedures

Should any emergency occur, the relevant contacts (listed below) must be notified as soon as possible.

- In the event of a life-threatening emergency, the relevant emergency services should be contacted immediately. Emergency services must be advised of the conservation protections to avoid inadvertent damage (e.g. ploughing fire breaks, use of chemical fire suppressants).
- SPG is required to notify DAWE of any incident within 10 days so that the Landholder must notify SPG and DAWE within this timeframe.
- A delegate of the Landholder (e.g. managing ecologist) must notify the Landholder within 12 hours and the Landholder must notify TfN within 24 hours.

5.4 Emergency contact details

- Bushfire or other life-threatening emergency: Phone 000, ask for fire brigade
- Non-emergency criminal activity (illegal dumping, trespass): Phone Victoria Police 131 444
- Department of the Environment and Energy (DAWE): Phone 1800 803 772
- Trust for Nature: Offset advisor phone (03) 8631 5888
- Landholder (or their representative): Currently Satterley Property Group Pty Ltd

5.5 Review of OMP

This OMP includes an adaptive management framework so that a review of the OMP will only be necessary under the following circumstances:

- A major incident that makes a significant change to the character or condition of the Offset area requiring updates to management targets or KPIs (most likely wildfire, Table 14).
- The Landholder / TFN identifies a beneficial permanent management change such as might arise from new research or on-ground observations and requiring updates to permitted activities or management actions.

If a review required by the Landholder or after a major incident, this will be undertaken by the Landholder in consultation with TfN and DAWE.

If a review is required by DAWE as part of the conditions of approval, the review will be undertaken by SPG.

Table 14 Risk assessment of potential hazards as defined by Key Performance Indicators

Potential hazards as defined by Key Performance Indicators (KPIs)	Likeli-hood	Consequ-ence	Risk Level	Management action # (see Appendix 1)	Hazard Control Methods	Likeli-hood	Consequ-ence	Risk Level	Residual risks	Management strategy for residual risks
	Without OMP								With OMP	
Failure to register TfN agreement on relevant land titles	Unlikely	Major	Severe	1, 15	• Statutory approval condition for LVRD • DAWE post-approvals team to regulate execution of approval conditions	Rare	High	Low	The risk assessment of low is based on the Offset area being identified prior to the approval and secured using a TfN covenant. The funds for the Offset area are only release by TfN after the CTA has been finalised. This provides a strong financial incentive for both the Landholder and approval holder to ensure the security mechanism is placed on title.	If the TfN covenant is not registered on title, TfN will hold the funds in trust until a TfN agreement is registered.
Failure to implement the OMP to the required standard. (NOTE: for the other risks in the table, when assessing the risk, it is assumed that the OMP has been implemented to the required standard.)	Likely	High	High	5, 6, 14, 15	Checks and balances in place to ensure OMP is implemented to the required standard: • TfN review of annual report from landholder each year. • Release of annual funding from TfN only when satisfied works have been undertaken in accordance with the OMP • Ecological monitoring undertaken yearly during 10 year period • TfN to visit offset area a minimum of four times during 10 year period • TfN to visit offset area every 5 years after Year 10 • Independent audits undertaken as directed by DAWE • The TfN covenant binds the current and future Landholder to both the standard restrictions in the TfN covenant and to the requirements described in this OMP	Rare	High	Low	The risk assessment of low is based on the oversight provided by TfN. TfN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period.	In the event that the landholder fails to undertake the management actions in accordance with the OMP, TfN will withhold funds until the works are completed to a satisfactory standard.
Loss of GSM habitat and/or GEWVVP over 20 year time horizon	Likely	High	High	2, 3, 15	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TfN covenant	Rare	Moderate	Low	The risk assessment of low is based on the resourcing being provided to the offset area. That is, Biosis has observed that for grassland/grassy woodland reserves throughout Melbourne and Victoria, loss of native vegetation is usually attributable to insufficient funding to provide for the intensity of management required to address the labile nature of native grasslands/grassy woodlands. Where there is insufficient intensity of management, this has led to invasion of perennial grassy weeds, which dominate the tussock structure. Since the offset area has a dedicated manager (the Landholder), regular monitoring, and funding available to undertake the required works, it is expected that only exceptional climatic conditions or an emergency event would to lead to a loss of GEWVVP or GSM habitat.	Emergency management provisions are provided in the OMP. Incident reporting procedures of the OMP will also apply - TfN and the consulting ecologist will be consulted for advice, DAWE will be informed and the OMP will be reviewed by the landholder.
Preventable weed introductions over 20 year time horizon	Likely	High	High	2, 3, 15	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TfN covenant	Unlikely	Moderate	Low	The risk assessment of low is based on the monitoring and oversight of the offset area such that any introduction of new weeds will be detected early and management actions undertaken to rectify the problem. N.B. This risk addresses preventable weed introductions only (such as weed seeds brought in on vehicles or machinery) so that the source of the introduction can be traced and prevented in future. Non-human mediated introduction of weeds by fauna or wind-blown seed are addressed in "new or emerging threats".	Preventable weed introductions over 20 year time horizon will be addressed using the adaptive management provisions in the OMP and in consultation with TfN. The management actions in Appendix 1 detail the process by which to address new or emerging threats.
Unauthorised access or works within offset area	Possible	Major	High	3, 4, 15	• OMP provides a schedule of management actions to control access and authorise works within offset area	Unlikely	Moderate	Low	The risk assessment of low is based on the Offset area being fully fenced and not accessible by the public or easily trespassed upon due to its distance from the road so that contravention of the covenant by malicious damage to the Offset area is Low risk. Signage and site induction will ensure that any workers will be aware of the activities allowed in the offset area.	Since unauthorised access would most likely be a result of trespass, this will be referred to police and will be addressed using the emergency management provisions in the OMP. Where unauthorised access or works within offset area result in an incident, the incident reporting procedures in the OMP will be followed.

Potential hazards as defined by Key Performance Indicators (KPIs)	Likeli-hood	Consequ-ence	Risk Level	Management action # (see Appendix 1)	Hazard Control Methods	Likeli-hood	Consequ-ence	Risk Level	Residual risks	Management strategy for residual risks
	Without OMP					With OMP				
Management actions fail to adapt to seasonal conditions or monitoring/routine inspection results.	Likely	High	High	5, 15	• Landholder to prepare annual works plan in consultation with TfN and incorporating monitoring results and information from routine inspections.	Rare	High	Low	The risk assessment of low is based on the adaptive management provisions in the OMP being designed to allow the landholder to ensure there are no adverse impacts from management during unfavourable conditions such as drought. Should management actions fail to keep pace with changing conditions, the most likely cause will be extreme seasonal conditions or weather events.	Routine inspections will be used to track seasonal conditions and/or emerging threats. The annual works plan will address the management actions required for the coming season. TfN will be consulted where management actions do not appear to be effective and their advice sought on how to address any problems. For extreme events, the emergency management provisions will apply instead.
Failure to improve Lack of Weeds score or Lack of Weeds score declines.	Likely	High	High	7, 8, 11, 12, (13)	• Management actions provide multiple methods of weed control that can be implemented in response to changing conditions. • OMP provides an adaptive management strategy to allow the landholder to respond to changing the weed levels. • Management actions for weed control compatible with other management targets. • Options for weed control in OMP are: - Herbicide application - Non-chemical weed control methods - Ecological burning	Unlikely	High	Medium	This risk assessment of medium is based on the difficulty of controlling weed invasions once a particular weed species is well established. The circumstances when this could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. In such cases, review of the OMP would be warranted to address the failure to improve the Lack of Weeds score.	In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to eliminate new weeds, emerging weed problems not controlled to <1% cover, failure to eliminate new pest animals	Possible	High	Medium	6, 10, 15	• Management actions provide process to Identify and control or eliminate new or emerging threats complimented by oversight by TfN	Rare	High	Low	This risk assessment of low is based on early detection of new or emerging threats leading to effective control or elimination of the threat.	The management actions in Appendix 1 detail the process by which to address new or emerging threats. Where new or emerging threats are not treated promptly and allowed to proliferate, this will be considered a failure to implement the OMP to the required standard and addressed by TfN as above.
Loss of GSM food plant cover or inadequate inter-tussock spaces, with associated decline in Understorey score N.B. Loss refers to dieback or death of established tussocks rather than changes in projective foliage cover due to burning or season, the latter being captured using inter-tussock space data	Possible	High	Medium	2, 3, 4, 7, 8, 9, 10, 11 12, (13), 14, 1	• OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation all of which are designed to protect native herb diversity and improve cover of native grasses. • OMP provides detailed schedule of management actions all of which consider the need to protect native species diversity. • Oversight provided by TfN and ecological monitoring annually will record and track vegetation condition.	Unlikely	Moderate	Low	This risk assessment of low is based on the relatively robust nature of native grasses, the principle component of GSM habitat, when compared with native herbs. The circumstances when a loss of native tussock grass cover could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. N.B. Loss refers to death of established tussocks rather than changes in projective foliage cover due to burning or drought. In such cases, review of the OMP would be warranted to address the failure to improve the habitat score.	The management actions in Appendix 1 provide a detailed strategy to manage grassy groundcover condition. In the event that the management actions even in accordance with the OMP fail to maintain the Understorey score in any one year, TfN and the consulting ecologist will be consulted for advice, DAWE will be informed and the OMP will be reviewed by the landholder.
Failure to maintain/increase	Likely	Moderate	Medium	8, 11 (12, 13)	• OMP provides for biomass control using ecological burning.	Unlikely	Moderate	Low	The risk assessment of low is based on biomass being relatively easy to manage and rectify and therefore space for organic matter is also relatively	The management actions in Appendix 1 provide a detailed strategy to

Potential hazards as defined by Key Performance Indicators (KPIs)	Likeli-hood	Consequ-ence	Risk Level	Management action # (see Appendix 1)	Hazard Control Methods	Likeli-hood	Consequ-ence	Risk Level	Residual risks	Management strategy for residual risks
	Without OMP								With OMP	
Organic litter score					• OMP provides an adaptive management strategy to allow the landholder to respond to changing the biomass levels. • Management actions for biomass control compatible with other management targets.				easy to manage.	manage grassy groundcover condition. In the event that the management actions even in accordance with the OMP fail to maintain organic litter score in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to improve the organic litter score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to eliminate active rabbit warrens or fox dens, evidence of pest animal impacts present	Possible	Moderate	Medium	9	• Offset area already has a low density of pest animals. • OMP provides process for monitoring and treating pest animal populations. • Oversight provided by TfN and ecological monitoring annually will record and track evidence of pest animal impacts.	Unlikely	Moderate	Low	The risk assessment of low is based on pest animals and their impacts being relatively easy to detect and monitor and is undertaken as part of farm management in the rest of the property as well.	The management actions in Appendix 1 provide a detailed strategy to manage pest animals. In the event that the management actions even in accordance with the OMP fail to maintain pest animal numbers in any one year, TfN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to manage pest numbers in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.
Failure to maintain Tussock cover sufficient to provide fauna habitat after ecological burns	Possible	Major	High	(12, 13)	OMP provides clear guidelines for ecological burning requirements. Burn plans will be developed as part of annual works plan in consultation with TfN. Ecological monitoring will track weed levels post-burn.	Rare	Major	Medium	This risk assessment of medium is based on the large scale on which a burn would have to occur for this target not to be met (i.e. more than 50% of the offset area to be burnt in any one year). The most likely cause of a large-scale burn would be escape of a controlled burn, which would be a rare occurrence.	For an escaped burn, the emergency provisions and incident reporting of the OMP will apply. TfN and the consulting ecologist will be consulted for advice, DAWE will be informed and the OMP will be reviewed by the landholder,
Failure to undertake ecological monitoring in accordance with OMP	Highly Likely	Moderate	High	14	Ecological monitoring remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP	Unlikely	Minor	Low	The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological monitoring is undertaken and the oversight provided by TfN. SPG has agreed to be responsible for engaging an ecologist to undertake monitoring each year during the 10 year management period.	In the event that the ecological monitoring is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next monitoring season (annually for vegetation or alternate years for GSM surveys).
Failure to undertake reporting in accordance with OMP	Highly Likely	Moderate	High	16	Ecological monitoring report remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP	Unlikely	Minor	Low	The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological reporting is provided and the oversight provided by TfN.	In the event that reporting is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next reporting season (annually for landholder annual report and vegetation or alternate years for GSM surveys).
Failure to undertake emergency management in accordance with OMP	Possible	Major	High	17	OMP provides emergency management procedure. Offset area will have signage to alert emergency services to conservation values within offset area.	Rare	Major	Medium	The risk assessment of medium is based on the large impacts that emergency management actions can have on native vegetation, especially ploughing of fire breaks. However, the frequency of emergency events is expected to be rare and the risk has been reduced compared to the current conditions of no OMP.	Failure to implement the emergency provisions of the OMP will likely result in an incident and the incident reporting provisions of the OMP will apply. TfN and the consulting ecologist will be consulted for advice, DAWE will be informed and the OMP will be reviewed by the landholder if the offset area is affected.
Failure to maintain habitat hectares score	N/A	N/A	N/A	18	The TfN covenant binds the current (and future) Landholder to the standard	Possible	High	Medium	This risk assessment of medium is based on the difficulty of improving conditions once they start to decline when compared to simply maintaining	The annual works plan will address the management actions required for the

Potential hazards as defined by Key Performance Indicators (KPIs)	Likeli-hood	Consequ-ence	Risk Level	Management action # (see Appendix 1)	Hazard Control Methods	Likeli-hood	Consequ-ence	Risk Level	Residual risks	Management strategy for residual risks
	Without OMP								With OMP	
achieved at the end of Year 10 from Year 11 to Year 20 (to achieve 20 year time horizon)					restrictions in the TfN covenant and to the requirements described in this OMP. TfN to visit offset area every 5 years after Year 10. Adaptive management procedure ensures management can response to changing conditions over time.				conditions. Failure to maintain the habitat hectares score would likely be derived from one of two sources: unpredictable extreme event or insufficient inputs to maintain the vegetation condition, both of which have been addressed above.	coming season including routine monitoring. As part of development of the annual works plan, TfN will be consulted where management actions do not appear to be effective and their advice sought on how to address any problems. TfN will visit the offset area at least twice over the Year 11 to Year 20 period and require annual reports to be submitted for review to ensure compliance continues. For extreme events, the emergency management provisions will apply.
Failure to review OMP when circumstances change or management actions become ineffective	N/A	N/A	N/A	19	OMP allows both the landholder and the approval holder to review the OMP and make changes as needed. TfN will provide advice on management to landholder in the event management actions become ineffective.	Unlikely	Moderate	Low	The risk assessment is low because failure to review the OMP after a change of circumstances/due to ineffective management actions would be a failure to implement the OMP to the required standard, which is addressed above.	The OMP provides the details of how and when the OMP is to be reviewed and updated.

N/A = Not applicable, the KPI is only possible if the OMP is in place.

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Appendices

Appendix 1 Schedule of management actions

Table A1 Schedule of management actions and management targets

Legend to table:

Start management action	Progress towards target	Achieve target	Maintain result	As needed	Undertaken by external party

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	**Register the Offset area on title**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to register TfN covenant on title	TfN covenant registered on title in accordance with Section 3A *Victorian Conservation Trust Act 1972* Covenant to cover 137.2 ha											
		Landholder to provide copies of title to SPG within 2 weeks of registration being completed												
		SPG to provide title to DAWE within 4 weeks of registration												
2	**Implement management commitments to change land management and protect native vegetation in OMP and TfN covenant**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to ensure all excluded activities no longer permitted within Offset area	Permanently exclude all activities involving mechanical disturbance (excavation, geological exploration, ploughing of fire breaks, cultivation etc.).											
			All posts to be direct driven											
			Permanently exclude all activities that would knowingly introduce new weeds/weed seeds, e.g. over-sowing or other pasture improvement using hay, silage or feed that could contain viable weed seeds planting of tree belts.											
			Exclude all broad-acre herbicide use except in accordance with OMP. No creating fence lines or firebreaks with spraying.											
			No farm infrastructure except in accordance with OMP (e.g. no yards, barbed wire fencing etc.)											
			Approval is obtained from TfN for any new farm infrastructure not in accordance with OMP											
			All workers are aware of activities that are not permitted in offset area											
			No unauthorised access or unapproved works within offset area											
			Weed hygiene protocol developed for sheep, workers, vehicles, plant and equipment											
3	**Implement permanent changes to grazing**													
	Immediately upon OMP commencement. See OMP commencement in Section 1.	Landholder to ensure all agricultural activities are excluded	Permanently exclude all fertilizer application.											
			Permanently exclude all grazing by domestic stock.											
4	**Prepare and implement revegetation works**													
	Mark revegetation area on ground	Landowner to engage ecologist to identify sites for revegetation	Revegetation area defined by start of year 2. Revegetation plan prepared by end of year 1											
	Collect required seed and revegetation materials	Landowner to engage bushland regeneration expert to collect propagules for revegetation works.	Adequate material available to start revegetation works at the start of year 2											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0 2020	1 2021	2 2022	3 2023	4 2024	5 2025	6 2026	7 2027	8 2028	9 2029	10 2030
	Start Year 2 Revegetation works (Autumn break when soil moisture increases)	Landowner to commission on ground revegetation works as guided by the revegetation plan	20% cover of native grasses by end of year 4. Progressive increase in herb and shrub diversity											
5	**Prepare and implement annual works plan**													
	Annually	Landholder to prepare annual works plan in consultation with TfN and incorporating monitoring results and information from routine inspections.	Review results from routine inspections and monitoring, determine management requirements for coming season in timely manner											
		Landholder to ensure overall progress/results are reviewed at least once per year.	Identify areas for improvement, incidents or changing conditions											
		Landholder to ensure works plan adapts to seasonal conditions and/or new or emerging threats	Prepare annual works plan based on review											
			Identify suitably qualified staff or suitably qualified contractors to undertake works. All work to be undertaken by/supervised by suitably qualified individuals											
			Provide site induction to new staff or contractors											
			Seek advice from TfN, CMA, ecologist or other contractor, if necessary											
6	**Routine inspections and records of works**													
	Minimum of once per quarter (4 times per year)	Landholder to ensure routine inspections record are undertaken at regular intervals	Undertake routine inspections of Offset area at least once every three months											
		Landholder to records are kept of all routine inspections	Identify any maintenance requirements for external paddock fencing, signage. Note if additional impacts from livestock movements become apparent around gates, fencelines or watering points.											
		Landholder to records are kept of all works undertaken in the offset area	Records are kept of any maintenance requirements and timeline for repair.											
			Records are kept of all routine inspections											
			Use GPS to record any weed infestations to target for treatment, new or unknown weeds/pests or weeds/pests that appear to be increasing											
			Record any pest sightings or evidence of pest activating											
			Use GPS to record the location of active rabbit warrens or fox dens											
7	**Control woody weeds**													
	July–Nov or as detailed in the annual works plan	Landholder to ensure annual works plan details target species, methods and timing of woody weed control	Search offset area and use GPS to record location of woody weeds (at least once per year). Record any areas to target for herbaceous weed control at the same time.											
		Landholder to ensure woody weeds are controlled using minimal impact methods and in accordance with OMP	Treat woody weeds using appropriate herbicide at correct time of year and to prevent fruiting and seeding. Refer to manufacturer's instructions or seek advice from TfN or weed contractor if needed.											
		Landholder to ensure woody weed mapping is undertaken at least once per year.	Treat woody weeds with methods that have minimal impact on native species											
		Landholder to ensure woody weed control starts in Year 1 and the management target is met by Year 2 and then maintained.	Avoid off target damage to native species											
			Eliminate all established adult plants by end of Year 2											
			• After Year 2, continue treat woody weed seedlings/resprouting stumps to achieve the management target of <1% cover of woody weed seedlings at end of Year 10											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0 2020	1 2021	2 2022	3 2023	4 2024	5 2025	6 2026	7 2027	8 2028	9 2029	10 2030
8	**Control herbaceous weeds**													
	July–Nov or as detailed in the annual works plan	Landholder to ensure annual works plan details target species, methods and timing of herbaceous weed control	Determine target weed species/groups for each season, determine treatment method (burning/herbicide/combination/other)											
		Landholder to ensure herbaceous weeds are controlled using minimal impact methods and in accordance with OMP	Determine number of spot spraying/chemical free weed control events required and record in annual works plan											
		Landholder to ensure herbaceous weeds control starts in Year 1 and management target is met by the end of Year 10	For spot spraying, determine appropriate herbicide/rate and record in annual works plan											
			For buirning, determine seasonal requirements and record in annual works plan											
			Treat herbaceous weeds with appropriate method at appropriate season according to annual works plan.											
			Avoid off target damage to native species											
			Targets for all areas: • Woody weeds: <1%											
			• Perennial tussock grasses (E.g. Phalaris): <5%											
			• Noxious grassy weeds (e.g. Serrated Tussock): eliminated if found											
			• Broad-leaved high threat weeds (e.g. Sheep Sorrel): 1% • Annual weeds: <10% • Perennial mat-forming grasses (e.g. Brown-top bent): <5% • Sweet Vernal-grass: <1%											
9	**Control pest animals (e.g. rabbits, hares, foxes)**													
	Feb–Apr, Sep–Nov or in accordance with annual works plan	Landholder to ensure annual works plan details target species, methods and timing of pest animal control	Determine pest animal control requirements and record in annual works plan. A minimum requirement is quarterly spotlighting searches.											
		Landholder to ensure pest animals are controlled using minimal impact methods and in accordance with OMP	Treat pests with appropriate method at appropriate season, record results in accordance with annual works plan. A											
		Landholder to ensure pest animal control starts in Year 1 and management target is met by the end of Year 10	Treatment methods will be in accordance with OMP and will not cause damage to the grassland. E.g. no ripping of rabbit warrens. Refer to DELWP (2015) for details on low-impact methods											
			Rabbit warrens fumigated within three weeks of detection.											
			Record any incidental sightings											
			• By end of Year 2, no active rabbit warrens within offset area, minimal surface harbour in the form of woody weeds											
			• By end of year 10 there should be no fresh ground disturbance by pest animals (particularly rabbits) observed in the offset area or active rabbit warrens or fox dens.											
10	**Identify and control or eliminate new or emerging threats**													
	Routine monitoring, treatment as needed	Landholder to ensure routine inspections record any new or emerging threats.	Routine inspections undertaken according to OMP and all new and emerging threats are identified early.											
		Landholder to ensure incidental sightings of any new or emerging threats are recorded.	Identify correct treatment and treat infestation appropriately											
		Landholder to ensure appropriate treatment methods is identified and implemented where new threat is identified	For unknown weeds/pests, consult appropriately qualified person to establish identity											
			If possible, identify source of new infestation, change procedures to prevent further infestations if within control of Landholder											
			For unknown weeds/pests, consult appropriately qualified person to establish identity											
			Adaptive management used to update procedures in response to new or changing conditions											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
			If not already established (not reproducing in the site) threat should be eliminated.											
			If already established, threat should be minimised to <1% cover											
			Target to be achieved from Year 1 onwards: • New weeds eliminated, emerging weed problems controlled to <1% cover, new pest animals eliminated											
11	**Ecological burning for Offset area**													
	Sep-Oct or February - May (or as specified in the burn plan)	Landholder to develop burn plan in consultation with TfN and where necessary, CFA or ecological consultant	Determine appropriate location for ecological burning trial in consultation with TfN / ecologist and record in annual works plan											
		Landholder to ensure all ecological burns are in accordance with the OMP	Undertake burning of up to 3.5 hectares, followed by 6 to 12 months protection from grazing if required and follow up weed control											
			Review results of burning against management targets, discuss with TfN and ecologist and adjust management inputs and effort accordingly											
12	**Ecological monitoring**													
	Vegetation condition: Oct-early Dec GSM: flight season Nov-early Jan	Landholder to facilitate access to offset area for ecologists undertaking monitoring	Ecologist to establish monitoring plots and undertake baseline surveys in Year 0											
		Landholder to ensure any permanent markers of monitoring plots are not accidentally removed	Ecologist to undertake annual vegetation surveys in mid-late spring, data collected consistently to determine improvement in GSM habitat and GEWVVP condition, identify problems early, identify opportunities for adaptive management											
		SPG to engage and fund ecological monitoring in accordance with the schedule in the OMP	Ecologist to review results of planned burns and provide advice on burn planning (as needed). Data collected to determine weed cover does not increase in burnt areas compared to unburnt areas											
			Ecologist to undertake GSM surveys during flight season at start of OMP and end of Years 1, 3, 5, 7, 9. Data collected consistently to determine improvement in GSM breeding population		**(summer 2021/22)**		**(summer 2023/24)**		**(summer 2025/26)**		**(summer 2027/28)**		**(summer 2029/30)**	
13	**Trust for Nature routine inspections**													
	Years 1, 3, 7 and 10 with at least one visit in spring	TfN will visit the Offset area a minimum of four times over the 10 year management period	Provide advice to landholder, ensure covenant is compliant											
14	**Reporting**													
	Ecological monitoring report - 15th January Landholder annual report - anniversary of OMP	Ecologist to prepare report and supply to Landholder and SPG prior to start of annual management cycle each year	Ecologist to prepare report on ecological monitoring and planned burn advice as detailed above.											
		Landholder to supply annual report to SPG and TfN	Landholder to prepare annual report on based on records of works undertaken and routine inspections.											
		SPG to supply all reports to DAWE in fulfilment of approval conditions	Report must demonstrate progress of offset area has been tracked regularly each year over the 10 year management period											
15	**Emergency management**													
	Immediately as needed	Landholder to report any incidents that could threaten GSM to TfN with 24 hours	Identify and respond to emergency events according to **Mickleham** emergency management plan											
		Landholder to report any incidents that could threaten GSM to SPG and DAWE within 5 days	Report any incidents that could threaten GSM to TfN with 24 hours (03) 8631 5888											
			Report any incidents that could threaten GSM to SPG and DAWE within 5 days post.approvals@environment.gov.au											

Management action	Timing of activity	Roles and responsibility	Management results to be achieved	Yr: 0	1	2	3	4	5	6	7	8	9	10
				2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
16	**Years 11+: Maintain an annual works plan as above for the ongoing maintenance of the condition**													**Start in Year 11**
	Year 11 onwards	Landholder to maintain condition achieved at the end of Year 10	Develop annual works plan to ensure management actions continue to adapt to current conditions for weeds, pest animals and biomass control.											
		Landholder to consult with TfN periodically to discuss effectiveness of on-going management	• Maintain fencing and signage.											
			• Continued protection of herb diversity and native tussock grass structure.											
			• Woody weeds maintained at <1% cover with no adult plants											
			• Cover of herbaceous weeds does not increase beyond levels achieved at Year 10											
			• Pest animals do not increase beyond levels achieved at Year 10											
			• Biomass is maintained to achieve >20 to 40% inter-tussock space											
			Seek advice from TfN, CMA, ecologist or other contractor, if necessary											
17	**Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency.**													
	As needed	Landholder to Identify any incidents or ineffective management actions and revise OMP where these can't be addressed within adaptive management provisions	Revise OMP to address changed circumstances (e.g. wildfire), ineffective management actions or new research											
		SPG to respond to any plan review request from DAWE	Apply to DAWE post-approvals to update OMP											
			Ensure OMP remains affective over time											

Appendix 2 Species for use in reserve revegetation works

Life form	Scientific Name	Common Name
Trees		
	Eucalyptus camaldulensis	River Red-gum
Shrubs		
	Acacia paradoxa	Hedge Wattle
	Allocasuarina verticillata	Drooping Sheoak
	Melicytus dentatus	Tree Violet
Grasses or grass-like species		
	Anthosachne scabra	Common Wheat-grass
	Arthropodium strictum	Chocolate Lily
	Austrostipa bigeniculata	Kneed Spear-grass
	Austrostipa mollis	Supple Spear-grass
	Austrostipa scabra subsp. *falcata*	Rough Spear-grass
	Austrostipa semibarbata	Fibrous Spear-grass
	Bothriochloa macra	Red-leg Grass
	Burchardia umbellata	Milkmaids
	Carex inversa	Knob Sedge
	Chloris truncata	Windmill Grass
	Dianella revoluta s.l.	Black-anther Flax-lily
	Dichelachne crinita	Long-hair Plume-grass
	Lachnagrostis filiformis	Common Blown-grass
	Lomandra filiformis	Wattle Mat-rush
	Microlaena stipoides var. *stipoides*	Weeping Grass
	Poa labillardierei	Common Tussock-grass
	Poa morrisii	Soft Tussock-grass
	Rytidosperma duttonianum	Brown-back Wallaby-grass
	Rytidosperma geniculatum	Kneed Wallaby-grass
	Rytidosperma racemosum var. *racemosum*	Slender Wallaby-grass
	Rytidosperma setaceum	Bristly Wallaby-grass
	Themeda triandra	Kangaroo Grass

Life form	Scientific Name	Common Name
Herbs and forbs		
	Arthropodium strictum	Chocolate Lily
P	*Chrysocephalum* sp. 1	Plains Everlasting
	Dichondra repens	Kidney-weed
	Eryngium ovinum	Blue Devil
P	*Euchiton sphaericus*	Annual Cudweed
	Geranium retrorsum s.s.	Grassland Crane's-bill
	Geranium solanderi var. *solanderi* s.s.	Austral Crane's-bill
	Goodenia pinnatifida	Cut-leaf Goodenia
	Hypericum gramineum spp. agg.	Small St John's Wort
P	*Leptorhynchos squamatus*	Scaly Buttons
	Rumex brownii	Slender Dock
P	*Senecio quadridentatus*	Cotton Fireweed
P	*Solenogyne dominii*	Smooth Solenogyne
	Tricoryne elatior	Yellow Rush-lily
	Veronica gracilis	Slender Speedwell
	Wahlenbergia luteola	Bronze Bluebell

Appendix 3 DAWE Risk matrix

A3.1 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

A3.2 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

A3.3 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 4 Quality scoring methods

Vegetation

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average quality for the whole area. A Habitat Hectare score is easily converted to a score out of 10 as shown in the Table below. The vegetation quality scoring method was used to obtain the quality score of the offset area in the Offsets Assessment Guide and should be replicated to determine the final quality score. Where the score is a decimal, it is rounded to the nearest whole number for entry into the Offsets Assessment Guide. Scores with a decimal place value of less than 0.5 are rounded down, scores with a decimal place value of 0.5 or above are rounded up.

Table A4.1 Habitat Hectares score conversion to Quality score out of 10

Parameter	Components measured	Max. Habitat Hectares score	Equivalent Quality score
Site context	Number of species, cover and diversity of lifeforms Percentage of weed cover moderated by percentage of high threat weed cover Percentage of recruitment area scaled by herb diversity Percentage cover of organic litter scaled to litter type (native/non-native)	75/100	7.5/10
Site condition & stocking rate equivalent	Size of patch Neighbourhood measured as percentage of surrounding area Distance to large areas of native vegetation (>50 ha)	25/100	2.5/10
Total score		100/100	10/10

GSM habitat

Quality improvement will be measured using the vegetation results for site score described above and the results of targeted surveys for GSM.

The scoring methods used to obtain the Quality score of the Offset area in the Offsets Assessment Guide is shown in Table A5.2 and should be replicated to determine the final Quality score.

TableA4.2 GSM habitat Quality scoring system as advised by DAWE (pers. comm. 2019)

Parameter	Scoring system
Site context (max. 3 points)	• 0/3 = Habitat patch[1] size <0.25 ha.[2] • 1/3 = Habitat patch size more than 0.25 ha and up to 10 ha.[2] • 2/3 = Habitat patch size more than 10 ha, shaped appropriately[3] to reduce edge effects.[2] • 3/3 = Habitat patch size more than 10 ha, shaped appropriately to reduce edge effects, slightly sloped (3° or less) and north-facing, minimal shading.
Site condition (max. 3 points)	• 0/3 = dominated by introduced vegetation that is not a known food source. • 1/3 = dominated by poor condition native vegetation (VQA site condition score up to 30/75) including <20% cover known food source, or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate[4] is less than 20 moths per hectare. • 2/3 = dominated by moderate condition native vegetation (VQA site condition score 31-45/75) including between 20% and 40% cover known food source with limited inter-tussock space (<5%), or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate[4] is greater than 20 moths per hectare. • 3/3 = dominated by high conservation value native vegetation (VQA site condition score 46+/75) including >40% cover known food source and appropriate inter-tussock space.
Species stocking rate4,5 (max. 4 points)	• 0/4 = species not present • 1/4 = 0-5 males per hectare • 2/4 = >5-20 males per hectare • 3/4 = >20-50 males per hectare • 4/4 = >50 males per hectare
Total (out of 10)	

[1]A patch is considered to be an area of GSM habitat separated from other areas of suitable habitat by >200m of unsuitable habitat, or barriers to flight (e.g. buildings, solid fences). A habitat patch should not be defined by administrative boundaries such as farm fencing, title or lot boundaries if habitat is continuous on either side of the boundary. According to the guidelines, if the amount of GSM habitat adjoining the site of the action cannot be determined, the area of habitat will be considered to be the same as that identified within the site.

[2]Add 1 point (up to a maximum of 3) where a patch is an occupied linkage between 2 populations.

[3]Assessed on a case by case basis.

[4]Stocking rate (measured as males per hectare) calculated as: total number of males recorded across four surveys in one flight season divided by area of habitat surveyed (with survey area confirmed with GPS tracks). It is not expected that results can be extrapolated across unsurveyed areas unless justification is given (e.g. the surveyed area is a sub-sample of the total area). Stocking rate calculations to be rounded up if required.

[5]It is expected that impact and offset sites to be surveyed on four occasions during the flying season and the survey results to be summed (consistent with survey guidelines). Justification will need to be provided to the Department to support proceeding in the absence of suitable survey effort.

For clarity, if lower survey effort than four complete surveys is accepted, the Department will consider:

- For impact sites: the highest recorded density is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 15 males/ha).
- For offset sites: the lowest record is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 5 males/ha).

For either type of site, if one survey records 5 males/ha, then assumed total of four surveys is 20 males/ha.

Appendix 5 Glossary of terms

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.

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.

Indigenous vegetation*

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

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.

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.

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).