

### Final Report

# Annual Report for the Ravenhall Industrial Precinct Onsite Offset Reserve – Year 1

### PREPARED FOR

Dexus C/- Citius Property Development

### March 2021



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# **DECLARATION OF ACCURACY**

I declare that:

- 1. To the best of my knowledge, all the information contained in, or accompanying this annual report (EPBC 2015/7486: Ravenhall Offset Site: Year One Annual Report) is complete, current and correct.
- 2. I am duly authorised to sign this declaration on behalf of the approval holder.
- 3. I am aware that:
  - a. Section 490 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.
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  - c. The above offences are punishable on conviction by imprisonment, a fine or both.

Signed

Full name (please print)

Organisation (please print)

Date



# GLOSSARY

Acronym	Description
AES	Aus Eco Solutions
СМР	Conservation Management Plan
DELWP	Victorian Department of Environment, Land, Water and Planning
DAWE	Commonwealth Department of Agriculture, Water and the Environment
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)
NTGVVP	Natural Temperate Grassland of the Victorian Volcanic Plain
OMP	Offset Management Plan
SLL	Striped Legless Lizard Delma impar
SRF	Spiny Rice-flower Pimelea spinescens subsp. spinescens



# **APPROVAL CONDITION STATUS**

Table 1 below summarises the current compliance status of the EPBC 2015/7486 approval conditions.

### Table 1 Compliance status of EPBC 2015-7486 Approval Conditions

Approval Condition	Status							
1	No more than 18.02 hectares of NTGVVP, 40.23 hectares of SLL habitat and 13 SRF plants were impacted during the Year One monitoring period.	Yes						
2	A CMP has been prepared detailing the management measures that will be undertaken to maintain and enhance the protected matters within the on-site offset site. The CEMP is being implemented to ensure the protected matters in the on-site offset are protected during construction. This report addresses fencing requirements in Section 2.5.2.							
3	The on-site offset contains at least 13.37 ha of NTGVVP, at least 28.98 ha of SLL habitat and at least 86 SRF plants.							
4	Off-site offset in Ombersley secured.							
5	An OMP has been submitted to and approved by the Department. The OMP is being implemented by the landowner of the off-site offset.	Yes						
6	The Year 1 OMP (2019/2020) was prepared addressing the requirements of Condition 6 by a EcoLink (Bleak House Pty Ltd 2020; Appendix 4). A report detailing the quality of vegetation and SLL population numbers has also been submitted to the Department (February 2020).							
7	Shapefiles were provided to the Department on 11/09/2018	Yes						
8	Not applicable							
9	Not applicable							
10	Report published online within one (1) month following approval by the Minister.	Yes						
11	Report published online within three months of the 12-month anniversary.	Yes						
12	Not applicable							
13	Not applicable							
14	Not applicable							
15	Not applicable							
16	Not applicable							
17	Not applicable							
18	Not applicable							
19	Not applicable							



# **EXECUTIVE SUMMARY**

Ecology and Heritage Partners were engaged by Dexus to undertake the Year One monitoring of the on-site offset reserve in accordance with the EPBC referral 2015/7486, and the corresponding Conservation Management Plan and Offset Management Plan.

This report details the results of the Year One ecological monitoring, including the status of three matters of National Environmental Significance; Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* population, Striped Legless Lizard *Delma impar* population and condition of the ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plain*.

### Natural Temperate Grassland of the Victorian Volcanic Plain

An assessment of the condition and extent of *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) was undertaken to observe any changes in the native vegetation cover and weed extent within the grassland. NTGVVP has improved in condition, with weed levels being actively managed to reduce the extent of cover. The removal of grazing pressure (i.e. horses) from the site has resulted in an emergence of native grasses.

An ecological burn is scheduled for autumn 2021 to remove the exotic dead plant material and provide opportunity for native grasses to establish in areas previously dominated by exotic species (i.e. Serrated Tussock *Nassella trichotoma*).

#### Spiny Rice-flower

An existing population of Spiny Rice-flower are present within the offset reserve which were monitored during the flowering period of the species (April – August). A population was recorded in the initial ecological assessments undertaken between 2017 – 2019, which remain within the offset site. The recent surveys undertaken as a part of the Year One monitoring recorded additional SRF both within and adjacent to the offset area, with a total of 149 SRF recorded within the offset site.

#### Striped Legless Lizard

Ten tile grids, comprising of 50 tiles in each, were established within the offset site in March 2020. Surveys for Striped Legless Lizard consisted of eight tile grid checks undertaken between 21 September 2020 and 26 November 2020. A total of 33 Striped Legless Lizards were recorded across the eight tile checks, with some individuals likely to be recaptures. Within a single survey event, the maximum number recorded was six. Striped Legless Lizard were found to occur across the entire offset site, with only one grid (grid four), not recording any individuals.



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# **1** INTRODUCTION

### 1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by DWPL Nominees Pty Ltd and Dexus Wholesale Management Ltd (herein Dexus) to undertake and oversee management and monitoring works for Year One relating to a 28.98 hectare offset area at the site of the Ravenhall Industrial Precinct, located on Palm Springs Road, Ravenhall (Figure 1).

As part of the Commonwealth approval conditions (EPBC 2015/7486 – Condition 3) for the development of the Ravenhall Industrial Precinct, an on-site offset must be established to protect at least 13.37 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP), 28.98 hectares of Striped Legless Lizard *Delma impar* habitat, and a population of Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*. Several patches of Plains Grassland are also used to generate offset credits in order to partially satisfy Condition 51 of Planning Permit PA2013-4050/4 issued by the City of Melton.

The management, monitoring and auditing works required to be undertaken at Ravenhall are detailed in the Conservation Management Plan (CMP) (Ecology and Heritage Partners 2019) and Management Plan prepared for the section 69 agreement (VC\_CFL-3086\_01) prepared for the site. The CMP was approved by the Commonwealth Department of Agriculture, Water and the Environment (DAWE) (formally the Department of Environment and Energy (DoEE)) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC 2015/7486) and the section 69 agreement under the *Conservation, Forests and Lands Act 1987* approved by the Victorian Department of Environment, Land, Water and Planning (DELWP).

Specifically, the works relate to the protection and ecological monitoring of the quality of the native vegetation and significant ecological values present within the offset site, as specified in the CMP, which includes three matters of National Environmental Significance (NES); NTGVVP, Spiny Rice-flower and Striped Legless Lizard. Management within Year One primarily focused on weed and pest control works, and rubbish removal.

Ecology and Heritage Partners subcontracted Aus Eco Solutions Pty Ltd (AES) to implement pest plant and animal control, biomass reduction and revegetation for the ecological management works for the Year One works.

The Year One annual monitoring report presented below outlines the management and monitoring actions undertaken throughout the offset reserve between October 2019 and November 2020. The section 69 agreement was secured on title on the 12 December 2019, and this report addresses the monitoring and reporting requirements of the approved management plan for the offset site.

### 1.2 Objectives

The objective is to monitor and manage the biodiversity values within the Ravenhall Industrial Precinct onsite offset reserve in accordance with EPBC 2015/7486, and the Commonwealth approved CMP (Year One).

The methodology focuses on biodiversity monitoring of the quality of the EPBC Act-listed community *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP), and the status of the Striped Legless Lizard



and Spiny Rice-flower populations which exist within the reserve, and the management and monitoring of the Plains Grassland vegetation to improve the overall condition of the site.

On-ground monitoring surveys were undertaken, with an overall objective to provide a framework for the continuation of the management, auditing and reporting required to be undertaken as part of the approved CMP, to ensure the enhancement of the 28.98 hectare offset reserve at the Ravenhall Industrial Precinct.

### 1.3 Offset Site Security

Condition 3 of the EPBC Act approval specifies that the land identified as the on-site offset in approval 2015/7486 adjacent to the clearing site must be protected in perpetuity to compensate for impacts to the nationally significant ecological community *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP), Spiny Rice-flower and Striped Legless Lizard using a conservation covenant. A Section 69 Agreement was entered into under the *Conservation, Forests and Lands Act 19871987* between DWPL Nominees Pty Ltd and Dexus Wholesale Management as the landowners and DELWP and registered on title on 12 December 2019.

### 1.4 Scope of Works

### 1.4.1 Spiny Rice-flower Monitoring

The following methodology has been undertaken in accordance with the CMP (Ecology and Heritage Partners 2019), and the specific survey procedures outlined within the Significant Impact Guidelines for the species (DEWHA 2009), to determine the population status of the Spiny Rice-flower within the conservation reserve. The following approach was undertaken:

- Targeted surveys were completed by people familiar with recognising the subspecies.
- Multiple surveys were undertaken to identify the species and provide adequate survey effort across the site.
- Surveys were not conducted for at least six months after fires and for at least three months after the cessation of grazing.
- Surveys were conducted between April and August while flowering (easily overlooked when not in flower).
- The targeted survey effort was directed to all potential habitat areas i.e. remnant grassland including degraded grassland.
- Transects at less than 5 metre intervals were undertaken in all potential habitat.
- Numbers of plants were recorded per land parcel with each located individual marked with a stake and GPS coordinates recorded for future reference.
- A general assessment of the vegetation condition within the site was also be recorded.



### 1.4.2 Striped Legless Lizard Monitoring

The following methodology was implemented to determine the population status of Striped Legless Lizard within the conservation reserve:

- A total of 10 tile grids of 10 x 5 tiles were established within the conservation reserve in March 2020;
- Tiles were laid in areas of suitable habitat within tussock grassland or grassy habitat at least three months before the determined survey period to allow 'bedding-in';
- Tiles were checked a minimum of eight times between September and December under suitable conditions (early morning on warm, still days). Other suitable protective structures on site were systematically overturned and replaced to actively search for Striped Legless Lizard;
- Time of day, weather conditions and the ambient temperature were recorded for each grid; and,
- Morphological data including sex, body size and reproductive condition were recorded for all Striped Legless Lizard captured, as well as dorsal head shots for unique identification purposes.

### 1.4.3 Natural Temperate Grassland of the Victorian Volcanic Plain Monitoring

The following methodology was implemented to assess the condition of the native grassland within the offset site, specifically focusing on areas of *Natural Temperate Grassland of the Victorian Volcanic Plain*.

- Monitored the quantity and quality of native grassland within the offset area during May 2020 and August 2020, with a brief follow up undertaken in November 2020 to observe the offset site in an optimal time for native vegetation.
  - o Surveys (Habitat Hectare assessment) were structured around biomass reduction activities;
  - Fixed photo points were utilised in areas of both intact vegetation and those dominated by weeds in order to also visually record any successive changes;
  - Surveys focused on the quality and structure of remnant grassland as suitable habitat for Striped Legless Lizard (SLL) and Spiny Rice-flower (SRF), and whether the cover of native species was retained and or enhanced by ongoing management.
- Conducted regular monitoring for high threat weeds, with the aim of eventual elimination of all woody weeds (currently approx. 1% cover) and reduction of herbaceous weeds to at or below 10% cover (currently approx. 20%.);
- High threat weeds including Serrated Tussock *Nassella trichotoma*, Paterson's Curse *Echium plantagineum* and Artichoke Thistle *Cynara cardunculus* are present within the offset area. The cover and distribution of weeds was monitored and described, with management recommendations included to inform ongoing weed control works.
- Established permanent photo points (Figure 4).



# **2 YEAR ONE MONITORING RESULTS**

### 2.1 Overview of Vegetation and Site Condition

Vegetation varies in condition across the site, from moderate to high quality areas. Weed control and removal of grazing in the eastern end of the offset site has greatly improved the condition, with areas now dominated by thick fields of native Wallaby-grass. All woody weeds have been removed from this area, with limited numbers remaining in the western end of the site. Native grasses have flourished across the site and will contribute to ongoing improvement through the distribution of seed across the site.

Biomass across the offset site ranges in density, however was generally high when observed in the November site visit. Within the eastern end, there is a lot of dead plant matter (Serrated Tussock and African Box-thorn *Lycium ferocissimum*), which are scheduled to be burnt in the planned burn in autumn 2012 to remove the built-up biomass. Biomass across the remainder of the site was moderate based on the last observation in November 2020, with a wet spring contribution to an increase in vegetation cover, along with the removal of grazing pressure (horses) and protection of the site (fencing), with vegetation in moderate to good condition due to the ranging cover of high threat weeds and mixture of native herbs and grasses present.

Extensive weed control, focusing on woody weeds and high threat weeds, have resulted in a large improvement in the eastern end of the offset reserve, where works focused during Year One due to the high cover of weeds in this area. The remainder of the site remained in moderate to good condition, with Year Two works planned to focus on the western extent.

Refer to Appendix 3 for a summary of weed control activities undertaken to date by AES.

### 2.2 Native Vegetation Monitoring

Monitoring is required to assess the positive and negative impacts of management actions on the integrity of the study area, and to implement change if required. Detailed vegetation monitoring was undertaken on two occasions in Year One, on 5 May 2020 and 3 August 2020, which included the areas of NTGVVP (Figure 2). An additional assessment was undertaken in November 2020 to capture vegetation condition in an optimal time for grassland assessments (late spring).

The monitoring was undertaken by suitably qualified ecologists.

### 2.2.1 Monitoring Results

Baseline data collection on the condition of the native grassland within the offset site was undertaken on 14 June 2019, to inform the starting condition of the site for the EPBC Conservation Management Plan and section 69 Management Plan associated with the offset site. During this assessment, the condition of the grassland and extent of weeds were recorded, with condition assessed through a habitat hectares assessment. Where native vegetation was identified a habitat hectare assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (Department of Sustainability and Environment (DSE) 2004). The recent assessment in August 2020 undertook an additional habitat hectare assessment, with the results included in Appendix 1.



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The condition of the native vegetation within the offset site demonstrated an improvement in cover and quality, with the native grasses observed flourishing across the offset site. Large areas were dominated by Wallaby-grass, present in thick patches (Plate 1; Plate 2). Smaller sections were dominated by Spear-grass or Kangaroo Grass. Overall, there is a vast improvement in the native grassland since the initial assessment undertaken in July 2019, with the control of Serrated Tussock, removal of African Box-thorn and removal of horses playing a large part in the site improvement. Plate 3 and Plate 4 are taken at approximately the same location and demonstrate the improvement in native grass cover in a few months following a good spring rain.

A total of nine photo points were established within the offset site, with the locations shown on Figure 4 and photos in Appendix 2.



**Plate 1.** Wallaby-grass dominated large areas of the eastern extent of the offset site (Ecology and Heritage Partners 24/11/2019).



**Plate 2.** Extensive improvement in native vegetation cover in the offset site after site protection (Ecology and Heritage Partners 24/11/2020).





**Plate 3.** Vegetation cover in narrow neck in August 2020 after some weed control (Ecology and Heritage Partners 12/08/2020).

**Plate 4.** Native vegetation flourishing in narrow neck observed in November 2020 visit (Ecology and Heritage Partners 24/11/2020).

### 2.3 Spiny Rice-flower Monitoring

Monitoring of the status of the Spiny Rice-flower (SRF) population is required within the offset reserve annually for the first four years, and then in years 6, 8 and 10 (within the ten-year management timeframe).



Monitoring will determine if management actions to improve habitat are suitable for the longevity of a viable Spiny Rice-flower population and determine when remedial actions are required.

The objective of the Spiny Rice-flower monitoring was to ensure that the population is maintained or improved through management of threats to the population, based on the initial 86 individuals recorded within the offset site reserve as detailed in the CMP (Ecology and Heritage Partners 2019).

### 2.3.1 *Monitoring results*

Long-term monitoring of SRF within the offset reserve is crucial to ensuring ongoing survival (Vallee *et al.* 2004). Monitoring was undertaken in accordance with the current survey guidelines for Spiny Rice-flower in the Significant Impact Guidelines for the species (DEWHA 2009), which are summarised in Section 3 of the CMP (Ecology and Heritage Partners 2019).

Monitoring was undertaken by qualified botanists, familiar with the ecology and growth habits of SRF. SRF monitoring was undertaken on 5 June 2020, 19 June 2020 and 23 June 2020 during the flowering period of the species. Identified individuals were marked with a GPS and staked for future monitoring (Plate 6).

In addition to the 86 SRF individuals previously recorded, a further 63 individuals were located within the offset site, primarily within the narrow neck (Figure 2). The majority of SRF observed were relatively small in size, however contained flowering material and appeared in good health (Plate 5; Plate 6).

### 2.3.2 General Comments

Overall, the Year One monitoring event confirmed the presence of a large population of SRF within the offset site with a total of 149 SRF individuals recorded within the offset site to date. A number of SRF were also recorded within the six-meter fire buffer surrounding the site, primarily along the southern boundary. It is anticipated that the population will increase as the cover of weeds is reduced, and biomass is reduced across the site, improving the habitat across the site and making detectability of SRF easier as the management actions are implemented.



**Plate 5.** Flowering Spiny Rice-flower within the study area (Ecology and Heritage Partners 19/06/2020).

**Plate 6.** Staked flowering Spiny Rice-flower within the study area (Ecology and Heritage Partners 03/08/2020).



### 2.3.3 *Threatening Processes*

Weed invasion and biomass accumulation present the greatest threats to the health and survival of SRF plants at the offset site. In all cases, remedial actions to mitigate these threats were undertaken throughout the Year One monitoring period, and these actions are summarised below.

Weeds such as Serrated Tussock, Common Sow-thistle *Sonchus oleraceus*, Patterson's Curse and Spear Thistle *Cirsium vulgare*, and native grasses including Kangaroo-grass have the potential to out-compete or smother translocated Spiny Rice-flower plants and prevent recruitment. However, ongoing weed control and biomass removal are anticipated to continue to mitigate these threats to SRF plants.

### 2.3.4 Management Actions

The current main threat to the SRF population within the offset site is biomass accumulation by the surrounding native and exotic grasses and disturbance from pest animal activity. To mitigate these threats, ongoing control of high threat weeds, such as Serrated Tussock, has reduced the risk to the Spiny Rice-flower population. Aus Eco Solutions have conducted selective herbicide application on high-threat weeds within the offset site (with a particular focus on Serrated Tussock, thistles, and Patterson's Curse) that have a higher potential to impact the SRF population but avoid the use of herbicides within close proximity to SRF individuals.

Pest animals are being actively controlled by Aus Eco Solutions, as detailed in Appendix 3.

An ecological burn to reduce biomass is scheduled for autumn 2021 when conditions are favourable.

### 2.4 Striped Legless Lizard monitoring

Monitoring is required for both the status of the Striped Legless Lizard population and their habitat for a period of ten years within the offset reserve. Monitoring of Striped Legless Lizard will be undertaken for an initial four-year period, then in years 6, 8 and 10 in accordance with the CMP prepared for the site (Ecology and Heritage Partners 2019). A total of 10 grids comprising 10 x 5 tiles were established within the site on 19 March 2020 (Figure 3).

Monitoring of the Striped Legless Lizard population commenced in late September, when conditions were suitable for species detection. Surveys were undertaken during late September 2020 through until November 2020, with a total of eight tile checks to be undertaken during Year One.

Individuals of Striped Legless Lizard were recorded in each survey event (Plate 7; Plate 8). Of the ten grids, grid number three, six and 10 the highest number of SLL across the eight surveys. These grids are dispersed across the site, with grid three located in the far west, grid six in the narrow neck in the centre, and grid 10 in the far east (Figure 3). This indicates that the broader Striped Legless Lizard population is dispersed across the entire offset site, opposed to being restricted to one section. In total, 33 individuals of Striped Legless Lizard were recorded across all survey events. It is likely that some of these individuals were recorded several times over separate survey events. The most recorded during a single survey event was six individuals, recorded during the final check on 26 November 2020.

Several additional fauna species were recorded during the tile checks, including Eastern Blue-tongue Lizard *Tiliqua scincoides* (Plate 9), Little Whip Snake *Suta flagellum* (Plate 10) and skinks (species not identified).



Results of the Year One survey efforts are presented in Table 1.



**Plate 7.** Striped Legless Lizard recorded within the study area (Ecology and Heritage Partners 19/11/2020).



**Plate 9.** Eastern Blue-tongue Lizard recorded during the tile checks within the study area (Ecology and Heritage Partners 09/10/2020).



**Plate 8.** Striped Legless Lizard recorded within the study area (Ecology and Heritage Partners 19/11/2020).



**Plate 10.** Little Whip Snake recorded during the tile grid checks (Ecology and Heritage Partners 09/10/2020).



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### **Table 2.** Summary of survey results from Striped Legless Lizard surveys

Data	Observer	Time	Air	Cloud	Wind	Above Under		Under Observations & Tile Grid No.									
Date	Observer	Time	Temp	Cover	and Spd	Тетр	Тетр	1	2	3	4	5	6	7	8	9	10
21/09/2020	AW, EK, SB	13:00 _ 16:00	19.8	5%	N 24 km	23.6	18.3	-	-	1 x SLL	-	2 x SLL	1 x SLL	-	-	-	1 x SLL
1/10/2020	AW, BJ, GT	08:30 _ 12:00	14.6	20%	24 km W	19.3	13.7	-	-	-	-	-	1 x SLL	-	1 x EBT	-	1 x SLL
9/10/2020	AW & BJ	09:30 _ 12:30	13.7	100%	15 km W	16.2	12.9	-	-	1 x SLL	-	-	1 x SLL	1 x LWS	-	-	1 x EBT
14/10/2020	AW & GT	12:00 _ 14:15	19.1	5%	9 km S	49.7	24.3	1 x SLL	1 x SLL	1 x SLL	-	-	-	-	1 x EBT	1 x SLL	1 x SLL
22/10/2020	EK & BJ	13:00 _ 16:00	19.8	5%	24 km N	23.6	18.3	-	-	1 x SLL	-	2 x SLL	1 x SLL	-	-	-	1 x SLL
28/10/2020	AW & CL	08:33 _ 12:00	16.7	10%	6 km E	38.0	21.2	-	-	1 x SLL	-	1 x SLL	SLL Skin	-	1 x EBT	-	3 x SLL
19/11/2020	GT & NP	10:30 _ 14:00	33.3	15%	25.9 km NNW	61.2	31.2	-	-	-	-	-	2 x SLL	-	-	-	1 x SLL
26/11/2020	EK & GT	10:00 _ 13:00	17.5	99%	20.4 km S	27.9	22.4	-	-	1 x SLL	-	1 x SLL	-	-	1 x SLL 1 x EBT	2 x SLL	1 x SLL

Note: EBT = Eastern Blue Tongue, LWS = Little Whip Snake



### 2.5 Off-site Offset Monitoring Plan

All reporting requirements of the Offset Management Plan (Ecology and Heritage Partners 2018) were addressed as part of the Offset Management Plan Report, Year 1 (2019/2020; Appendix 4).

### 2.6 Management Action Plan

An assessment of completed actions to date against the Management Action Plan table in the CMP (Ecology and Heritage Partners 2019), are summarised below.

### 2.6.1 Secure the offset site

An on-title legal agreement for the conservation reserve was secured on title on 12 December 2019 through a Section 69 Agreement under the *Conservation, Forests and Lands Act 1987* approved by the Victorian Department of Environment, Land, Water and Planning (DELWP).

### 2.6.2 Fencing

Fencing was required as part of the management actions for Year One. Erection of a new rabbit-proof fence around the entire boundary of the site, enclosing the perimeters of the offset site to grazing by introduced herbivores such as rabbits.

### Target to be achieved:

• Erect fencing to DELWP fencing standards Management Standards for native vegetation offset sites (DELWP 2018). Ensure fence is rabbit proof.

### Action completed:

A temporary fence was initially erected around the perimeter of the site, which had been replaced by a rabbit proof fence across the majority of the site (Plate 11; Plate 12). Works are still being completed, with anticipated completion by December 2020. Delays in fence construction are primarily due to COVID-19 (effecting site access, number of contractors on site and availability of materials), along with local council discussions and weather (site was too wet to access without causing undue damage).

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**Plate 11.** Perimeter fence constructed along the northern boundary of the offset site (Ecology and Heritage Partners 03/08/2020).

**Plate 12.** Rabbit proof fence constructed surrounding the offset site (Ecology and Heritage Partners 03/08/2020).

### 2.6.3 Weed Control

Monitoring of new and emerging woody and herbaceous weeds across the site was required to determine whether the extent of weeds within the offset site was managed and controlled appropriately and consistently throughout the 10-year management plan. Monitoring is also essential to ensure that weed cover does not increase. Woody weeds observed during the baseline condition site assessment in 2019 included a low number of Briar Rose *Rosa rubignosa* and African Boxthorn *Lycium ferocissimum*, with African Box-thorn scattered across the site, and some clusters in the eastern end of the offset site. Herbaceous weeds present within the study are include Serrated Tussock, Chilean Needle-grass *Nassella neesiana*, Cape Weed *Arctotheca calendula*, Paterson's Curse and Artichoke Thistle. Total weed cover of all herbaceous and grassy weeds ranged from 20% to 75% across the offset site.

#### Targets to be achieved:

- Eliminate high threat environmental weeds (cover reduced to <1%) within higher quality vegetation with low weed cover and controlling high threat environmental weeds within vegetation with medium cover of weeds (cover reduced to <5%) by end of CMP (Year Ten).
- Control all other weeds within all habitat zones (cover reduced to <5%) by end of CMP (Year Ten).
- Minimise off-target damage (avoid all native plants).

#### Action completed:

Control of woody and herbaceous weeds within the study area was carried out by Aus Eco Solutions (Appendix 3). Weed control works focused primarily on the eastern end of the offset site. African Boxthorn and Sweet Briar were present along fence lines and areas outside the offset boundaries. Control of African Boxthorn and Sweet Briar began with cutting and painting all woody weeds on site using chainsaws, loppers and neat chemical at the beginning of the control period. Some cut wood weeds were piled and will be burnt. Currently, no mature African Box-thorn or Briar Rose remain in the eastern end of the offset site. Limited numbers remain in the western end, which will be targeted in Year Two. It is expected that no mature woody weeds will remain within the offset site at the completion of Year Two management.



Control of two high threat grassy weeds, Serrated Tussock and Chilean Needle-grass was undertaken using a combination of Glyphosate (an active chemical) with Flupropanate (a residual chemical). This combination assists with killing the adult plant quickly whilst staying in the soil to prevent seeds from growing and developing. The works were focused on the eastern end of the offset site, targeting a large infestation of Serrated Tussock, with high levels of dieback evident in targeted areas (Plate 13). Artichoke Thistle, Cape Weed and Paterson's Curse were also treated in patches within these areas and select areas across the rest of the site using the same combination of chemicals (Aus Eco Solutions 2020). Native grasses have been observed flourishing in the areas where weed control works have commenced (Plate 14).

No herbaceous weeds have increased in cover since the commencement of management actions. Due to the high cover of native grasses observed in the recent November site visit, no revegetation or supplementary planting is currently considered necessary.



**Plate 13.** Boundary of herbaceous weed control works completed to date, showing high levels of Serrated Tussock dieback (Ecology and Heritage Partners 03/08/2020).

**Plate 14.** Native grass establishment in areas where herbaceous weeds have been controlled (Ecology and Heritage Partners 03/08/2020).

### 2.6.4 Control All High Threat Weeds

All high threat weeds must be controlled to improve the condition of native vegetation. High threat weeds are listed in Table 7 of the Management Plan incorporated into the Landowner agreement, and in Table 2 below.

Description of high threat	Method for monitoring and control / Actions	Timing
Spear Thistle	Present in moderate numbers across all sites. Monitoring will be ongoing, and control will be in accordance with Table 4.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Serrated Tussock	Present in low abundance across all sites. Moderate cover in zones 4A; 5A; 5B. High cover in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Artichoke Thistle	Present in low abundance across all sites. Moderate cover in zones 4A; 5A; 5B. High cover in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).

 Table 3. High Threat weed control method and timing.

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Description of high threat	Method for monitoring and control / Actions	Timing
Chilean Needle- grass	Present in moderate abundance in zones 2D; 3B; 3C, 4A; 5A; 5B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Perennial Rye- grass	Present in low to moderate abundance across all sites. High cover in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Toowoomba Canary-grass	Present in low to moderate abundance across all sites. High cover in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Bathurst Burr	Scattered presence in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Paterson's Curse	Moderate cover in zones 2D; 3A; 3B; 4A; 5A; 5B.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Brown-top Bent	Present in low to moderate abundance across all sites. High cover in zones 2D and 3B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Galenia	Present in low to moderate abundance in all sites except 2C and 2E. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).
Yorkshire Fog	Present in low to moderate abundance across all sites High cover in zones 2D; 3B; 3C, 4A; 5A; 5B. Annual Spraying (before seeding) will be in accordance with Table 4. Monitoring will be ongoing.	Ongoing Monitoring. Control activities predominantly in Spring (before seed set).

#### Target to be achieved:

• No increase in, and where possible a reduction of presence, activity and impact of identified threat(s) from levels recorded at commencement date.

#### Actions completed:

Year One focused on the removal of Serrated Tussock, which dominated areas of the eastern end of the offset site. Other high threat weeds, primarily Paterson's Curse and Artichoke Thistle, were prevalent in this area, which have also been controlled through the on-ground works completed by AES. An ecological burn is schedule within this eastern end to further reduce and control weed cover, along with continuing the weed control works (i.e. spraying).

### 2.6.5 Pest Animals

All landowners are required to take reasonable steps to prevent the spread of, and as far as possible, eradicate, established pest animals on their land according to the *Catchment and Land Protection (CaLP)* Act 1994 European Rabbit Oryctolagus cuniculus and Red Fox Vulpes vulpes are listed as established pest animals

# under the CaLP Act. The study area contained evidence of pest animal presence, with rabbit warrens and fox dens observed across the site during the baseline assessment.

### Target to be achieved:

- No surface disturbance within the credit site.
- No active rabbit warrens to be present.
- No active fox dens to be present.
- No rubbish.
- Minimal artificial piles of logs and rocks.
- Control numbers of rabbits and foxes.
- Control numbers of any new and emerging pest animals.

#### Action completed:

Pest animal control was undertaken by Aus Eco Solutions. Control methods included fumigation and warren collapsing where possible across the study area (Aus Eco Solutions 2020). No active dens were observed during Year One, and no new and emerging pest animals were observed.

### 2.6.6 Biomass Management

Biomass control is an essential practice for maintenance of flora and fauna values, and for protection against grass fires. Maintaining an open-structured grassland with inter-tussock spaces using biomass reduction and control methods will aid in maintaining the available areas for Spiny Rice-flower and Striped Legless Lizard to inhabit. Approximately 20% to 40% cover of bare ground is required for optimal habitat conditions for Spiny Rice-flower and Striped Legless Lizard. Control Biomass management regimes such as burning, and slashing may be employed to maintain this percentage cover.

#### Target to be achieved:

#### Ecological burn

- No single area to be burnt more than once every five years.
- Sufficient bare ground (approximately 20% 40% cover) maintained to maintain space for recruitment of herbs and grasses.
- No loss of native plant diversity as a result of burning regimes.
- Burn widths of no more than 60 meters wide, to allow movement of Striped Legless Lizard into adjacent unburnt areas following a burn.

#### Slashing

- Slashing to occur no more than once annually.
- Sufficient bare ground (approximately 20% 40% cover) maintained to maintain space for recruitment of herbs and grasses.
- No loss of native plant diversity as a result of slashing regimes.



### Action completed

Biomass control by Aus Eco Solutions was planned for Autumn 2020, however did not take place due to the unfavourable weather conditions and impacts associated with COVID-19. The burn has been postponed until autumn 2021, where dead exotic plant material accumulated through the weed control works will be targeted for removal.

Biomass cover across the site, primarily in the eastern and narrow neck section, was relatively low due to the presence of grazing horses prior to the protection of the site (Plate 15). Since the protection and management within the site has commenced, a notable improvement in the cover of native grasses was observed (Plate 16). Due to the high cover of native biomass, no supplementary planting is currently considered necessary.



**Plate 15.** Vegetation cover in narrow neck prior to site protection (Ecology and Heritage Partners 14/06/2019).

**Plate 16.** Vegetation cover in narrow neck after site protection showing re-growth due to removal of grazing pressure (Ecology and Heritage Partners 03/08/2020).

### 2.6.7 Annual Reporting

In accordance with condition 11 of the EPBC approval, an annual report must be submitted to the Department for each year of the ten years of the Management Plan. The Annual Report addresses progress against the commitments set out in the Management Plan. Annual Reports should provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for each zone.

#### Target to be achieved:

- Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for the offset site.
- Assessment against the approval conditions for the project.

#### **Action Completed:**

This report provides a summary of the management and monitoring actions undertaken to date within the offset site during Year One and includes an assessment against the Management Actions Plan Table incorporated into the CMP.



# 3 CONCLUSION

The management and monitoring works undertaken in Year One of the Ravenhall offset site demonstrate that the offset site condition has improved, and that the management actions undertaken to date are enhancing the ecological values present within the site.

Due to the high cover of Serrated Tussock within areas of the site, AES concentrated a lot of weed control efforts on spraying the infestation. These works were focused on the eastern end of the offset site, and the dead plant material is proposed to be burnt in autumn 2021 to remove biomass and provide opportunity for native grass recruitment. Large areas of Serrated Tussock have been controlled as a result of the works, with native grasses observed in moderate to high density in these areas.

A strategic approach to management is being implemented across the site, to manage the vast size and target priority areas and items. Based on the works undertaken to date, no alterations to the existing Conservation Management Plan or Management Plan incorporated in the section 69 agreement are considered necessary due to the observed improvement in the site and will continue to be reviewed as the project progresses.

This report fulfils condition 3 of the approval, through the establishment of an on-site offset containing at least 13.37 hectares NTGVVP, 28.98 hectares of Striped Legless Lizard habitat and at least 86 SRF plants, and Condition 11 of the approval through the provision of this Year One monitoring report. The results of this report highlight that the offset site contains a population of Striped Legless Lizard dispersed across the site, supports more than the required 86 SRF, with 149 SRF recorded within the offset site, and contains at least 13.37 hectares of NTGVVP, which has demonstrated an improvement in quality since the offset site protection and commencement of management.



# REFERENCES

- DEWHA 2009. Significant impact guidelines for the critically endangered Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*. Nationally threatened species and ecological communities EPBC Act Policy Statement 3.11. Commonwealth of Australia, 2009.
- DSE 2004. *Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method.* Version 1.3. Victorian Department of Sustainability and Environment, Melbourne Victoria.
- Ecology and Heritage Partners 2019. Conservation Management Plan: Ravenhall Industrial Precinct, Victoria. Prepared for DWPL Nominees Pty Ltd and Dexus Wholesale Management Limited.



# FIGURES





Aerial source: Nearmap 2020



Aerial source: Nearmap 2020





# **APPENDICES**

## Appendix 1. Habitat Hectare Assessment

Table A1.1. Habitat hectare assessment (Year 1 Baseline condition)

Management Zone		2B, 2C, 2E	21, 3A, 3C	2D, 3B	2H
Vegetation Zone		PG1	PG2	PG3	PGWe
Bioregion		VVP	VVP	VVP	VVP
EVC / Tree		PG	PG	PG	Plains Grassy Wetland
EVC Number		132_61	132_61	132_61	125
EVC Conserva	tion Status	Endangered	Endangered	Endangered	Endangered
	Large Old Trees /10	na	na	na	na
	Canopy Cover /5	na	na	na	na
	Under storey /25	15	10	5	10
	Lack of Weeds /15	7	7	0	2
Patch	Recruitment /10	6	6	3	6
Condition	Organic Matter /5	3	5	2	2
	Logs /5	na	na	na	na
	Treeless EVC Multiplier	1.36	1.36	1.36	1.36
	Subtotal =	42.16	38.08	13.60	27.20
Landscape Value /25		14	14	14	15
Habitat Points /100		56	52	28	42
Habitat Score		0.56	0.52	0.28	0.42

Note: PG = Plains Grassland, VVP = Victorian Volcanic Plain, PGWe = Plains Grassy Wetland



# Appendix 2. Photo Points

### A2.1 Year One Photo Points



**Plate A2.1.** Photo point 1 (Ecology and Heritage Partners Pty Ltd 03/08/2020)



**Plate A2.3.** Photo point 3 (Ecology and Heritage Partners Pty Ltd 03/08/2020)



**Plate A2.2.** Photo point 2 (Ecology and Heritage Partners Pty Ltd 03/08/2020)



**Plate A2.4.** Photo point 4 (Ecology and Heritage Partners Pty Ltd 03/08/2020)





**Plate A2.5.** Photo point 5 (Ecology and Heritage Partners Pty Ltd o3/08/2020)



**Plate A2.7.** Photo point 7 (Ecology and Heritage Partners Pty Ltd 03/08/2020)



**Plate A2.6.** Photo point 6 (Ecology and Heritage Partners Pty Ltd 03/08/2020)



**Plate A2.8.** Photo point 8 (Ecology and Heritage Partners Pty Ltd 03/08/2020)





**Plate A2.9.** Photo point 9 (Ecology and Heritage Partners Pty Ltd 03/08/2020)

### A.2.2 Photo Point Data

Date	Time	Photo Point ID	Direction	Coordinates (lat/long)
3/08/2020	11:34	1	South	-37.7579, 144.7223
3/08/2020	12:05	2	North	-37.7592, 144.7232
3/08/2020	12:20	3	West	-37.7594, 144.7263
3/08/2020	12:35	4	North	-37.7611, 144.7255
3/08/2020	12:57	5	East	-37.7621, 144.7276
3/08/2020	1:12	6	East	-37.7643, 144.7325
3/08/2020	1:25	7	North East	-37.7646, 144.7343
3/08/2020	1:32	8	South	-37.7628, 144.7347
3/08/2020	1:52	9	East	-37.7636, 144.7363