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Final Report

Final Preliminary Documentation: Proposed Industrial and Commercial Development at 752 Craigieburn Road East, Craigieburn, Victoria (EPBC 2021/9093).

Prepared for

Dexus Craigieburn Pty Ltd

May 2026

Ecology and Heritage Partners Pty Ltd

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We thank the following people for their contribution to the project:

- [redacted] (Case Meallin) for project and site information; and,
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☐ Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.

[redacted]

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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 Preliminary Documentation (EPBC 2021 / 9093) is complete, current and correct.
2. I am duly authorised to sign this declaration on behalf of the approval holder (Dexus Craigieburn Limited ABN: 54 677 761 072) , POA Dated 13 October 2025 and have no knowledge of that authorisation being revoked at the time of making this declaration. .
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.
    b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) where the person knows the information or document is false or misleading.
    c. The above offences are punishable on conviction by imprisonment, a fine or both.

Signed by: [redacted]
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Dexus

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GLOSSARY

Acronym	Description
CaLP Act	(Victorian) *Catchment and Land Protection Act 1994*
CMA	Catchment Management Authority
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DAWE	(former) Commonwealth Department of Agriculture, Water and the Environment
DEECA	Department of Energy, Environment and Climate Action
DELWP	(former) Victorian Department of Environment, Land, Water and Planning
DEPI	(former) Victorian Department of Environment and Primary Industries
DoE	(former) Commonwealth Department of Environment
DoEE	Commonwealth Department of Environment and Energy
DSEWPaC	(former) Commonwealth Department of Sustainability, Environment, Water, Populations and Communities.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EVC	Ecological Vegetation Class
FFG Act	*Flora and Fauna Guarantee Act 1988*
GGF	Growling Grass Frog *Litoria raniformis*
GSM	Golden Sun Moth *Synemon plana*
HabHa	Habitat Hectare
MICLUP	Melbourne Industrial and Commercial Land Use Plan
NES	National Environmental Significance
NTGVVP	Natural Temperate Grassland of the Victorian Volcanic Plain
NVIM Tool	Native Vegetation Information Management Tool (DEECA)
P&E Act	*Planning and Environment Act 1987*
PMST	Protected Matters Search Tool (DCCEEW)
SLL	Striped Legless Lizard
SSIP	State Significant Industrial Precinct
VBA	Victorian Biodiversity Atlas (DEECA)
VGED	Victorian Grassland Earless Dragon

EXECUTIVE SUMMARY

Background

Ecology and Heritage Partners Pty Ltd (Ecology and Heritage Partners) were commissioned by Dexus Craigieburn Pty Ltd (Dexus) to prepare a response to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) request for Preliminary Documentation for the proposed industrial and commercial development at 752 Craigieburn Road Eat, Craigieburn, Victoria (the study area) (EPBC 2021/9093).

It has been determined under Section 87 of the *Environment and Biodiversity Protection Act 1999* (EPBC Act), that the proposed action is a controlled action, and the proposed development of the study area will have a significant impact on listed threatened species and communities (Sections 18 and 18A). It has also been determined that the proposed action will be assessed by Preliminary Documentation.

The study area is located at Lot A\PS900640, 752 Craigieburn Road E, Craigieburn and is approximately 34 kilometres north of Melbourne's CBD. The study area is triangular in shape and covers approximately 18.55 hectares. The northern-most portion of Lot A (approximately 5 hectares) is within the proposed Craigieburn South Employment Area Precinct Structure Plan (PSP) (unprogrammed) and the Melbourne Strategic Assessment (MSA) program area. The remaining portion of the study area (approximately 13.5 hectares) is outside of the MSA and is the portion of the site that is subject to the existing EPBC referral, and response in this Preliminary Documentation report.

The proposed action involves the subdivision and development of the study area for industrial and commercial purposes, including the construction of roads, buildings, and car parks across two stages of development. The plan of subdivision will create a reservation for the Merri Creek and Malcolm Creek in accordance with the requirements of Melbourne Water as the drainage authority.

Existing Conditions

Within the overall study area, ecological surveys undertaken recorded the presence of 8.83 hectares of the Critically Endangered *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) ecological community, and 12.779 hectares of confirmed habitat for the Vulnerable Golden Sun Moth *Synemon plana*.

Outside the MSA area, a total of 7.87 hectares of NTGVVP and 11.53 hectares of confirmed habitat for the Golden Sun Moth is present.

Potential habitat for Growling Grass Frog *Litoria raniformis*, Curly *Sedge Carex tasmanica* and Matted Flax-lily *Dianella amoena*, was identified within the study area. Targeted surveys were undertaken for all three species. A total of 290 Golden Sun Moths were recorded within the study area, and despite the efforts of the targeted surveys, the other three species were not identified within the study area (Ecology and Heritage Partners 2021).

Targeted surveys for the critically endangered Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla* and Striped Legless Lizard *Delma impar* were undertaken in Spring and Summer 2024. No Victorian Grassland Earless Dragon or Striped Legless Lizard were recorded during the targeted surveys.

The proposed action will involve the removal of 7.994 hectares of Plains Grassland, including 7.615 hectares of NTGVVP, and 11.097 hectares of confirmed Golden Sun Moth habitat during the construction of industrial

buildings and access roads outside of the MSA area. Development works including excavation, construction of roads and bridge crossings will significantly impact patches of NTGVVP and Golden Sun Moth habitat through the removal of habitat for these Matters of National Environmental Significance (MNES).

Due to the location and extent of native vegetation and habitat present within the study area, it is not possible to avoid impacts, so the project has sought to minimise as much as practically feasible through the proposed creation of a 1.5 hectare nature reserve. The nature reserve is proposed to be located abutting the Malcolm Creek creekline reserve and extending south-east to the drainage reserve, providing a setback from Malcolm Creek to reduce visual impact on the creek environs, whilst retaining (including adjacent non-developed areas) a total of 1.215 hectares of NTGVVP and 1.682 hectares of GSM habitat.

Proposed Staging

The proposed action is planned to be undertaken in two stages (Figure 2). This Preliminary Documentation assesses the impacts to matters of national environmental significance associated with both Stage 1 and Stage 2 of the development. Offsets for Golden Sun Moth habitat are addressed and secured for Stage 1 only, which involves the removal of 8.8 hectares of confirmed Golden Sun Moth habitat within the study area. Impacts to Golden Sun Moth habitat associated with Stage 2 are assessed in this PD; however, offsets for those impacts are not addressed and would be required to be resolved prior to the commencement of Stage 2.

An external offset site located at [redacted]Cressy, Victoria has been identified as a suitable offset site to compensate for impacts to Golden Sun Moth habitat associated with Stage 1 of the proposed action. The offset comprises 50.4 hectares of confirmed Golden Sun Moth habitat, which is proposed to be secured and managed for conservation purposes in perpetuity. This offset is sufficient to fully compensate for the residual impacts to Golden Sun Moth habitat arising from Stage 1 only, in accordance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Environmental Offsets Policy.

Impacts to Golden Sun Moth habitat associated with Stage 2 of the development are not addressed within this Preliminary Documentation. It is anticipated that any EPBC approval granted for the project would be conditioned, requiring the residual impacts and proposed offsets for Golden Sun Moth habitat associated with Stage 2 of the development to be addressed to the satisfaction of the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) prior to the commencement of Stage 2.

The identified offset site is also sufficient to fully compensate for impacts to the NTGVVP ecological community associated with Stages 1 and 2 of the development.

The offset site will be protected through a Trust for Nature covenant under part Section 3A of the *Victorian Conservation Trust Act 1972.* An Offset Management Plan has been prepared detailing the security and ongoing management actions required to secure the offset (Appendix 3).

This document addresses all items raised by DCCEEW in their request for additional information and has considered all relevant existing information, including assessment reports, species Recovery Plans, conservation advice and EPBC Act policy documents.

CONTENTS

1 INTRODUCTION

1.1 Project Background

Ecology and Heritage Partners Pty Ltd was commissioned by Dexus Craigieburn Pty Ltd to prepare the Preliminary Documentation for the proposed industrial and commercial development at 752 Craigieburn Road East, Craigieburn, Victoria (the study area) (Figure 1).

A referral (EPBC 2021/9093) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 8 December 2021 to the (former) Commonwealth Department of the Agriculture, Water and Environment (DAWE) for the proposed development of the study area. On 3 February 2022, it was determined by a delegate for the Minister that under Section 87 of the EPBC Act the proposed action is considered a 'Controlled Action', as it is likely to have a significant impact on listed threated species and communities (Sections 18 and 18A) protected under Part 3 of the EPBC Act. On 30 November 2022, it was also determined that the proposed action will be assessed by preliminary documentation. Specifically, the matters of National Environmental Significance (NES) that DCCEEW has requested additional information for are:

- Golden Sun Moth *Synemon plana*; and,
- Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) ecological community.

It should also be noted that potential habitat for the nationally significant Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla* (VGED) was identified on-site. Targeted surveys for the VGED and Striped Legless Lizard *Delma impar* (SLL) were undertaken in Spring and Summer 2024. No VGED or SLL were recorded during the targeted surveys, with the results and implications associated with the surveys presented in the current iteration of this report.

The following information includes that outlined in the EPBC Act referral, as well as additional information requested by DCCEEW regarding any other matters of NES that may be affected by the proposed action. The contents page of this report provides a reference table detailing where each of the requirements of the preliminary documentation request is addressed.

1.2 Site Context

The study area is located at Lot A\PS900640, 752 Craigieburn Road E, Craigieburn and is approximately 34 kilometres north of Melbourne's CBD. The study area is triangular in shape and covers approximately 18.55 hectares. It is bound by the Hume Freeway along the eastern boundary, Craigieburn East Road to the south and undeveloped agricultural land and the Melbourne to Sydney Rail Corridor to the west (Figure 1).

The study area contains open, agricultural grassland areas. Malcolm Creek intersects through the northern portion of the study area and joins into Merri Creek to the east of Lot B. Scattered trees and shrubs occur along the waterway corridor (Figure 2).

The northern-most portion of Lot A (approximately 5 hectares) is within the proposed Craigieburn South Employment Area Precinct Structure Plan (PSP) (unprogrammed) and the Melbourne Strategic Assessment (MSA) program area. The remaining portion of the study area (approximately 13.5 hectares) is outside of the MSA (Figure 2).

According to the Victorian Department of Energy, Environment and Climate Action (DEECA) NatureKit Map (DEECA 2025a), the study area occurs within the Victorian Volcanic Plain bioregion. It is located within the jurisdiction of the Melbourne Water Catchment Management Authority (CMA) and is within the Hume City Council municipality.

The study area is within the Industrial Zone – Schedule 3 (IN3Z) and Urban Growth Zone (UGZ) and is covered by the Environmental Significance Overlay – Schedule 2 (ESO2) and Environmental Significance Overlay – Schedule 10 (ESO10) (Department of Transport and Planning [DTP] 2025).

2 DESCRIPTION OF THE ACTION

Of the 18.55 hectare study area, approximately 5 hectares is located within the proposed Craigieburn South Employment Area Precinct Structure Plan (PSP) (unprogrammed) and is subject to the implications of the Melbourne Strategic Assessment (MSA) program area.

Therefore, the proposed action associated with EPBC 2021/9093 is specific to the approximately 13.5 hectares of Lot A\PS900640 sited outside of the MSA area.

Dexus Craigieburn Pty Ltd have submitted an application to subdivide Lot A\PS900640 located at 752 Craigieburn Road East, Craigieburn, Victoria, into approximately 48 lots for an industrial development in accordance with the Industrial Zone – Schedule 3 (IN3Z) that applies to the land.

This will include the construction of roads, buildings, and car parks. The plan of subdivision will create a Nature Reserve, Creek Interface Reserve and Drainage Reserve adjacent to Malcolm Creek in accordance with the requirements of Melbourne Water as the drainage authority.

Development works including excavation, construction of industrial buildings, roads and bridge crossings will directly impact areas of confirmed habitat for the nationally significant Golden Sun Moth *Synemon plana* (GSM) and the nationally significant ecological community *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP).

The action is expected to commence in 2026 and be completed within a four-year period.

Overall, the proposed action will result in the removal of 7.615 hectares of NTGVVP, and 11.097 hectares of confirmed Golden Sun Moth habitat (Figure 4).

2.1 Disturbance footprint (and areas adjoining areas which may be indirectly impacted)

The study area is proposed to be subdivided into 48 lots and developed for industrial purposes. Due to the nature of the proposal (i.e. subdivision and construction), all native vegetation is assumed as lost where subdivided lots are created that are less than 0.4 hectares.

Further, the subdivision requires new utilities such as water, sewage, electricity, and telecommunications services, all of which need to be buried underground. Excavation is necessary to install pipelines, conduits, and utility lines, ensuring access to reliable services.

Proper drainage systems must be installed to manage stormwater runoff and prevent flooding or water pooling, which could damage properties and infrastructure. This involves trenching and grading the ground to create channels, detention basins, and stormwater pipes. In accordance with Melbourne Water design guidelines (Land Development Refence 5.3.2), all new sites must be developed to ensure that lots remain free draining and protected from a Q100 flood event. Both lots and roads must be designed to achieve appropriate freeboard.

Malcom Creek provides a drainage outfall for the site. The flood level within Malcom Creek provides a basis for the drainage design and setting road and lot levels. Due to the fixed level of Malcom Creek and the requirement to ensure the site is free draining, in order to comply with Melbourne Water freeboard requirements, it is not possible to avoid the future earthworks over the entire site. This comprises both cut

and fill works in areas where native vegetation is present. Ground disturbance in these areas will consist of an initial 200 millimetre site strip to remove topsoil, followed by excavation works ranging from 500mm to 1m in depth. The excavation works are deemed necessary in order to ensure the site is free draining.

As outlined by Melbourne Water, greenfield subdivisions and large-scale urban redevelopments our requirement is for new buildings and urban lots to be located outside active flow areas, and to be filled to meet the following minimum freeboard requirements: i) 0.3 metres for land adjacent to overland flowpaths, and, ii) 0.6 metres for land adjacent to waterways or within their floodplains.

In addition to the above-mentioned freeboard requirements, underground drainage at the subject site will be designed to convey minor event flows up to and including the 10% Annual Exceedance Probability (AEP) event flow. The subject site will drain towards DSS infrastructure, a sediment basin and wetland, that will ensure that stormwater quality treatment will be provided to meet Best Practice Environmental Management Guidelines (BPEMG).

The project has sought to minimise impacts as much as practically feasible through the proposed creation of a 1.5 hectare nature reserve located immediately north of the proposed industrial lots, abutting the Malcolm Creek creekline reserve and extending south-east to the drainage reserve (Figure 2; Figure 4).

Due to the natural topography of the subject site, in order to comply with Melbourne Water guidelines and to ensure safe trenching practises are implemented, with the exception of retained ecological values within the Nature Reserve (and adjacent Malcolm Creek creekline reserve), it will not be possible to avoid impacts to native vegetation or GSM habitat throughout other parts of the study area, and it should be assumed that ground disturbing activities will occur over the remaining areas of the site (Dalton Engineering 2024).

2.2 Staging of the Proposed Action

The proposed action will be undertaken in two stages. The staging of the development reflects the proponent's intended construction program. Stage 1 of the proposed action comprises the initial development footprint (including the nature reserve) and will result in the removal of 8.8 hectares of confirmed Golden Sun Moth habitat and 5.175 hectares of the NTGVVP community (Table 1). This Preliminary Documentation assesses the impacts associated with both Stage 1 and Stage 2 of the development; however, approval and offsets are sought for Stage 1 only.

Table 1. Breakdown of impacts to MNES per stage of development

	Stage 1 (ha)	Stage 2 (ha)	Total Impacts (ha)
GSM Habitat	8.800	2.297	11.097
NTGVVP	5.175	2.440	7.615

Stage 2 of the proposed development will result in additional impacts to Golden Sun Moth habitat that have been assessed in this Preliminary Documentation. However, offsets for Golden Sun Moth impacts associated with Stage 2 are not addressed in this PD and would be required to be identified and secured to the satisfaction of DCCEEW prior to the commencement of Stage 2. An offset strategy relateing to Stage 2 offsets is provided in Appendix 4.

Impacts to the NTGVVP ecological community associated with Stages 1 and 2 of the development are fully addressed within the current offset strategy.

3 DESCRIPTION OF THE ENVIRONMENT AND MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

3.1 The Environment

Several detailed ecological assessments, including targeted surveys for Growling Grass Frog, Golden Sun Moth, and Matted Flax-lily, were previously undertaken within the study area (Ecology and Heritage Partners 2021). This included a detailed vegetation assessment undertaken in December 2019 to obtain information on the flora and fauna values within the study area (Ecology and Heritage Partners 2021). During this assessment, the entire study area was assessed with the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DEECA extant EVC mapping and their published descriptions (DEECA 2025c). Where native vegetation was identified a habitat hectares assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (Department of Sustainability and Environment [DSE] 2004).

An additional site assessment was undertaken on 5 December 2023 to review the quality and extent of native vegetation and GSM habitat within the study area, while an assessment conducted on 14 August 2024 reviewed the quality and extent of habitat for VGED.

Native vegetation in the study area is representative of the *Heavier Soils* Plains Grassland Ecological Vegetation Class (EVC 132_61), with most of this EVC being representative of the Critically Endangered ecological community *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DEECA 2025c).

The remainder of the study area comprises introduced and planted vegetation, present as pasture, windrows and ornamental plantings. An unoccupied residential dwelling (including associated infrastructure) was present in the study area, and livestock were observed in the paddocks at the time of the surveys.

Specific details relating to observed EVC are provided below.

3.1.1 Plains Grassland

Heavier-soils Plains Grassland is a treeless vegetation, which within the Victorian Volcanic Plains most often occurs on fertile cracking basalt soils and is prone to seasonal waterlogging. The vegetation community often contains a diverse ground layer of grasses and herbs typically less than metre tall (DEECA 2025c).

Heavier-soils Plains Grassland occurred throughout the study area and was mapped in two habitat zones of differing condition. Habitat zone (HZ) PG1 contained low native species diversity and generally comprised of 25-30% cover of Rough Spear-grass *Austrostipa scabra* subsp. *falcata* and/or Common Wallaby-grass *Rytidosperma caespitosum*, and/or Bristly Wallaby-grass *Rytidosperma setacea*, with specimens of Finger Rush *Juncus subsecundus* present throughout (Plate 1; Plate 2). Herbs were generally absent, and weed cover was high, with Large Quaking-grass *Briza maxima*, Perennial Rye-grass *Lolium perenne,* Prairie Grass *Bromus catharticus* all common, as well as occasional specimens of the noxious weeds Chilean Needle-grass *Nasella neesiana* and Serrated Tussock *Nasella trichotoma*.

Habitat zone PG2 also contained similar low native species diversity but comprised a higher cover of at least 50% native graminoid species (Plate 3; Plate 4), as well as the occasional specimen of Blushing Bindweed *Convolvulus angustissimus*. Weeds were still present, although at a lower cover then PG1.

Plate 1. Habitat zone PG1 comprising a low cover of Spear-grass and occasional Finger Rush (Ecology and Heritage Partners Pty Ltd 05/12/2023).

Plate 2. Habitat zone PG1 comprising a low cover of Spear-grass and Finger Rush (Ecology and Heritage Partners Pty Ltd 05/12/2023).

Plate 3. Habitat zone PG2 dominated by Wallaby-grass (Ecology and Heritage Partners Pty Ltd 05/12/2023).

Plate 4. Habitat zone PG2 dominated by Wallaby-grass (foreground) and Spear-grass (background) (Ecology and Heritage Partners Pty Ltd 05/12/2023).

3.1.1.1 Natural Temperate Grasslands of the Victorian Volcanic Plain (NTGVVP)

The nationally significant Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) ecological community was identified within the study area during the ecological assessment undertaken by Ecology and Heritage Partners (2021), and during follow up site assessments in 2023.

This community was located in areas identified as habitat zone PG2, corresponding with the nationally significant NTGVVP ecological community. This equates to a total of 8.83 hectares of the NTGVVP community being present, with a total of 7.87 hectares of NTGVVP located outside of the MSA area (Figure 4a). See Section 3.2.1 for further information on the NTGVVP community.

3.1.2 Introduced Vegetation

Areas not supporting native vegetation had a high cover (>95%) of exotic species. Scattered native grasses were generally present in these areas, however they did not have the required 25% relative cover to be considered a patch of native vegetation. Adjacent to the internal roads within the study area were planted windrows of exotic Pine trees *Pinus* spp.

Non-native areas were dominated by non-native pasture grasses such as Toowoomba Canary-grass *Phalaris aquatica*, Soft Brome *Bromus hordeaceus*, Prairie Grass, Squirrel-tail Fescue *Vulpia bromoides*, Sweet Vernal-grass *Anthoxanthum oderatum* and Wild Oat *Avena fatua* (Plate 5).

Noxious weeds, as defined under the *Catchment and Land Protection Act 1994* (CaLP Act), were present throughout the study area with Serrated Tussock, Chilean Needle-grass Artichoke Thistle *Cynara cardunculus* and Spear Thistle *Cirsium vulgare* present (Plate 6).

Plate 5. non-native grasses and Spear Thistle within the study area (Ecology and Heritage Partners Pty Ltd 05/12/2023).

Plate 6. Serrated Tussock within the study area (Ecology and Heritage Partners Pty Ltd 05/12/2023).

3.2 Matters of National Environmental Significance

3.2.1 Natural Temperate Grassland of the Victorian Volcanic Plain

The nationally significant NTGVVP ecological community was identified within the study area during the ecological assessment undertaken by Ecology and Heritage Partners (2021), and during follow up site assessments in 2023. This community was located in areas identified as habitat zone PG2, with a total of 8.83 hectares corresponding with the nationally significant NTGVVP ecological community (Figure 4b).

Vegetation assessments undertaken in 2021 and 2023 were conducted by ecologists experienced in the identification of NTGVVP and the associated condition thresholds (Table 2). The presence of the community, as well as the general extent and condition were also confirmed during site visits undertaken in December 2021 and February 2022.

The presence of the community, as well as the general extent and condition were also confirmed during site visits undertaken between September and December 2024 as part of the VGED survey effort.

In accordance with Commonwealth condition thresholds (Department of Sustainability, Environment, Water, Populations and Communities [DSEWPaC] 2011a), discrete patches of Plains Grassland PG2 met the following condition thresholds that define the EPBC Act-listed NTGVVP ecological community (Table 2).

Note that habitat zone PG1 did not support a native perennial tussock cover of 50% or more, nor supported a native wildflower vegetative cover that accounted for 50% or more of the total vegetative cover, and therefore, did not meet the condition thresholds that define the NTGVVP community.

Table 2. Condition Thresholds for Natural Temperate Grassland of the Victorian Volcanic Plain (DSEWPaC 2011).

Trigger	Criteria	NTGVVP Patches (PG2)
EVC	The grassland is either Plains Grassland (EVC 132) or Creekline Tussock Grassland (EVC 654)	Criteria Met
Bioregion	Grassland is in the Victorian Volcanic Plain or near to the Victorian Volcanic Plain (Central Victorian Uplands, Dundas Tablelands and Otway Plain Bioregions)	Criteria Met
Size of Patch	If grassland remnant is ≤1 hectare, grassland patch needs to be at least 0.05 hectare in size with no more than 5% canopy cover of trees or shrubs.	Criteria Met
	If grassland remnant is >1 hectare, grassland patch needs to be at least 0.5 hectare in size with no more than 2 trees per hectare.	Criteria Met
Key Diagnostic Features	The grassland is associated with Quaternary basalt soils within the Victorian Volcanic Plain bioregion.	Criteria Met. Occurs on basalt soils within the Victorian Volcanic Plain
	At least one of the following grass genera is the dominant native species in the ground layer: Kangaroo Grass, Wallaby-grass., Spear-grass, or Tussock-grass.	Criteria Met, dominant native species area Spear Grasses and Wallaby Grasses (PG2).
Condition Thresholds	The native grasses Kangaroo-grass, Wallaby-grass, Spear-grass, or Tussock-grass account for 50% or more of the perennial tussock cover of the grassland patch. OR	Criteria met. Moderate cover of Spear-grass and Wallaby grass (PG2)
	Native wildflowers account for 50% or more of the total vegetation from September to February. OR	N/A
	Non-grassy weeds account for less than 30% of the total vegetation cover at any time of the year.	Criteria met
Additional Characteristics	The conservation value of a patch of the NTGVVP ecological community is enhanced if it shows any of the following features: • a high native plant species richness; • large patch size; • minimal weed invasion; • presence of threatened plant and/or animal species; • presence of natural exposed rock platforms and outcrops; or • presence of mosses, lichens or a soil crust on the soil surface.	Occasional natural exposed rock platforms; Supports a population of GSM.

3.2.2 Golden Sun Moth

There are 7,712 records of Golden Sun Moth recorded in the VBA within 10 kilometres of the study area (DEECA 2025d). Most of these records occur approximately five kilometres southeast of the study area (Figure 6).

3.2.2.1 Golden Sun Moth Habitat Requirements

Golden Sun Moth typically occur in native grassland, grassy woodland, dominated by Wallaby-grass *Rytidosperma* spp. (DSE 2004), but may also inhabit areas dominated by Kangaroo Grass *Themeda triandra* (Endersby and Koehler 2006), Spear-grass *Austrostipa* spp., and introduced grassland dominated by Chilean Needle-grass *Nassella neesiana* and other introduced species (A. Organ pers. obs.). In recent years, Golden Sun Moth has been regularly recording in habitat comprising as little as approximately 10% cover in preferred food plants.

Male flight is typically low, to about a metre above the ground, fast and can be prolonged, but they are generally not recorded flying more than 100 metres from suitable habitat (Clarke and O'Dwyer 1999).

Although generally accepted that male of this species only flies between 11am and 3pm on calm, warm (over 20°C), sunny days, Ecology and Heritage Partners have often recorded active male Golden Sun Moth flying on cooler days with partial or full cloud cover or moderate to high winds. Usually, less individuals are observed than during these surveys than in optimal conditions however surveying in these conditions can be sufficient in the context of confirming presence in the Assessment Area and surrounding landscape.

The study area supports expanses of the species preferred habitat (i.e. native and introduced grasslands) throughout the study area. The species' preferred host plants (i.e., Wallaby-grasses, Spear-grasses, and Kangaroo Grass) are scattered throughout much of the site and occur in highest densities within patches of Plains Grassland (EVC 132). In addition to this, there are scattered infestations throughout the site of the WoNS, Chilean Needle-grass, which is a known food source for the species.

Habitat for Golden Sun Moth was defined where a cover of at least 10% of the species' preferred food plants (i.e. a combination of Wallaby-grass, Kangaroo Grass, and/or Chilean Needle-grass) occurred, or in areas where at least a 5% cover of Wallaby-grass was present. Where Golden Sun Moth was recorded within, or immediately adjacent to an area of habitat, this was noted as 'confirmed' Golden Sun Moth habitat.

3.2.2.2 Golden Sun Moth Targeted Surveys

Targeted surveys were undertaken to investigate the quality and extent of habitat for Golden Sun Moth within the study area, and to determine the presence and abundance, or absence of the species (Figure 7; Ecology and Heritage Partners 2021).

Targeted surveys for Golden Sun Moth were undertaken in accordance with the recommended survey guidelines detailed in the *Significant impact guidelines for the critically endangered golden sun moth (Synemon plana)* (DoE 2013), and the *Biodiversity Precinct Planning Structure Kit* (DSE 2010a). Targeted surveys for Golden Sun Moth were undertaken on 28 November 2019 and 9, 17 and 23 December 2019 by ecologists experienced in the detection and identification of the species. Surveys concentrated on areas identified as supporting native grassland, as well as non-native areas comprising scattered occurrences of wallaby grasses. The following was undertaken:

- A habitat assessment was completed detailing information on habitat quality, biomass levels, presence of weeds and floristic diversity;

- Surveys were conducted by ecologists experienced in the detection and identification of Golden Sun Moth;
- The study area was surveyed on four separate occasions, with at least one week between surveys, where possible;
- Surveys were undertaken during the species' flight season (between early November to early January). Moths were confirmed flying at known, nearby reference sites prior to undertaking each survey;
- Surveys were undertaken during weather conditions suitable for detecting the species (i.e. between 10:00am and 3:00pm on warm (over 20˚C by 10am) days with minimal cloud cover and still conditions); and,
- Surveys were conducted using 50-metre wide, parallel transects with two observers walking until moths were observed. Tracks (transects) were recorded with a GPS to show where surveys had been undertaken.

A total of 290 Golden Sun Moth were recorded within the study area during targeted surveys (Figure 7). A total of 12.779 hectares of confirmed Golden Sun Moth habitat is present within the study area.

A summary of the survey results and weather data is provided in Table 3, and the extent of suitable habitat shown in Figure 4.

Table 3. Golden Sun Moth survey results.

Date	Survey Times	Temperature (°C) *	Wind (km/hr) Direction *	Cloud cover (%)	Days since rain *	No. GSM
28/11/2019	13:05 – 13:30	22.3	11 S	5	2	86
9/12/2019	10:20 – 11:20	30.3	10 N	25	7	109
17/12/2019	13:10 – 14:45	27.6	10 ESE	0	2	94
23/12/2019	12:30 – 14:00	20.1	13 SSE	15	7	1

Note. *Bureau of Meteorology (BOM) weather for Melbourne Airport, Victoria (Station 086282 – November & December 2019), Australian Government, ACT

3.2.2.3 Habitat within the Study Area

In total, 12.779 hectares of confirmed habitat was recorded within the study area. Of this, 11.53 hectares of GSM habitat is located outside of the MSA area (Figure 4a).

The majority of the Golden Sun Moth observations within the study area were made in the far north extent of the site (Ecology and Heritage Partners 2021). Land immediately adjacent to this area consists of the Malcolm Creek, agricultural land, and Melbourne to Sydney Rail Corridor.

3.2.3 Growling Grass Frog

There are 1,015 records of Growling Grass Frog recorded in the VBA within 10 kilometres of the study area (DEECA 2025d). The records are largely dispersed north and south of the study area, along Merri Creek (Figure 6).

3.2.3.1 Growling Grass Frog Habitat Requirements

Growling Grass Frog is largely associated with permanent or semi-permanent still and slow flowing waterbodies (i.e. streams, lagoons, farm dams and old quarry sites) (Barker *et al*. 1995). Individuals can also use temporarily inundated waterbodies for breeding purposes providing they contain water over the breeding season (Organ 2010). The species is typically associated with waterbodies supporting an extensive cover of emergent, submerged, and floating vegetation (Robertson *et.al*. 2002; Heard *et.al*. 2010).

Emergent vegetation provides basking sites for frogs and protection from predators, while floating vegetation provides suitable calling stages for adult males, breeding, and oviposition (egg deposition) sites (Heard *et.al*. 2004). Terrestrial vegetation (grasses, sedges), rocks and other ground debris around a wetland perimeter also provide foraging, dispersal and over-wintering sites for frogs (Heard *et.al*. 2010). Recent studies have revealed that the spatial orientation of waterbodies across the landscape is one of the most important habitat determinants influencing the presence of the species at a given site (Robertson *et al*. 2002; Heard *et al*. 2010). Waterbodies supporting the aforementioned habitat characteristics, and which are located within close proximity to each other are more likely to support a population of Growling Grass Frog, compared with isolated sites lacking important habitat features.

3.2.3.2 Growling Grass Frog Targeted Surveys

Targeted surveys were undertaken to investigate the quality and extent of habitat for Growling Grass Frog within the study area, and to determine the presence and abundance, or absence of the species (Figure 8; Ecology and Heritage Partners 2021).

Targeted surveys for Growling Grass Frog were undertaken in accordance with the recommended survey guidelines detailed in the *Significant impact guidelines for the Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)* (DoE 2013).

Two nocturnal surveys for Growling Grass Frog were undertaken on 6 and 10 February 2020 by ecologists experienced in the detection and identification of the species. Surveys concentrated on habitat occurring along Malcolm Creek and the artificial dam connected to the creek (Ecology and Heritage Partners 2021). The following was undertaken:

- A habitat assessment was completed detailing information on habitat quality, biomass levels, presence of weeds and floristic diversity;
- Surveys were conducted by ecologists experienced in the detection and identification of Growling Grass Frog;
- Surveys were undertaken during the species' active season (between November and March);
- Surveys were undertaken during weather conditions suitable for detecting the species (i.e. on warm/humid nights with temperatures above 12˚C, little or no wind, during or following rain);
- Upon arrival at a site, three to five minutes were spent listening for the distinctive call of the male Growling Grass Frog, and the number of frogs calling was estimated;
- Following the initial listening period, each transect was then surveyed by one observer. Spotlights were used to scan the surface and edge of the waterbody along each transect, focusing on fringing and aquatic vegetation (and floating algae);

- Frogs were detected either by direct encounter or by identification of the distinctive eye shine, and all observed frogs were recorded; and,
- Where possible, frogs were assigned to an age class and/or sex, based on size (i.e. specimens >65 mm, adult female; 50–60 mm, adult male; 30–50 mm, sub-adult; <30 mm, metamorph). Frogs were not captured during the survey and the age class and/or sex of individuals was recorded only from spotlighting.

Growling Grass Frog was not recorded in the study area during targeted surveys. Water quality was poor along Malcolm Creek. As such, there was limited suitable habitat for Growling Grass Frog and a resident population of the species is not known from within the study area or immediate surrounds.

A habitat assessment along Malcom Creek did not identify the presence of any terrestrial habitat features (i.e. logs, rock and large boulders) located outside of a 30 metre buffer from the creekline (Plate 7; Plate 8). Further, the isolation of Malcolm Creek means there is little opportunity for GGF to disperse further south given the absence of any suitable terrestrial or aquatic habitats in this direction.

Plate 7. Terrestrial habitat extent adjacent to Malcolm Creek (Ecology and Heritage Partners Pty Ltd).

Plate 8. Terrestrial habitat extent adjacent to Malcolm Creek (Ecology and Heritage Partners Pty Ltd).

Based on the targeted survey results, and the lack of recent records within the project locality, a population of Growling Grass Frog is considered unlikely to be present within the study area.

Further, it is noted that Malcom Creek is located within the MSA, and subject to existing MSA requirements and associated EPBC Act approvals.

In consultation with Melbourne Water, the design of the subdivision plan has been amended to create a 40 metre wide buffer either side of Malcom Creek (80 metres width in total). In this instance, this is considered to be an appropriate ecological outcome to facilitate and maintain any future dispersal corridor for Growling Grass Frog, given the absence of any wetlands, or over-wintering habitat within the rest of the study area.

A summary of the survey results and weather data is provided in Table 4 and the survey locations presented in Figure 8.

Table 4. Growling Grass Frog survey results.

Date	Survey times	Ambient Temperature (°C) *	Wind (km/hr) Direction*	Cloud cover (%)	No. GGF	Other species
06/02/2020	21:00 - 22.30	16	9 WNW	40	0	No observations
10/02/2020	21:00 - 22.30	18	Calm	70	0	No observations

Note. * Bureau of Meteorology (BOM) weather for Melbourne Airport, Victoria (Station 086282 – February 2020), Australian Government, ACT

3.2.4 Matted Flax-lily

There are 252 records of Matted Flax-lily recorded in the VBA within 10 kilometres of the study area, and there is suitable habitat within Plains Grassland EVCs found across the study area (DEECA 2025d). Records are scattered throughout the five-kilometre radius (Figure 5).

3.2.4.1 Matted Flax-lily Habitat Requirements

Matted Flax-lily is a perennial, tufted, mat-forming lily which can form patches of up to five metres wide. The plant can grow vegetatively, through sending underground rhizomatous roots, which rise above the ground with a tiller of several leaves, spread over a distance from the parent plant.

The leaves of the Matted Flax-lily are generally glaucous, blue in colour but may be red at the base and usually but not always having small hooks (teeth) along the margins and midrib. The leaves taper to approximately 45 centimetres long depending on site and climatic conditions and are born on tillers with the leaves arranged alternatively, with several leaves per tiller.

The Matted Flax-lily generally occurs in grassland and grassy woodland habitats, on well drained to seasonally wet fertile sandy loams to heavy cracking clay soils derived from Silurian or Tertiary sediments, or from volcanic geology (Carter 2010).

3.2.4.2 Matted Flax-lily Targeted Surveys

Targeted surveys were undertaken to investigate the quality and extent of habitat for Matted Flax-lily within the study area, and to determine the presence and abundance, or absence of the species (Ecology and Heritage Partners 2021).

Targeted surveys for Matted Flax-lily were undertaken in accordance with the recommended survey guidelines detailed in the *Biodiversity Precinct Planning Structure Kit* (DSE 2010a). Surveys were undertaken between 20 November and 23 December 2019 by botanists/ecologists experienced in the detection and identification of the species. Although the study area does not occur in a Precinct Structure Plan area to which the guidelines generally apply, they are considered 'best practice' guidelines for conducting Matted Flax-lily surveys. Targeted surveys were directed to all potential habitat (i.e. native and non-native grasslands including degraded areas, and fence lines). The following was undertaken:

- Surveys were conducted by two botanists/ecologists experienced in the detection and identification of Matted Flax-lily;
- Surveys were undertaken during the peak flowering period for the species (late Spring to early Summer);

- The study area was systematically traversed in areas of potential habitat at approximately five-metre linear intervals; and,
- The locations of any individual plants identified during the assessment were recorded.

There are recent (post-2010) records for the nationally significant Matted Flax-lily within the local area and one record (2004) within the study area. Despite this, and although the targeted surveys were undertaken during the known flowering period when the species were known to be flowering within the locality, Matted Flax-lily was not identified within the study area.

3.2.5 Victorian Grassland Earless Dragon

As part of the December 2023 field assessment, and subsequent habitat assessment undertaken on 14 August 2024, potential habitat for the nationally significant Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla* (VGED) was identified (Figure 3). Although the study area lacked surface and embedded rock, a total of 11.53 hectares of potential habitat for VGED was recorded within the study area (outside of the MSA), defined by the presence of at least 10% native perennial grass cover.

3.2.5.1 Survey Methodology

At the time of commencement, targeted surveys were initially undertaken in accordance with the *Survey Guidelines for Australia's threatened reptiles. EPBC Act survey guidelines 6.6* (DSEWPaC 2011), the *National Recovery Plan for the Grassland Earless Dragon Tympanocryptis pinguicolla* (Robertson and Evans 2009/2012), and with current knowledge on the survey effort to detect the species via consultation with DEECA and the VGED Recovery Team.

The survey method employed utilised a combination of endoscopes, artificial arthropod burrows, and roofing tiles.

Tile Grids

A total of five (5) tile grids were established within the site on 17 September 2024 with each grid comprising 50 tiles. Grids were established in accordance with the *Survey Guidelines for Australia's threatened reptiles. EPBC Act survey guidelines 6.6* (DSEWPaC 2011).

All tile grids were checked weekly between 2 October 2024 and 22 November 2024, and then three times weekly between 25 November and 30 December 2024 to ensure the highest likelihood of detention.

- Tile grids were installed within areas of contiguous habitat as per the densities prescribed in the survey guidelines (DSEWPaC 2011a) (Figure 3);
- Tile were laid in grids, with each grid consisting of 50 tiles, at five metre spacing between tiles, arranged in grids of 10 tiles by 5 tiles, positioned in vegetated areas with a northerly aspect;
- The four corners of each grid were marked with a wooden stake and clearly marked;
- Tile checks involved systematically inspecting each tile in the grid and observing and recording the species utilising/basking on/under the artificial habitat; and,
- Grids were not flipped more than once a week.

The following was recorded:

- Location and number of each tile grid;

- Date and weather conditions for each survey;
- A table of results including a breakdown of what tile grids were checked on which dates / intervals;
- Location and number of any VGED recorded; and,
- Any non-target species identified (the tile-grid method is suitable to identify other reptiles and small marsupials potentially present on site, including the nationally significant Striped Legless Lizard *Delma impar* and State significant Tussock Skink *Pseudemoia pagenstecheri* and Fat-tailed Dunnart *Sminthopsis crassicaudata*).

Artificial arthropod burrows (i.e. Spider tubes)

As per the National Recovery Plan (Robertson 2009/2012), the total survey effort will involve at least 3000 trap-days (trap-days = number of tubes x number of checks (e.g. 100 tubes each checked 30 times, or 250 tubes checked 12 times).

Within the survey area, five spider tube grids were deployed totalling 300 spider tubes within the study area that support the highest potential habitat for the species (Figure 3). Burrows were deployed on 26 September 2024, and each grid comprised 60 artificial arthropod burrows ('spider tubes') in appropriate grid formation.

All spider tube grids were checked weekly between 2 October 2024 and 22 November 2024, and then three times weekly between 25 November and 30 December 2024 to ensure the highest likelihood of detention. This ensured that the minimum trap-day requirements (3,000 [Roberston and Evans 2012]) were met (5x60x22 = 6,600).

Artificial arthropod burrows surveys included the below tasks:

- Construction out of PVC piping and installed within areas of contiguous habitat;
- Spider tubes were inserted vertically into the substrate level with the opening level with the surface. An inner tube was placed into this to allow removal of trapped animals or debris;
- Spider tubes were laid in a grid formation, with each grid consisting of 60 tubes arranged in a grid formation (i.e., 6 by 10), at 10 metre spacing between each tube. All five grids were positioned in native grassy habitat areas. The four corners of each grid will be marked with a wooden or steel stake and clearly marked;
- After installation, spider tubes were allowed to sit undisturbed for approximately 14 days before checking. Tube checks involved using an endoscope to systematically investigate each tube in the grid and observing and recording the species utilising the artificial habitat;
- Grids were not checked on consecutive days as animals are free to move in and out of the tubes, and frequent checking may lead to VGED abandoning the artificial shelters. Each tube grid was checked no more frequently than every second day.

The following was recorded:

- Location and number of each tube grid;
- Weather conditions over the survey period;
- Location and number of any VGED recorded, or presence of eggs; and,
- Any non-target vertebrate species identified.

Endoscopic Inspections

During each survey effort, an assessment was undertaken to identify any observed soil cracks and invertebrate burrows. Where present, these were then checked using an endoscope. A minimum of two hours during each site visit was spent searching for soil cracks and invertebrate burrows outside of the tile grids and spider tube grids (i.e. the broader study area), whilst an hour was spent at each tile grid and burrow grid searching for *in-situ* spider burrows and soil cracks within a 25 metre radius of each grid.

3.2.5.2 VGED Limitations

Given the relative absence of observed soil cracking within the study area, mini pit-fall traps were not utilised as a survey method to detect VGED.

It is noted that the Commonwealth released updated VGED survey guidelines on 21 October 2024 (DCCEEW 2024b). On review of the updated survey guidelines, it was considered that the survey methodology employed by Ecology and Heritage Partners was in accordance with the updated survey methodology, with the exception that:

- The artificial spider burrows were installed in a grid formation at 10 metre intervals, rather than in a transect formation at 5 metre intervals; and,
- The guidelines recommended that for surveys conducted between September and November, artificial spider tubes are checked every second day to minimise the risk of VGED eggs desiccating in the tubes.

Throughout October and November 2024, artificial spider tubes were checked once per week. No VGED eggs were detected during any of the surveys. From the week of 25 November onwards (until 30 December 2024), tubes were checked 3 times per week as per updated survey recommendations.

Given the relative absence of observed soil cracking within the study area, mini pit-fall traps were not utilised as a survey method to detect VGED.

Given that the intent of the survey timing between September and November is to minimise the risk of VGED eggs desiccating in the tubes, and that no eggs were observed during endoscope checks, it is considered that the survey method employed was sufficient to detect VGED eggs in the tubes (if present).

3.2.5.3 VGED Targeted Survey Results

Despite a rigorous survey methodology, including endoscopes (Plate 9), artificial arthropod burrows, and roofing tiles, VGED was not recorded during the targeted surveys.

Notable vertebrate species observed include Tiger Snake *Notechis scutatus,* Common Eastern Froglet *Crinia signifera,* Blue-tongued Lizard *Tiliqua scincoides scincoides*, Garden Skink *Lampropholis guichenoti,* and the State significant Tussock Skink (Plate 10). A breakdown of the survey results is presented in Appendix 1.

Invertebrate species were frequently observed occupying the artificial habitats (Plate 11; Plate 12). Of these, spiders were most observed. Invertebrate observations were not recorded for all 6,600 checks as these were very common species and not the target species for this assessment. No vertebrates were recorded in any of the artificial burrows during the 6,600 checks.

The previously recorded Golden Sun Moth was opportunistically recorded when walking between artificial habitats (Appendix 1).

Based on the results of the targeted surveys and sub-optimal habitat quality, a population of VGED is considered highly unlikely to be utilizing habitat within the study area.

Plate 9. Endoscope investigation of artificial arthropod burrow as part of VGED surveys (Ecology and Heritage Partners Pty Ltd).

Plate 10. Tussock Skink within the study area (Ecology and Heritage Partners Pty Ltd).

Plate 11. Two Slaters at the base of an artificial burrow as captured by endoscope (Ecology and Heritage Partners Pty Ltd).

Plate 12. Huntsman Spider in artificial burrow as captured by endoscope (Ecology and Heritage Partners Pty Ltd).

3.2.6 Striped Legless Lizard

Potential habitat for Striped Legless Lizard *Delma impar* was recorded during the December 2023 field assessment, and subsequent habitat assessment undertaken on 14 August 2024. Although considered unlikely to occur based on the absence of recent records of the species north of Melbourne (Figure 6; DEECA 2025d), targeted Striped Legless Lizard surveys were conducted within the study area between October and November

2024, concurrently with the VGED targeted surveys. Five grids of roof tiles were deployed across the study area (Figure 3) on 17th September 2024.

3.2.6.1 Survey Methodology

The intention of establishing a grid of roof tiles is that Striped Legless Lizard will be drawn to use the artificial habitat for shelter and thermoregulation, and be easily located when the tile is lifted. This method is widely accepted as the primary survey technique for this species, particularly in areas supporting surface rock cover (DSEWPaC 2011a, 2011b). Targeted Striped Legless Lizard surveys were undertaken with regard to the *EPBC Act Referral Guidelines for the Vulnerable Striped Legless Lizard, Delma impar* (DSEWPaC 2011a) and the Biodiversity Precinct Structure Planning Kit, Guidelines for surveying Striped Legless Lizard *Delma impar* (DSE 2010).

Grids were deployed on 17 September 2024 (see VGED survey methodology above). All tile grids were surveyed on nine separate occasions between 2 October and 28 November 2024 to ensure the highest likelihood of detention (i.e. 95% confidence). The following was undertaken as part of the targeted surveys:

- Tile grids were installed within areas of contiguous habitat as per the densities prescribed in the referral guidelines (DSEWPaC 2011a);
- Tile grids were laid in grids consisting of 50 tiles, at 5 metre spacing between tiles, arranged in grids of 10 tiles by 5 tiles;
- Two corners of each grid were marked with a wooden or steel stake and clearly marked.
- Tile checks involved systematically lifting each tile in the grid and observing and recording the species utilising the artificial habitat;
- Tiles were placed in areas of suitable habitat (i.e. tussock grassland or grassy habitat), as previously determined by the preliminary vegetation and habitat assessments;
- Tiles were checked nine times between October and November during suitable conditions (early morning on warm, still days); and,
- Time of survey, weather conditions and the ambient temperature was recorded for each grid
- Grids were not flipped more than once a week as this may lead to Striped Legless Lizards abandoning the artificial shelters.

The following was recorded:

- Location and number of each tile grid;
- Date and weather conditions for each survey;
- A table of results including a breakdown of what tile grids were checked on which dates / intervals
- Location and number of any Striped Legless Lizard recorded; and,
- Any non-target species identified (the tile-grid method is likely to identify other reptiles and small marsupials on site, including the FFG Act listed Tussock Skink *Pseudemoia pagenstecheri* and Fat-tailed Dunnart *Sminthopsis crassicaudata*.

3.2.6.2 SLL Limitations

Although the time between the establishment of tile grids and the commencement of tile checks was less than the three month period recommended by the Survey Guidelines for Australia's Threatened Reptiles (DSEWPaC 2011b), and less than the one month period recommended in the referral guidelines (DSEWPaC 2011a), the two week period has previously been considered appropriate by DEECA (Garry Peterson), with a greater importance placed on commencing the surveys in late September/early October to maximise the likelihood of detection during the peak period of detectability for the species (late September – late November) (Scroggie *et. al.,* 2019).

Based on the results of previous Striped Legless Lizard surveys undertaken west of Melbourne, it has regularly been observed that Striped Legless Lizard (and other reptiles) will generally commence using artificial shelter sites (i.e. tiles) 1-2 weeks after the tiles are established. This provides substantive evidence that reptiles can regularly and opportunistically acclimatise to using artificial shelter tiles for thermoregulation and cover within short timeframes.

As such, it is considered that the survey timing was appropriate (high detection probability) to detect the species should a resident population of the species occur within the study area.

3.2.6.3 SLL Targeted Survey results

No Striped Legless Liard were recorded within the study area during the targeted surveys.

Several other vertebrate species were recorded and are summarised in Section 3.2.5. A summary of weather conditions and survey results is provided in Appendix 1.

Based on the results of the targeted surveys and paucity of recent records within the locality, a population of Striped Legless Lizard is considered highly unlikely to be utilizing habitat within the study area.

3.2.7 Other Matters of National Environmental Significance

The Victorian Biodiversity Atlas (VBA) contains records of seven EPBC Act-listed species flora species and 19 EPBC Act-listed fauna species previously recorded within 10 kilometres of the study area (DEECA 2025d) (Figure 5; Figure 6). The Protected Matters Search Tool (PMST) nominated an additional 15 EPBC Act-listed significant flora species and an additional 17 fauna species which have not been previously recorded within 10 kilometres of the study area but have the potential to occur in the locality (DCCEEW 2025).

Based on the information ascertained during the desktop assessments and field assessments, there is considered to be a low to very low likelihood that any additional nationally significant species are present within the study area or will be significantly impacted by the proposed action. As such, they are not considered further within this Preliminary Documentation.

4 RELEVANT IMPACTS

No Matted Flax-lily or Curly Sedge were recorded within the study area, despite surveys conducted during the appropriate season for these species. Growling Grass Frog, Victorian Grassland Earless Dragon and Striped Legless Lizard were not recorded during targeted surveys in their respective potential habitat within the study area. Given the absence of a population Matted Flax-lily, Curly Sedge, Growling Grass Frog, Victorian Grassland Earless Dragon and Striped Legless Lizard within the study area, it is not considered that the proposed action will result in a significant impact to these matters of national environmental significance.

The proposed action will have a direct impact on two matters of NES: NTGVVP and Golden Sun Moth. Under the EPBC Act, NTGVVP is listed as Critically Endangered, and Golden Sun Moth is listed as Vulnerable.

Impacts to MNES associated with the whole of the proposed development are summarised in Table 5. Impacts to MNES per stage of the proposed development are detailed in Table 1. Further details relating to each impacted matter of NES are provided below.

Table 5. Matters of ecological significance to be impacted and retained.

Ecological Value	Impacted	Retained *	Total *
NTGVVP (Stage 1 & 2)	7.615 hectares	1.215 hectares	8.83 hectares
GSM (Stage 1) **	8.800 hectares	3.979 hectares	12.779 hectares
GSM (Stage 2)	2.297 hectares ^	1.682 hectares	12.779 hectares

Note: * Total extent within and outside MSA area; ^ Excluding Stage 1 impacts; ** Offsets for Golden Sun Moth habitat addressed in this PD apply only to impacts associated with Stage 1 of the development.

4.1 Natural Temperate Grassland of the Victorian Volcanic Plain

A total of 8.83 hectares of the nationally significant ecological community NTGVVP is present within the study area, including 7.87 hectares outside of the MSA area. According to the significant impact criteria for critically endangered ecological communities (DoE 2013), an action is likely to be significant where there is a real chance or possibility that it will reduce the extent of the ecological community.

There is no Recovery Plan or Threat Abatement Plan for this ecological community.

4.1.1 Direct and Indirect Loss

4.1.1.1 Direct Loss

A total of 7.615 hectares of NTGVVP is proposed to be directly lost as part of the proposed action. The NTGVVP within the impact area is of low quality, and although comprised of a cover of at least 50% perennial native grasses (Wallaby-grass, Kangaroo Grass and/or Spear Grass), diversity is low, and the presence of herbs and shrubs is also negligible (Figure 4).

4.1.1.2 Indirect Loss

There is not considered to be any indirect loss to other remnants of the NTGVVP community.

All other areas of confirmed and potential NTGVVP to the north and east of the study area are located within the MSA, and aside from designated conservation reserves, are permitted to be removed under the MSA approvals. Land to the west of the study area has predominantly been developed and is highly unlikely to contain remnants of the NTGVVP community.

4.1.1.3 Unknown, unpredictable or irreversible impacts

Impacts are not expected to be unknown or unpredictable, however loss of 7.615 hectares of NTGVVP within the study area would be considered irreversible.

4.1.2 Local, Regional and National Scale Analysis of Impacts

NTGVVP is listed as Critically Endangered under the EPBC Act, a category that is applied to threatened species and ecological communities showing an extremely high risk of extinction in the wild in the immediate future (DSEWPaC 2011). Less than five per cent of the original extent of the community remains, although patches in good condition are likely to constitute less than one per cent, and most known remnants are less than 10 hectares in size (DSEWPaC 2011).

The NTGVVP within the impact area does not represent a high-quality example of this listed community. Species diversity is low, and the remaining vegetation within the surrounding landscape is generally modified and included in the MSA area and is permitted to be removed as per the MSA approvals. Given the patchy nature of the community within the study area, it is likely that, in the absence of conservation management, the NTGVVP remnants will continue to degrade due to ongoing weed invasion and agricultural land uses.

Distribution throughout Melbourne and Victoria is highly fragmented and discrete, and few large, high quality remnants are known to occur to Ecology and Heritage Partners, and the loss of any remnants of the community are likely to be considered significant at the local, regional and national scale.

Several threats to the community persist within the landscape, namely ongoing agricultural activities that result in loss, disturbance, or modification of the community, weed invasion, and excessive grazing (Threatened Species Scientific Committee [TSSC] 2008). One of the main drivers of the reduction in extent to the ecological community in recent years around Melbourne has been residential, industrial and commercial development.

However, in recent years, some high-quality remnants of the community have been recorded in the Victorian Volcanic Plain bioregion, particularly west of Melbourne, with a number having been secured and currently managed in perpetuity for conservation purposes (i.e., Ombersley, Cressy, Warrambeen). As such, although the removal of remnants of NTGVVP, such as that proposed within the study area, contribute to a cumulative loss of the community, this has created an opportunity to conserve a larger, higher quality remnant present within the secured offset site (see Section 6.1).

4.2 Golden Sun Moth

There is no adopted or made Recovery Plan for the Golden Sun Moth.

4.2.1 Direct and Indirect Loss – Stage 1 and 2

4.2.1.1 Direct Loss

Golden Sun Moth were detected within the study area with 12.779 hectares of confirmed habitat identified, with 11.53 hectares of GSM habitat located outside the MSA area. The proposed development will result in a direct impact to 11.097 hectares of Golden Sun Moth habitat across Stage 1 and 2 (Figure 4).

Stage 1 of the proposed action will result in the direct loss of 8.800 hectares of confirmed Golden Sun Moth habitat (Table 1).

4.2.1.2 Indirect Loss

There is not considered to be any indirect loss or impact to GSM habitat.

GSM habitat located within Stage 2 will be retained and protected during the construction of Stage 1 will be detailed in an Environment Management Plan (EMP) proposed to be prepared for the project post approval.

All other areas of confirmed and potential GSM habitat to the north and east of the study area are located within the MSA, and aside from designated conservation reserves, are permitted to be removed under the MSA approvals. Land to the west of the study area has predominantly been developed, and does not contain GSM habitat that the species could disperse to.

4.2.1.3 Unknown, unpredictable or irreversible impacts

Impacts are not considered to be unknown or unpredictable. Due to the highly fragmented distribution and limited dispersal ability of the Golden Sun Moth, the impact to the species through the loss of confirmed habitat is considered irreversible.

Impacts to Golden Sun Moth habitat associated with Stage 2 of the development form part of the impact assessment presented in this Preliminary Documentation; however, offsets for these impacts are not addressed herein and would be required to be resolved prior to the commencement of Stage 2.

4.2.2 Local, Regional and National Scale Analysis of Impacts

There are 7,712 records of Golden Sun Moth recorded in the VBA within 10 kilometres of the study area, and the facilitation of development within this surrounding landscape will likely lead to further habitat removal and significantly impact these local Golden Sun Moth populations (DEECA 2025d).

The numbers and distribution of previous records shown in Figure 6, as well as those recorded in the VBA (DEECA 2025d), indicates that the species is widely distributed on a local and regional scale, although it is infrequently found in high abundance (DEWHA 2009a). There will be impacts to Golden Sun Moth on a local scale due to the removal of 8.800 hectares of habitat within Stage 1 of the study area, and future impact to 2.297 hectares of GSM habitat within Stage 2. However, given the wide distribution on a regional scale, the impacts to Golden Sun Moth are not considered to significant at a national scale.

One of the main drivers of the reduction in GSM habitat in recent years around Melbourne has been residential, industrial and commercial development. However, several large areas of confirmed GSM high quality habitat are known to occur, particularly west and north of Melbourne, with a number having been secured and currently managed in perpetuity for conservation purposes (i.e., Ombersley, Cressy,

Warrambeen). As such, although the removal of GSM habitat as proposed within the study area will contribute to a cumulative loss of habitat for the species, this has created an opportunity to conserve a larger, higher quality habitat within several, secured offset sites (see Section 6.2).

4.3 Growling Grass Frog

Malcom Creek flows through Lot B within the study area, which is partially within Conservation Area 34 (Figure 2). Conservation Area 34's specific purpose is to protect and conserve Growling Grass Frog habitat (Department of Environment and Primary Industries [DEPI] 2013). Targeted surveys were conducted for Growling Grass Frog along Malcom Creek within the study area, with none being recorded (see Section 3.2.3 for further details). However, there is the potential that the development's construction phase (i.e. topsoil removal, excavation works) may lead to temporary indirect impacts through erosion and/or sediments impacting Growling Grass Frog Habitat further downstream in the absence of best-practice sedimentation and erosion control measures.

4.3.1 Direct and Indirect Losses

A 40-metre offset to the creek has been imposed on the development in which no buildings, roads or carparks can be constructed. The only item allowed within this offset is a drainage outlet to the creek. As part of the proposed development works, a connection to the creek will be required to provide a drainage outfall. This will consist of a pipe as well as a rock-lined channel. The rock-lined channel will ensure safe velocities are maintained to prevent erosion and assist in collecting sediment. In addition to this prior to discharging into the creek, all flows will be treated within the proposed wetland to meet best practice targets. Low flows will pass through a stormwater sediment basin. This basin is proposed to be placed in the northeast corner of the study area (Plate 13), with the associated creek connection pipe and rock-lined channel (Plate 14). Generally, Melbourne Water will need to provide approval for the connection to the creek.

As part of the construction works, the contractor shall be required to submit a Site Environment Management Plan (SEMP), which must comply with local authority requirements and be approved by Council. The SEMP will include several environmental management actions, including ensuring that the contractor has appropriate silt control measures in place, any flows temporarily discharged during the construction phase meet Environmental Protection Authority requirements, tree protection fencing is provided where required and exclusion zones are clearly shown on plans.

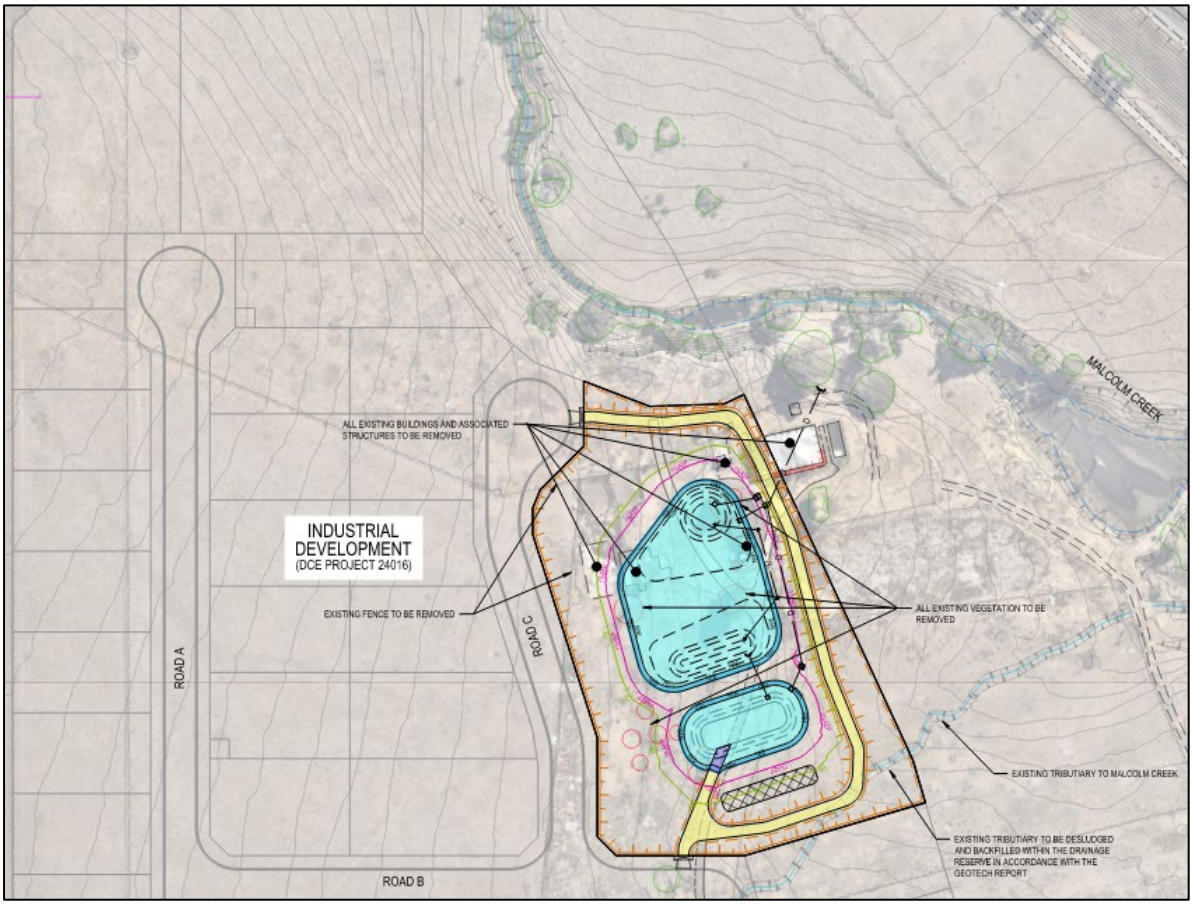

Plate 13. Proposed location of the stormwater sediment basin in the northeast corner of the study area. Image supplied by the proponent.

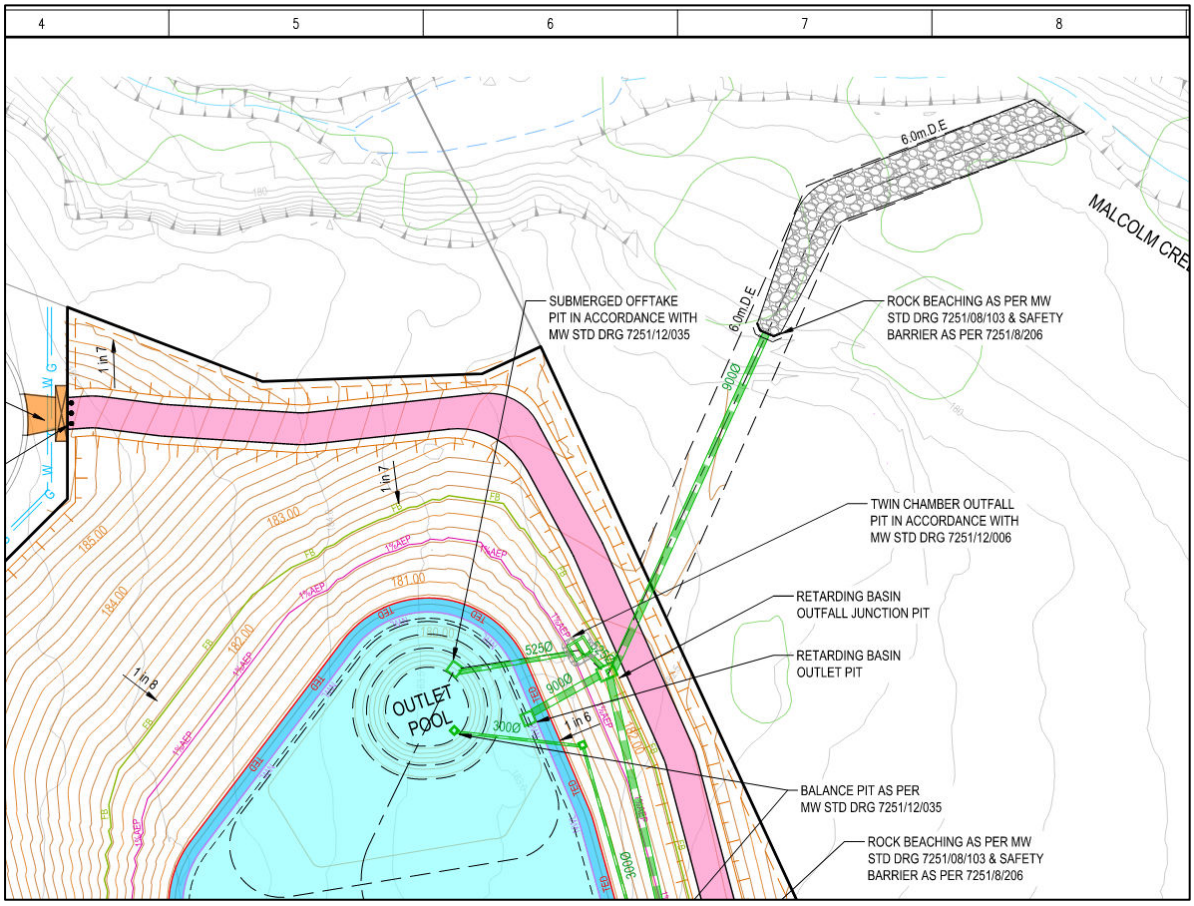

Plate 14. Close up view of the proposed creek connection pipe and rock-lined channel. Image supplied by the proponent.

5 PROPOSED AVOIDANCE AND MITIGATION MEASURES

The study area is located within an area identified as the Northern State Significant Industrial Precinct (SSIP), which is strategically identified as a critical focus area for future industrial investment and growth within the Melbourne Industrial and Commercial Land Use Plan (MICLUP).

The northern and eastern portion of the study area is within an area subject to the Melbourne Strategic Assessment (MSA), with the MSA also affecting land outside the study area to the north and east (Figure 2).

Outside of the MSA, Lot A is zoned Industrial 3 Zone (IN3Z). No overlays apply to Lot A with the exception of a narrow band along the western boundary that is affected by a Public Acquisition Overlay – Schedule 4 (PAO4).

To the south and west of the study area, existing development is present in the form of an industrial estate (south-west), low density residential land (south) and the existing Craigieburn township to the west.

5.1 Nature Reserve

Due to the location and extent of NTGVVP and GSM habitat present within the study area, it is not possible to avoid impacts to MNES, so the project has sought to minimise as much as practically feasible through the proposed creation of a 1.5 hectare nature reserve (Figure 2). The nature reserve is proposed to be located immediately north of the industrial lots, abutting the Malcolm Creek creekline reserve and extending south-east to the drainage reserve, providing a setback from Malcolm Creek to reduce visual impact on the creek environs, whilst retaining (including adjacent non-developed areas) a total of:

- NTGVVP: 1.215 hectares; and,
- Confirmed GSM habitat: 1.682 hectares.

The location of the nature reserve has been strategically selected. Currently, the study area forms part of a broader area of grassland habitat that extends to the north and east, providing opportunities GSM to disperse into adjoining habitats and interact with the broader population. GSM has a limited dispersal ability, so any nature reserve located elsewhere along the western, southern or central areas of the study area would result in the species becoming effectively isolated, and not able to interact with other individuals/populations present within the local landscape.

An adjacent 3.1 hectare area to the north and east of the nature reserve (not currently supporting suitable habitat for GSM) is proposed to be ecologically enhanced as part of the development with the aim to improve and extend the extent of habitat for significant flora and fauna within Lot A (Figure 4b).

Mitigation measures to ensure NTGVVP and GSM habitat located outside of the on-site development footprint is retained and protected during construction activities will be detailed in an Environment Management Plan proposed to be prepared for the project post approval.

5.2 Subdivision layout and engineering requirements

Outside of the nature reserve, the study area is proposed to be subdivided into approximately 48 lots and developed for industrial purposes. Further, the subdivision requires new utilities such as water, sewage,

electricity, and telecommunications services, all of which need to be buried underground. Excavation is necessary to install pipelines, conduits, and utility lines, ensuring that residents have access to reliable services.

Proper drainage systems must be installed to manage stormwater runoff and prevent flooding or water pooling, which could damage properties and infrastructure. This involves trenching and grading the ground to create channels, detention basins, and stormwater pipes.

In accordance with Melbourne Water design guidelines (Land Development Refence 5.3.2), all new sites must be developed to ensure that lots remain free draining and protected from a Q100 flood event. Both lots and roads must be designed to achieve appropriate freeboard.

Malcom Creek provides a drainage outfall for the site. The flood level within Malcom Creek provides a basis for the drainage design and setting road and lot levels. Due to the fixed level of Malcom Creek and the requirement to ensure the site is free draining, in order to comply with Melbourne Water freeboard requirements, it is not possible to avoid the future earthworks over the entire site. This comprises both cut and fill works in areas where native vegetation is present. Ground disturbance in these areas will consist of an initial 200 millimetres site strip to remove topsoil, followed by excavation works ranging from 500 millimetres to 1 metre in depth. The excavation works are deemed necessary in order to ensure the site is free draining.

As outlined by Melbourne Water, greenfield subdivisions and large-scale urban redevelopments our requirement is for new buildings and urban lots to be located outside active flow areas, and to be filled to meet the following minimum freeboard requirements:

- 0.3 metres for land adjacent to overland flowpaths;
- 0.6 metres for land adjacent to waterways or within their floodplains.

In addition to the above-mentioned freeboard requirements, underground drainage at the subject site will be designed to convey minor event flows up to and including the 10% Annual Exceedance Probability (AEP) event flow. The subject site will drain towards DSS infrastructure, a sediment basin and wetland, that will ensure that stormwater quality treatment will be provided to meet Best Practice Environmental Management Guidelines (BPEMG).

Therefore, due to the natural topography of the subject site, in order to comply with Melbourne Water guidelines and to ensure safe trenching practises are implemented, it will not be possible to avoid impacts to native vegetation within the study area outside of the nature reserve.

5.3 Natural Temperate Grassland of the Victorian Volcanic Plain

5.3.1 Avoidance

A total of 8.83 hectares of NTGVVP was identified within the study area, of which 7.87 hectares is located outside of the MSA area. Of this, a total of 7.615 hectares of NTGVVP is proposed to be impacted.

Due to the location of NTGVVP throughout the majority of the study area, impacts to this community cannot be avoided (See Section 4.1).

5.3.2 Mitigation Measures

The project has sought to minimise impacts as much as practically feasible through the proposed creation of a 1.5 hectare nature reserve. Within the nature reserve, a total of 1.215 hectares of NTGVVP will be retained.

Mitigation measures to ensure NTGVVP located outside of the on-site development footprint is retained and protected during construction activities will be detailed in an Environment Management Plan proposed to be prepared for the project post approval.

5.4 Golden Sun Moth

5.4.1 Avoidance

A total of 12.779 hectares of Golden Sun Moth habitat was identified within the study area, of which 11.53 is located outside of the MSA area. Of this, a total of 11.097 hectares of GSM habitat is proposed to be impacted across Stages 1 and 2.

Due to the location of GSM habitat throughout the majority of the study area, impacts to habitat for this species cannot be avoided (See Section 4.2).

5.4.2 Mitigation Measures

The project has sought to minimise impacts as much as practically feasible through the proposed creation of a 1.5 hectare nature reserve. Within the nature reserve (and adjacent creekline reserve), a total of 1.682 hectares of GSM habitat will be retained.

Mitigation measures to ensure GSM habitat located outside of the on-site development footprint is retained and protected during construction activities will be detailed in an Environment Management Plan proposed to be prepared for the project post approval.

6 RESIDUAL IMPACTS AND PROPOSED OFFSETS

The residual impacts associated with matters of NES in the study area are detailed in Section 4 and Section 5.

This section of the Preliminary Documentation summarises the offset strategy developed by Ecology and Heritage Partners to meet the obligations for offsets required by Commonwealth legislation.

It is considered that there will be no direct or indirect impacts to Victorian Grassland Earless Dragon, Striped Legless Lizard, Curly Sedge or Matted Flax-lily, and therefore no offsets are proposed for these species.

The offset strategies for the NTGVVP community and Golden Sun Moth habitat are provided below in Section 6.1 and Section 6.2 respectively. The full OMP (Biodiversity Offsets Victoria Pty Ltd 2026) for these matters is provided in Appendix 3.

While there are considered to be no long-term direct or indirect impacts to the Growling Grass Frog, there is the potential for temporary indirect impacts to Growling Grass Frog habitat further downstream during the construction phase. This potential impact has been discussed and mitigation measures provided in Section 4.3.

6.1 Natural Temperate Grassland of the Victorian Volcanic Plain

The residual impacts and proposed offsets for the NTGVVP ecological community have been assessed in accordance with the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a). The identified offset site is sufficient to fully compensate for impacts to NTGVVP associated with Stages 1 and 2 of the development, and no additional NTGVVP offsets are required beyond those detailed in this Preliminary Documentation.

Further details of the offset proposal are provided in the OMP prepared by Biodiversity Offsets Victoria Pty Ltd (2025) included in Appendix 3 of this document.

6.1.1 The Offset Site

The offset is located at [redacted]Cressy, Victoria (Appendix 3). The Allotment is [redacted]property number [redacted]which is herein referred to as the 'offset site'. The property is a large parcel of approximately 160 hectares, and the NTGVVP offset is 49.1 hectares, proposed to be managed for offset and conservation purposes. The offset site supports a range of ecological values, including the NTGVVP ecological community, and confirmed habitat for Golden Sun Moth.

The offset site has been proposed as it provides a remnant of high quality NTGVVP community that has a start quality score of 6/10 in accordance with the EPBC Offset Assessment Guide (DSEWPaC 2012b) and provides a clear conservation benefit and increase in conservation values when compared to the condition and extent of the community at the proposed clearing site.

The proposed offset will comprise 49.1 hectares of NTGVVP, which is part of a larger area of approximately 138 hectares patch of native grassland habitat. Based on the EPBC offset calculator, the retention and management of 49.1 hectares of NTGVVP within the proposed offset site as an offset mitigates 100.19% of the impact of the removal of 7.615 hectares of the community across Stages 1 and 2 of the proposed action (Appendix 2.1). This exceeds the minimum 90% direct offset requirement and is considered to be in accordance with the Commonwealth environmental offset policy.

The offset site has been assessed several times by Biodiversity Offsets Victoria Pty Ltd in May 2017, and more recently on 5 December 2023 (Biodiversity Offsets Victoria Pty Ltd 2026) to confirm the quality and extent of the ecological values present. A habitat hectare assessment of the condition of the NTGVVP is provided in Table 6. The quality and assessment of the NTGVVP community is described in the OMP (Biodiversity Offsets Victoria Pty Ltd 2026).

6.1.1.1 Tenure Arrangements

The proposed offset site is proposed to be secured through a Trust for Nature Deed of Covenant. Dexus and the offset site Landowner will be executing parties to the Deed (Biodiversity Offsets Victoria Pty Ltd 2026).

6.1.2 Ecological Values within the offset site

6.1.2.1 Site Assessment

The offset site has been assessed several times by Biodiversity Offsets Victoria Pty Ltd in May 2017, and more recently on 5 December 2023 (Biodiversity Offsets Victoria Pty Ltd 2026) to confirm the quality and extent of the ecological values present. The inspections sought primarily to identify the presence and extent of the NTGVVP ecological community listed under the EPBC Act.

The offsite site comprises 50.4 hectares of high-quality Plains Grassland vegetation, that forms part of a contiguous 138-hectare area of grassland habitat (Biodiversity Offsets Victoria Pty Ltd 2026). The offset site support grassland species typical of the Plains Grassland EVC (EVC 132), which is also representative of the NTGVVP ecological community. NTGVVP within the offset site is considered to be a high-quality remnant of Plains Grassland EVC and the NTGVVP community.

The community contained a diversity of native species (Biodiversity Offsets Victoria Pty Ltd 2026, p.15):

> *"The vegetation is dominated (50-70%) by native perennial grasses, including Wallaby-grass* Rytidosperma *spp., Spear-grass* Austrostipa *spp., Tussock-grass* Poa *spp., Kangaroo Grass* Themeda triandra*, Common Wheat-grass* Anthosachne scabra*, Common Blown-grass* Lachnagrostis filiformis *and Weeping Grass* Microlaena stipoides*, with scattered Tree Violet* Melicytus dentatus *shrubs, Rushes* Juncus *spp., Common Spike-sedge* Eleocharis acuta *and a variety of native herbs, including Sheep's Burr* Acaena echinata*, Common Woodruff Asperula conferta, Beauty-heads* Calocephalus *spp., Bindweed* Convolvulus *spp., Kidney-weed* Dichondra repens*, Blue Devil* Eryngium ovinum*, Crane's Bill* Geranium *spp., Jersey Cudweed* Laphangium luteoalbum*, Poison Lobelia* Lobelia pratioides*, Grassland Woodsorrel* Oxalis perennans *and Wiry Dock* Rumex dumosus*."*

A low to moderate cover of introduced pasture grasses and weeds were present, comprising species such as Canary-grass *Phalaris spp*., Yorkshire Fog *Holcus lanatus*, Brome *Bromus spp*., and Barley-grass *Hordeum leporinum.*

The offset site contained embedded and surface rock within the native grasslands.

A habitat quality score of 6/10 has been applied to the offset site (Section 6.1.5). This rating has been determined in accordance with the Departments preference to use the habitat hectare assessment method (dividing the total by 10) when calculating habitat quality for NTGVVP.

The conservation value of this remnant of NTGVVP within the offset site is further enhanced as in accordance with the Commonwealth Listing Advice for the community (TSSC 2008), it contains:

- presence of natural exposed rock platforms and outcrops;
- presence of mosses, lichens or a soil crust on the soil surface;
- presence of threatened plant and/or animal species (Golden Sun Moth);
- a high native plant species richness; and,
- large patch size.

6.1.3 Method for calculating NTGVVP habitat quality

The habitat quality of the NTGVVP ecological community at the impacts and offset sites were assessed using the results of the habitat hectare assessment undertaken in accordance with the Victorian Quality Assessment (VQA) methodology (DSE 2004) and dividing the total by 10 and round to the closest integer in accordance with DCCEEW's preferred method.

6.1.4 NTGVVP Impacted Habitat Quality Calculations

The habitat quality score for the area of NTGVVP proposed to be impacted within the proposed development site is provided below (Table 6).

Table 6. Habitat hectare assessment and habitat quality at 752 Craigieburn Road

Vegetation Zone		PG2a	PG2b
Bioregion		Victorian Volcanic Plain	Victorian Volcanic Plain
EVC		Plains Grassland (Heavier Soils)	Plains Grassland (Heavier Soils)
EVC Number		132_61	132_61
EVC Conservation Status		Endangered	Endangered
Site Condition /75	Large Trees /10	NA	NA
	Tree Canopy Cover /5	NA	NA
	Lack of Weeds /15	4	4
	Understorey /25	5	5
	Recruitment /10	3	3
	Organic Matter /5	5	5
	Logs /5	NA	NA
	Treeless EVC Multiplier	1.36	1.36
	Subtotal =	23.12	23.12
Landscape Context /25	Patch Size /10	2	1
	Neighbourhood /10	2	2
	Distance to Core Area /5	1	1
	Subtotal =	5	4
Habitat Points /100		28	27
Habitat Score (VQA)		**0.28**	**0.27**
Habitat Quality Score (EPBC) *		**3**	**3**

Note: * This score was calculated by dividing the habitat hectare points by 10 and rounding to the nearest integer.

6.1.5 NTGVVP Offset Habitat Quality Calculations

The habitat quality score for the area of NTGVVP proposed to be used as an offset is provided below (Table 7).

Table 7. Habitat Quality Calculations for NTGVVP at the offset site.

Vegetation Zone (Patch #)		1A	2A
Bioregion		Victorian Volcanic Plain	Victorian Volcanic Plain
EVC		Plains Grassland (Heavier Soils)	Plains Grassland (Heavier Soils)
EVC #		132_61	132_61
EVC Conservation Status		En	En
Patch Condition	Large Old Trees /10	NA	NA
	Canopy Cover /5	NA	NA
	Under storey /25	15	15
	Lack of Weeds /15	4	4
	Recruitment /10	6	6
	Organic Matter /5	5	5
	Logs /5	NA	NA
	Treeless EVC Multiplier	1.36	1.36
	Subtotal =	**40.8**	**40.8**
Landscape Value /25		16	16
Habitat Points /100		57	57
Habitat Score (VQA)		**0.57**	**0.57**
Habitat Quality Score (EPBC) *		**6**	**6**

Note: * This score was calculated by dividing the habitat hectare points by 10 and rounding to the nearest integer.

6.1.6 Compliance with Offset Principles

The '*Environmental Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy' (DSEWPaC 2012a) outlines a set of principles that a proposed offset must meet in order to be assessed under the referral process. These principles are detail below, along with how the proposed offset meets these requirements.

1. **Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter.**

The proposed action will result in the loss of 7.615 hectares of the NTGVVP community. The proposed offset site will protect 49.1 hectares of NTGVVP of higher quality than the area being removed and supports enhanced conservation values (TSSC 2008). This offset is a part of a larger 138-hectare remnant of Plains Grassland (EVC 132).

2. **Suitable offsets must be built around direct offsets but may include other compensatory measures.**

Offsets for the NTGVVP community will be wholly achieved through direct offsets. Based on the EPBC offset calculator, the retention and management of 49.1 hectares of NTGVVP within the proposed offset site as an offset mitigates 100.19% of the impact of the removal of 7.615 hectares of the community. This exceeds the minimum 90% direct offset requirement and is considered to be in accordance with the Commonwealth environmental offset policy (DSEWPaC 2012a).

The offset will be secured under a Trust for Nature Deed of Covenant (Offset), administered and governed by Trust for Nature. Management of the ecological values present will consider key points for the protection and management of the offset site within the listing advice (TSSC 2008) and conservation advice (DEWHA 2008) for the NTGVVP community.

3. **Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter.**

The loss of the NTGVVP community has been processed through the Offset Assessment Guide offset calculator (DSEWPaC 2012b). The proposed offsets are in proportion to the level of statutory protection that applies to the community (Critically Endangered). The protection of 49.1 hectares of the NTGVVP ecological community at the offset site will exceed the offset requirement (100.19%) for a direct offset (Appendix 3; Appendix 2.1). The security and management of matters of NES at the offset under Trust for Nature Deed of Covenant (Offset) will ensure they are permanently protected.

4. **Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter.**

The loss of 7.615 hectares of the NTGVVP community has been processed through the Offset Assessment Guide offset calculator (DSEWPaC 2012b). Based on the inputs (as detailed in Section 6.1.9) to the Offset Assessment Guide offset calculator (DSEWPaC 2012b), an offset of 49.1 hectares is of a size and scale that is proportionate to the residual impacts to the community.

5. **Suitable offsets must effectively account for and manage the risks of the offset not succeeding.**

The use of a direct offset presents a lower risk that other compensatory measures as ongoing management and monitoring is more likely to result in a conservation gain for the NTGVVP community. An on-title security agreement will be prepared for the 49.1 hectare offset, demonstrating the landowner's willingness to actively manage land for conservation purposes. The existing quality of the proposed offset site greatly reduces the risk of the offset not succeeding. The offset site contains a high-quality grassland remnant that that will be actively managed to promote and enhance the existing values of the NTGVVP community.

The OMP (Appendix 3) outlines management and monitoring actions that must be implemented in order to maintain and improve the offset. Adaptive management under each element will identify the procedures to be followed if the objectives have not been met. The land manger will report against any specific monitoring and auditing obligations established under the EPBC Act approval conditions.

6. **Offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under schemes or programs.**

The offset site is privately owned land zoned Farming Zone (FZ), which allows grazing of domestic livestock, and contains a Specific Control Overlay (SCO2). The NTGVVP community is not affected by any overlays.

The local planning regulations that apply to the offset site do not require any offsets to be established under any existing schemes or programs. The landowner is not in receipt of any stewardship funding from any conservation programs or schemes.

No land within the proposed 49.1 hectare offset site is already in use as an offset site for any other parties, nor has it already been set aside for any other conservation program. As such, the proposed offset is additional to what is required under the planning regulations or determined by law.

The study area shows some evidence of historic rock removal into occasional rock piles but presents no other evidence of significant ground disturbance (i.e., cropping), nor recent fertiliser use or broad acre herbicide (Biodiversity Offsets Victoria Pty Ltd 2026).

The proposed offset is proposed to meet offset obligations under Commonwealth policy.

7. **Offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable.**

Direct protection and management of 49.1 hectares of the NTGVVP ecological community is the most effective and efficient means of achieving offsets. Revegetation or the creation of habitat has not been proposed, as there is insufficient evidence that this would achieve a successful outcome.

For the current project, offsets are to be secured and implemented as soon as approval for the action is granted. The OMP utilises known management practices to protect and manage high-quality remnant vegetation present within the Victorian Volcanic Plains bioregion to the west of Melbourne (refer to Appendix 3 for further detail).

8. **Suitable offsets must have transparent governance arrangements, including being able to be readily measured, monitored, audited and enforced.**

The OMP sets out clear objectives, measurable performance indicators, monitoring and reporting requirements. In addition, the Land Manager will report against any specific monitoring and auditing obligations established under the EPBC Act approval conditions.

The offset will be delivered in accordance with the approved OMP to be registered on-title via a Trust for Nature Deed of Covenant (Offset). The security agreement is legally enforceable and will administered and governed by Trust for Nature respectively. Trust for Nature will review all monitoring reports and undertake regular stewardship visits. All monitoring reports will also be provided to DCCEEW. Any breach of management and/or reporting requirements will trigger enforcement proceedings as applicable under the EPBC Act and/or the Trust for Nature covenant.

6.1.7 Offset Management Plan

An OMP has been developed which outlines the ongoing management arrangements, including management actions and the roles and responsibilities of the various parties in establishing and managing the offset site (Appendix 3). For the purpose of this OMP, the Landowner shall also be the Land Manager.

Trust for Nature will review all monitoring reports and undertake regular (every three years) stewardship assessments to review progress and outcomes with respect to the Trust for Nature covenant placed on the land. An independent audit undertaken by an ecologist will also be undertaken on a regular (every three years) basis to ensure compliance with the Commonwealth's approval documentation.

In the highly unlikely event the proposed offset fails, for example the implementation of the proposed offsets and resulting activities do not deliver the desired conservation benefit to NTGVVP over the life of the OMP, then there are contingency options. One option would be to extend the duration of the OMP from 10 years to the length it takes to fulfil the OMPs objectives and habitat quality targets. Alternatively, the proponent could engage with an alternative Landowner with the required NTGVVP offsets and prepare an OMP. Naturally, every effort will be made by all parties to ensure that the chosen offset site fulfils the objectives of the OMP.

6.1.8 Completed Offset Assessment Guide calculator

The EPBC Act offsets policy (DSEWPaC 2012a) provides the details of the offsetting approach for matters of NES; this includes an Offset Assessment Guide and offset calculator.

The Offset Assessment Guide offset calculator has been completed to determine the area of offset required to adequately compensate for the removal of the NTGVVP ecological community within the development area. The Offset Assessment Guide offset calculator is provided in Appendix 2.1, and as supporting documentation within the OMP (Appendix 3), with a justification for the scores given provided below.

6.1.9 Offset Calculator Justification

Based on the EPBC Act offset calculator (DSEWPaC 2012b), the retention and management of 49.1 hectares of NTGVVP within the proposed offset site as an offset mitigates 100.19% of the impact of the removal of 7.615 hectares of the community (Table 8). This exceeds the minimum 90% direct offset requirement and is considered to be in accordance with the Commonwealth environmental offset policy (DSEWPaC 2012a).

Table 8. EPBC Act Offset Calculator (NTGVVP).

Offset Criteria	Response
Impact Site	
Impact Location	752 Craigieburn Road East, Craigieburn, Victoria
Habitat to be removed	7.615 hectares of NTGVVP
Habitat quality	3/10. The NTGVVP within the impact site is of low quality, is species poor, and has been subjected to high levels of disturbance in the form of historical grazing and rock removal. Although the NTGVVP comprises approximately 50% native perennial grasses, the remainder of the patch consists of perennial exotic flora, including the WoNS Serrated Tussock.
Offset Site	
Offset location	[redacted] Cressy, Victoria ([redacted] Property No. [redacted])
Risk-related time horizon	20 years. The land will be managed in perpetuity for conservation purposes for NTGVVP.
Time until ecological benefit	10 years. The existing native vegetation condition is expected to be maintained over the 10-year active management schedule detailed in the OMP.
Start area and quality of offset site	49.1 hectares; 6/10. The offset site supports a high quality example of NTGVVP, with the habitat hectare assessment of the site assessing the overall habitat score at 56.8 (out of 100) (Table 6). The offset site exhibits a high diversity of flora recorded during the on-site assessments, as well as broader extent of contiguous remnant vegetation adjacent to the offset site, and the presence of enhanced conservation values as detailed in the Commonwealth Listing Advice (TSSC 2008). In accordance with the Commonwealth preferred

Offset Criteria	Response
	method to determine NTGVVP habitat quality, the start quality has been assessed as 6/10 (See Section 6.1.3).
Risk of loss without offset	0%. The risk of loss without offset value of 0% follows the offsets assessment guide (DCCEEW 2023). There are currently no formal protection mechanisms that protect the ecological values present within the offset site. Without protection and ongoing management as an offset site, there is uncertainty regarding the future condition of the land. Based on the current absence of a formal protection mechanism on the site, there is a risk that agricultural practices and absence of active management will result in weed invasion and pest animal disturbance that will contribute to the degradation of the offset site without management actions enacted. A protective covenant provides legal protection, which would prevent any further development, thereby averting this risk of losing the NTGVVP community (and other matters of NES) within the site.
Future quality without offset	5/10. As detailed above, there are currently no restrictions to agricultural practices within the FZ associated with the application of high stocking rates or changing the type of animal traditionally raised within a property (i.e. changing from sheep to cattle or horses). Further, the condition of ecological values has been shown to be declining under the existing "business-as-usual" practices. Without strategically designed grazing strategies, stock can overgraze/undergraze the community, leading to a shift in introduced species dominance and/or increased biomass resulting in a reduction in species diversity. Further details are provided in Section 0. Without the establishment of an offset site, a decline in condition from a score of 6/10 to 5/10 is considered conservative for a 10-year period.
Risk of loss with offset	0%. When a site is secured and managed for offset purposes, the risk of loss is considered to decline significantly. This value is as per the guidance deriving 'Risk of Loss' estimates when evaluating biodiversity offsets proposals under the EPBC Act document (The University of Queensland 2017).
Future quality with offset	6/10. The offset site is to be secured and managed for conservation purposes in perpetuity, with implementation of a management plan incorporating weed control, biomass control and regular monitoring, aiming to maintain the existing condition of NTGVVP. The quality of NTGVVP will be maintained by actions outlined in the OMP (Appendix 3), and include: • Managing all high threat weeds and pest animals, reducing competition for native grasses and herbs; • Reducing rabbit populations, and thereby reducing the threat posed to on-going survival and establishment of native flora by overgrazing from exotic herbivores; and, • Ensuring that grazing regimes by stock is undertaken in a manner sensitive to the biomass requires for high quality NTGVVP. An elevated level of weed control and permanent application of targeted management to maintain the condition of NTGVVP is anticipated to maintain the site condition score, whilst maintaining suitable habitat structure for Golden Sun Moth. Proposed management actions are above and beyond both current and past management of the site. While the site is currently grazed, and has been historically grazed, the grazing periods are not managed in consideration of biodiversity values and the structure of the NTGVVP community. Further, while some weed and rabbit control has occurred on the

Offset Criteria	Response
	property, the level of control committed under this management plan is well beyond current management. Based on the increased management of the site, as outlined within the OMP, which as outlined above are beyond past and current management, the habitat quality of the offset site will be maintained beyond what the site would be without implementation of the offset.
Confidence in result	90%. Confidence in applied scores is relatively high due to careful consideration of the offset site, existing condition, the land management experience of the landowner, and the commitment of the landowner to engage (where required) contractors with appropriate qualifications and experience in undertaking the contracted works. The site will be protected through entering into a Trust for Nature covenant. Trust for Nature undertakes a rigorous quality assurance process for all offset sites to ensure the landowner agreements address the management commitments in the plan.
% of impact offset *	100.19%

Note: * Offsets fully address NTGVVP impacts for Stages 1 and 2

6.1.10 Scientific Basis for Predicted Condition Decline and Effectiveness of Management Measures

A substantial body of peer-reviewed research demonstrates that temperate native grasslands and derived grassland habitats in south-eastern Australia are highly susceptible to ongoing condition decline in the absence of appropriate management. The Victorian State of the Environment 2018 identifies native grasslands as one of the most threatened ecosystems in the State, with continued loss of extent, degradation of condition, and decline in associated fauna driven primarily by agricultural land use, altered disturbance regimes and fragmentation (CES 2018). These pressures operate even where native vegetation persists, resulting in progressive degradation of habitat quality and ecological function.

Empirical studies have consistently shown that grazing pressure and agricultural intensification are key drivers of grassland condition decline. Dorrough *et al.* (2004) and Dorrough & Scroggie (2008a) demonstrate that sustained or intensified grazing and associated land-use inputs reduce native species richness, simplify vegetation structure and promote dominance by exotic or disturbance-tolerant species. Importantly, these studies show that condition decline can occur without complete vegetation removal, supporting the assumption that unmanaged grassland remnants are likely to deteriorate over time due to sustained land-use pressures and repeated low-level cumulative disturbance processes.

Lunt *et al.* (2007) further demonstrates that grassland biodiversity responses to grazing are often non-linear, with relatively small changes in grazing intensity capable of causing disproportionate losses in conservation value. This supports the conservative treatment of ongoing land-use pressures as a credible pathway for condition decline to NTGVVP (and GSM habitat).

The literature also provides strong evidence that targeted and adaptive management can halt or reverse these declines. When appropriately managed, low-intensity grazing regimes can maintain vegetation structure, suppress weeds and support native species persistence, whereas both chronic heavy grazing and complete exclusion may lead to adverse outcomes if not carefully managed (Dorrough *et al.* 2004; Dorrough *et al.* 2008b). Langford (2005) similarly highlights that conservation outcomes in native pastures are maximised where management explicitly prioritises biodiversity objectives rather than agricultural productivity.

Long-term experimental evidence further supports the recovery potential of grasslands under reduced disturbance. Lunt & Morgan (1999) showed that reducing grazing pressure, combined with carefully timed disturbance, resulted in measurable improvements in grassland composition and structure over decadal timescales. Lunt & Morgan (2002) emphasise that fire and disturbance regimes must be applied judiciously and in context, reinforcing the importance of adaptive management frameworks that respond to site-specific conditions and monitoring outcomes.

Species-specific studies also reinforce the relevance of these findings to MNES. O'Dwyer & Attiwill (1999) demonstrated that Golden Sun Moth habitat quality is closely linked to native grassland structure, tussock density and low levels of soil disturbance, making the species particularly sensitive to the degradation processes described above. This evidence supports the conclusion that management actions targeting grassland condition are directly relevant to MNES conservation outcomes.

Collectively, this body of evidence provides a robust scientific basis for the prediction that grassland condition (and GSM habitat) would continue to decline from a habitat quality score of 6 to 5, in the absence of active management, and that the management measures proposed in the Offset Management Plan—including controlled grazing, exclusion of intensified agricultural practices, targeted weed control, monitoring and adaptive management—are appropriate and effective mechanisms for maintaining or improving habitat condition over time. These conclusions are consistent with current ecological understanding and support the EPBC Act impact and offset assessment framework applied in this PD.

6.1.11 Details of Offset Site Security

The 49.1 hectares of NTGVVP will be protected via a Trust for Nature Deed of Covenant for the Conservation of Land (*Victorian Conservation Trust Act 1972*). The OMP will be attached to the covenant and require the landowner to manage the offset site in accordance with the requirements detailed herein.

The Trust for Nature covenant will secure the offset site in perpetuity.

6.1.12 Estimated Cost of Offset

The overall cost of the offset proposal will be dependent on the costs associated with undertaking the management and monitoring activities detailed in the OMP. The final cost will ultimately be dependent on quotations received from relevant contractors.

6.2 Golden Sun Moth

The residual impacts to Golden Sun Moth habitat associated with Stage 1 of the proposed action have been assessed in accordance with the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a) and the EPBC Act Offset Assessment Guide (DSEWPaC 2012b).

Stage 1 of the development will result in the removal of 8.800 hectares of confirmed Golden Sun Moth habitat. To compensate for the residual impacts associated with Stage 1, an external offset site located at [redacted] Cressy, Victoria has been identified.

Offsets for GSM habitat will be provided in a manner consistent with the requirements of the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a). Further details of the offset proposal are provided in the OMP prepared by Biodiversity Offsets Victoria Pty Ltd (2025), included in Appendix 3 of this document.

6.2.1 The Offset Site

The offset is located at [redacted] Cressy, Victoria (Appendix 3). The Allotment is [redacted] property number [redacted] which is herein referred to as the 'offset site'. The property is a large parcel of approximately 160 hectares.

The proposed offset is 50.4 hectares of confirmed GSM habitat (with 49.1 hectares of NTGVVP located within it) and is ultimately proposed to be managed for offset and conservation purposes. The offset site supports a range of ecological values, including the NTGVVP ecological community, and confirmed habitat for Golden Sun (Biodiversity Offsets Victoria Pty Ltd 2026).

Based on the EPBC offset calculator, the retention and management of 50.4 hectares of GSM habitat within the proposed offset site as an offset mitigates 101.05% of the impact of the removal of 8.800 hectares of GSM habitat within Stage 1 (Appendix 2.2). This exceeds the minimum 90% direct offset requirement and is considered to be in accordance with the Commonwealth environmental offset policy.

The offset site has been assessed several times by Biodiversity Offsets Victoria Pty Ltd in May 2017, and more recently on 5 December 2023 (Biodiversity Offsets Victoria Pty Ltd 2026) to confirm the quality and extent of the ecological values present. The offset site is to be secured to meet the required offset obligations generated by the removal of 8.800 hectares of confirmed GSM habitat within Stage 1, noting that impacts associated with Stage 2 are assessed in this PD but offsets for those impacts are not addressed at this time .

6.2.1.1 Tenure Arrangements

The proposed offset site was secured through a Trust for Nature Deed of Covenant. Dexus and the offset site Landowner are executing parties to the Deed (Biodiversity Offsets Victoria Pty Ltd 2026).

These security mechanisms meet the requirements under the Commonwealth offset policy (DSEWPaC 2012a).

6.2.2 Ecological Values within the Offset Sites

6.2.2.1 Site Assessment

The offset site has been assessed by Biodiversity Offsets Victoria Pty Ltd in May 2017, and more recently on 5 December 2023 (Biodiversity Offsets Victoria Pty Ltd 2026) to confirm the quality and extent of the ecological values present.

The offsite site comprises 50.4 hectares of high-quality Plains Grassland vegetation, that forms part of a contiguous 138-hectare area of grassland habitat (Biodiversity Offsets Victoria Pty Ltd 2026). The offset site supports grassland species typical of the Plains Grassland EVC (EVC 132), which is also representative of the NTGVVP ecological community and Golden Sun Moth habitat.

A total of 110 Golden Sun Moth were recorded during a targeted assessment for the species throughout the property in 2018, and two additional Golden Sun Moth were observed in flight during the 2023 offset site

assessment, with a total of 53 being recorded in immediate offset area (Biodiversity Offsets Victoria Pty Ltd 2026).

The community contained a diversity of native species (Biodiversity Offsets Victoria Pty Ltd 2026, pp.15):

> *"The vegetation is dominated (50-70%) by native perennial grasses, including Wallaby-grass Rytidosperma spp., Spear-grass Austrostipa spp., Tussock-grass Poa spp., Kangaroo Grass Themeda triandra, Common Wheat-grass Anthosachne scabra, Common Blown-grass Lachnagrostis filiformis and Weeping Grass Microlaena stipoides, with scattered Tree Violet Melicytus dentatus shrubs, Rushes Juncus spp., Common Spike-sedge Eleocharis acuta and a variety of native herbs, including Sheep's Burr Acaena echinata, Common Woodruff Asperula conferta, Beauty-heads Calocephalus spp., Bindweed Convolvulus spp., Kidney-weed Dichondra repens, Blue Devil Eryngium ovinum, Crane's Bill Geranium spp., Jersey Cudweed Laphangium luteoalbum, Poison Lobelia Lobelia pratioides, Grassland Woodsorrel Oxalis perennans and Wiry Dock Rumex dumosus."*

A low to moderate cover of introduced pasture grasses and weeds were present, comprising species such as Canary-grass., Yorkshire Fog, Brome., and Barley-grass. The offset site contained embedded and surface rock within the native grasslands.

Overall, the offsite offset site supports an open, grassland habitat consistent with that described in the Golden Sun Moth Significant Impact Guidelines (DEWHA 2009a) and Conservation Advice (DAWE 2021). A habitat quality score of 6/10 has been applied to the offset site (Section 6.2.3). This rating has been determined in line with the key considerations outlined within the Offset Assessment Guide and Offset Policy (DSEWPaC 2012a; 2012b), including an assessment of site condition and site context within the broader property/landscape.

6.2.3 Method for calculating GSM habitat quality

The habitat quality of the impacts and offset site was assessed using the EPBC Act Offsets Assessments Guide to ensure it meets the requirements of the Department's EPBC Act Environmental Offsets Policy (October 2012). Assessments of species habitat quality are based on separate assessments of three parameters: site context, site condition and species stocking rate in line with the key considerations outlined within the Offset Assessment Guide and Offset Policy (DSEWPaC 2012a; 2012b), including an assessment of site condition and site context within the broader property/landscape, and determined as follows:

- **Site context** – assessed as a score out of three where the habitat patch[1] is:
    - 0/3 = < 0.25 hectares;
    - 1/3 = > 0.25 hectares < 10 hectares;
    - 2/3 = > 10 hectares, shaped to reduce edge effects (i.e. not narrow and/or linear);
    - 3/3 = > 10 hectares, shaped to reduce edge effects, and connects previously unconnected suitable/known habitat.
- **Site condition** – assessed as a score out of three as follows:
    - 0/3 = dominated by non-native vegetation that isn't a preferred food source for GSM;

[1] A habitat patch is defined as an area of suitable habitat separated by other areas of suitable habitat by at least 200 metres of unsuitable habitat, or barrier to dispersal.

- 1/3 = comprised of a cover of at up to 25% of a known food source;
- 2/3 = comprised of a cover of 25% - 40% of a known food source of which is predominantly native; OR, up to 40% cover of a known food source, which is predominantly non-native (i.e. Chilean Needle-grass). Limited inter-tussock space (i.e. below 10%);
- 3/3 = comprised of a cover of at least 40% of a known food source which is predominantly native. Suitable biomass levels (defined as not greater than 90% and minimum of 5 centimetres high) and inter-tussock space (defined as 10-30%) present.

- **Species stocking rate** - assessed out of four as follows:
  - 0/4 = species not confirmed to be present;
  - 1/4 = species modelled to occur, or confirmed at 0-5 moths per hectare[2];
  - 2/4 = > 5-20 moths per hectare;
  - 3/4 = > 20–50 moths per hectare;
  - 4/4 = > 50 moths per hectare.

6.2.4 GSM Impacted Habitat Quality Calculations

The habitat quality score for each of the areas of GSM habitat proposed to be impacted are provided below (Table 9).

Table 9. Habitat Quality Calculations for Impacted GSM habitat.

GSM Patch	Area (ha) *	Site Context	Site Condition	Species Stocking Rate	Habitat Quality Score	# GSM^	Stocking Rate ^
East + West	12.779	2	1	2	**5**	290	15.6

Note: * overall extent of GSM habitat within Lot A**;** ^ as per targeted survey results across the 18.55 hectare study area in Ecology and Heritage Partners (2021).

Although there are discrete areas of GSM habitat present within the study area separated by the width of the driveway on the property, given that there are no barriers of dispersal between them, and they are within 200 metres of each other, they are considered a single habitat patch for the purposes of this assessment (Figure 4). Scores against the habitat quality criteria detailed in Section 6.2.3 for GSM habitat are as follows (Table 9):

- Site context score: 2/3. There is a total of 12.779 hectares of GSM habitat within the study area;
- Site condition: 1/3. GSM habitat supports a cover of up to 25% cover of Wallaby-grass and/or Spear-grass, but otherwise dominated by non-native, non-preferred food sources; and,
- Species stocking rate: 2/4 (density of 15.6 moths per hectare).

Overall, there is impact to 8.800 hectares of Golden Sun Moth habitat within Stage 1 with a habitat quality score of 5.

[2] Stocking rate calculated as the average # of moths per hectare across the patch as determined by the results of the targeted surveys.

6.2.5 GSM Offset Habitat Quality Calculations

The method for calculating GSM habitat quality is detailed in Section 6.2.3.

6.2.5.1 Offset Site

The habitat quality score for the offset site is provided below (Table 10).

Table 10. Habitat Quality Calculations at the offset site.

Patch *	Area (ha)	Site Context	Site Condition	Species Stocking Rate	Habitat Quality Score	# GSM^	Stocking Rate ^
1A	39.85	2	3	1	6	53	1.71
2A	10.55	2	3	1	6	53	1.71
Total	50.4						

Note: * As per OMP (Appendix 3); ^ as per targeted survey results: 53 Golden Sun Moths recorded in the immediate offset area (Biodiversity Offsets Victoria Pty Ltd 2026).

A habitat quality score of 6/10 has been applied to the offsite offset site. This rating has been determined based on the presence of a relatively large extent of moderate to high quality GSM habitat that supports a known population of the species. Scores against the offset site suitability criteria are as follows:

- Site context score: 2/3. Site is larger than 10 hectares, but does not connect previously unconnected suitable/known habitat;
- Site condition: 3/3. Site supports high cover of suitable host plants (native tussock grasses >40%) and moderate inter-tussock space;
- Species stocking rate: 1/4 (density of 1.71 moths per hectare). This is based on a total of 53 moths recorded over the initial 30-hectare offset site. A total of 112 moths recorded over the broader 138 contiguous Golden Sun Moth habitat, results in a stocking rate of 0.81 moths per hectare, which also scores 1/4.

6.2.6 Compliance with Offset Principles

The '*Environmental Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy' (DSEWPaC 2012a) outlines a set of principles that a proposed offset must meet in order to be assessed under the referral process. These principles are detail below, along with how the proposed offset meets these requirements.

1. **Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter.**

The proposed action will result in the loss of 8.800 hectares of Golden Sun Moth habitat within Stage 1. The proposed offset site to be protected and managed to compensate for the loss of 8.800 hectares is 50.4 hectares (Table 11). The proposed offset site is of higher quality than the area being removed with ongoing, proactive management actions to be implemented for a mandatory period of 10 years, after which the offset site will be maintained in its improved state in perpetuity, with the primary management objectives consistent with the Golden Sun Moth Significant Impact Guidelines (DEWHA 2009a) and Golden Sun Moth conservation

advice (DAWE 2021), to ensure actions that may lead to the loss, degradation or fragmentation of GSM habitat are appropriately avoided and mitigated at the offset sites.

2. **Suitable offsets must be built around direct offsets but may include other compensatory measures.**

Offsets for the Golden Sun Moth habitat within Stage 1 will be wholly achieved through direct offsets. Based on the EPBC offset calculator, the retention and management of 50.4 hectares of Golden Sun Moth habitat within the proposed offset sites as an offset mitigates over 100% of the impact of the removal of 8.800 hectares of Golden Sun Moth habitat within Stage 1 (Table 11; Appendix 2.2). This exceeds the minimum 90% direct offset requirement and is considered to be in accordance with the Commonwealth environmental offset policy (DSEWPaC 2012a).

The offset site will be protected via a Trust for Nature covenant under the VCT Act. Management of the ecological values present will consider key points for the protection and management of the offset site within the significant impact guidelines (DEWHA 2009a) and conservation advice (DAWE 2021) for Golden Sun Moth.

3. **Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter.**

The loss of Golden Sun Moth habitat has been processed through the Offset Assessment Guide offset calculator (DSEWPaC 2012b). The proposed offsets are in proportion to the level of statutory protection that applies to the species (Vulnerable). The protection of 50.4 hectares of Golden Sun Moth habitat at the offset sites will exceed the offset requirement (>100%) for a direct offset for the removal of 8.800 hectares (Appendix 3, Appendix 2.2).

4. **Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter**

The loss of 8.800 hectares of the confirmed Golden Sun Moth habitat within Stage 1 has been processed through the Offset Assessment Guide offset calculator (DSEWPaC 2012b). Based on the inputs (as detailed in Section 6.2.9) to the Offset Assessment Guide offset calculator (DSEWPaC 2012b), an offset of 50.4 hectares is of a size and scale that is proportionate to the residual Stage 1 impacts to Golden Sun Moth habitat.

5. **Suitable offsets must effectively account for and manage the risks of the offset not succeeding.**

The use of a direct offset presents a lower risk that other compensatory measures as ongoing management and monitoring is more likely to result in a conservation gain for Golden Sun Moth and associated habitat. An on-title security agreement will be prepared for the offset sites ensuring the protection of existing, moderate to high quality habitat. The existing size, quality, and connectedness to areas of adjacent, confirmed Golden Sun Moth habitat at the proposed offset site greatly reduces the risk of the offset not succeeding.

The offset site supports a known population of Golden Sun Moth that will be actively managed to promote and enhance the existing values present. Key threats at the offset sites, such as weed spread, over-grazing and biomass control will be proactively managed by the landowners in accordance with the approved OMP, and the management of these threats will ensure that Golden Sun Moth population and habitats present across the sites are protected and enhanced, thus delivering an improved conservation outcome for the species.

The OMP (Appendix 3) outlines management and monitoring actions that must be implemented in order to maintain and improve the offset. Adaptive management under each element will identify the procedures to

be followed if the objectives have not been met. The land manger will report against any specific monitoring and auditing obligations established under the EPBC Act approval conditions.

6. **Offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under schemes or programs.**

The [redacted] offset site is privately owned land, zoned Farming Zone (FZ).

The local planning regulations that apply to the offset site do not require any offsets to be established under any existing schemes or programs. The landowners are not in receipt of any stewardship funding from any conservation programs or schemes.

No land within the proposed offset site is already in use as an offset site for any other parties, nor has it already been set aside for any other conservation program. As such, the proposed offset is additional to what is required under the planning regulations or determined by law.

The offset site has never been cultivated or subject to pasture improvement or intensive fertiliser application. However, at present pasture improvement activities and fertiliser application remain existing rights for this land.

The study area shows some evidence of historic rock removal into occasional rock piles but presents no other evidence of significant ground disturbance (i.e., cropping), nor recent fertiliser use or broad acre herbicide (Biodiversity Offsets Victoria Pty Ltd 2026).

The proposed offset is proposed to meet offset obligations under Commonwealth policy.

7. **Offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable.**

Direct protection and management of 50.4 hectares of existing Golden Sun Moth habitat is the most effective and efficient means of achieving offsets. Revegetation or the creation of habitat has not been proposed, as there is existing, moderate to high quality habitat available that can be secured and managed.

For the current project, offsets are to be secured and implemented as soon as approval for the action is granted. The OMP utilises known management practices to protect and manage high-quality remnant vegetation present within the Victorian Volcanic Plain bioregion to the west of Melbourne (refer Appendix 3 for further detail).

8. **Suitable offsets must have transparent governance arrangements, including being able to be readily measured, monitored, audited and enforced.**

The OMP sets out clear objectives, measurable performance indicators, monitoring and reporting requirements. In addition, the Land Manager will report against any specific monitoring and auditing obligations established under the EPBC Act approval conditions.

In accordance with the Landowner Agreement required under the on-title protection mechanisms, annual monitoring reports are required to be submitted to DEECA and Trust for Nature every year for at least 10 years. Any breach of management and/or reporting requirements will trigger enforcement proceedings as applicable under the EPBC Act and/or the Trust for Nature covenant.

6.2.7 Offset Management Plan

An OMP has been developed for the onsite and offsite offset locations which outlines the ongoing management arrangements, including management actions and the roles and responsibilities of the various parties in establishing and managing the offset site (Appendix 3). For the purpose of the OMPs, the Landowner shall also be the Land Manager.

Trust for Nature will review all monitoring reports and undertake regular (every three years) stewardship assessments to review progress and outcomes with respect to the Trust for Nature covenant placed on the land. An independent audit undertaken by an ecologist will also be undertaken on a regular (every three years) basis to ensure compliance with the Commonwealth's approval documentation.

In the highly unlikely event the proposed offset fails, for example the implementation of the proposed offsets and resulting activities do not deliver the desired conservation benefit to GSM over the life of the OMP, then there are contingency options. One option would be to extend the duration of the OMP from 10 years to the length it takes to fulfil the OMPs objectives and habitat quality targets. Alternatively, the proponent could engage with an alternative Landowner with the required GSM offsets and prepare an OMP. Naturally, every effort will be made by all parties to ensure that the chosen offset site fulfils the objectives of the OMP.

6.2.8 Completed Offset Assessment Guide calculator

The EPBC Act offsets policy (DSEWPaC 2012a) provides the details of the offsetting approach for matters of NES; this includes an Offset Assessment Guide and offset calculator.

The Offset Assessment Guide offset calculator has been completed to determine the area of offset required to adequately compensate for the proposed removal of Golden Sun Moth habitat within the development area. The Offset Assessment Guide offset calculators is provided in Appendix 2.2 and as supporting documentation within the OMP (Appendix 3), with a justification for the scores given provided below.

6.2.9 Offset Calculator Justification

6.2.9.1 Method for calculating offset site habitat quality

Based on the EPBC Act offset calculator (DSEWPaC 2012b), the retention and management of 50.4 hectares of Golden Sun Moth habitat within the proposed offsite offset site as an offset mitigates 101.05% of the impact of the removal of 8.800 hectares of Golden Sun Moth associated with Stage 1, with a habitat quality of 5 (Table 11).

Table 11. EPBC Act Offset Calculator for the offsite GSM Offset site (Stage 1).

Offset Criteria	Response
Impact Site	
Impact Location	752 Craigieburn Road East, Craigieburn, Victoria
Habitat to be removed	8.800 hectares of GSM habitat quality 5
Habitat quality	5/10. Habitat proposed to be removed supports a relatively low to moderate cover of native and non-native grasses that comprise the species preferred food plants (generally up to 25% cover of Rough Spear-grass and Wallaby-grasses). These areas also supported low to moderate numbers of Golden Sun Moth.

Offset Criteria	Response
Offset Site	
Offset location	[redacted] Cressy, Victoria ([redacted] Property No. [redacted])
Risk-related time horizon	20 years. The land will be managed in perpetuity for conservation purposes for Golden Sun Moth.
Time until ecological benefit	10 years. The existing habitat condition is expected to be protected and maintained over the 10-year active management schedule detailed in the OMP.
Start area and quality of offset site	50.4 hectares; 6/10 (Table 10). The habitat within the offset site is considered to be of high quality, and contiguous with other areas of confirmed Golden Sun Moth habitat (i.e. over 100 hectares). This is due to the moderate to high cover of key food resources (approx. up to 75% cover of Wallaby-grass, Spear-grass) present within the offset area, and the current low cover of high threat weeds or weed species that would otherwise reduce the quality of the GSM habitat. Further, the structure of the vegetation is an open native tussock grassland, with areas of bare ground and embedded and surface rock present. This combination of factors is favourable to GSM, resulting in a population being present across the entirety of the site. The definition of suitable GSM habitat has been based on information provide in the species conservation advice (DoEE 2013). The combination of habitat factors presented has resulted in the starting quality of GSM habitat being assessed as 6/10.
Risk of loss without offset	0%. The risk of loss without offset value of 0% follows the offsets assessment guide (DCCEEW 2023). There are currently no formal protection mechanisms that protect the ecological values present within the offset site. Without protection and ongoing management as an offset site, there is uncertainty regarding the future condition of the land. Based on the current absence of a formal protection mechanism on the site, there is a risk that agricultural practices and absence of active management will result in weed invasion and pest animal disturbance that will contribute to the degradation of the offset site without management actions enacted. A protective covenant provides legal protection, which would prevent any further development, thereby averting this risk of losing or reducing the quality and extent of GSM habitat (and other matters of NES) within the site.
Future quality without offset	5/10. As detailed above, there are currently no restrictions to agricultural practices within the FZ associated with the application of high stocking rates or changing the type of animal traditionally raised within a property (i.e. changing from sheep to cattle or horses). Further, the condition of ecological values has been shown to be declining under the existing "business-as-usual" practices. Without strategically designed grazing strategies, stock can overgraze/undergraze the community, leading to a shift in introduced species dominance and/or increased biomass resulting in a reduction in species diversity. Further details are provided in Section 0. Without the establishment of an offset site, a decline in condition of GSM habitat from a score of 6/10 to 5/10 is considered conservative for a 10-year period.
Risk of loss with offset	0%. When a site is secured and managed for offset purposes, the risk of loss is considered to decline significantly. This value is as per the guidance deriving 'Risk of Loss' estimates when evaluating biodiversity offsets proposals under the EPBC Act document (The University of Queensland 2017).
Future quality with offset	6/10. The offset site is to be secured and managed for conservation purposes in perpetuity, with implementation of a management plan incorporating weed control, biomass control and regular monitoring, aiming to enhance habitat quality for Golden sun Moth. The quality of Golden Sun Moth habitat will be maintained by actions outlined in the OMP (Appendix 3), and include:

Offset Criteria	Response
	• Eliminating woody weeds which outcompete host plants for Golden Sun Moth and provide harbour for rabbits; • Managing all high threat weeds, reducing competition for host plants for Golden Sun Moth; • Reducing rabbit populations, and thereby reducing the threat posed to on-going survival and establishment of host plants by overgrazing from exotic herbivores; and, • Ensuring that grazing regimes by stock is undertaken in a manner sensitive to the habitat requirements for Golden Sun Moth. An elevated level of weed control and permanent application of targeted management is anticipated to maintain the condition and extent of GSM habitat, whilst maintaining suitable habitat structure and condition of the NTGVVP community. Proposed management actions are above and beyond both current and past management of the site. While the site is currently grazed, and has been historically grazed, the grazing periods are not managed in consideration of biodiversity values and the structure of GSM habitat. Further, while some weed and rabbit control has occurred on the property, the level of control committed under this management plan is well beyond current management. Based on the increased management of the site, as outlined within the OMP, which as outlined above are beyond past and current management, the habitat quality of the offset site will be maintained beyond what the site would be without implementation of the offset.
Confidence in result	90%. Confidence in applied scores is relatively high due to careful consideration of the offset site, existing condition, the land management experience of the landowner, and the commitment of the landowner to engage (where required) contractors with appropriate qualifications and experience in undertaking the contracted works. The site will be protected through entering into a Trust for Nature covenant. Trust for Nature undertakes a rigorous quality assurance process for all offset sites to ensure the landowner agreements address the management commitments in the plan.
% of impact offset off-site *	101.05% of the impact of the removal of 8.800 hectares of Golden Sun Moth habitat quality 5 associated with Stage 1.

Note: * Offsets for Golden Sun Moth habitat associated with Stage 2 of the development are not addressed within this Preliminary Documentation.

6.2.10 Details of Offset Site Security

The 50.4 hectares of GSM habitat (with 49.1 hectares of NTGVVP located within it) will be protected via a Trust for Nature Deed of Covenant for the Conservation of Land (*Victorian Conservation Trust Act 1972*). The OMP will be attached to the covenant and require the landowner to manage the offset site in accordance with the requirements detailed herein.

The Trust for Nature covenant will secure the offset site in perpetuity.

6.2.11 Estimated Cost of Offset

The overall cost of the offset proposal will be dependent on the costs associated with undertaking the management and monitoring activities detailed in the OMP. The final cost will ultimately be dependent on quotations received from relevant contractors.

7 OTHER APPROVALS AND CONDITIONS

7.1 Victoria

7.1.1 *Melbourne Strategic Assessment (Environment Mitigation Levy) Act 2020*

The Melbourne Strategic Assessment (Environment Mitigation Levy) Act 2020 (MSA Act) established a Victorian legislative framework for the existing Melbourne Strategic Assessment (MSA) program. It imposes a levy to fund mitigation measures for impacts on biodiversity caused by the development of Melbourne's growth corridors.

Subdivision of land is a trigger for the payment of the environmental mitigation levy. Under the MSA a total environmental mitigation levy of approximately **$351,398.78** will apply to the study area.

As per Clause 52.17-8 of the Hume Planning Scheme, the biodiversity impacts of the removal of native vegetation within the MSA are not required to be offset in accordance with the Guidelines (DELWP 2017).

7.1.2 *Planning and Environment Act 1987*

Dexus Craigieburn Pty Ltd have submitted an application to Hume City Council to subdivide the parcel known as Lot A\PS900640 located at 752 Craigieburn Road East, Craigieburn, Victoria, into approximately 52 lots for an industrial development (Hume Ref# P26210).

7.1.2.1 Local Planning Scheme

The site of the proposed action is located within the Hume City Council. The following zoning and overlays apply (DTP 2024):

- Industrial Zone 3 (IN3Z)
- Urban Floodway Zone (UFZ)
- Design and Development Overlay – Schedule 1 (DDO) - partial
- Public Acquisition Overlay (PAO) – partial

7.1.2.2 The Guidelines

The State Planning Policy Framework and the decision guidelines at Clause 12.01 Biodiversity and Clause 52.17 Native Vegetation require Planning and Responsible Authorities to have regard for the Guidelines (DELWP 2017).

Implications

The study area is within Location 2, with 7.994 hectares of native vegetation proposed to be impacted (comprising 7.923 hectares of proposed removal, and 0.070 hectares of past removal). As such, the permit application falls under the Detailed assessment pathway.

The offset requirement for native vegetation removal is 2.5910 General Habitat Units. A planning permit from the Hume City Council is required to remove, destroy or lop any native vegetation under Clause 52.17.

In this instance, the application is required to be referred to DEECA is the application falls under the Detailed assessment pathway.

7.1.3 *Flora and Fauna Guarantee Act 1988*

The FFG Act is the primary legislation dealing with biodiversity conservation and sustainable use of native flora and fauna in Victoria. An FFG Act permit is generally not required for removal of species or communities on private land, or for the removal of habitat for a listed terrestrial fauna species. However, the *Flora and Fauna Guarantee Amendment Act 2019* came into effect on 1 June 2020 and now applies the FFG Act to Crown land and private/freehold land that is managed by a public authority.

Implications

The FFG Act listed Golden Sun Moth and Tussock Skink have been recorded within the study area, with a total of 11.53 hectares of habitat for both species present (outside of the MSA area).

A total of 7.57 hectares of the Western (Basalt) Plains Grassland ecological community is present.

8 SOCIAL AND ECONOMIC MATTERS

8.1 Social and Economic Issues

The study area is located within the Northern SSIP, which is strategically identified as a critical focus area for future industrial investment and growth within the MICLUP.

The purpose of this State significant precinct is to provide strategically located land for major industrial development. Future State-significant industrial land has also been identified to ensure there is sufficient land supply available for major industrial development. It is state policy that these areas are not used for incompatible land uses, thereby allowing continual growth in freight, logistics and manufacturing investment.

Population growth within Melbourne's north is expected to drive a significant demand for employment opportunities over the next decade. The MICLUP identifies the Northern SSIP as integral in addressing the shortfall in industrial land supply and floorspace across the Melbourne Metropolitan Area. Additionally, the project is expected to generate local employment opportunities by delivering new industrial allotments within a precinct specifically identified for future industrial and commercial growth. In doing so, it aligns with and supports the municipality's overarching vision for the growth, development and expansion of the industrial sector.

The proposed development of 752 Craigieburn Road is projected to provide the following job opportunities during its construction and ongoing use and maintenance:

- During the construction stage:
    - Civil works – Based on a 14-month construction process, including cartage companies, direct site employees and subcontractors, an average of 35 jobs per day over this period is expected.
    - Lot build works for 52 lots – Based on a 12-month construction process, including direct site employees and subcontractors, 520 construction jobs per day (i.e. 10 per day per lot) are expected.
    - Authority staff – A total of 50 jobs are expected to be created during the construction stage for such positions as supervision and checking plans.
- Once each lot becomes fully operational, i.e. construction is complete:
    - Ten people are expected to work at each lot on average during business hours. This equates to 520 ongoing jobs, i.e. 10 jobs per lot x 52 lots.
- Ongoing landscape, building and services infrastructure maintenance of the development site:
    - Landscape maintenance – 3 people x 3 days per month x 12 months = 108 days per year.
    - Building maintenance – 1 person x 2 days per month x 52 lots x 12 months =1,248 days per year.
    - Service infrastructure maintenance – 2 people x 1 day per month x 12 months = 24 days per year.

8.2 Consultation

As part of the proposal, extensive consultation with Hume City Council, Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, Government and Servicing Agencies has taken place.

8.2.1 Indigenous Stakeholders

A CHMP is currently being prepared for the project. A record of consultation with all parties, including the names of the Aboriginal representatives who participated in the assessment, will be included in the CHMP.

9 ENVIRONMENTAL RECORD OF PROPONENT

Dexus will abide by the Corporate Responsibility Policy which includes the group's environmental policies. These policies include the promotion of responsible environmental practices, minimization of risk to the environment and respect of indigenous and cultural heritage. Dexus will undertake the proposed works with the objective and targets to minimise their environmental footprint by working with stakeholders in compliance with legal and other requirements and be a role model for others to follow in development practices.

Dexus will engage suitably qualified and experienced consultants/contractors to carry out the proposed actions. Contractors will be required to achieve prequalification with Dexus by completing and passing the 'Potential Contractor WHSE Checklist' prior to being engaged to carry out the works. Checkpoints include:

- Identification of similar works previously undertaken;
- Presentation of EMP and accreditation compliance; and,
- Describing process for identifying relevant environmental legislation, Codes of Practice and guidelines applicable to each project.

Site and project specific EMP will also be provided prior to commencement of proposed works including specific reference to actions considered under this EPBC referral.

Dexus have not been subject to any known prosecution for environmental breaches.

10 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The National Strategy for Ecologically Sustainable Development (ESD) (1992) sets out the policy framework for the Australian Government to make decisions and take actions to pursue ecologically sustainable development (ESD).

The National Strategy requires government departments to develop institutional arrangements to ensure that the principles and objectives of ESD are delivered and sets out the following core objectives for achieving ESD:

- to enhance individual and community well-being by following a path of economic development that safeguards the welfare of future generations
- to provide for equity within and between generations
- to protect biological diversity and maintain essential ecological processes and life-support systems.

The project response to the EPBC Act principals of ESD are provided below:

The precautionary principle which states that a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation where there are threats of serious or irreversible environmental damage.

Robust environmental assessments have been completed to assess the potential impacts of the project including ecological assessments, and cultural and historic heritage assessments. The level of assessment undertaken for this project provides a sound basis for understanding the likely project impacts and in developing effective environmental management and mitigation measures.

The principle of inter-generational equity which states that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

By undertaking the development activity in accordance with best-practise industry standards, the proponent will mitigate any potential indirect impacts on matters of NES. This will ensure that quality and integrity of the surrounding environment is maintained for future generations.

The proposed mitigation and offset of impacts will ensure minimal impact of the project on matters of NES.

The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

The NTGVVP and Golden Sun Moth habitat being impacted within the study area does not represent high-quality examples of these matters. Species diversity is low, weed cover is high and the remaining vegetation within the surrounding landscape is generally modified. Given the patchy nature of the community and habitat within the study area, it is likely that, in the absence of conservation management, the NTGVVP remnants and Golden Sun Moth habitat will continue to degrade due to ongoing weed invasion.

However, in recent years, several high-quality remnants of the NTGVVP community and Golden Sun Moth habitat have been recorded in the Victorian Volcanic Plain bioregion, particularly west of Melbourne, with a number having been secured and currently managed in perpetuity for conservation purposes, (i.e., Ombersley, Cressy, Warrambeen). As such, although the removal of small, low quality remnants of NTGVVP and Golden

Sun Moth habitat, such as that proposed within the study area, contribute to a cumulative loss of the community, this has created an opportunity to conserve larger, higher quality remnants that occur in western Victoria.

The removal of 7.615 hectares of NTGVVP and 11.097 hectares of Golden Sun Moth habitat will result in the permanent protection, conservation and management of 49.1 hectares of NTGVVP and 50.4 hectares of Golden Sun Moth habitat, resulting in a clear, net conservation benefit for both matters.

It is therefore considered impractical to retain the small, isolated remnant of NTGVVP and low quality Golden Sun Moth habitat within the context of their existing condition, the proposed development within the study area and limited long-term prospects of maintaining and/or improving the biodiversity value of the matters given their poor condition, and ongoing threat of weed invasion and site degradation.

No other matters of NES are considered to be impacted by the proposed action.

Improved valuation, pricing and incentive mechanisms should be promoted.

This ESD principal is not considered to apply to this project.

11 CONCLUSION

Ecology and Heritage Partners were commissioned by Dexus to prepare a response to the DCCEEW request for Preliminary Documentation for the proposed development of land for industrial and commercial purposes at 752 Craigieburn Road East, Craigieburn, Victoria (the study area) (EPBC 2019/9093).

It has been determined under Section 75 of the EPBC Act that the proposed action is a controlled action, and that the development of the study area will likely have a significant impact on 'Listed threatened species and communities'. It has also been determined that the proposed action will be assessed by preliminary documentation.

The development footprint relevant to EPBC 2021/9093 covers approximately 13 hectares, with the adjacent areas to the north and east located within the proposed Craigieburn South Employment Area Precinct Structure Plan (PSP) (unprogrammed) and the Melbourne Strategic Assessment (MSA) program area (Figure 2).

Within the Stage 1 and Stage 2 disturbance footprint, the proposed development will impact on 7.615 hectares of NTGVVP and 11.097 hectares of Golden Sun Moth habitat (Figure 4).

Despite recent local records of Growling Grass Frog, Curly Sedge and Matted Flax-lily, targeted surveys undertaken across the site during the recommended survey period for each species did not record Growling Grass Frog or Matted Flax-lily within the study area. Targeted surveys were also undertaken for Victorian Grassland Earless Dragon and Striped Legless Lizard which did not record either species. As such, the proposed action will not result in a significant impact to Growling Grass Frog, Victorian Grassland Earless Dragon, Striped Legless Lizard, Curly Sedge or Matted Flax-lily.

No other matters of NES were identified during ecological investigations, nor are expected to occur within the study area or on adjoining areas.

Impacts to the 7.615 hectares of NTGVVP will be appropriately mitigated through the establishment of a high quality 49.1 hectare offset site that provides a clear conservation benefit and increase in conservation values when compared to the condition and extent of the community at the proposed clearing site.

Impacts to 8.8 hectares of Golden Sun Moth habitat associated with Stage 1 will be appropriately mitigated through the establishment of a 50.4 hectare offsite offset that provides a clear conservation benefit and increase in conservation values when compared to the condition and extent of the community at the proposed clearing site. Stage 2 GSM offsets are not addressed in this PD, although a high-level offset strategy is provided in Appendix 4.

The offset site will be protected through a Trust for Nature Deed of Covenant for the Conservation of Land (*Victorian Conservation Trust Act* 1972). An OMP has been prepared detailing the security and ongoing management actions required to secure the offset site (Appendix 3).

All other approval processes in accordance with relevant environmental policy in Victoria are being complied with.

As such, it is considered that the controlled action should be approved under the EPBC Act, and all impacts to matters of NES can be appropriately mitigated by the proposed offset and mitigation measures detailed within this document.

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FIGURES

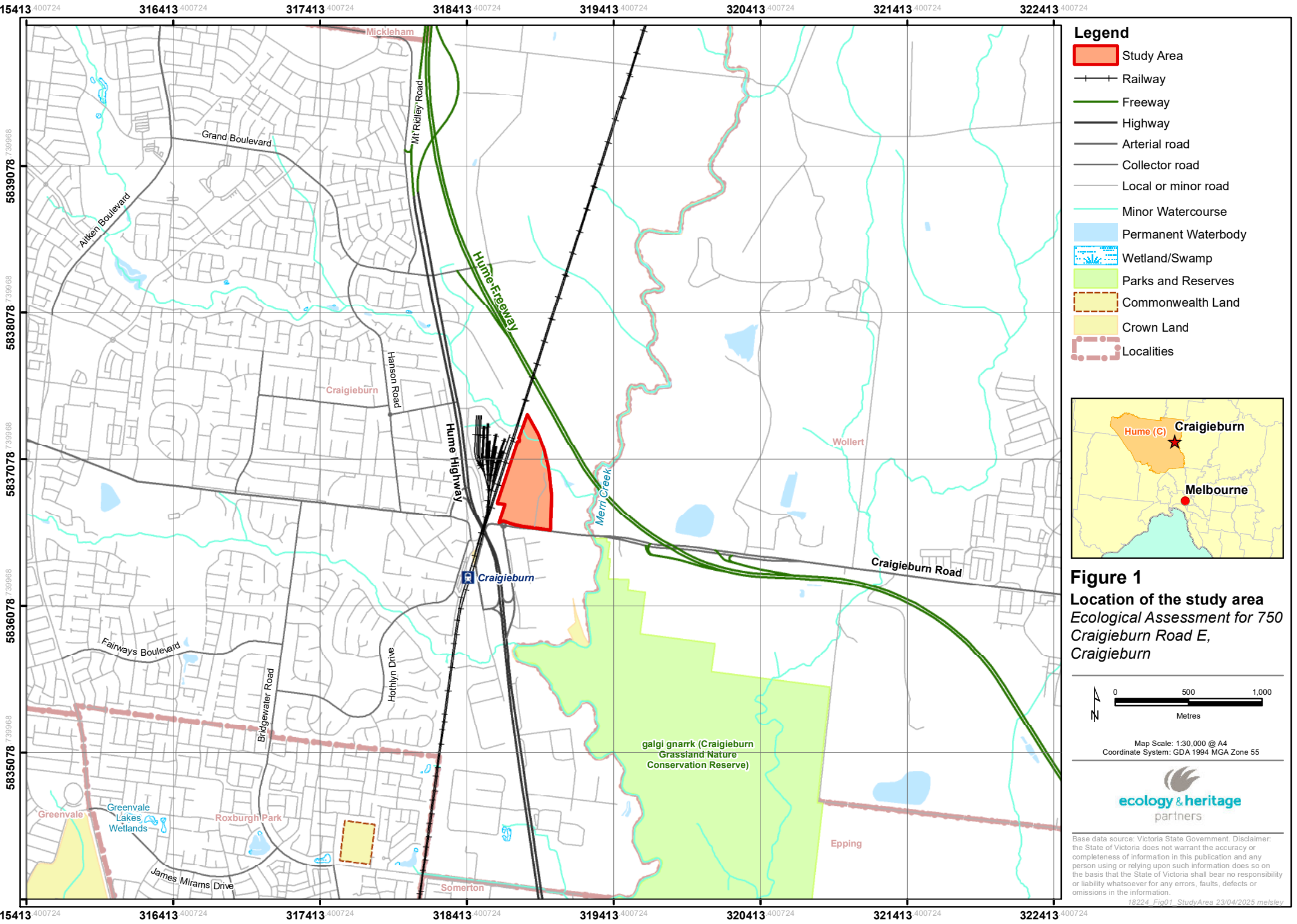

Figure 1

Location of the study area

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

18224_Fig01_StudyArea 23/04/2025 melsley

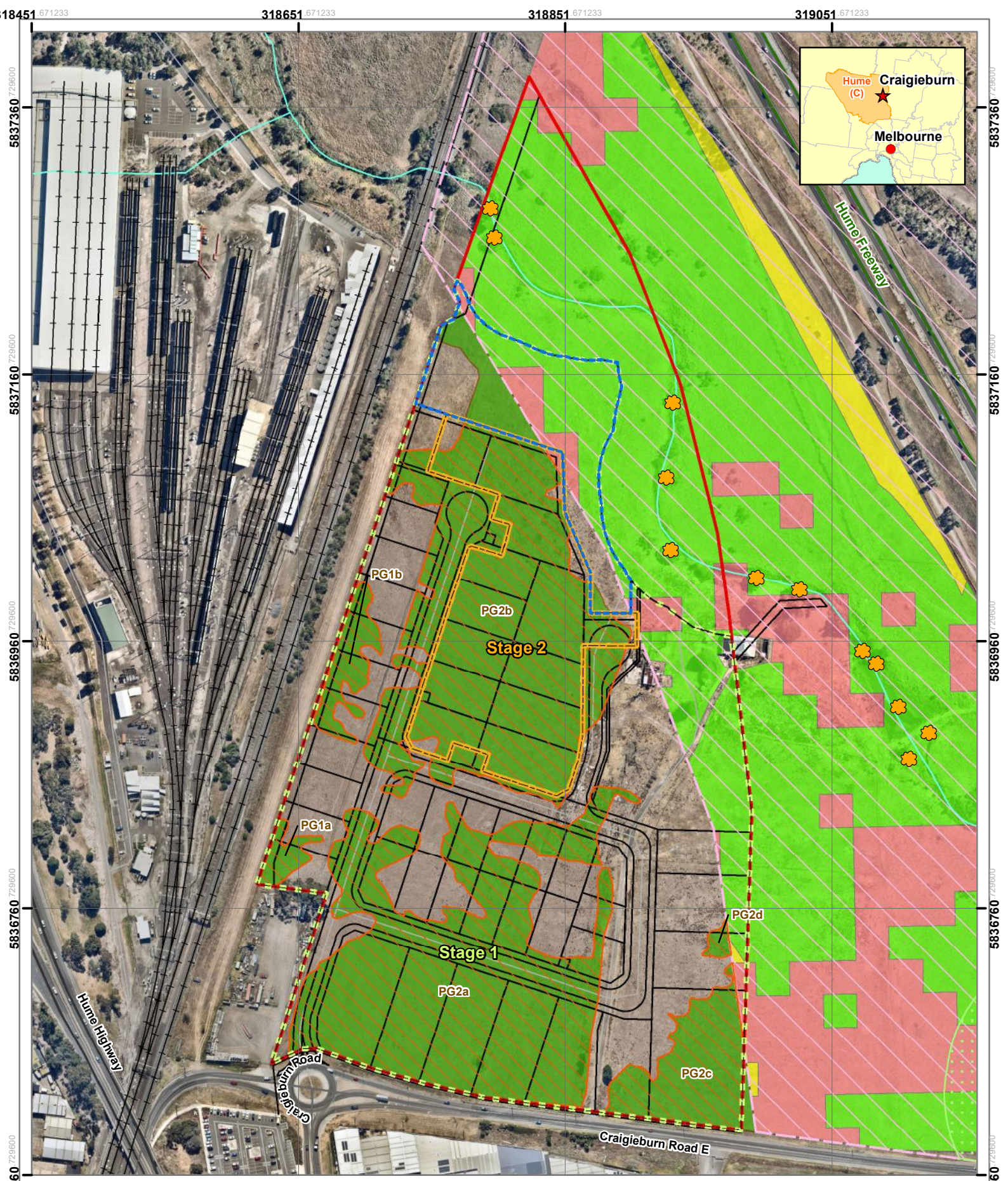

Figure 2

Ecological features

Ecological Assessment for 752 Craigieburn Road E, Craigieburn

Legend

- Study Area
- Conservation Area 34
- MSA BCS Extent
- Stage 1 boundary
- Stage 2 boundary
- Development plan
- Nature reserve

Native Vegetation

- Plains Grassland (EVC 132)
- Impacted vegetation

Environmental Mitigation Data:

- Scattered tree location

Habitat

- Golden Sun Moth habitat area
- Growling Grass Frog habitat area
- Native vegetation area and Matted Flax-lily habitat area

0 25 50
Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18224_Fig02_EcoFeat 5/05/2026 dmpv

ecology & heritage partners

Aerial source: Nearmap 2024

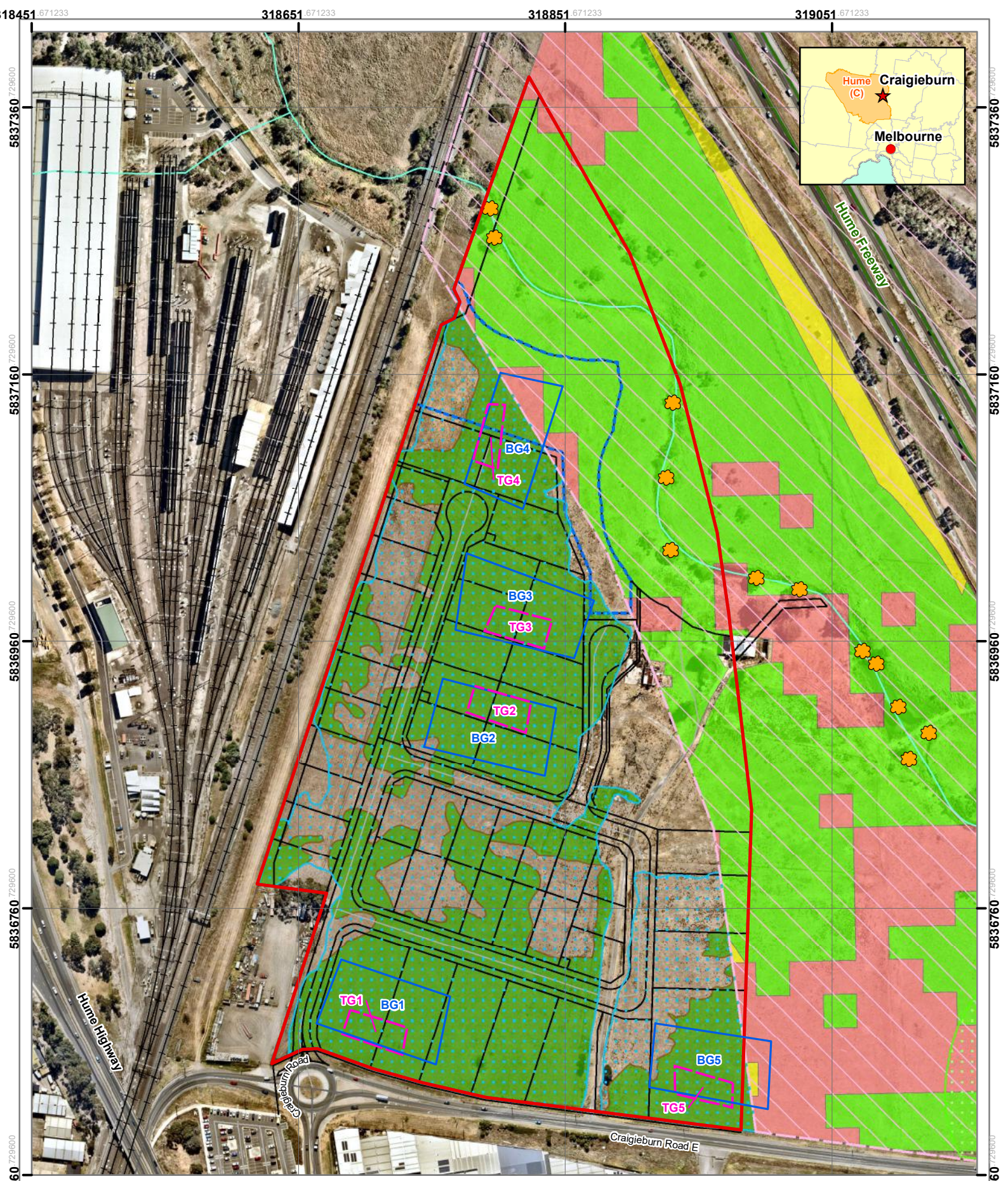

Figure 3

Victorian Grassland Earless Dragon survey locations

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

ecology & heritage partners

Legend

- Study Area
- Conservation Area 34
- MSA BCS Extent
- Development plan
- Nature reserve

Victorian Grassland Earless Dragon grids

- Burrow grid
- Tile grid
- Victorian Grassland Earless Dragon habitat

Native Vegetation

- Plains Grassland (EVC 132)

Environmental Mitigation Data:

- Scattered tree location

Habitat

- Golden Sun Moth habitat area
- Growling Grass Frog habitat area
- Native vegetation area and Matted Flax-lily habitat area

N

0 25 50

Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18224_Fig03_VGED_SurvLoc 18/02/2026 dvaladares

Aerial source: Nearmap 2024

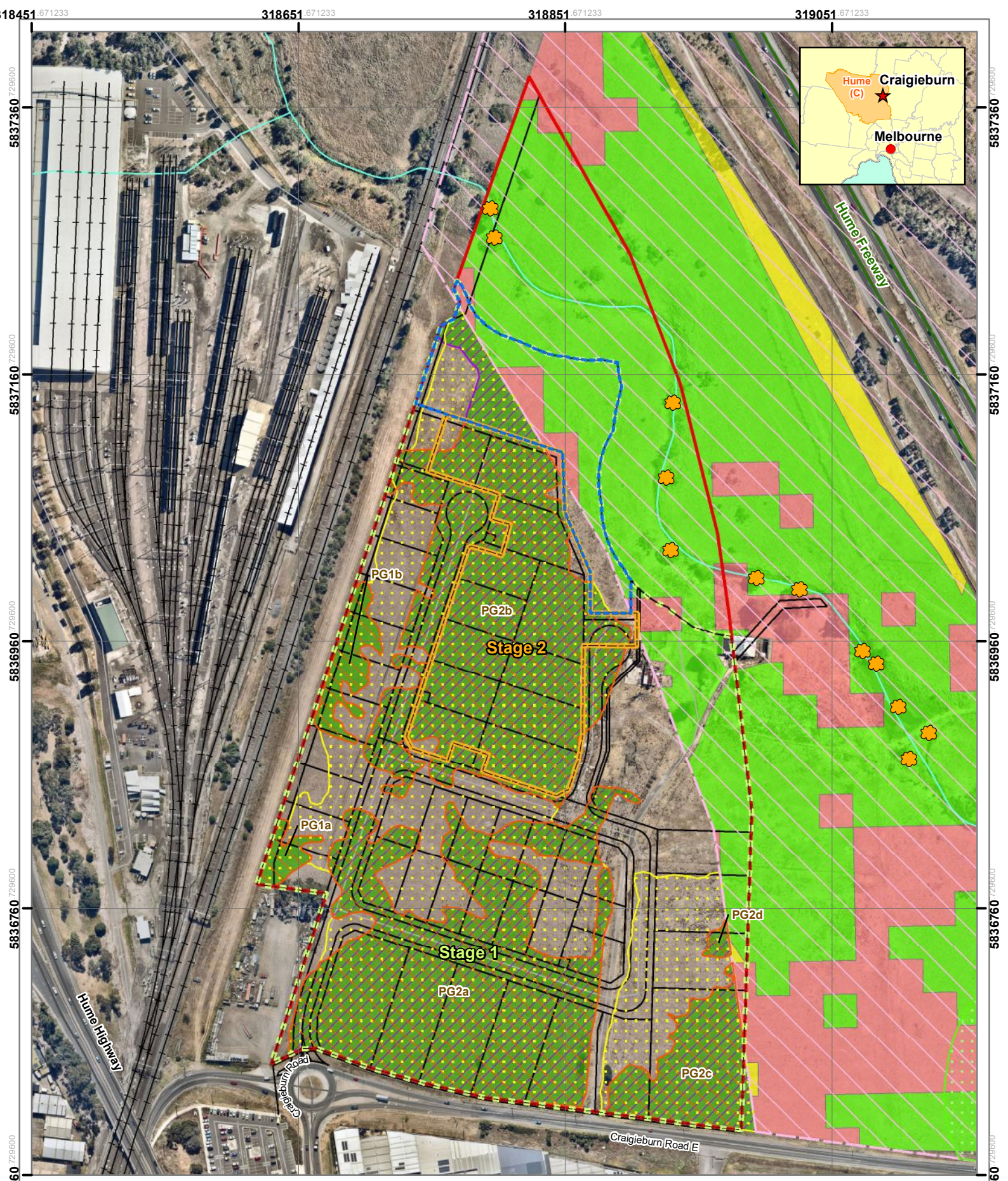

Figure 4a

Matters of National Environmental Significance

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

ecology & heritage partners

Legend

- Study Area
- Conservation Area 34
- MSA BCS Extent
- Stage 1 boundary
- Stage 2 boundary
- Nature reserve
- Development plan
- Golden Sun Moth habitat

Native Vegetation

- Plains Grassland (EVC 132)
- Natural Temperate Grassland of the Victorian Volcanic Plain (EPBC Act Listed Community)
- Impacted vegetation

Environmental Mitigation Data:

- Scattered tree location

Habitat

- Golden Sun Moth habitat area
- Growling Grass Frog habitat area
- Native vegetation area and Matted Flax-lily habitat area

N

0 25 50

Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18224_Fig04a_MNES 5/05/2026 dmpv

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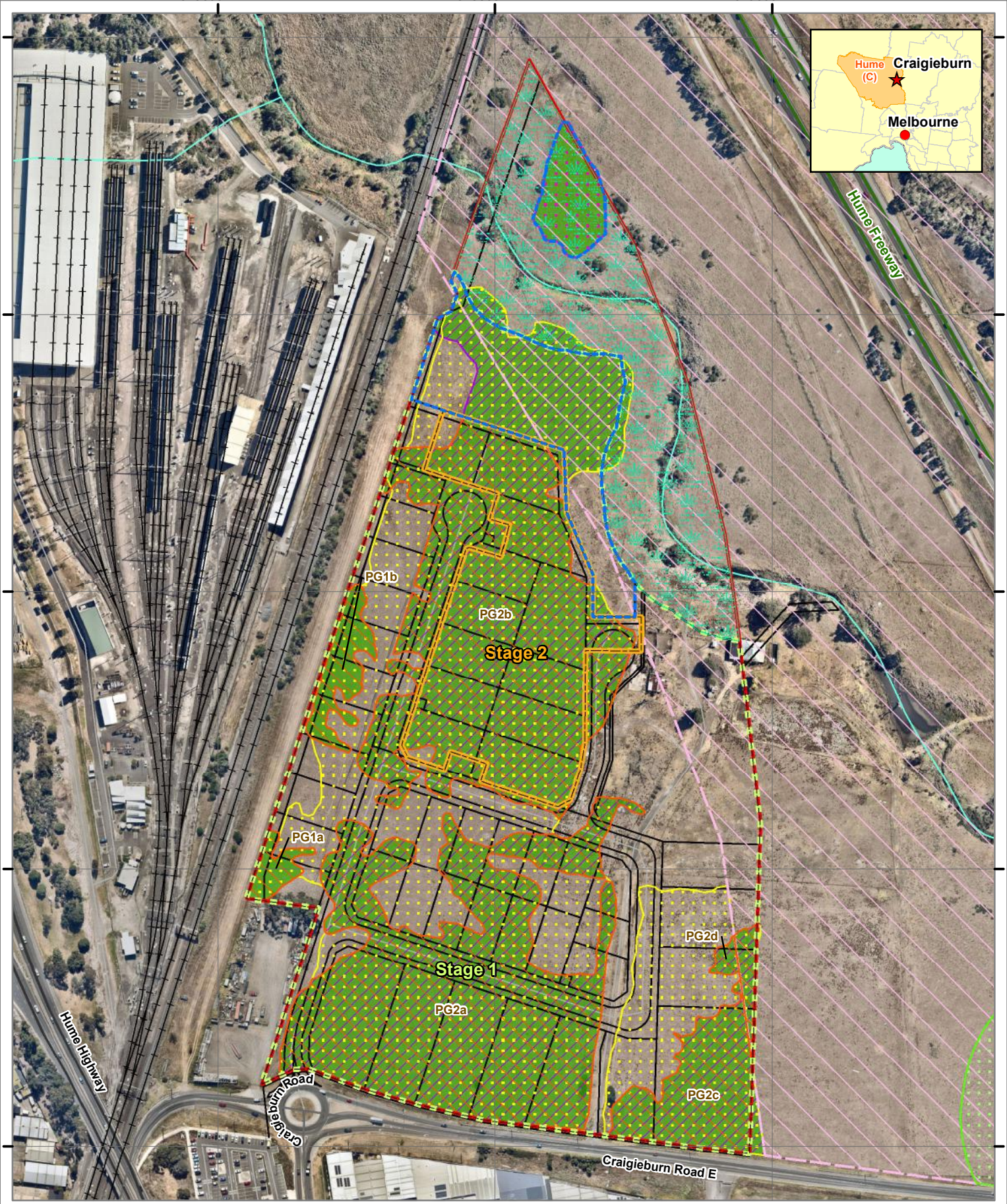


Figure 4b

Matters of National Environmental Significance

Ecological Assessment for 752 Craigieburn Road E, Craigieburn

ecology & heritage partners

Legend

- Study Area
- Conservation Area 34
- MSA BCS Extent
- Stage 1 boundary
- Stage 2 boundary
- Nature reserve
- Nature reserve (Enhancement area)
- Development plan
- Golden Sun Moth and Tussock Skink habitat
- Golden Sun Moth habitat

Native vegetation

- Plains Grassland (EVC 132)
- Natural Temperate Grassland of the Victorian Volcanic Plain (EPBC Act Listed Community)
- Impacted vegetation

N

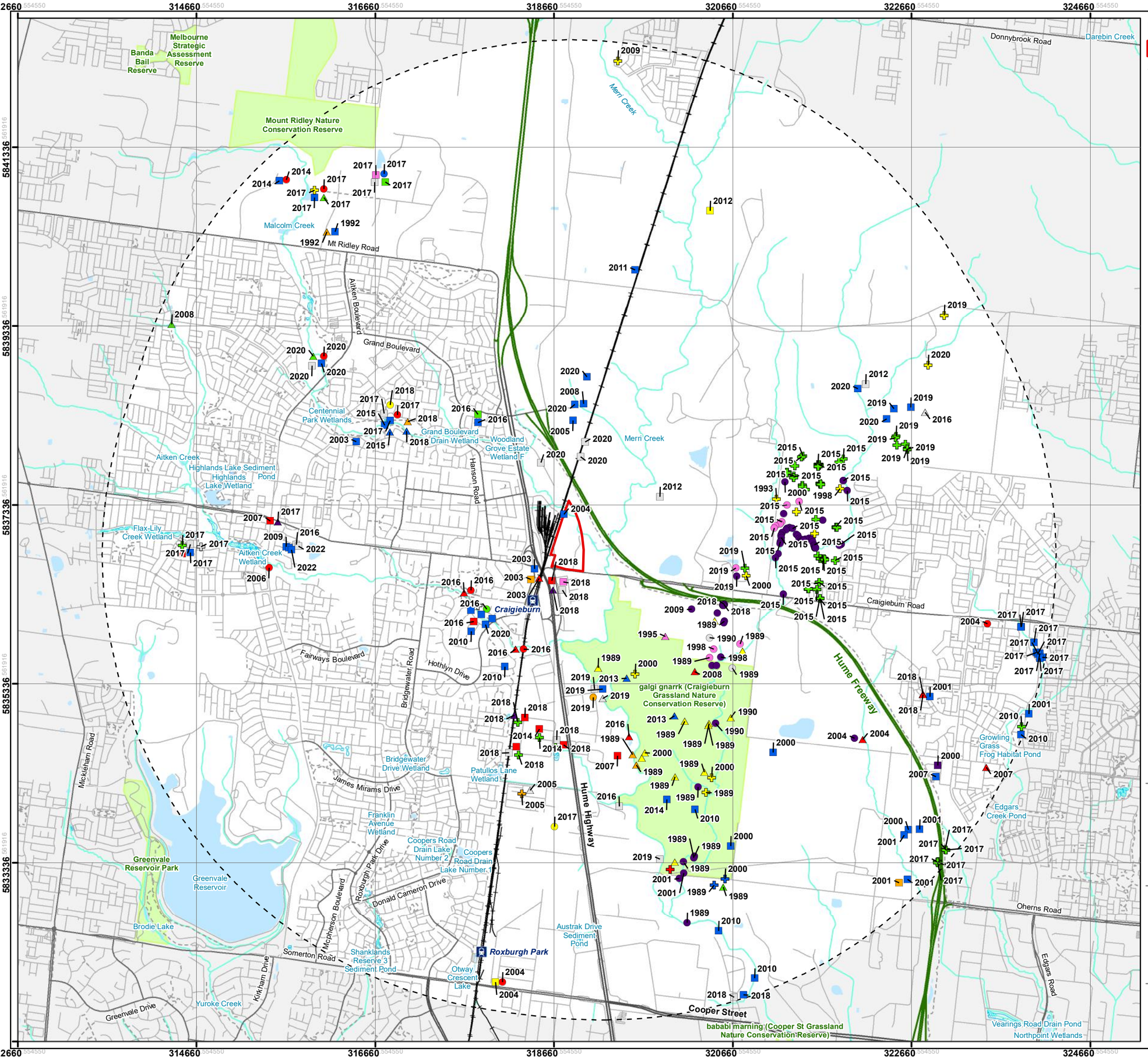
0 25 50

Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

18224_Fig04b_MNESFeat 5/05/2026 dmpv

Aerial source: Nearmap 2024



Legend

- Study Area

Significant flora

- Adamson's Blown-grass
- Austral Crane's-bill
- Austral Tobacco
- Basalt Peppercress
- Basalt Podolepis
- Bog Gum
- Brackish Plains Buttercup
- Curly Sedge
- Fragrant Saltbush
- Giant Honey-myrtle
- Glaucous Flax-lily
- Large-flower Crane's-bill
- Large-fruit Yellow-gum
- Matted Flax-lily
- Mugga
- Oval Wedge-fern
- Pale Swamp Everlasting
- Pale-flower Crane's-bill
- Plump Swamp Wallaby-grass
- Purple Blown-grass
- River Swamp Wallaby-grass
- Rye Beetle-grass
- Small Milkwort
- Spotted Gum
- Sticky Wattle
- Studley Park Gum
- Swamp Everlasting
- Tough Scurf-pea
- Western Golden-tip
- Winged Water-starwort

Figure 5

Previously documented significant flora within 5km of the study area

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

0 1 2

Kilometres

Map Scale: 1:40,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners

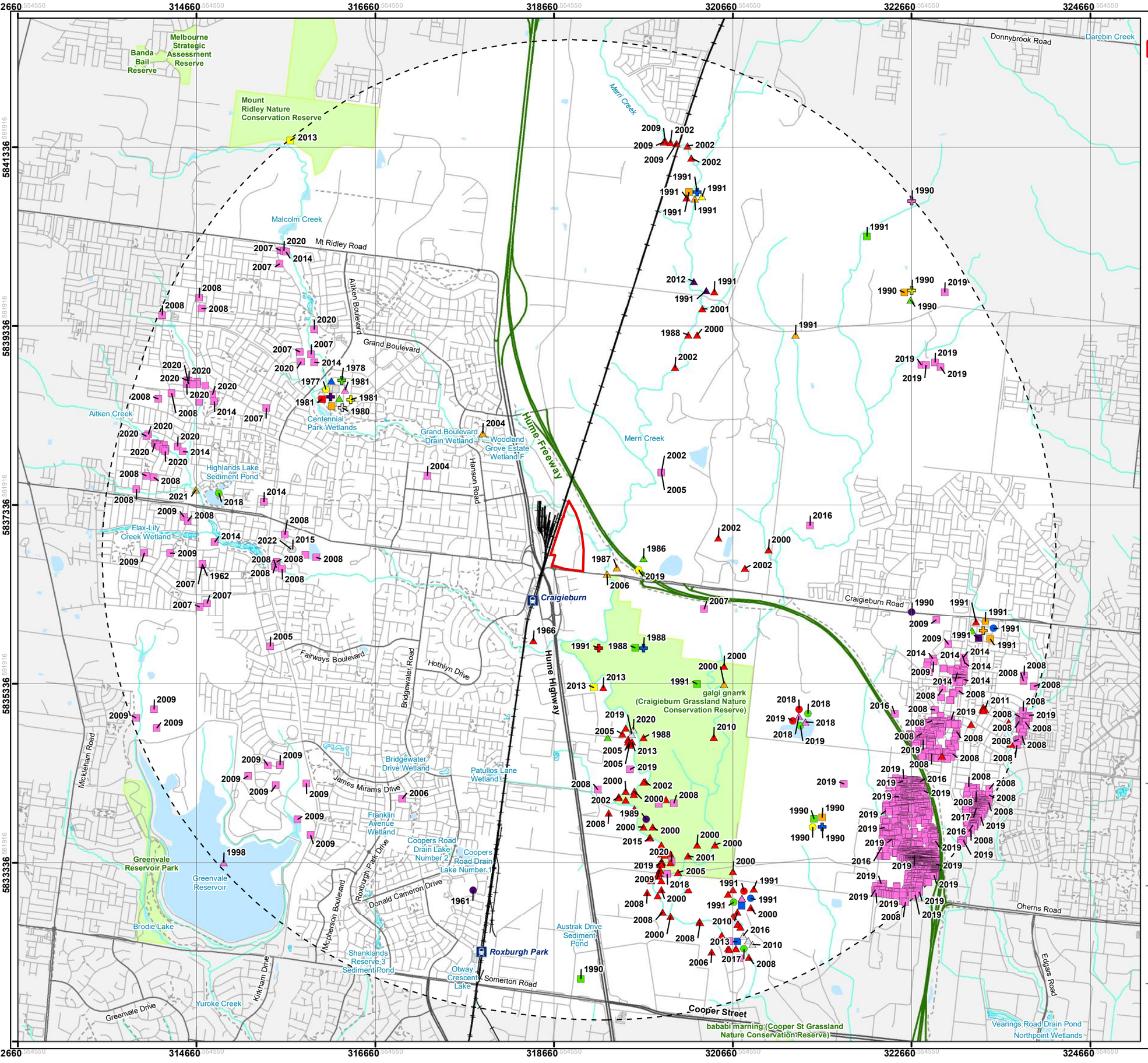


Figure 6

Previously documented significant fauna within 5km of the study area

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

0 1 2

Kilometres

Map Scale: 1:40,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

ecology & heritage partners

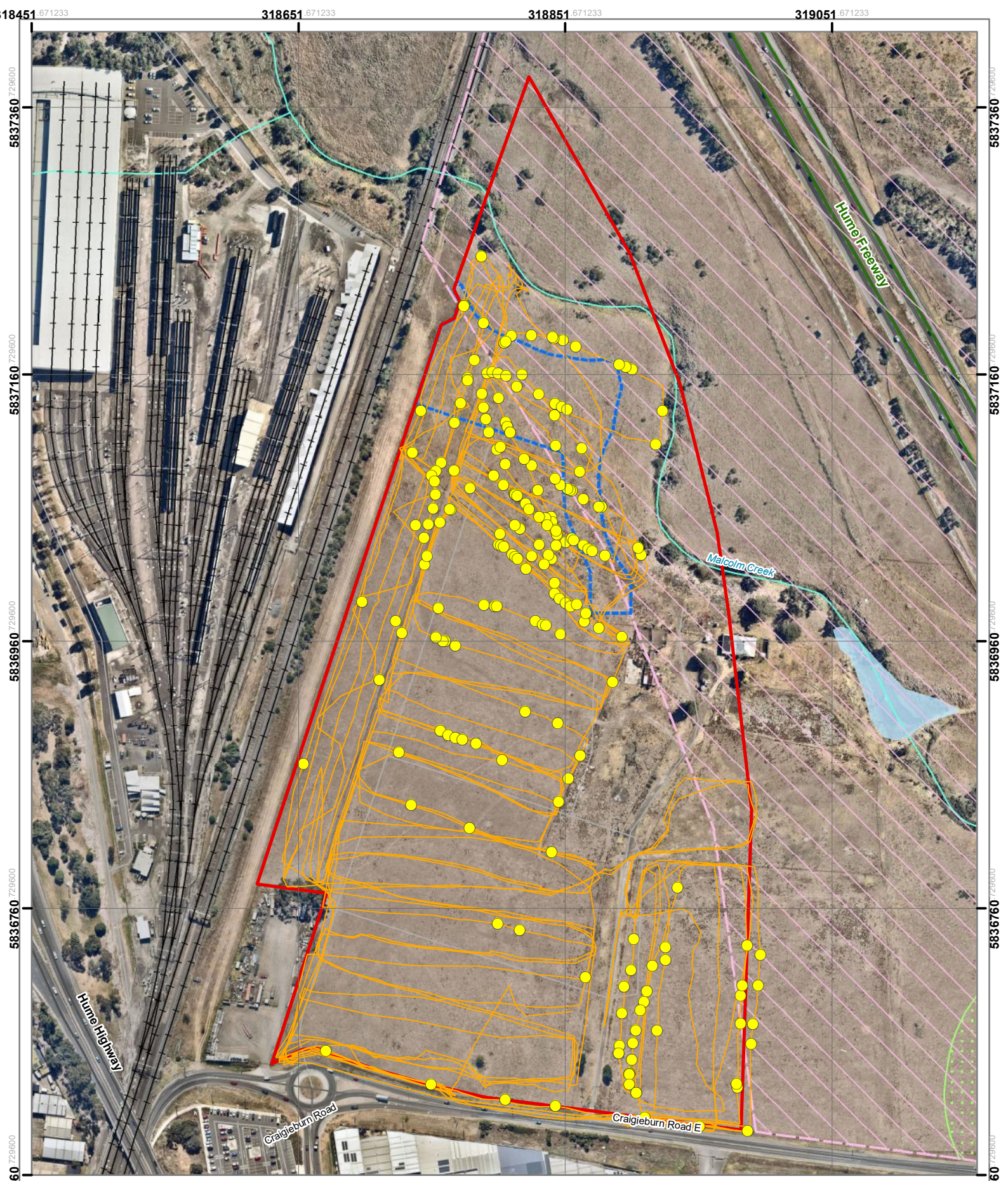


Figure 7

Golden Sun Moth habitat within the study area

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

Legend

- Study Area
- MSA BCS Extent
- Conservation Area 34
- Nature reserve
- Golden Sun Moth, Matted Flax-lily and Curly Sedge survey transects
- Golden Sun Moth records

N

0 30 60
Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

ecology & heritage partners

18224_Fig07_GSM_Hab_P 5/05/2026 dmpv

Aerial source: Nearmap 2024

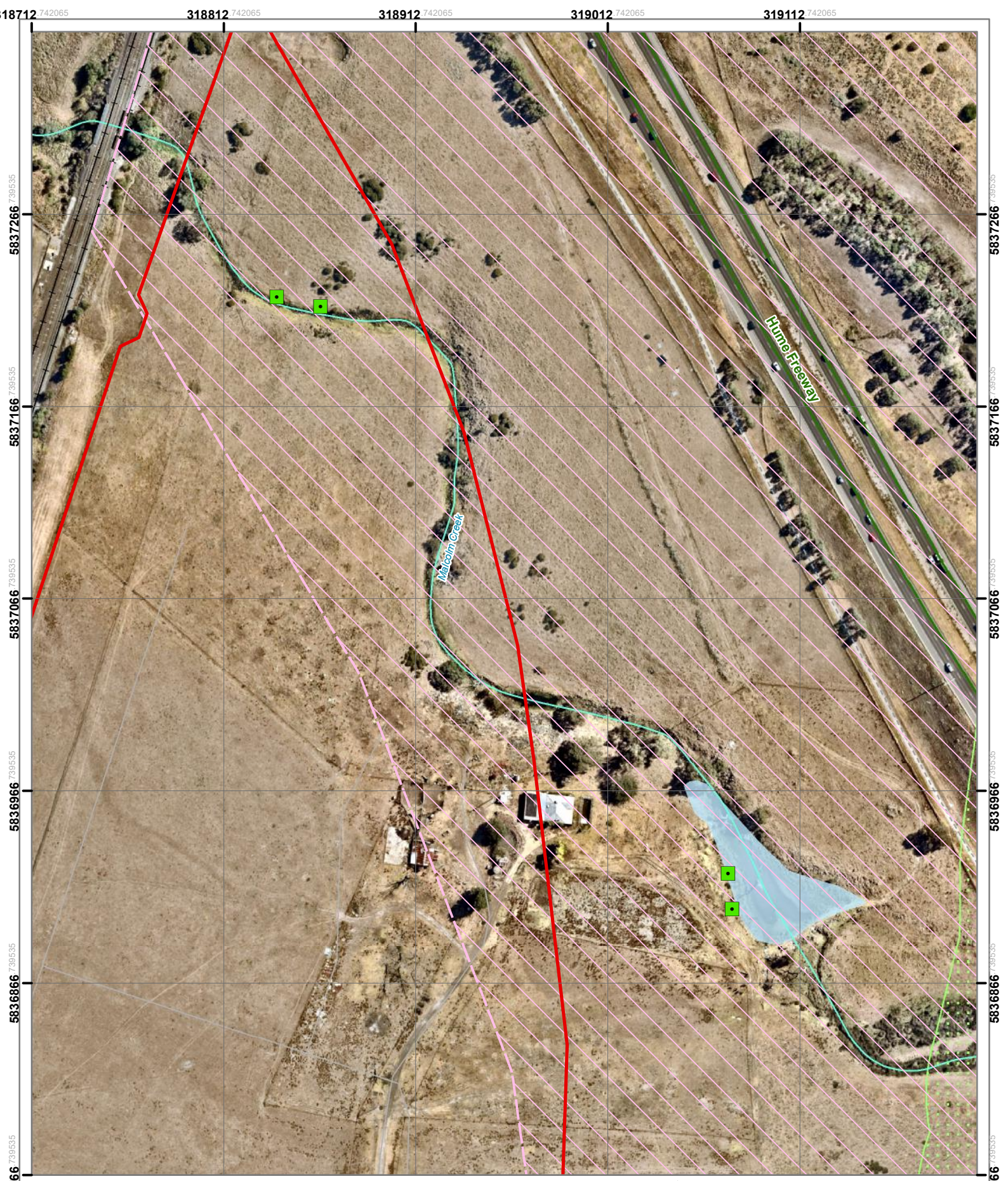


Figure 8

Growling Grass Frog survey results

Ecological Assessment for 750 Craigieburn Road E, Craigieburn

Legend

- Study Area
- MSA BCS Extent
- Conservation Area 34
- Call playback locations

N

0 25 50

Metres

Map Scale: 1:2,500 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

ecology & heritage partners

18224_Fig08_GGF_Results_P 18/02/2026 dvaladares

Aerial source: Nearmap 2024

APPENDICES

APPENDIX 1. VGED AND SLL SURVEY RESULTS

Table A1. Results of the Victorian Grassland Earless Dragon and Striped Legless Lizard surveys as illustrated on Figure 3. Notes: All 300 artificial burrows were checked during each tile check, i.e. 300 x 22 tile checks = 6,600 burrow checks, in which there was a high abundance of non-vertebrate species (mainly spiders). No vertebrate species were observed during any of the checks and thus data for the burrow checks has not been included in the below table. * Survey dates applicable to SLL; ^ Tiles not flipped (i.e. only observed for presence on top of tile); **Bold** indicates significant species.

Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
1 *	2/10/2024	1	13.1-18.3	15-28	SSE	10-30	22.6	No vertebrates observed	-
		2					23.4	No vertebrate species observed	-
		3					25.9	No vertebrate species observed	-
		4					25.4	No vertebrate species observed	-
		5					32.7	No vertebrate species observed	-
2 *	10/10/2024	1	13.9-18.8	11-28	N/SSE	20-70	24.9	No vertebrate species observed	-
		2					23.7	No vertebrate species observed	-
		3					28.6	No vertebrate species observed	-
		4					33.0	Garden Skink	1
		5					36.1	No vertebrate species observed	-
3 *	17/10/2024	1	20.7-23.8	37-40.8	N/NNE	70	-	No vertebrate species observed	-
		2					-	No vertebrate species observed	-
		3					-	No vertebrate species observed	-
		4					-	No vertebrate species observed	-
		5					-	No vertebrate species observed	-
4 *	24/10/2024	1	11.1-11.3	24.1-25.9	SW/SSE	45-95	14.0	No vertebrate species observed	-

Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
		2					16.2	No vertebrate species observed	-
		3					16.9	No vertebrate species observed	-
		4					17.6	No vertebrate species observed	-
		5					3.9	No vertebrate species observed	-
5 *	01/11/2024	1	14.5-13.9	18.5-20.4	S/SSW	70	16.0	No vertebrate species observed	-
		2					17.7	No vertebrate species observed	-
		3					16.5	No vertebrate species observed	-
		4					17.0	No vertebrate species observed	-
		5					12.0	No vertebrate species observed	-
6 *	06/11/2024	1	27.1-29.7	46.3-51.8	N	80-95	30.5	No vertebrate species observed	-
		2					30.6	Common Eastern Froglet	1
		3					32.2	No vertebrate species observed	-
		4					32.4	No vertebrate species observed	-
		5					31.5	No vertebrate species observed	-
7 *	14/11/2024	1	13.7-16.4	13-24.1	S/SSE	5-80	28.3	No vertebrate species observed	-
		2					36.5	No vertebrate species observed	-
		3					30.5	No vertebrate species observed	-
		4					39.6	No vertebrate species observed	-
		5					46.4	No vertebrate species observed	-
		Incidental					Incidental	**Tussock Skink** (located at spare tiles [Figure 3])	1
								Golden Sun Moth	11

Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
8 *	21/11/2024	1	12.7-14.8	7.4-11.1	N/WNW	0-95	20.2	No vertebrate species observed	-
		2					23.6	No vertebrate species observed	-
		3					21.3	No vertebrate species observed	-
		4					30.1	No vertebrate species observed	-
		5					31.4	No vertebrate species observed	-
		Incidental					Incidental	**Golden Sun Moth** **Tussock Skink**	88 1
9 ^	25/11/2024	1	15.7-17.3	7-14	S/SSE	50-90	21.6	No vertebrate species observed	-
		2					20.4	No vertebrate species observed	-
		3					22.6	No vertebrate species observed	-
		4					24.5	No vertebrate species observed	-
		5					25.1	No vertebrate species observed	-
		1					27.9	No vertebrate species observed	-
10 *	28/11/2024	1	19.3-21.1	7.4-11.1	S/SW/ SSE/ENE	10-80	27.1	Tiger Snake	1
		2					31.3	No vertebrate species observed	-
		3					31.6	Blue-tongued Lizard	1
		4					38.5	No vertebrate species observed	-
		5					28.8	No vertebrate species observed	-
11 ^	29/11/2024	1	22.1 – 29.1	7.6-20.5	E / SE / E	5-10	49.5	No vertebrate species observed	-
		2					53.1	No vertebrate species observed	-
		3					42.7	Blue-tongued Lizard	1
		4					35.9	Garden Skink	2

Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
		5					32.6	No vertebrate species observed	-
12	02/12/2024	1	23.7- 30.9	24.1 – 33.5	N / NW	5	33.4	No vertebrate species observed	-
		2					35.2	No vertebrate species observed	-
		3					38.9	No vertebrate species observed	-
		4					40.6	Garden Skink	1
		5					46.5	**Golden Sun Moth**	10
13^	05/12/2024	1	22.7-27.3	1.8-16.7	N/ENE/SW	0	35.8	No vertebrate species observed	-
		2					40.2	No vertebrate species observed	-
		3					50.7	No vertebrate species observed	-
		4					44.7	No vertebrate species observed	-
		5					48.7	No vertebrate species observed	-
14	06/12/2024	1	26.4 - 29.6	23.5 – 33.5	N / NW	0	36.7	No vertebrate species observed	-
		2					38.1	No vertebrate species observed	-
		3					45.4	No vertebrate species observed	-
		4					42.7	No vertebrate species observed	-
		5					40.3	No vertebrate species observed	-
15	09/12/2024	1	15.5 – 22.1	13.3 -15	S / SE	5-10	30.9	No vertebrate species observed	-
		2					27.6	No vertebrate species observed	-
		3					23.8	Blue-tongued Lizard	1
		4					21.4	No vertebrate species observed	-
		5					20.9	No vertebrate species observed	-
16	11/12/2024	1	18.1-19.9	7.4-13.3	W/NE/SSW	0-25	48.4	No vertebrate species observed	-

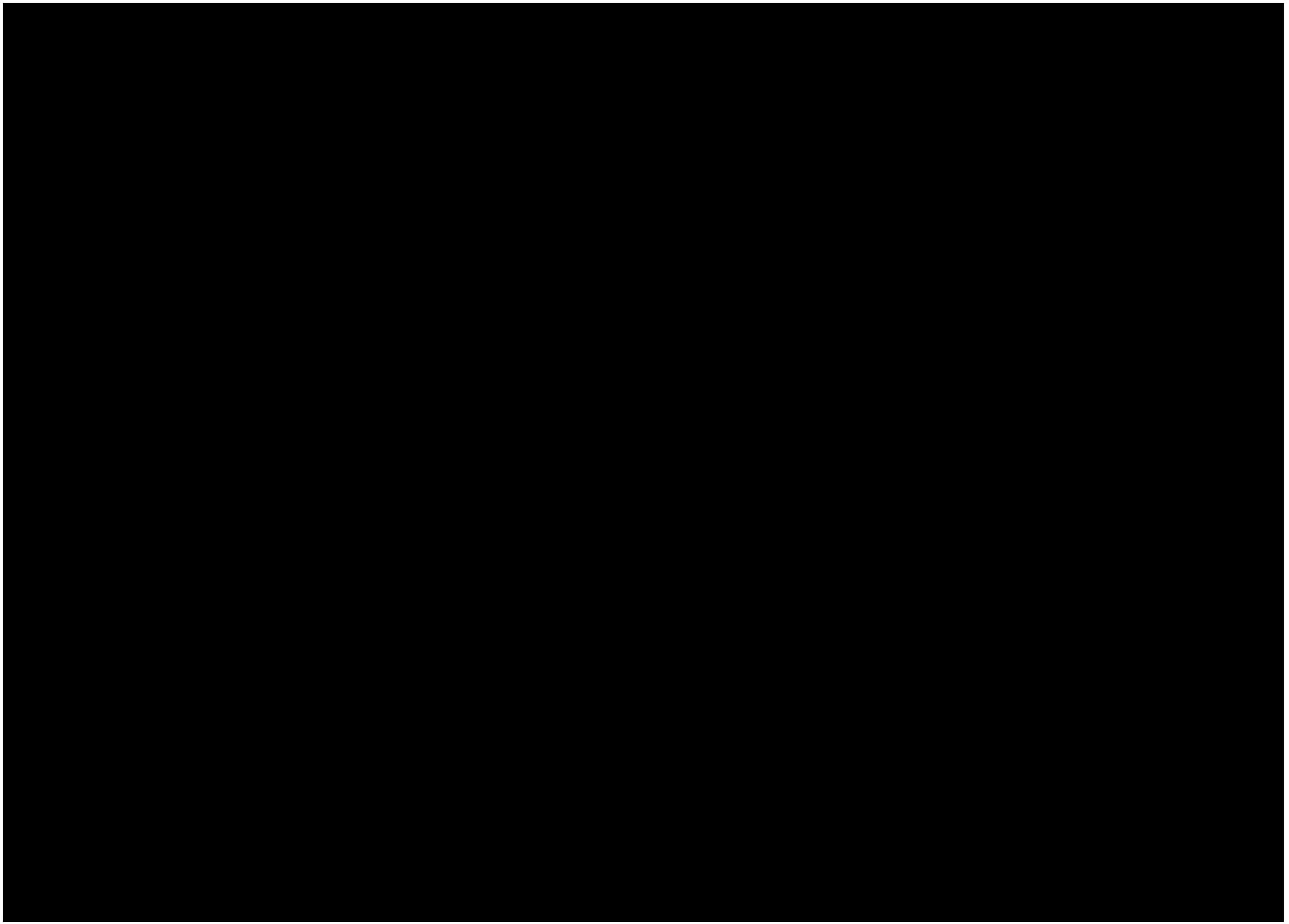
Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
		2					39.2	No vertebrate species observed	-
		3					32.7	No vertebrate species observed	-
		4					38.5	No vertebrate species observed	-
		5					51.2	No vertebrate species observed	-
		Incidental					Incidental	Golden Sun Moth	1
17	12/12/2024	1	21.2	9.3	NW	0	-	No vertebrate species observed	-
		2					-	No vertebrate species observed	-
		3					-	No vertebrate species observed	-
		4					-	No vertebrate species observed	-
		5					-	No vertebrate species observed	-
18	16/12/2024	1	29.3 – 36.4	33.5 – 44.7	N /NNE	5-10	36.7	No vertebrate species observed	-
		2					39.2	No vertebrate species observed	-
		3					45.9	No vertebrate species observed	-
		4					52.1	Blue-tongued Lizard	1
		5					55.6	Garden Skink	2
19	18/12/2024	1	18.5 – 21.3	20.5 – 38.1	S / SE	20-40	33.6	No vertebrate species observed	-
		2					35.5	No vertebrate species observed	-
		3					39.4	Blue-tongued Lizard	1
		4					37.8	No vertebrate species observed	-
		5					45.6	No vertebrate species observed	-
20	23/12/2024	1	15.3-15.6	20.4-35.2	SW/WSW	75	25.9	No vertebrate species observed	-
		2					22.5	No vertebrate species observed	-

Tile Check #	Date	Grid #	Ambient Temp (°C)	Wind speed (km/ph)	Wind direction	Cloud Cover (%)	Tile Temp C°	Observations	No.
		3					20.9	No vertebrate species observed	-
		4					25.3	No vertebrate species observed	-
		5					30.0	No vertebrate species observed	-
21	27/12/2024	1	18.7-19.7	16.7-31.5	W/WSW	90-95	-	No vertebrate species observed	-
		2					-	No vertebrate species observed	-
		3					-	No vertebrate species observed	-
		4					-	No vertebrate species observed	-
		5					-	No vertebrate species observed	-
22	30/12/2024	1	19.8-24.6	1.8-20.4	W/S/SE	10-30	42.3	No vertebrate species observed	-
		2					38.1	No vertebrate species observed	-
		3					42.5	No vertebrate species observed	-
		4					46.4	No vertebrate species observed	-
		5					56.0	No vertebrate species observed	-
		Incidental					Incidental	Golden Sun Moth	1

APPENDIX 2. EPBC OFFSET CALCULATORS

Appendix 2.1 – Natural Temperate Grassland of the Victorian Volcanic Plain (Stage 1 & 2)

Appendix 2.2 – Golden Sun Moth (Stage 1)



APPENDIX 3. OFFSET MANAGEMENT PLAN

APPENDIX 4. OFFSET MANAGEMENT STRATEGY (STAGE 2)

Golden Sun Moth Offset Strategy – EPBC 2021/9093: Stage 2

Date: 5th May 2026

Author: [redacted]

Reference: 18224

1 Introduction

This Golden Sun Moth *Synemon plana* Offset Strategy has been prepared to demonstrate that sufficient Golden Sun Moth (GSM) offsets are available and can be secured to address the residual impacts associated with Stage 2 of the proposed action. The Strategy is provided in the context of a staged development where Stage 2 offsets are being deferred, with the intent that any approval would condition commencement of Stage 2 on offsets being secured to the satisfaction of the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).

The Strategy provides a clear pathway for securing Stage 2 offsets, including:

- identification of available third-party offset opportunities;
- the proposed security mechanism and management framework;
- a programme for monitoring, reporting and audit; and,
- indicative procurement pathways.

2 Stage 2 Offset Requirements and Assumptions

2.1 Assumed Stage 2 Offset Obligation

For the purpose of demonstrating offset availability, this Strategy assumes that between 11 and 13 hectares of confirmed GSM habitat will be required to offset Stage 2 impacts, with habitat quality broadly comparable to the impact habitat (i.e. similar quality scores applied in the Offset Assessment Guide inputs to that of Stage 1). This assumption is adopted for planning certainty and will be confirmed via the final Offset Assessment Guide calculator outputs submitted and part of the future Offset Management Plan to DCCEEW prior to Stage 2 commencement.

2.2 Confirmatory step prior to Stage 2

Prior to commencement of Stage 2, the Proponent will provide DCCEEW with:

1. the completed Offset Assessment Guide calculator for Stage 2 impacts; and,
2. A site-specific Offset Management Plan (OMP) for review and approval; and,
3. An executed security documentation demonstrating offsets are secured and enforceable.

This approach is consistent with staged approvals that condition later stages on securing offsets.

3 Available Offset Options

The Proponent has currently identified three GSM offset options that are available to secure the anticipated Stage 2 offset requirement.

3.1 Candidate Offset Site 1

A third-party offset opportunity is available on a property near Heathcote South within the Goldfields bioregion and North Central CMA, supporting derived grasslands and mapped EVCs (Heathy Dry Forest, Grassy Woodland and Alluvial Terraces Herb-rich Woodland/Creekline Grassy Woodland Mosaic). The property has been assessed by independent ecologists in 2020 and 2025, with targeted GSM surveys undertaken (including surveys in Nov–Dec 2025 in accordance with GSM significant impact guidelines), resulting in approximately 38 hectares of confirmed GSM habitat occurring on the property.

3.2 Candidate Offset Site 2

A second third-party option is available on a property in Redesdale within the North Central CMA and Goldfields bioregion, based on surveys conducted in the 2025 GSM flight season. Although the full extent of confirmed GSM habitat is unknown, the available habitat exceeds what is required to compensate for the Stage 2 impacts associated with the proposed action.

3.3 Candidate Offset Site C

The Proponent has identified a third Golden Sun Moth offset site located in Central Victoria that supports confirmed Golden Sun Moth habitat capable of compensating for the anticipated Stage 2 impacts of the proposed action. The site has been subject to recent Golden Sun Moth surveys undertaken during suitable flight season conditions, confirming the presence of habitat consistent with Commonwealth survey guidelines and offset eligibility requirements.

The extent and quality of confirmed habitat available at this site is sufficient to meet the assumed Stage 2 offset requirement and can be secured as a standalone offset. If this option is chosen, site details (location, survey evidence, and landowner agreement pathway) will be provided to DCCEEW subject to landowner consent and commercial-in-confidence arrangements consistent with third-party offset market practice.

4 Offset Delivery and Security Mechanism

4.1 Preferred Security Mechanism

The Strategy proposes securing the Stage 2 GSM offset through a permanent on-title protection mechanism, most practically a Trust for Nature (TfN) Deed of Covenant, consistent with the preferences indicated by landowners in the fee proposals received to date, and standard EPBC offset delivery practice in Victoria. Fee proposals received to date include TfN covenant registration and stewardship fees and confirm that the offset requires permanent on-title protection.

Consistent with EPBC Act offset policy, the OMP will be attached to the on-title agreement, requiring the landowner/manager to implement management actions for a minimum 10-year active period, and to maintain the achieved condition in perpetuity thereafter.

4.2 Offset Management Plan (OMP) – staged preparation and approval

This Strategy provides the framework for offset delivery and confirms availability; however, a site-specific OMP will be prepared once the final offset site(s) are selected and will be submitted to DCCEEW for review and approval prior to Stage 2 habitat removal.

The Proponent will undertake landowner consultation and secure written consent (and/or provide details under confidentiality arrangements) prior to formally nominating any third-party site to DCCEEW.

5 Offset Implementation

5.1 Management Objectives

The objectives of the Stage 2 GSM offset are to:

- Secure permanent legal protection of confirmed GSM habitat;
- Protect the offset area from manageable threats (uncontrolled grazing, weeds, pest animals, soil disturbance); and,
- Improve and/or maintain GSM habitat condition and performance targets, measured through monitoring and reporting.

5.2 Core Management Measures

The OMP will include (as relevant to the selected site), management measures and performance targets related to:

- Access control (stock/vehicle exclusion as required; fencing standard; boundary marking);
- Weed control focusing on high-threat weeds with minimal soil disturbance and targeted application;
- Biomass control (strategic pulse grazing and/or ecological burning outside the GSM flight season, to maintain suitable habitat structure and inter-tussock space);
- Pest animal control (e.g., rabbits/hares/foxes) to prevent loss of recruitment and habitat degradation;
- Land-use prohibitions typical for GSM offsets (no cropping, no pasture improvement, no cultivation, no rock removal, no hydrology alteration, etc., as applicable).

5.3 Monitoring Program

Consistent with established GSM offset practice:

- Baseline monitoring to establish habitat quality and population baseline (where not already competed);

- GSM monitoring will typically occur biennially (i.e. Years 2, 4, 6, 8, 10) using Commonwealth-recognised GSM survey procedures during the flight season and suitable conditions;
- Vegetation monitoring will be conducted at intervals sufficient to demonstrate achievement and maintenance of habitat structure/quality targets (including photo points, condition assessments, weed mapping, and habitat structure metrics).

5.4 Adaptive Management

The OMP will incorporate an adaptive management framework to respond to monitoring findings or major events (i.e. drought/fire) and will provide for plan review in consultation with DCCEEW and the landowner/manager.

5.5 Reporting and Auditing

The Proponent will provide DCCEEW with monitoring and implementation reports at defined intervals, including evidence against completion criteria and any corrective actions.

Auditing will be undertaken by an independent ecologist at key milestones (i.e. end of Year 1, Year 4, Year 8, and Year 10) to confirm implementation and trajectory towards completion criteria.

6 Implementation Commitments

To provide DCCEEW with confidence that offsets will be secured prior to Stage 2, the Proponent commits that:

- No Stage 2 GSM habitat removal will occur until Stage 2 GSM offsets are secured (Offset Trade Agreement executed; covenant registered; OMP approved and active).
- The Proponent will provide DCCEEW with:
    - Completed Offset Assessment Guide calculator outputs for Stage 2,
    - Executed security and management documentation prior to Stage 2 commencement.
- The offset site(s) will be protected through a permanent on-title mechanism and managed for a minimum 10-year active period, with outcomes maintained in perpetuity.

7 Conclusion

This Strategy demonstrates that sufficient GSM offsets are available to address the anticipated Stage 2 GSM offset requirement (11–13 ha) and provides a clear, deliverable pathway for securing those offsets prior to Stage 2 commencement. The identified offset options comprise confirmed Golden Sun Moth habitat capable of being protected through permanent, legally enforceable on-title mechanisms, supported by a 10-year management program with outcomes maintained in perpetuity. The staged approach ensures that offsets will be fully secured and approved prior to any Stage 2 habitat removal, providing an appropriate level of certainty and proportionality relative to the residual impacts of the proposed action.