Final Report

Biodiversity Assessment: Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria

Prepared for

Brimbank City Council

November 2016

Ecology and Heritage Partners Pty Ltd

MELBOURNE: 292 Mt Alexander Road, Ascot Vale VIC 3032 **GEELONG:** 230 Latrobe Terrace, Geelong West Vic 3218
BRISBANE: Level 22, 127 Creek Street, Brisbane QLD 4000 **ADELAIDE:** 22 Greenhill Road, Wayville SA 5034
CANBERRA: PO Box 6067, O'Connor ACT 2602 **SYDNEY:** Level 5, 616 Harris Street, Ultimo, NSW, 2007
www.ehpartners.com.au | (03) 9377 0100

DOCUMENT CONTROL

Assessment	Biodiversity Assessment
Address	Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria
Project number	8521
Project manager	Andre Schmitz (Senior Zoologist) / Clare Kenny (Senior Project Manager / Botanist)
Report reviewer	Tom Wright (Senior Botanist)
Other EHP staff	Lyndsey Vivian (Consultant Botanist)
Mapping	Monique Elsley (GIS Co-ordinator)
File name	8521_EHP_BonThomasReserveDeerPark_Draft_17012017
Client	Brimbank City Council
Bioregion	Victorian Volcanic Plain
CMA	Port Philip and Westernport
Council	Brimbank City Council

Report versions	Comments	Comments updated by	Date submitted
Draft 1	-	Andre Schmitz	11/11/2016
Draft 2	-	Clare Kenny	18/01/2017
Final		Clare Kenny	20/01/2017

Acknowledgements

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

- Paul Battaglia (Brimbank City Council) for project information; and,
- The Victorian Department of Environment, Land, Water and Planning for access to ecological databases.

SUMMARY

Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Brimbank City Council to conduct a Biodiversity Assessment at Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria. This assessment was undertaken to identify and characterise the vegetation on-site, determine the presence (or likelihood thereof) of any significant flora and fauna species and/or ecological communities and address any implications under Commonwealth and State environmental legislation.

Methods

A field assessment was undertaken on 17 and 21 October 2016 to obtain information on terrestrial flora and fauna values within the study area. A habitat hectare assessment was undertaken in conjunction with the flora survey. Vegetation within the study area was assessed according to the habitat hectare methodology, which is described in the Vegetation Quality Assessment Manual.

Results

Flora

Eighty-three (83) flora species (26 indigenous and 57 non-indigenous or introduced) were recorded within the study area during the field assessment. The nationally significant species Spiny Rice-flower *Pimelea spinescens* subsp*. spinescens* was recorded during the assessment.

Fauna

Significant fauna habitat has been previously identified within the study area, with targeted surveys performed in 2016 and early 2017.

Communities

Vegetation within the study area was consistent with the condition thresholds for one ecological community of national conservation significance (Natural Temperate Grassland of the Victorian Volcanic Plain) and one of State conservation significance (Western (Basalt) Plains Grassland).

Permitted Clearing Assessment (the Guidelines)

Two scenarios of native vegetation clearing were investigated in this report: a High Priority scenario, which includes a sports pavilion and associated linear works, and a Low Priority scenario, which includes additional clearing for the extension of another sports field.

The study area is within Location A, with 0.373 hectares of native vegetation proposed to be removed in the High Priority scenario, and 0.257 hectares proposed to be removed under the Low Priority scenario (with a total area of 0.630 hectares to be cleared when including prior clearing). As such, the permit application falls under the Low Risk-based pathway.

The offset requirement for native vegetation removal is 0.018 General Biodiversity Equivalence Units (BEU) under the High Priority Scenario. An additional 0.120 General BEUs would be required for clearing associated with the Low Priority Scenario. If both scenarios eventuate the total offset requirement would be 0.138 General BEUs. There are no specific offsets required under either scenario.

Legislative and Policy Implications

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act - Commonwealth)

One flora species (Spiny-rice flower) and one ecological community (Natural Temperate Grassland of the Victorian Volcanic Plain) listed under the EPBC Act is present within the study area. There is suitable habitat within the study area for two fauna species (Golden Sun Moth and Striped Legless Lizard) listed under the EPBC Act, with targeted surveys currently underway. The High Priority development scenario will impact on 0.3734 hectares of NTGVVP, but will avoid the identified population of Spiny-rice flower. The identified population of Spiny Rice-flower is close to the boundary of the Low Priority development scenario. Additional Spiny Rice-flower populations may be present within the study area but were not detected due to the suboptimal time of the survey. A referral to the Commonwealth Environment Minister is advised to assess the impacts of the project under the EPBC Act. The potential significant impacts of the project on Spiny Rice-flower, Striped Legless Lizard and Golden Sun Moth should be assessed against the relevant EPBC Act significant impact guidelines for the species, once targeted surveys have been completed.

Flora and Fauna Guarantee Act 1988 (FFG Act - Victoria)

There is suitable habitat within the study area for several species listed or protected under the FFG Act. The study also supports the FFG Act listed Western (Basalt) Plains Grassland Community. A permit under the FFG Act will be required to remove any species or ecological communities listed under the EPBC Act, as the study area is located on public land. The proponent should allow up to six weeks to obtain a FFG Act permit through DELWP.

Planning and Environment Act 1987

A Planning Permit from Brimbank City Council is required to remove, destroy or lop any native vegetation. The application will be referred to DELWP if greater than 0.5 hectares of vegetation is proposed for removal.

Other Legislation and Policy

Implications relating to other local and State policy (*Wildlife Act 1975*, *Catchment and Land Protection Act 1994*, local government authorities) as well as additional studies or reporting that may be required (targeted surveys, Conservation Management Plan, Weed Management Plan, Construction Environment Managements Plan) are provided in Section 6.

Table S1. Application requirements for a permit to remove native vegetation (*Victoria Planning Provisions* Clause 52.17 -3; DEPI 2013)

No.	Application Requirement	Response
Application requirements for <u>all</u> applications:		
1	The location of the site of native vegetation to be removed.	Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria. Brimbank City Council, Port Philip and Westernport CMA.
2	A description of the native vegetation to be removed, including the area of the patch of native vegetation and/or the number of any scattered trees to be removed.	Total extent to be removed is TBC once a development footprint is finalised.. Details provided in Section 3.
3	Maps or plans containing information set out in the Guidelines, (Department of Environment and Primary Industries, September 2013)	Refer to Figures.
4	Recent dated photographs of the native vegetation to be removed.	Refer to Section 3.
-	Topographic information, highlighting ridges, crests and hilltops, streams and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion.	Refer to Section 1.2.
5	The risk-based pathway of the application to remove native vegetation.	Low
6	Where the purpose of removal, destruction or lopping of native vegetation is to create defendable space, a statement is required that explains why removal, destruction or lopping of native vegetation is necessary.	Not applicable.
7	A copy of any property vegetation plan that applies to the site.	Not applicable.
8	Details of any other native vegetation that was permitted to be removed on the same property with the same ownership as the native vegetation to be removed, where the removal occurred in the five year period before the application to remove native vegetation is lodged.	Not applicable.
9	The strategic biodiversity score of the native vegetation to be removed.	TBC once a development footprint is finalised.
10	The offset requirements should a permit be granted to remove native vegetation.	General: 0.018 BEUs Specific: None

CONTENTS

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Brimbank City Council to conduct a Biodiversity Assessment at Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria, also known as Bon Thomas Reserve. It is understood that a section of the study area is being investigated for the proposed development of various sports and recreation facilities.

The study area was assessed in December 2013 by Ecology and Heritage Partners Pty Ltd as part of the Native Vegetation Extent Mapping Project 2013/2014 conducted on behalf of Brimbank City Council (Ecology and Heritage Partners (2015). Remnant native vegetation was recorded in the study area during the assessment, as well as areas supporting the nationally significant Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) ecological community. More recently, a due diligence assessment was completed that identified the presence of Heavier Soils Plains Grassland (EVC 132_61) within the study area, along with approximately 3.7 hectares of the nationally-significant ecological community Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) (Ecology and Heritage Partners 2016). As part of the due diligence assessment, further requirements to facilitate environmental approvals and permits for the proposed development were identified, including the completion of a habitat hectare assessment. In addition, mowing and slashing of the study area prior to the 2013 and 2016 investigations, combined with the seasonal constraints, meant that previous assessments of NTGVVP was approximate only, and also decreased the chance of identifying significant species.

The purpose of the current assessment is to build upon the previous work undertaken at the site by identifying the extent and type of remnant native vegetation present within the study area, and determine the presence of significant flora and fauna species and/or ecological communities, following the cessation of mowing. Specifically, the assessment aims are to:

- Carry out a Biodiversity Assessment incorporating a habitat hectare assessment and revised mapping of remnant native vegetation, in particular NTGVVP;
- Conduct targeted flora surveys for Spiny Rice-flower and Large-headed Fireweed; and,
- Identify potential ecological and legislative implications associated with the proposed action. The report also provides recommendations to address or reduce impacts and, where necessary, highlights components that require further investigation.

1.2 Study Area

The study area is located at Bon Thomas Reserve, 57A Quinn Street, Deer Park, Victoria, approximately 16 kilometres west of Melbourne's CBD (Figure 1). The site covers approximately 11.1 hectares and is bound by the Ballarat to Melbourne railway line in the south, private property to the north and east and the remainder of the reserve to the west.

The topography is generally flat to undulating, with no ridges, crests or waterways within the study area. Two ovals are present in the study area, along with a playground and shelters associated with the recreational use of the reserve. The study area is regularly mown or slashed for maintenance purposes.

Most of the study area supports remnant native vegetation in the form of recolonising grasses. Soil disturbance is also evident, largely due to the lack of embedded basalt rock that is associated with more intact examples of native vegetation in the local area.

According to the Department of Environment, Land, Water and Planning (DELWP) Native Vegetation Information Management (NVIM) Tool (DELWP 2016a), the study area occurs within the Victorian Volcanic Plain bioregion. It is located within the jurisdiction of the Port Philip and Westernport Catchment Management Authority (CMA) and the Brimbank City Council municipality. Section 4.3.1 discusses zoning and overlays relevant to the study area.

2 METHODS

2.1 Desktop Assessment

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the study area. The following information sources were reviewed:

- The DELWP NVIM Tool (DELWP 2016a) and Biodiversity Interactive Map (DELWP 2016c) for:
    - Modelled data for location risk, remnant vegetation patches, scattered trees and habitat for rare or threatened species; and,
    - The extent of historic and current EVCs.
- EVC benchmarks (DELWP 2016b) for descriptions of EVCs within the relevant bioregion;
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DELWP 2016d);
- The Flora Information System (FIS) (Viridans 2014a) and Atlas of Victorian Wildlife (AVW) (Viridans 2014b) for assistance with the distribution and identification of flora and fauna species;
- The Commonwealth Department of the Environment and Energy (DoEE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DoEE 2016);
- Relevant listings under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act), including the latest Threatened and Protected Lists (DELWP 2015b; DELWP 2015c);
- The Planning Maps Online (DELWP 2016e) and Planning Schemes Online (DELWP 2016f) to ascertain current zoning and environmental overlays in the study area;
- Aerial photography of the study area; and,
- Previous ecological or other relevant assessments of the study area (i.e. EHP 2013, 2016).

2.2 Field Assessment

A flora assessment was undertaken on 17 and 21 October 2016 to obtain information on flora values within the study area. The study area was walked, with all observed vascular flora species recorded, any significant records mapped and the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DELWP pre-1750 and extant EVC mapping and their published descriptions (DELWP 2016b).

Where remnant vegetation was identified a habitat hectare assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (DSE 2004).

2.2.1 Targeted Surveys

Following the identification of patches of remnant vegetation, targeted surveys were conducted for the significant species Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* and Large-headed Fireweed *Senecio macrocarpa*. The following methods were used:

- The targeted survey was conducted by an experienced botanist familiar with the appearance and ecology of the target species;
- The survey encompassed all areas of mapped remnant vegetation, with particular emphasis on the patches assessed as NTGVVP and those patches within the footprint of the proposed works;
- Patches of remnant vegetation of suitable habitat were walked in linear transects ranging from two to three metres apart; and,
- The total number of plants within the study area was counted and recorded with a GPS-enabled tablet.

Surveys were undertaken during the flowering season for Large-headed Fireweed. However, the flowering season for Spiny Rice-flower is April to August, and the species can be difficult to find when it is not in flower, and can be easily overlooked. As such, the current assessment has been undertaken outside the optimal time for determining the presence of Spiny Rice-flower, due to the requirement of waiting for the cessation of mowing. The EPBC Act significant impact guidelines for Spiny Rice-flower (DEWHA 2009) state that if surveys cannot be conducted in the recommended manner the precautionary principle should be used and failure to detect the Spiny Rice-flower should not be considered indicative of its absence. Furthermore, if Spiny Rice-flower *is* identified on site, it is likely that numbers will be underestimated due to surveys being conducted during sub-optimal conditions. In this instance additional survey should be repeated during the appropriate flowering season (April to August) and conditions (not slashed or mown) to confirm numbers and locations of plants.

2.3 Permitted Clearing Assessment (the Guidelines)

Under the *Planning and Environment Act 1987,* Clause 52.17 of the Planning Schemes requires a planning permit from the relevant local Council to remove, destroy or lop native vegetation. The assessment process for the clearing of vegetation follows the 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013). The 'Biodiversity assessment handbook - Permitted clearing of native vegetation' (the Handbook) provides clarification regarding the application of the Guidelines (DELWP 2015a).

2.3.1 Risk-based Pathway

The Guidelines manage the impacts on biodiversity from native vegetation removal using a risk-based approach. Two factors – extent risk and location risk – are used to determine the risk associated with an application for a permit to remove native vegetation. The location risk (A, B or C) has been determined for all areas in Victoria and is available on DELWP's Native Vegetation Information Management (NVIM) Tool (DELWP 2016a). Determination of risk-based pathway is summarised in Table 1.

Table 1. Risk-based pathways for applications to remove native vegetation (DEPI 2013)

Extent		Location		
		A	B	C
Native Vegetation	< 0.5 hectares	Low	Low	High
	≥ 0.5 hectares and < 1 hectare	Low	Moderate	High
	≥ 1 hectare	Moderate	High	High
Scattered Trees	< 15 scattered trees	Low	Moderate	High
	≥ 15 scattered trees	Moderate	High	High

Notes: For the purpose of determining the risk-based pathway of an application to remove native vegetation the extent includes any other native vegetation that was permitted to be removed on the same contiguous parcel of land with the same ownership as the native vegetation to be removed, where the removal occurred in the five year period before an application to remove native vegetation is lodged.

2.3.2 Vegetation Assessment

Native vegetation (as defined in Table 2) is assessed using two key parameters: extent (in hectares) and condition. Extent is determined through a field assessment. The condition score for Moderate and High Risk-based pathways must be assessed through a habitat hectare[1] assessment conducted by a qualified ecologist. The condition score for Low Risk-based pathways may be based on either modelled data available on the NVIM Tool (DELWP 2016a), or through a habitat hectare assessment.

Table 2. Determination of remnant native vegetation (DEPI 2013)

Category	Definition	Extent	Condition
Remnant patch of native vegetation	An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native. OR An area with three or more native canopy trees where the canopy foliage cover is at least 20 per cent of the area.	Measured in hectares. Based on hectare area of the remnant patch.	Vegetation Quality Assessment Manual (DSE 2004).
Scattered tree	A native canopy tree that does not form part of a remnant patch.	Measured in hectares. Each scattered tree is assigned an extent of 0.071 hectares (30m diameter).	Scattered trees are assigned a default condition score of 0.2.

Notes: Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'.

2.3.3 Impact Minimisation

Applications under the Moderate and High risk-based pathways must include a statement outlining steps taken to minimise the impact of the removal of native vegetation on Victoria's biodiversity, along with an assessment of whether the proposed removal of native vegetation will have a significant impact on Victoria's biodiversity (DEPI 2013).

[1] A 'habitat hectare' is a unit of measurement which combines the condition and extent of native vegetation.

2.3.4 Offsets

Offsets are required to compensate for the permitted removal of native vegetation. Offsets are divided into two categories: General and Specific. Offset obligations and offset site criteria are determined in accordance with the Guidelines (DEPI 2013) and summarised in Appendix 1.5.1 and Appendix 1.5.2.

The offset requirements for native vegetation removal are calculated by DELWP, based on the vegetation condition scores determined during the biodiversity assessment. The offsets in this report have been calculated using the in-house support tool EnSym, which is designed for scenario testing. Once a footprint has been finalised a final Biodiversity Impact and Offset Requirements (BIOR) Report will be produced.

2.4 Assessment Qualifications and Limitations

Data and information held within the ecological databases and mapping programs reviewed in the desktop assessment (e.g. VBA, PMST, Biodiversity Interactive Maps etc.) are unlikely to represent all flora and fauna observations within, and surrounding, the study area. It is therefore important to acknowledge that a lack of documented records does not necessarily indicate that a species or community is absent.

Ecological values identified on site are recorded using a hand-held GPS or tablet with an accuracy of +/-5 metres. This level of accuracy is considered adequate to provide an accurate assessment of the ecological values present within the study area; however this data should not be used for detailed surveying purposes.

The field assessment was undertaken following the cessation of mowing for 6-8 weeks. This allowed the flora species present to grow to a height that enabled more accurate identification, compared to previous assessments when plants were just a few centimetres in height. Many of the species had begun to flower, including the majority of native forbs present. Native grasses had also commenced production of flowering parts, enabling the identification of species to the genus level. However, the majority had not yet produced seed, making identification of individual species (particularly for Wallaby-grasses *Rytidosperma* spp.) difficult. Nevertheless, identification of native grasses to the level of genus is sufficient to determine the presence of remnant vegetation and the EBPC-Act-listed community NTG Volcanic Plains.

The ‘snap shot’ nature of a standard biodiversity assessment, along with sub-optimal timing of the survey, meant that migratory, transitory or uncommon fauna species may have been absent from typically occupied habitats at the time of the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent. Nevertheless, the terrestrial flora and fauna data collected during the field assessment and information obtained from relevant desktop sources is considered adequate to provide an accurate assessment of the ecological values present within the study area.

Limitations relating to the targeted flora surveys for Spiny-rice Flower are discussed in section 2.2.1

3 RESULTS

3.1 Vegetation Condition

3.1.1 Remnant Patches

Remnant native vegetation in the study area is mostly representative of one EVC: Heavier-soils Plains Grassland (EVC 132_61). One small patch of Plains Grassy Wetland (EVC 125) is also present. The presence of these EVCs are consistent with the modelled pre-1750s native vegetation mapping (DELWP 2016c). The remainder of the study area comprises introduced and planted vegetation. Specific details relating to the observed EVCs are provided below.

Heavier-soils Plains Grassland (EVC 132_61)

Patches of Heavier-soils Plains Grassland (Plains Grassland) are located throughout much of the study area between the sports ovals (Figure 2). Dominant native grass species throughout all patches include Kangaroo Grass *Themeda triandra*, as well as various species of Wallaby-grasses *Rytidosperma* spp. and Spear-grasses *Austrostipa* spp. (Plate 1).

The Plains Grasslands patches vary in quality and species composition. Habitat zones PG1 and PG2 contain only scattered native herbs, primarily Common Woodruff *Asperula conferta* and Cut-leaf Goodenia *Goodenia pinnatifida*, and are largely defined by the presence of native grasses, which generally have at least 60-70% cover. In contrast, habitat zone PG3 has a higher native herb diversity, including Lemon Beauty-heads *Calocephalus citreus*, Sheep's Burr *Acaena echinata*, Nodding Chocolate-lily *Arthropodium fimbriatum*, Blue Devil *Eryngium ovinum*, Common Everlasting *Chrysocephalum apiculatum* s.l., Rough Burr-daisy *Calotis scabiosifolia* var. *scabiosifolia*, and a population of the small shrub Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*, which is nationally significant (see Section 3.4.1) (Plate 2).

Weed cover is generally high in all Plains Grassland patches, ranging from approximately 30-40% in habitat zones PG1 and PG3, and approximately 50-60% in habitat zone PG2. Weed cover is particularly high due to the dominance of introduced annual grasses, particularly Oat *Avena* spp. and Soft Brome *Bromus hordeaceus* subsp. *hordeaceus*. Other widespread weeds present within the Plains Grassland patches include Ribwort *Plantago lanceolata*, Onion Grass *Romulea rosea*, Barley Grass *Hordeum* spp., Cocksfoot *Dactylis glomerata*, Serrated Tussock *Nassella trichotoma*, Chilean Needle-grass *Nassella neesiana* and Subterranean Clover *Trifolium subterraneum*.

Plate 1. Plains Grassland within the study area dominated by Kangaroo Grass (Ecology and Heritage Partners Pty Ltd 17/10/2016).

Plate 2. Plains Grassland within the study area showing native forb diversity, including Chocolate Lily, Sheep's Burr and Lemon Beauty-heads (Ecology and Heritage Partners Pty Ltd 17/10/2016).

Plains Grassy Wetland

One small patch of Plains Grassy Wetland occurs in a low-lying area in the south of the study area (Figure 2; Plate 3). The patch is dominated by *Eleocharis acuta* Common Spike-sedge, with scattered occurrences of Soft Crane's-bill *Geranium potentilloides* and *Calotis scapigera* Tufted Burr-daisy also present.

Plate 3. The small Plains Grassy Wetland patch within the study area (Ecology and Heritage Partners Pty Ltd 17/10/2016).

Plate 4. Serrated Tussock, one of the common noxious weeds within the study area that is invading remnant Plains Grassland patches (Ecology and Heritage Partners Pty Ltd 17/10/2016).

3.1.2 Scattered Trees

No scattered trees are present within the study area.

3.1.3 Introduced and Planted Vegetation

Areas not supporting remnant native vegetation have a high cover (>80%) of exotic grass species including but not limited to Rye Grass *Lolium* spp., Kikuyu *Cenchrus clandestinus* and Couch *Cynodon dactylon* var.

dactylon. Couch and Kikuyu occur almost exclusively on the existing sports grounds and edges of patches of Plains Grassland. There are scattered occurrences of indigenous species throughout areas dominated by weeds, however these did not have the required 25% cover to be considered a remnant patch.

Noxious weeds are present throughout the study area, including within areas dominated by weeds as well as within remnant patches of Plains Grassland. Particularly widespread species include Chilean Needle-grass, and Serrated Tussock (Plate 4), which are both considered to be Weeds of National Significance (WONS). Other declared noxious species (i.e. listed under the *Catchment and Land Protection Act 1994*) recorded include Soursob *Oxalis pes-caprae*, Paterson's Curse *Echium plantagineum* and Artichoke Thistle *Cynara cardunculus* subsp*. flavescens*.

Trees and shrubs planted for decorative or amenity purposes occur in localised areas within the study area. Locally indigenous species present include River Red-gum *Eucalyptus camaldulensis* and Yellow Box *Eucalyptus melliodora*. Removal of indigenous species planted for amenity purposes is exempt under Section 52.17-7 of the Brimbank City Council Planning Provisions, and thus were not mapped as remnant native vegetation. The non-indigenous Bottlebrush *Callistemon* spp., Swamp Paperbark *Melaleuca ericifolia* and exotic Cypress *Cupressus* spp. are also planted throughout the study area

3.2 Fauna Habitat

Patches of native grassland dominate the study area around the existing disturbed oval and interface with residential areas. All areas of native grassland provide suitable habitat for common fauna species, including common birds, such as Australian Magpie *Cracticus tibicen,* Willie Wagtail *Rhipidura leucophrys,* Magpie-lark *Grallina cyanoleuca* and House Sparrow *Passer domesticus.* These open grassland areas are also likely to provide some limited habitat for a small number of common, ground dwelling reptiles such as snakes and lizards.

Areas supporting a moderate to high cover of Wallaby-grasses *Rytidosperma* spp. provide potential moderate quality habitat for the nationally significant Golden Sun Moth *Synemon plana*, which will be surveyed in December 2016. Targeted surveys are also currently being undertaken for Striped Legless Lizard *Delma impar*.

3.3 Permitted Clearing Assessment (the Guidelines)

3.3.1 Vegetation proposed to be removed

Two development scenarios have been investigated for the study area (Figure 2):

1. A High Priority scenario which is most likely to proceed, and which includes a sports pavilion between the existing oval and square sports field, and associated linear works such as trenches; and,
2. A Low Priority scenario, which if it proceeds will most likely occur after the High Priority scenario, and which includes the extension of the square sports field to the south. Note that offsets calculated for the Low Priority area assume that clearing associated with the High Priority area would have previously been approved, undertaken and offset accordingly. However, the Guidelines stipulate that the location and extent of prior clearing granted within the previous five years must be taken into account to determine the risk-based pathway of a permit application for the same property, with the same ownership (DELWP 2015).

The study area is within Location A, with 0.373 hectares of native vegetation proposed to be removed in the High Priority scenario, and 0.257 hectares proposed to be removed under the Low Priority scenario (with a total area of 0.630 hectares to be cleared when including prior clearing). As such, the permit application falls under the Low Risk-based pathway.

A habitat hectare assessment was completed to determine condition scores of vegetation proposed to be removed, with condition scores provided in Appendix 2.3.

Table 3. Permitted Clearing Assessment (the Guidelines)

Risk-based pathway	Low
Total Extent	0.373 (High Priority scenario) or additional 0.257 (Low Priority scenario; total including prior clearing = 0.630)
Remnant Patch (ha)	22.15
Scattered Trees (no.)	0
Location Risk	A
Strategic Biodiversity Score	0.100 (High Priority scenario) or 0.652 (Low Priority Scenario)

3.3.2 Offset Targets

The offset requirement for native vegetation removal is 0.018 General Biodiversity Equivalence Units (BEU) under the High Priority Scenario. An additional 0.120 General BEUs would be required for clearing associated with the Low Priority Scenario. If both scenarios eventuate the total offset requirement would be 0.138 General BEUs. There are no specific offsets required under either scenario.

A summary of proposed vegetation losses and associated offset requirements is presented in Table 4.

Please note that the offsets in this report have been calculated using the in-house support tool EnSym, which is designed for scenario testing. Once a footprint has been finalised a final Biodiversity Impact and Offset Requirements (BIOR) Report can be produced.

Table 4. Offset targets

General Offsets Required	0.018 General BEUs (High Priority scenario) or 0.120 General BEUs (Low Priority scenario)
Specific Offsets Required	None
Vicinity (catchment / LGA)	Port Philip and Westernport CMA / Brimbank City Council
Minimum Strategic Biodiversity Score*	0.080 (High Priority scenario) or 0.521 (Low Priority Scenario)

Note: BEU = Biodiversity Equivalence Units

3.4 Significance Assessment

3.4.1 Flora

Eighty-three (83) flora species (26 indigenous and 57 non-indigenous or introduced) were recorded within the study area during the field assessment. Of these species, one (Spiny Rice-flower) is listed as Critically Endangered under the EPBC Act. A further six are protected under the FFG Act due to the their membership of the protected family Asteraceae (the Daisy family), and one (Slender Bindweed *Convolvulus angustissimus*

subsp. *omnigracilis*) is listed as poorly known in Victoria under the Advisory List of Rare or Threatened Plants (DELWP 2015b; DEPI 2014 Appendix 2.1). The majority of these plants were found within habitat zone PG3. (Figure 2). A consolidated list of flora species recorded is provided in Appendix 2.1, although note that this is not an exhaustive list of planted species within landscaped areas.

The VBA contains records of nine nationally significant and 42 State significant flora species previously recorded within 10 kilometres of the study area (DELWP 2016d; Appendix 1). The PMST nominated an additional four nationally significant species which have not been recorded but have the potential to occur in the locality (DoE 2016). Of these species, the previous Due Diligence report identified poor to moderate quality grassland habitat for the nationally significant Spiny Rice-flower ***Pimelea spinescens subsp. spinescens*** and Large-headed Fireweed *Senecio macrocarpus,* and the State significant Slender Bindweed *Convolvulus angustissimus* subsp. *omnigracilis* and Arching Flax-lily *Dianella* sp. aff. *longifolia* (Benambra) in Plains Grassland within the study area (Ecology and Heritage Partners 2016). The report also noted that Spiny Rice-flower is present in and adjacent to the offset site in the western portion of Bon Thomas Reserve, with most other recent records (post-2008) confined to existing local reserves and the rail corridor (Ecology and Heritage Partners 2016). The two nationally significant species, Spiny Rice-flower and Large-headed Fireweed, were therefore the subject of the targeted surveys conducted during the current assessment.

3.4.1.1 Targeted Survey Results

Approximately 15 individuals of Spiny Rice-flower were recorded during the targeted survey. All plants were located in one small area in the south of the study area (Figure 2; Plate 5). The majority of plants were very small (less than 10 cm height) due to the regular mowing regime, had fresh green growth, and were not flowering at the time of the survey, which was conducted outside of the species' flowering period (winter). Due to the very small size of the plants and lack of flowering material, samples were compared to a nearby known population at Caroline Springs, which confirmed their identification. No individuals were identified within the area of Plains Grassland impacted by the high priority development footprint (Figure 2). The population is on the proposed boundary of the Low Priority Scenario footprint.

Large-headed Fireweed was not identified during the current survey.

Recommendation

Further targeted surveys are recommended for Spiny Rice-flower during winter (optimal flowering time) within all native grassland patches that may be subject to further development, and surrounding the existing patch to ensure that all suitable habitat has been assessed, and all individuals recorded.

It is unlikely that this species occurs within the Plains Grassland patch impacted by the high priority development footprint (Figure 2). This patch was thoroughly searched twice (once prior to the existing population being discovered, and a second time after the population had been discovered). Very few native forbs (and no native shrubs) were present at all in this area, which was largely dominated by native grasses, suggesting that this is lower quality habitat and very unlikely to support significant species. In comparison, the area within which the Spiny Rice-flower population exists is relatively species-rich and contains a greater diversity of native forbs. Therefore it is very unlikely that any individuals of Spiny Rice-flower will be impacted by the development of the sports pavilion and associated works as part of the High Priority scenario.

Plate 5. Spiny Rice-flower found within Plains Grassland (habitat zone PG3) (Ecology and Heritage Partners Pty Ltd 21/10/2016).

3.4.2 Fauna

No significant fauna species were recorded during the field assessment. The study area provides habitat for common bird species that are tolerant of modified open spaces, such as Australian Magpie *Cracticus tibicen*, Common Blackbird *Turdus merula*, Little Raven *Corvus mellori*, Magpie-lark *Grallina cyanoleuca*, House Sparrow *Passer domesticus*, and Willie Wagtail *Rhipidura leucophrys*.

Targeted surveys are currently being undertaken for Striped Legless Lizard, and targeted surveys will be conducted for Golden Sun Moth in December 2016. Results of these surveys will be presented in a separate report.

3.4.3 Communities

Vegetation within the study area was consistent with the condition thresholds for the following:

- Nationally significant *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) ecological community (SEWPaC 2011); and,
- State significant *Western (Basalt) Plains Grassland*, listed as Threatened under the FFG Act and mapped as *Heavier Soils* Plains Grassland (Figure 2).

A total of four patches of NTGVVP with a combined area of 1.531 hectares were mapped in the study area (Figure 2; Table 5). Not all Plains Grassland patches met the condition thresholds to be defined as the significant community, primarily because they were too small in size.

All Plains Grassland patches in the study area are also listed as the FFG Act Western (Basalt) Plains Grassland ecological community. The FFG Act community does not have cover and condition thresholds and all Plains Grassland is generally considered part of the ecological community.

Table 5. Condition Thresholds for Natural Temperate Grassland of the Victorian Volcanic Plain

Trigger	Criteria	NTGVVP Patches (Figure 2)
EVC	The grassland is either Plains Grassland (EVC 132) or Creekline Tussock Grassland (EVC 654)	Criteria Met (Grassland is Plains Grassland)
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 (Grassland is within the Victorian Volcanic Plain)
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.	N/A
Key Diagnostic Features	The grassland is associated with Quaternary basalt soils within the Victorian Volcanic Plain bioregion.	Criteria Met
	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 (High cover of Kangaroo Grass, Spear Grasses and Wallaby Grasses)
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 (Cover of Kangaroo Grass, Spear Grasses and Wallaby Grasses accounts for 50% or more of the perennial tussock cover)
	Non-grassy weeds account for less than 30% of the total vegetation cover at any time of the year.	N/A
	The conservation value of a patch of the Natural Temperate Grassland of the Victorian Volcanic Plain 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.	The largest patch (PG3) in the south of the study area can be considered medium to high conservation value as it shows the following features: • Plant species richness is relatively high, with at least 13 native forbs identified during the current survey; • A patch size of 0.844 hectares; and, • The presence of a population of the nationally significant species Spiny Rice-flower. Weed invasion within this patch can be considered typical of grassland remnants in outer urban Melbourne, with common weeds such as Ribwort, Brome (various species), Wild Oat and Flatweed widespread. High threat noxious weeds are starting to invade from the perimeter of the patch, including Chilean Needle-grass and Serrated Tussock, and further invasion of these species will lower the conservation value of this patch. The other three patches within the study area can be considered low to moderate conservation significance, as they support a lower native plant

Trigger	Criteria	NTGVVP Patches (Figure 2)
		species richness, a higher cover of noxious weeds, and are smaller in size.

3.5 Site Ecological Significance

The criteria adopted for assessing the ecological significance of the study area is presented in Appendix 1.3. Based on available information and the results of the field assessment, the study area is considered to be of Moderate to High ecological significance for the following reasons:

- Presence of the nationally significant Natural Temperate Grassland of the Victorian Volcanic Plains ecological community, listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Presence of the State significant Western (Basalt) Plains Grassland ecological community, listed under Victoria's *Flora and Fauna Guarantee Act 1988* (FFG Act);
- Presence of Heavier-soils Plains Grassland (EVC 132_61), considered endangered in the Victorian Volcanic Plain bioregion;
- Presence of a population of one flora species (Spiny Rice-flower) listed as critically endangered under the EPBC Act;
- Presence of the State significant flora species Slender Bindweed; and,
- Potential habitat for two nationally listed significant fauna species (Striped Legless Lizard and Golden Sun Moth).

4 LEGISLATIVE AND POLICY IMPLICATIONS

4.1 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES), described in Table 6.

Table 6. Potential impacts to matters of National Environmental Significance (NES)

Matter of NES	Potential Impacts
World Heritage properties	The proposed action will not impact any properties listed for World Heritage.
National heritage places	The proposed action will not impact any places listed for national heritage.
Ramsar wetlands of international significance	The study area occurs within 10 km of one Ramsar wetland (DoE 2016): Port Phillip Bay (western shoreline) and Bellarine Peninsula. Provided management practices and construction techniques are consistent with Construction Techniques for Sediment Pollution Control (EPA 1991) and Environmental Guidelines for Major Construction Sites (EPA 1996), the proposed action is unlikely to impact the ecological character of any Ramsar wetland.
Threatened species and ecological communities	One flora species (Spiny Rice-flower) listed under the EPBC Act is present within the study area. (Section 3.4.1 and 3.4.2). There is suitable habitat within the study area for and two fauna species listed under the EPBC Act (Striped Legless Lizard and Golden Sun Moth). One ecological community listed under the EPBC Act (Natural Temperate Grassland of the Victorian Volcanic Plain) was recorded within the study area (Section 3.4.3).
Migratory species	Several Migratory species have been recorded within 10 kilometres of the study area (DELWP 2016; Appendix 3.1). However, the study area would not be classed as an 'important habitat' for migratory species as defined under the EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines (DoE 2013).
Commonwealth marine area	The proposed action will not impact any Commonwealth marine areas.
Nuclear actions (including uranium mining)	The proposed action is not a nuclear action.
Great Barrier Reef Marine Park	The proposed action will not impact the Great Barrier Reef Marine Park.
Water resources impacted by coal seam gas or mining development	The proposed action is not a coal seam gas or mining development.

4.1.1 Implications

One flora species (Spiny-rice flower) and one ecological community (Natural Temperate Grassland of the Victorian Volcanic Plain) listed under the EPBC Act is present within the study area. There is suitable habitat within the study area for two fauna species (Golden Sun Moth and Striped Legless Lizard) listed under the EPBC Act, with targeted surveys currently underway. The High Priority development scenario will impact on 0.3734 hectares of NTGVVP, but will avoid the identified population of Spiny-rice flower. The identified population of Spiny Rice-flower is close to the boundary of the Low Priority development scenario. Additional

Spiny Rice-flower populations may be present within the study area but were not detected due to the suboptimal time of the survey. A referral to the Commonwealth Environment Minister is advised to assess the impacts of the project under the EPBC Act. The potential significant impacts of the project on Spiny Rice-flower, Striped Legless Lizard and Golden Sun Moth should be assessed against the relevant EPBC Act significant impact guidelines for the species, once targeted surveys have been completed. Discussion on offsets relevant to the EPBC Act is provided in Section 5.2.1.

4.2 *Flora and Fauna Guarantee Act 1988* (Victoria)

The FFG Act is the primary legislation dealing with biodiversity conservation and sustainable use of native flora and fauna in Victoria. Proponents are required to apply for an FFG Act Permit to 'take' listed and/or protected flora species, listed vegetation communities and listed fish species in areas of public land (i.e. within road reserves, drainage lines and public reserves). 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.

There is suitable habitat within the study area for six flora species (Lemon Beauty-heads, Rough Burr-daisy, Tufted Burr-daisy, Common Everlasting, Common Cotula and Cotton Fireweed) 'protected' under the FFG Act (Appendix 2.1; Section 3.4).

4.2.1 Implications

There is suitable habitat within the study area for several species listed or protected under the FFG Act. The study also supports the FFG Act listed Western (Basalt) Plains Grassland Community. A permit under the FFG Act will be required to remove any species or ecological communities listed under the EPBC Act, as the study area is located on public land. The proponent should allow up to six weeks to obtain a FFG Act permit through DELWP.

4.3 *Planning and Environment Act 1987* (Victoria)

The *Planning and Environment Act 1987* outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. All planning schemes contain native vegetation provisions at Clause 52.17 which require a planning permit from the relevant local Council to remove, destroy or lop native vegetation on a site of more than 0.4 hectares, unless an exemption under clause 52.17-7 of the Victorian Planning Schemes applies (Appendix 1.5.3) or a subdivision is proposed with lots less than 0.4 hectares[2]. Local planning schemes may contain other provisions in relation to the removal of native vegetation (Section 4.3.1).

4.3.1 Local Planning Schemes

The study area is located within the Brimbank City Council municipality. The General Residential Zone – Schedule 1 (GRZ1) applies to the study area. No overlays are applicable (DELWP 2016f).

[2] In accordance with the Victorian Civil and Administrative Tribunal's (VCAT) decision Villawood v Greater Bendigo CC (2005) VCAT 2703 (20 December 2005) all native vegetation is considered lost where proposed lots are less than 0.4 hectares in area and must be offset at the time of subdivision.

4.3.2 The Guidelines

The State Planning Policy Framework and the decision guidelines at Clause 52.17 (Native Vegetation) and Clause 12.01 require Planning and Responsible Authorities to have regard for 'Permitted clearing of native vegetation - Biodiversity assessment guidelines' (the Guidelines) (DEPI 2013). Where the clearing of native vegetation is permitted, the quantity and type of vegetation to be offset is determined using methodology specified in the Guidelines. The primary objective of the regulations is "no net loss in the contribution made by native vegetation to Victoria's biodiversity".

A permit will be referred to DELWP as a 'recommending authority' if vegetation removal meets one or more of the below thresholds (Table 7).

Table 7. Permit to remove native vegetation – application referral triggers (Clause 66, Referral and Notice Provisions)

Native Vegetation	• Remove, destroy or lop native vegetation where the area to be cleared is 0.5 hectares or more
	• Remove, destroy or lop native vegetation which is to be considered under the High Risk-based pathway
Other Circumstances	• Remove, destroy or lop native vegetation if a property vegetation plan applies to the site
	• Remove, destroy or lop native vegetation on Crown land which is occupied or managed by the responsible authority

4.3.3 Implications

The study area is within Location A, with 0.373 hectares of native vegetation proposed to be removed in the High Priority scenario, and 0.257 hectares proposed to be removed under the Low Priority scenario (with a total area of 0.630 hectares to be cleared when including prior clearing). As such, the permit application falls under the Low Risk-based pathway.

The offset requirement for native vegetation removal is 0.018 General Biodiversity Equivalence Units (BEU) under the High Priority Scenario. An additional 0.120 General BEUs would be required for clearing associated with the Low Priority Scenario. If both scenarios eventuate the total offset requirement would be 0.138 General BEUs. There are no specific offsets required under either scenario.

A Planning Permit from Brimbank City Council is required to remove, destroy or lop any native vegetation. The application will be referred to DELWP if greater than 0.5 hectares of vegetation is proposed for removal.

4.4 *Wildlife Act 1975* and Wildlife Regulations 2013 (Victoria)

The *Wildlife Act 1975* (and associated Wildlife Regulations 2013) is the primary legislation in Victoria providing for protection and management of wildlife. Authorisation for habitat removal may be obtained under the *Wildlife Act 1975* through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*. Any persons engaged to remove, salvage, hold or relocate native fauna during construction must hold a current Management Authorisation under the *Wildlife Act 1975*, issued by DELWP.

4.5 *Catchment and Land Protection Act 1994* (Victoria)

The *Catchment and Land Protection Act 1994* (CaLP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. Landowners are responsible for the control of any infestation of noxious weeds and pest fauna species to minimise their spread and impact on ecological values.

Weeds listed as noxious under the CaLP Act were recorded during the assessment (Chilean Needle-grass *Nassella neesiana*, Serrated Tussock *Nassella trichotoma*, Soursob *Oxalis pes-caprae*, Paterson's Curse *Echium plantagineum* and Artichoke Thistle *Cynara cardunculus* subsp. *flavescens*). A Weed Management Plan may be required.

5 POTENTIAL IMPACTS

The proposed action is likely to directly impact on several indigenous flora and fauna species, and communities recorded within the study area. These impacts may include:

- Loss of confirmed habitat for the nationally significant Spiny Rice-flower (under the Low Priority Scenario only);
- Loss of the nationally significant community Natural Temperate Grassland of the Victorian Volcanic Plain;
- Loss of the State significant community (Western (Basalt) Plains Grassland);
- The removal of one endangered EVC (Heavier Soils Plains Grassland Ecological Vegetation Class (EVC 132_61);
- Loss of confirmed habitat for State significant flora species (Slender Bindweed);
- Potential for the spread of weeds and soil pathogens due to on-site activities;
- Disturbance to wildlife from increased human activity and noise during construction; and,
- Indirect impacts on adjacent areas if construction activities and drainage are not appropriately managed.

5.1 Best Practice Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial and aquatic values present within the study area may include:

- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including fencing retained areas of native vegetation;
- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. Habitat Zones (areas of sensitivity) should be included as a mapping overlay on any construction plans;
- Where possible, construction stockpiles, machinery, roads, and other infrastructure should be placed away from areas supporting native vegetation;
- Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Agency guidelines (EPA 1991; EPA 1996; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and,
- As indigenous flora provides valuable habitat for indigenous fauna, it is recommended that any landscape plantings that are undertaken as part of the proposed works are conducted using indigenous species sourced from a local provenance, rather than exotic deciduous trees and shrubs.

In addition to these measures, the following documents should be prepared and implemented prior to any construction activities:

- Construction Environmental Management Plan (CEMP). The CEMP should include specific species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed and pathogen management measures, etc.;
- Weed Management Plan. This plan should follow the guidelines set out in the CaLP Act, and clearly outline any obligations of the project team in relation to minimising the spread of weeds as a result of this project. This may include a pre-clearance weed survey undertaken prior to any construction activities to record and map the locations of all noxious and environmental weeds;
- Significant Species Conservation Management Plan (CMP). A CMP will be required if significant species or their habitats are proposed to be impacted (Spiny Rice-flower), and may include a salvage and translocation plan; and,
- Fauna Management Plan. This may be required if habitat for common fauna species is likely to be impacted and salvage and translocation must be undertaken to minimise the risk of injury or death to those species.

5.2 Offset Impacts

5.2.1 Commonwealth (EPBC Act)

The Australian Government's EPBC Act Environmental Offsets Policy (SEWPaC 2012) outlines a framework for the use of environmental offsets under the EPBC Act including when they can be required, how they are determined and the framework under which they operate. Clear guidelines on what constitutes a suitable

offset are provided and should be considered as part of any proposed offset strategy. Suitable offsets must include the following:

1. It delivers an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed development.
2. It is built around direct offsets but may include compensatory measures.
3. It is in proportion to the level of statutory protection that applies to the protected manner.
4. It is of a size and scale proportionate to the residual impacts on the protected manner.
5. It is additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.
6. It effectively account for and manages the risks of the offset not succeeding.
7. It is efficient, effective, timely, transparent, scientifically robust and reasonable.
8. It has transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.

If the project is considered to have a significant impact under the EPBC Act, and residual impact to the relevant matter of NES is likely to require offsetting in accordance with this policy. The requirement to offset can only be determined once the project has been referred and assessed by the Minister.

5.2.2 State (The Guidelines)

5.2.2.1 Offset Criteria

The Guidelines (DEPI 2013) require offsetting as the final step in considering the impacts of development on native vegetation. Under the Moderate and High Risk-based pathway, emphasis is placed on minimising impacts, and only after these steps have been taken should offsets be considered. Offset targets must be met, as specified in Section 3.2.

5.2.2.2 Offset Options

Third party offsets

Third party offsets may be sourced using the following mechanisms, to satisfy State offset requirements:

- BushBroker: BushBroker maintains a register of landowners who are willing to sell offset credits. Offsets secured by Bushbroker are done so via a Section 69 Agreement under the *Conservation, Forest and Lands Act 1987*.
- Trust for Nature: Trust for Nature holds a list of landowners who are willing to sell vegetation offsets. Offsets secured by Trust for Nature are done so under the Victorian *Conservation Trust Act 1972*.
- Local Councils: The proponent may contact local councils to seek availability of offsets.
- Over-the-Counter Offsets Scheme: The Guidelines include the expansion of the "Over-the-Counter" (OTC) Offsets Scheme, allowing non-government agencies to establish themselves as OTC Facilities.

OTC Facilities will broker native vegetation offsets (credits) between landholders (with offset sites) and permit holders (with offset requirements).

First party offsets

Use of first party offsets may be considered as an option to address commonwealth offset requirements (if any).

A first party offset is created on a property with the same legal ownership as the property on which the clearing occurs. A first party offset must be protected in perpetuity by signing a relevant agreement with an appropriate statutory authority. The permit holder is responsible for the cost and responsibility of managing the site in accordance with an approved management plan.

5.2.2.3 Offset Strategy

Third party offsets

Ecology and Heritage Partners are a DELWP accredited OTC offset broker.

Ecology and Heritage Partners can confirm that the offset obligations generated by this proposal can be satisfied through existing credits registered in our OTC database. Several landowners registered in our offset database have suitable General Biodiversity Equivalence Unit (BEUs) native vegetation credits available within Brimbank City Council and the Port Philip and Westernport CMA, and it is anticipated that the relevant offset obligations generated by this proposal can be secured through an OTC scheme without any difficulty should a permit be issued for the development.

First party offsets

In the case that the project is deemed to be a controlled action under the EPBC Act, there may be opportunity for Brimbank City Council to fulfil offset requirements by utilising already-secured, local, council-managed parcel/s of land that contain NTGVVP and Spiny Rice-flower. Potential offsets may be sourced from two existing local conservation areas, as preferred by Brimbank City Council; Pioneer Park, which has a management plan already in place; or, from the western side of the Bon Thomas Reserve, where existing NTGVVP community is fenced.

6 FURTHER REQUIREMENTS

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided below (Table 8).

Table 8. Further requirements associated with development of the study area.

Relevant Legislation	Implications	Further Action
Environment Protection and Biodiversity Conservation Act 1999	One flora species (Spiny-rice flower) and one ecological community (Natural Temperate Grassland of the Victorian Volcanic Plain) listed under the EPBC Act is present within the study area. There is suitable habitat within the study area for two fauna species (Golden Sun Moth and Striped Legless Lizard) listed under the EPBC Act, with targeted surveys currently underway. The High Priority development scenario will	Finalise development footprint to confirm area of NTGVVP impacted. Prepare and submit a referral to the Commonwealth Environment Minister at DoEE.

Relevant Legislation	Implications	Further Action
	impact on 0.3734 hectares of NTGVVP, but will avoid the identified population of Spiny-rice flower. The identified population of Spiny Rice-flower is close to the boundary of the Low Priority development scenario. Additional Spiny Rice-flower populations may be present within the study area but were not detected due to the suboptimal time of the survey. A referral to the Commonwealth Environment Minister is advised to assess the impacts of the project under the EPBC Act. The potential significant impacts of the project on Spiny Rice-flower, Striped Legless Lizard and Golden Sun Moth should be assessed against the relevant EPBC Act significant impact guidelines for the species, once targeted surveys have been completed.	
Flora and Fauna Guarantee Act 1988	There is suitable habitat within the study area for several species listed or protected under the FFG Act. The study also supports the FFG Act listed Western (Basalt) Plains Grassland Community. A permit under the FFG Act will be required to remove any species or ecological communities listed under the EPBC Act, as the study area is located on public land. The proponent should allow up to six weeks to obtain a FFG Act permit through DELWP.	Prepare and submit a FFG Act permit application to DELWP.
Planning and Environment Act 1987	The study area is within Location A, with 0.373 hectares of native vegetation proposed to be removed in the High Priority scenario, and 0.257 hectares proposed to be removed under the Low Priority scenario (with a total area of 0.630 hectares to be cleared when including prior clearing). As such, the permit application falls under the Low Risk-based pathway. The offset requirement for native vegetation removal is 0.018 General Biodiversity Equivalence Units (BEU) under the High Priority Scenario. An additional 0.120 General BEUs would be required for clearing associated with the Low Priority Scenario. If both scenarios eventuate the total offset requirement would be 0.138 General BEUs. There are no specific offsets required under either scenario. A Planning Permit from Brimbank City Council is required to remove, destroy or lop any native vegetation. The application will be referred to DELWP if greater than 0.5 hectares of vegetation is proposed for removal.	Finalise development footprint. Prepare and submit a Planning Permit application. Planning Permit conditions are likely to include a requirement for: • Identification of a compliant offset, as detailed in Section 3.2. • A Construction Environment Management Plan (CEMP).
Catchment and Land Protection Act 1994	Several weed species listed under the CaLP Act were recorded within the study area. To meet requirements under the CaLP Act, listed noxious weeds should be appropriately controlled throughout the study area.	Planning Permit conditions are likely to include a requirement for a Weed Management Plan.
Wildlife Act 1975	Any persons engaged to conduct salvage and translocation or general handling of terrestrial fauna species must hold a current Management Authorisation.	Ensure wildlife specialists hold a current Management Authorisation.

REFERENCES

Christidis, L. & Boles, W.E 2008. Systematics and Taxonomy of Australian Birds. CSIRO Publishing, Collingwood, Victoria.

Cogger, H. G (Ed). 1996. Reptiles and Amphibians of Australia. 5th Edition. Reed Books Australia, Victoria.

Cogger, H.G., Cameron, E.E., Sadlier, R.A. and Eggler P., 1993. The Action Plan for Australian Reptiles. Australian Nature conservation Agency, Canberra, ACT.

Cogger, H. G., Cameron, E. E. And Cogger, H. M. 1983. *Volume 1 of Zoological Catalogue of Australia: Amphibia and Reptilia*. Australian Government Publishing Service, Canberra, ACT.

DELWP 2015a. Biodiversity assessment handbook, Permitted clearing of native vegetation – Version 1.0. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2015b. *Flora and Fauna Guarantee Act 1988* Protected Flora List – October 2015. Victorian Department of Environment, Land, Water and Planning. Melbourne, Victoria.

DELWP 2015c. *Flora and Fauna Guarantee Act 1988* Threatened List - May 2015. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016a. Native Vegetation Information Management Tool [www Document]. URL: <http://nvim.depi.vic.gov.au/>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016b. Ecological Vegetation Class (EVC) Benchmarks for each Bioregion [www Document]. URL: <http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/evc-benchmarks#bioregionname>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016c. Biodiversity Interactive Map [www Document]. URL: <http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/biodiversity-interactive-map>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016d. Victorian Biodiversity Atlas. Sourced from GIS layers: "VBA_FLORA25", "VBA_FLORA100", "VBA_FAUNA25", "VBA_FAUNA100", January 2016. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016e. Planning Maps Online [www Document]. URL: <http://services.land.vic.gov.au/maps/pmo.jsp>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016f. Planning Schemes Online [www Document]. URL: http://planningschemes.dpcd.vic.gov.au. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.

DELWP 2016g. *Flora and Fauna Guarantee Act 1988* – Threatened List: Characteristics of Threatened Communities [WWW Document]. URL: <http://www.depi.vic.gov.au/environment-and-wildlife/threatened-species-and-communities/flora-and-fauna-guarantee-act-1988/scientific-advisory-committee/victorian-threatened-community-descriptions>.

DEPI 2013. Permitted clearing of native vegetation - Biodiversity assessment guidelines (the Guidelines). Victorian Department of Environment and Primary Industries, Melbourne, Victoria.

DEPI 2014. Advisory List of Rare or Threatened Plants in Victoria. Victorian Department of Environment and Primary Industries, Melbourne, Victoria.

DoE 2013. Significant Impact Guidelines 1.1. Matters of National Environmental Significance. Commonwealth Department of the Environment, Canberra, ACT.

DoE 2016. Protected Matters Search Tool: Interactive Map [www Document]. URL: <http://www.environment.gov.au/epbc/pmst/>. Commonwealth Department of the Environment, Canberra, ACT.

DSE 2004. Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method. Version 1.3. Victorian Department of Sustainability and Environment, Melbourne Victoria

DSE 2009. Advisory list of Threatened Invertebrate Fauna in Victoria – 2009. Victorian Department of Sustainability and Environment, Melbourne, Victoria.

DSE 2011. Native Vegetation Technical information sheet: Defining an acceptable distance for tree retention during construction works. Victorian Department of Sustainability and Environment, Melbourne, Victoria.

DSE 2013. Advisory List of Threatened Vertebrate Fauna in Victoria. Victorian Department of Sustainability and Environment, Melbourne, Victoria.

Duncan, A., Baker, G.B. and Montgomery, N. (Eds) 1999. The Action Plan for Australian Bats. Environment Australia. Canberra, ACT.

Ecology and Heritage Partners 2015 Brimbank Native Vegetation Mapping Project. Report for Brimbank City Council. July 2015.

Ecology and Heritage Partners 2016. Ecological Due Diligence Assessmentc: 57A Quinn Street, Deer Park, Victoria. Report for Brimbank City Council.

EPA 1991. Construction Techniques for Sediment Pollution Control. Published document prepared by the Victorian Environment Protection Authority, Melbourne, Victoria.

EPA 1996. Environmental Guidelines for Major Construction Sites. Published document prepared by the Victorian Environmental Protection Authority, Melbourne, Victoria.

Garnett, S., J. Szabo and G. Dutson 2011. The Action Plan for Australian Birds 2010. CSIRO Publishing, Collingwood, Victoria.

Menkhorst, P. and Knight, F. 2004. A Field Guide to the Mammals of Australia . 2nd Edition. Oxford University Press, Victoria.

Nelson, J. S. 1994. Fishes of the World, 3rd Edition. John Wiley & Sons, New York, USA.

Sands, D.P.A. and New, T.R. 2002. The Action Plan for Australian Butterflies, Environment Australia, Canberra, ACT.

SEWPaC 2012. *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy. Commonwealth Department of Environment, Water, Population and Communities, Canberra, ACT.

Strahan, R. (Ed) 1995. The Mammals of Australia. Reed Books, Sydney, NSW.

Tyler, M.J. 1997. The Action Plan for Australian Frogs. Wildlife Australia: Canberra, ACT.

Victorian Urban Stormwater Committee 1999. Urban Stormwater: Best Practice Environmental Management Guidelines. CSIRO, Collingwood, Victoria.

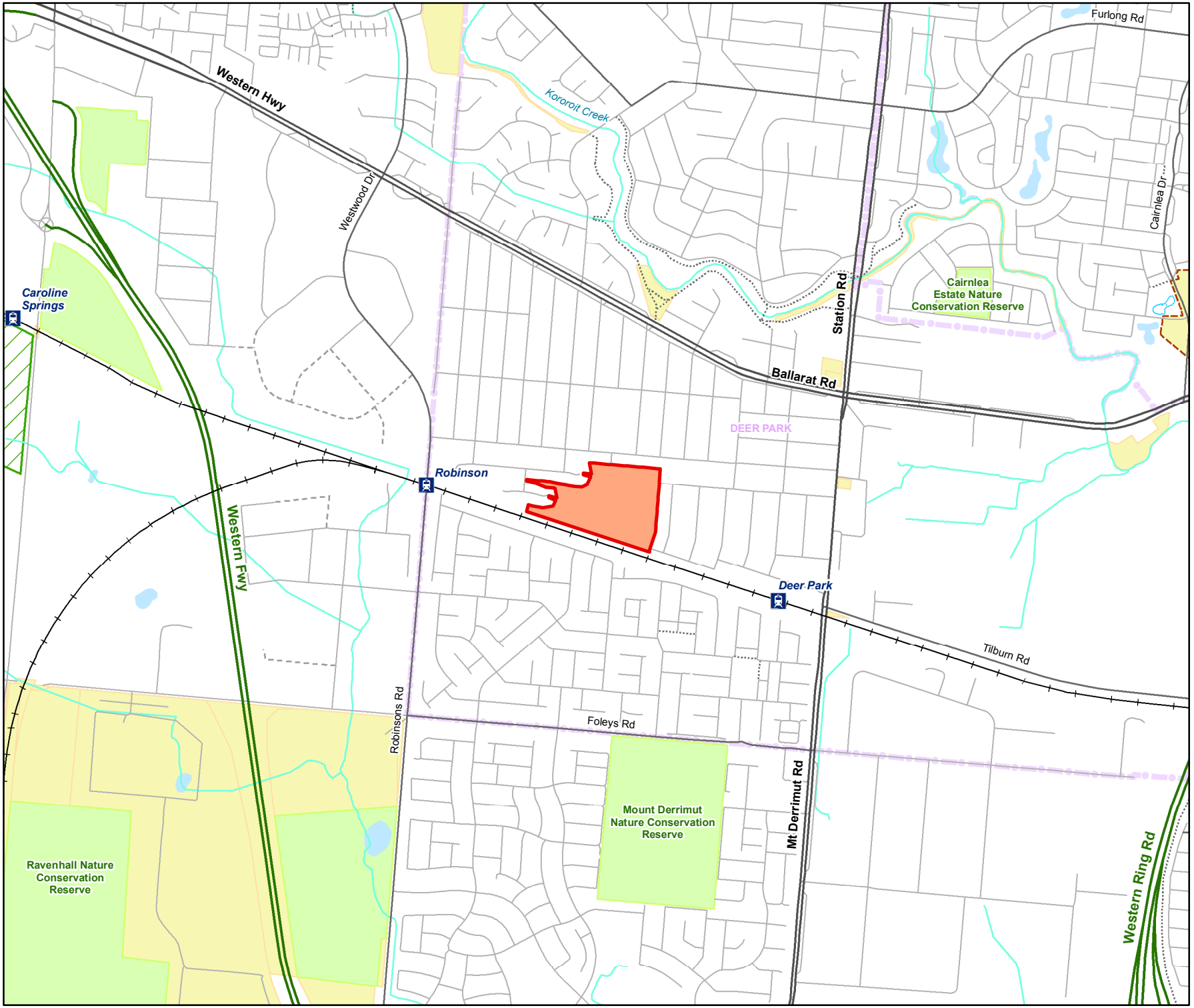
Viridans 2014a. Flora Information System. Viridans Biological Databases, Bentleigh East Victoria.

Viridans 2014b. Victorian Fauna Database. Viridans Biological Databases, Bentleigh East Victoria.

Woinarski J. C. Z., Burbidge A. A. & Harrison P. 2014. The action plan for Australian mammals 2012. CSIRO Publishing, Collingwood, Victoria.

FIGURES

Figure 1: Location of the study area.



Legend

- Study Area
- Railway
- Freeway
- Major Road
- Collector Road
- Minor Road
- Proposed Road
- Walking Track
- Minor Watercourse
- Permanent Waterbody
- Wetland/Swamp
- Parks and Reserves
- BCS Conservation Area
- Crown Land
- Localities

Figure 1

Location of the study area

Biodiversity Assessment at Bon Thomas Reserve, Deer Park

N

0 250 500

Metres

ecology & heritage partners

Figure 2: Ecological Features

Legend

- Study Area

EPBC Act listed flora

- Spiny Rice-flower
- Spiny Rice-flower patch

Ecological Vegetation Classes

- Plains Grassland
- Plains Grassy Wetland

EPBC Act listed vegetation community

- Natural Temperate Grassland of the Victorian Volcanic Plain

Weeds

- Noxious weed
- Serrated Tussock patch

Vegetation impacts

- Vegetation removal - High priority
- Vegetation removal - Low priority
- Impact Area

Figure 2

Ecological features

Biodiversity Assessment at Bon Thomas Reserve, Deer Park

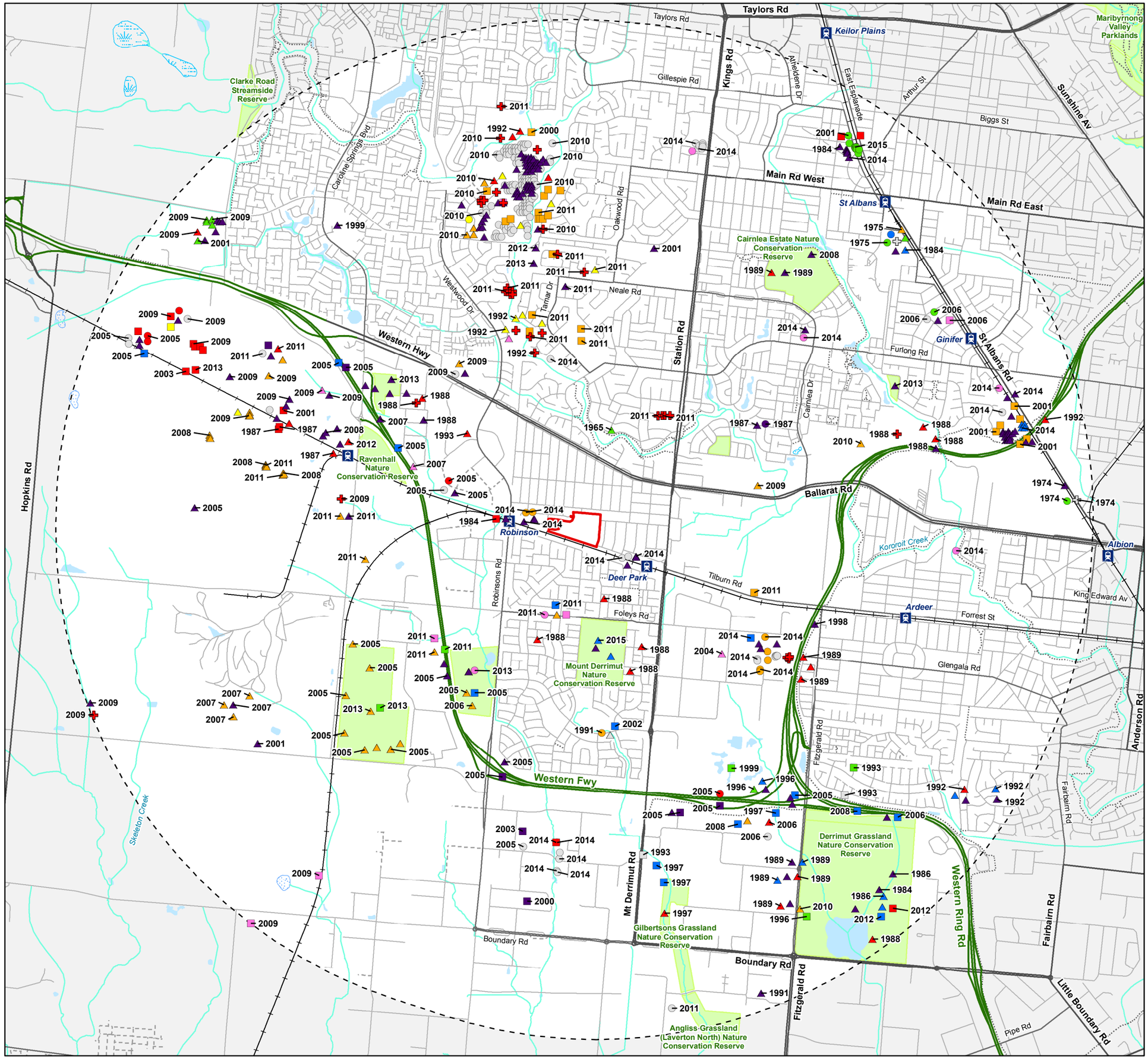
N

0 25 50

Metres

ecology & heritage partners

Figure 3: Significant Flora Records



Legend

- Study Area

Significant flora

- Arching Flax-lily
- Austral Crane's-bill
- Basalt Podolepis
- Basalt Tussock-grass
- Button Wrinklewort
- Fragrant Leek-orchid
- Fragrant Saltbush
- Giant Honey-myrtle
- Grey Spike-sedge
- Large-headed Fireweed
- Matted Flax-lily
- Native Peppercress
- Pale Spike-sedge
- Pale Swamp Everlasting
- Pale-flower Crane's-bill
- Plains Joyweed
- River Swamp Wallaby-grass
- Rye Beetle-grass
- Slender Bindweed
- Slender Tick-trefoil
- Small Golden Moths
- Small Milkwort
- Small Scurf-pea
- Spiny Rice-flower
- Sunshine Diuris
- Tough Scurf-pea

Figure 3

Previously documented significant flora within 5km of the study area

Biodiversity Assessment at Bon Thomas Reserve, Deer Park

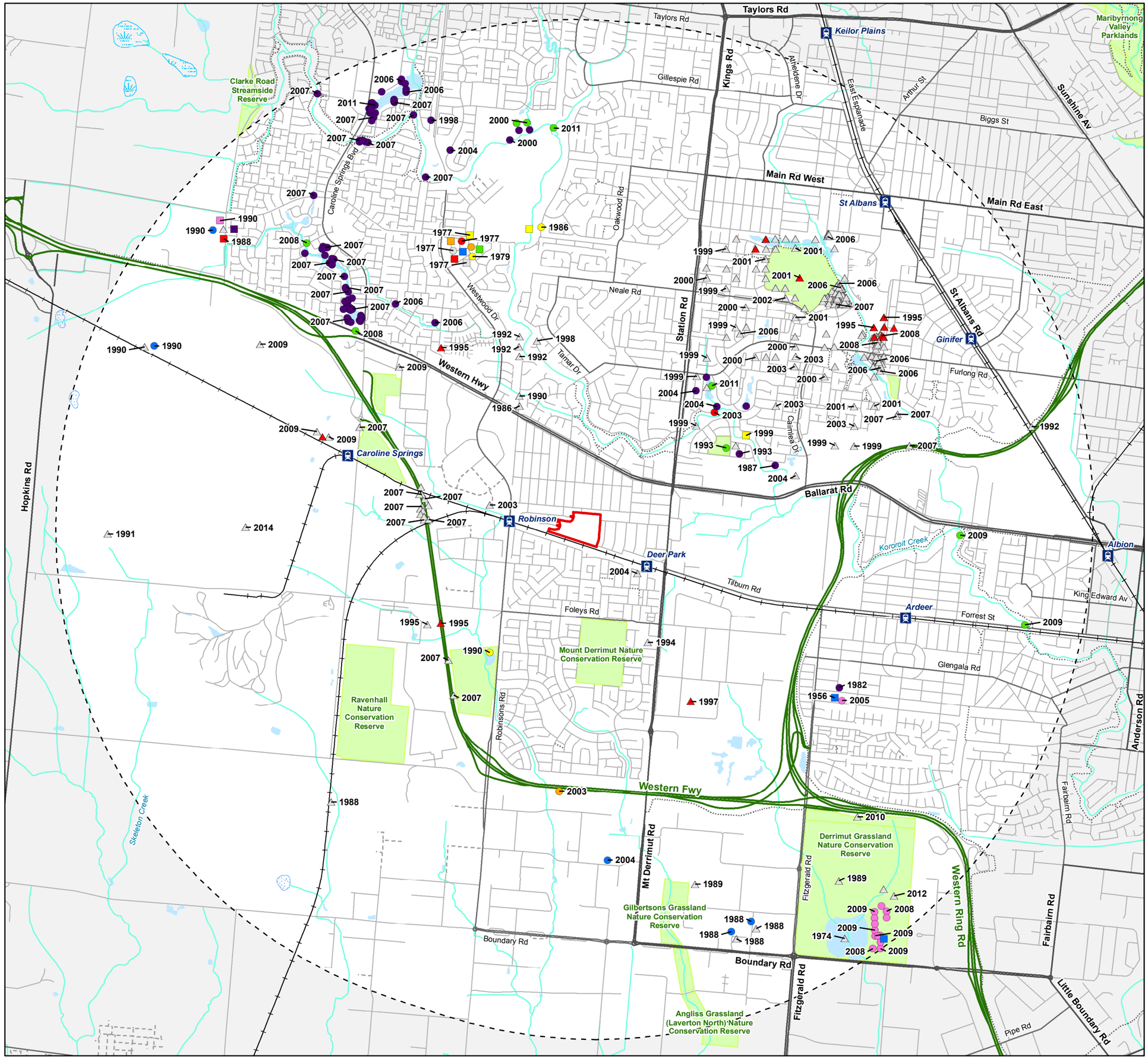
N

0 0.75 1.5

Kilometres

ecology & heritage partners

Figure 4 Significant Fauna Records



Legend

- Study Area

Significant fauna

- Australian Painted Snipe
- Baillon's Crake
- Black Falcon
- Eastern Great Egret
- Eastern Snake-necked Turtle
- Fat-tailed Dunnart
- Golden Sun Moth
- Growling Grass Frog
- Hardhead
- Latham's Snipe
- Musk Duck
- Nankeen Night Heron
- Orange-bellied Parrot
- Plains-wanderer
- Red-chested Button-quail
- Spotted Harrier
- Striped Legless Lizard
- Tussock Skink

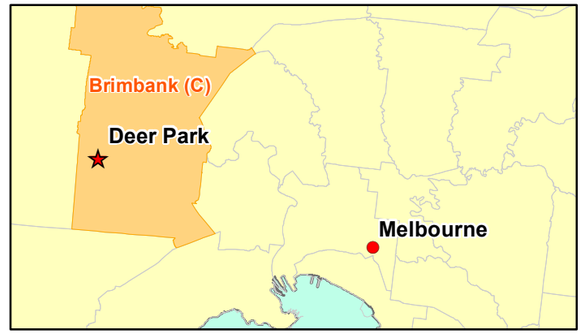


Figure 4

Previously documented significant fauna within 5km of the study area

Biodiversity Assessment at Bon Thomas Reserve, Deer Park

N

0 0.75 1.5

Kilometres

ecology & heritage partners