January 2024

Vegetation Assessment and Offset Management Plan, 185 Mt Gow Road, Shelford & 2150 Wingeel Road, Barunah Park, Victoria

Prepared for:

The GPT Group

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Document Control

Project name	Vegetation Assessment and Offset Management Plan, 2150 Wingeel Road, Barunah Park & 135 Mt Gow Road, Shelford, Victoria
Project number	2318b
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Report title	Vegetation Assessment and Offset Management Plan, 2150 Wingeel Road, Barunah Park & 135 Mt Gow Road, Shelford, Victoria
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Mapping	Stuart Cooney
File name	2318b_VA_OMP_Report_10012024

Cover Photograph

A photograph of vegetation within the offset site taken during the current assessment.

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Introduction

Ecolink Consulting Pty Ltd was engaged by The GPT Group Pty Ltd to undertake a Vegetation Assessment and Offset Management Plan (OMP) at a portion of 185 Mt Gow Road, Shelford, Victoria and 2150 Wingeel Road Barunah Park, Victoria (the offset site). The offset site contains Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) which is proposed to offset the loss of native vegetation located at 485 Cooper Street, Epping (the development site).

The purpose of the current assessment is to:

- Confirm the suitability of the offset site, by confirming the extent and quality of NTGVVP present; and
- Prescribe management actions that must be implemented at the offset site to improve the quality of the vegetation over ten years.

It is intended that this OMP supports the current referral 2022/09440 and regulatory approval process currently underway with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) subject to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

Methods

Desktop Assessment

In order to determine the ecological values that have previously been recorded within the offset site, and its vicinity, the following databases and literature were consulted:

- Planning Maps to identify the planning zones and overlays relating to environmental matters e.g. Vegetation Protection Overlays or Environmental Significance Overlays (Department of Transport and Planning 2023);
- The NatureKit webpage (Department of Environment Land Water and Planning 2023b) from the Department of Energy, Environment, and Climate Action (DEECA) to identify the historic and current Ecological Vegetation Classes (EVCs);
- Nearmap aerial photography to understand previous land use (Nearmap 2023);
- The 'Weeds of National Significance' database (Department of Climate Change Energy the Environment and Water 2023);
- AECOM's *Ecological Surveys for Matters of National Significance at Rocklea Pastoral Co*. prepared for Rocklea Pastoral Co. (AECOM Pty Ltd 2015);
- Ecology and Heritage Partner's *Offset Management Plan: Mount Gow Road, Shelford* prepared for Western Water (Ecology & Heritage Partners Pty Ltd 2021);
- Ecology and Heritage Partner's *Offset Management Plan: Mount Gow Road, Shelford,* prepared for the Brimbank City Council (Ecology & Heritage Partners Pty Ltd 2022); and
- Mark Trengove Ecological *Service's Vegetation Assessment; Mount Gow Road, Shelford, Unnanmed Paddock* (Mark Trengove Ecological Service Pty Ltd 2022).

Site Assessment

A site assessment was undertaken on 11 October 2023 by Botanist/Ecologist, Liam McCormack. Liam is suitably qualified and experienced to undertake such assessments and holds a current Vegetation Quality Assessments (Habitat Hectares) Accreditation with DEECA (Department of Environment Land Water and Planning 2023d).

The assessment was limited to an area nominated by the landowner, and included the entirety of the southern paddock as well as a portion of the northern paddock (that was adequate as an offset site). All flora species observed within the offset site were recorded, with the exception of planted vegetation that was not considered a 'weed' (i.e. planted vegetation that was not spreading or reproducing). Where a species was not able to be confidently identified in the field, a sample was collected and later identified. Plants were identified to species level wherever possible, however, some plants that were planted, cultivars, hybrids, or plants that did not contain suitable fertile material used for identification were recorded to genus level.

Vegetation communities such as EVCs and nationally significant vegetation communities were recorded (if observed) and compared with their corresponding benchmarks or thresholds to ensure that they were accurately assigned.

The species, size (Diameter and Breast Height and Tree Protection Zone) and location of all 'scattered' indigenous trees was recorded using an iPad mini tablet that has an internal Global Positioning System (GPS) and the GIS Pro application (accuracy +/- 5 metres). The presence of hollows and birds' nests was also noted.

Management pressures across the site, such as weed infestations, pest animal harbour, and appropriate fencing was recorded across the site.

Vegetation Quality Assessment

Information regarding the biodiversity values of the site, in pursuit of a site accurate Vegetation Quality Assessment were obtained through:

- Site-based information that was measured or observed at a site, including:
    - Extent of native vegetation patches;
    - Large trees;
    - Native vegetation condition assessed in accordance with the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004);
    - Ecological Vegetation Classes; and
    - Sensitive wetlands and coastal areas.
- Landscape scale information that cannot be measured or observed at the site and includes maps and models procured from DEECA.

Vegetation Quality were assessed in accordance with the Habitat Hectare methodology prescribed within the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004) where patches[1] of vegetation were observed. All indigenous vegetation was assessed, and then assigned a quality rating based on the Habitat Hectare score (Department of Sustainability and Environment 2004). In addition, the location and species of indigenous 'scattered trees'[2], and any 'large trees'[3] within patches were mapped.

[1] A 'patch' is defined as an area with at least 25% cover abundance of perennial native vegetation, or a group (i.e. three or more) trees forming a continuous canopy.
[2] Scattered trees are defined as a native canopy tree that does not form a patch.
[3] Large trees are defined as meeting the size threshold specified in the bioregional EVC Benchmark.

Results

Development Site

The development site is approximately 35 hectares in area and is bordered by the Merri Creek on the western boundary, the Hume Freeway on its eastern boundary, and private land to the north and south. The majority of the land in the northern and eastern portions of the offset site is proposed for commercial and industrial development.

The impact area is currently zoned as Industrial Zone 1 within the City of Whittlesea Council municipality (Department of Environment Land Water and Planning 2023c). The western portion of the impact area is covered by an Environmental Significance Overlay Schedule 3 'Merri Creek and Environs', however, development will not occur within this portion of the site.

The impact area is located within the Victorian Volcanic Plains bioregion of Victoria. DEECA modelling of historic vegetation within the offset site suggests that Ecological Vegetation Class (EVC) 132: Plains Grassland would have occurred within the impact area and continues to persist (Department of Environment Land Water and Planning 2023d). Approximately 2.1 hectares of vegetation mapped as EVC 132: Plains Grassland qualified as NTGVVP (Ecolink Consulting Pty Ltd 2023). These patches exhibited a dominance of Kangaroo Grass *Themeda triandra*, and Common Tussock-grass *Poa Labillardierei*, as the dominant tussock species (Ecolink Consulting Pty Ltd 2023).

Ecolink Consulting Pty Ltd has been advised that approximately eight hectares of NTGVVP will be required to be offset for the 2.1 hectare loss of NTGVVP at the development site.

Natural Temperate Grassland of the Victorian Volcanic Plain

NTGVVP is listed as critically endangered under the EPBC Act. It is characterised as occurring on poorly drained basaltic soils, within the Victorian Volcanic Plain extending from approximately Western-Melbourne to Portland. It is characteristically dominated by native tussock grasses, including Wallaby Grasses *Rytidosperma spp*., Kangaroo Grasses *Themeda* spp., Tussock Grasses *Poa* spp., and Spear Grasses *Austrostipa spp.* Furthermore, this ecological community is characterised by presence of inter-tussock forb species, usually consisting of herbaceous plants such as Blue Devil *Eryngium ovinum*, Small Loose-strife *Lythrum Hyssopifolium* and Sheep's Burr *Acaena echinata*. However, presence of less common forbs including orchids, lilies, daisies, and peas are also characteristic of this community, as is a sparse or absent cover of shrubs and trees (Department of Sustainability Environment Water Population and Communities 2011; Dorrough, McIntyre Stol 2008). NTGVVP has reduced in historic extent by 98%, largely attributed to historic grazing and current urbanisation pressures(Department of Environment Water Heritage and the Arts 2008).

Significant Impact

As NTGVVP has been identified as present and is proposed to be removed to facilitate the current development, impacts to this Matter of National Environmental Significance is deemed significant under the EPBC Act. Offsetting of this significant impact will be required, and is further detailed within the body of this report.

The Offset Site

The offset site is located within a rural area of straddling the localities of Shelford and Barunah Park, generally surrounded by cropping and grazing properties. The offset site included two paddocks that were irregular in shape, extending south and west of Warrambine Creek.

The southern paddock follows Warrambine Creek and is mostly flat with some slight undulations attributed to the waterway. To the north, it is bordered by an established offset reserve, while the southern boundary borders the dwelling and associated outbuildings. The vegetation was mixed between remnant, native grasses, and exotic pasture grasses, with occasional occurrences of herbaceous or woody weeds (Plate 1). Within and directly adjacent the creek, moisture loving species were observed.

The northern paddock was located to the west of Warrambine Creek, and the existing conservation reserve. The vegetation was dominated by remnant native grasses, with noted presence of inter-tussock forbs. Presence of exotic grasses was noted, however, was observed to be much lower than in the southern paddock (Plate 2).

The offset site contains NTGVVP in both the southern and northern paddocks. The patches of NTGVVP are separated by an existing offset area which is managed by the landowners for conservation proposes (Figure 1).

The northern paddock has been selected as the most suitable offset site on the basis that it has:

- A higher Habitat Hectare Score; ,
- Greater contiguity being one large patch of NTGVVP as opposed to smaller more isolated patches; and
- More than eight hectares of NTGVVP (with only 3.28 hectares present in the southern paddock).

Neither area has been subjected to de-rocking, and no livestock was noted within these areas during the current assessment.

Flora

Flora Communities

The offset site is located within the Victorian Volcanic Plain bioregion of Victoria. DEECA modelling of the vegetation within the offset site suggests that it was historically covered by Ecological Vegetation Classes (EVC) 132: Plains Grassland and EVC 55: Plains Grassy Woodland (Department of Environment Land Water and Planning 2023b).

These EVCs are described as:

- EVC 55: Plains Grassy Woodland is a *'An open, eucalypt woodland to 15 m tall. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This*

variant occupies areas receiving approximately 500 – 700 mm annual rainfall.' (Department of Environment Land Water and Planning 2023a). EVC 55: Plains Grassy Woodland is listed as 'Common' within the bioregion.

- EVC 132: Plains Grassland is described as a '*Treeless vegetation mostly less than 1 m tall dominated by largely graminoid and herb life forms. Occupies fertile cracking basalt soils prone to seasonal waterlogging in areas receiving at least 500 mm annual rainfall.*' (Department of Environment Land Water and Planning 2022a). The Conservation Status of EVC 132: Plains Grassland is 'Common' within the bioregion.

Current vegetation modelling, by DEECA, suggests that some of this vegetation persists within the offset site (Department of Environment Land Water and Planning 2023b). The current assessment confirmed the presence of EVC 132: Plains Grassland across the offset sites.

Flora Species

Forty-nine flora species were recorded during the assessment (excluding the planted trees). This comprised 17 indigenous species and 31 exotic species (Table A1).

The southern paddock, was a variable mixture of native and exotic vegetation. Some areas were dominated by exotic vegetation cover, usually consisting of exotic grasses including Toowoomba Canary-grass *Phalaris aquatica*, Yorkshire Fog *Holcus lanatus*, Barley-grass *Hordeum marinum* and Squirrel-tail Fescue *Vulpia bromoides,* as well as environmental weeds such as Variegated Thistle *Silybum marianum*, Spear Thistle *Cirsium vulgare* and African Box-thorn *Lycium ferocissimum* (Plate 3). However, other areas were dominated by native grass species such as Common Tussock-grass *Poa labillardierei*, Grey Tussock-grass *Poa sieberiana*, Common Wallaby-grass *Rytidosperma caespitosum,* Bristly Wallaby-grass *Rytidosperma setaceum,* Kangaroo Grass *Themeda triandra* and Kneed Spear-grass *Austrostipa bigeniculata*. Often, some, or all of these native tussock grass species, exceeded cover abundance of 25%. In other areas, cover abundance of these native tussock grasses exceeded 50% (Figure 1). It was also recorded that due to the presence of exotic grasses, inter-tussock space did not occur, in turn, no native forbs were recorded (Plate 4). The vegetation within and adjacent Warrambine Creek, largely consisted of Common Spike-sedge *Eleocharis acuta*, and Water Ribbons *Cycnogeton spp*.

The vegetation within the northern paddock had a higher cover abundance of indigenous vegetation (generally 50-60 % cover abundance projective foliage cover). It contained the previously mentioned native grass species, with dominant presence of Kangaroo Grass and Common Tussock-grass. The exotic grass coverage was lower, inter-tussock space was greater and forbs such as Small Loose-strife *Lythrum hyssopifolium*, Sheep's Burr *Acaena echinata*, Common Woodruff *Asperula conferta*, Blue Devil *Eryngium ovinum*, Lemon Beauty-heads *Calocephalus citreus* and Swamp Isotome *Isotoma fluviatilis* were recorded (Plates 5-6). Some occurrences of the aforementioned exotic grasses was noted, primarily consisting of Toowoomba Canary-grass, Squirrel-tailed Fescue and Yorkshire Fog, however, observed cover was comparatively low.

Vegetation Quality Assessment

Six patches of native vegetation were recorded within the offset site during the current assessment (Table 1; Figure 1). All patches recorded were EVC 132: Plains Grassland. Patch 1 in the northern paddock scored a high Habitat Hectare Score of 51 (out of 100). Patches 4 scored a low-moderate Habitat Hectare Score of 25 (out of 100) and Patch 5 also scored a low-moderate Habitat Hectare Score of 24 (out of 100), Patches 2, 3, and 6 recorded low Habitat Hectare scores of 13, 14 and 18 (out of 100).

Table 1. Habitat Hectare assessment results

Patch			1	2	3	4	5	6
Bioregion			Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain
EVC name			Plains Grassland	Plains Grassland	Plains Grassland	Plains Grassland	Plains Grassland	Plains Grassland
EVC number			132_61	132_61	132_61	132_61	132_61	132_61
Conservation rating within bioregion			Endangered	Endangered	Endangered	Endangered	Endangered	Endangered
Assessment Criteria		**Max. Score**	**Patch Score**	**Patch Score**	**Patch Score**	**Patch Score**	**Patch Score**	**Patch Score**
Site Condition	a. Large old trees	10	N/A	N/A	N/A	N/A	N/A	N/A
	b. Canopy cover	5	N/A	N/A	N/A	N/A	N/A	N/A
	c. Understorey	25	15	5	5	5	5	5
	d. Lack of weeds	15	6	4	0	4	4	0
	e. Recruitment	10	6	0	0	0	3	0
	f. Organic litter	5	3	2	2	2	3	2
	g. Logs	5	N/A	N/A	N/A	N/A	N/A	N/A
	h. Total (sum of a-g)	**75**	**30**	**11**	**7**	**11**	**15**	**7**
Standardised Score (x 1.36)			41	15	10	15	20	10
Landscape Value	j. Patch size	10	8	1	1	8	2	2
	k. Neighbourhood	10	1	1	1	1	1	1
	l. Distance to core	5	1	1	1	1	1	1
m. Habitat Score (sum of h-l)		**100**	**51**	**18**	**13**	**25**	**24**	**14**
n. Habitat score out of 1 (m÷100)		1	0.51	0.18	0.13	0.25	0.24	0.14
Size (ha)			16.286	0.859	0.437	0.801	3.004	2.849
Large Trees*			**0**	**0**	**0**	**0**	**0**	**0**

Threatened Vegetation Communities

The vegetation observed was assessed against the condition thresholds described in the nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland (Department of Sustainability Environment Water Population and Communities 2011).

Consistent with three previous vegetation assessments completed at the offset site, some of the vegetation within the offset site is representative of NTGVVP(AECOM Pty Ltd 2015; Ecology & Heritage Partners Pty Ltd 2021; Ecology & Heritage Partners Pty Ltd 2022) (Table 2).

However, the current assessment identified a higher abundance of exotic vegetation, particularly Toowoomba Canary-grass , in the southern paddock, than was recorded during previous assessments (AECOM Pty Ltd 2015; Ecology & Heritage Partners Pty Ltd 2021; Ecology & Heritage Partners Pty Ltd 2022). Several areas previously recorded as being NTGVVP within the southern paddock have failed to exceed 50% cover of native grasses, and no longer qualified as the NTGVVP. This discrepancy within the reports is likely due to the high levels of rainfall associated with La Nina conditions for the past two years. An approximate total of 900mm of rain has fallen in the area in the 18 months since the last assessment, (Beureau of Meteorology 2023). The timing of assessments varying between spring and late summer, may also have contributed to the discrepancy in results based on the relative cover abundance of native to exotic vegetation. The results suggest that the vegetation in the southern paddock could be improved to more widely represent NTGVVP again.

Table 2. Condition Thresholds for determining Natural Temperate Grasslands of the Victorian Volcanic Plain (see also Figure 1).

Condition Threshold[1]	P1	P2	P3	P4	P5	P6
Does the patch occur within or near the Victorian Volcanic Plain?	Yes	Yes	Yes	Yes	Yes	Yes
Is the site dominated by native vegetation?	Mostly	Yes	No	Partially	Partially	No
Are trees absent or sparse such that the projective foliage cover of native trees in the patch is 5% or less?	Yes	Yes	Yes	Yes	Yes	Yes
Is the ground vegetation layer dominated by native grasses and/or other native herbs?	Mostly	Yes	No	Partially	Partially	No
Is the patch bigger than or equal to 0.05 hectares (e.g. 10 x 50m OR 20 x 25m)?	Yes	Yes	Yes	Yes	Yes	Yes
The dominant native species represent at least 50% of the native species and the perennial tussock cover; OR non-grass weeds comprise less than 30% of ground cover; OR native forbs (wildflowers) comprise at least 50% of total vegetation cover during spring – summer.	Mostly	Yes	No	Partially	Partially	No
Is the patch considered NTGVVP?	Northern and central	Yes	No	Western section	Southern section	No

The vegetation is also a modified representative of the Western (Basalt) Plains Grassland community listed under the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act).

Offset Management Plan

Management Responsibilities

The OMP will be implemented, and the offset area will be managed by the landowner in accordance with the OMP over a ten-year period. The property will remain a conservation reserve covered by an on-title Trust for Nature conservation covenant in perpetuity. A Section 173 Agreement under the *Planning and Environment Act* 1987 (Vic) will secure the site in the interim, until the deed of covenant is registered. The management of the offset area will commence upon registration of the Section 173 Agreement. The landowner is experienced in offset management, currently managing established NTGVVP offset areas.

Objectives

The objectives of the OMP are:

- Secure the offset site for conservation purposes in perpetuity;
- Improve native vegetation quality to meet prescribed targets; and
- Allow for adaptive management principles.

Performance Targets

The offset area comprises eight hectares of NTGVVP and has been assessed to be of moderate quality, with a condition score of 51/100. To ensure the offset area does not succumb to on-going pressures, the offset area will undergo management over a ten-year period, with a goal of improvement.

The projected decline in quality, from 51/100 to 30/100, recorded in Table 3 assumes that management will be ad-hoc, and performed under legislative requirements such as the *Catchment and Land Protection Act 1994 (Vic)* (CALP Act). Control of invasive grasses not considered noxious, in turn may not occur. Therefore, native grasses are largely out competed by Toowoomba Canary-grass and Yorkshire Fog. This process whilst actively reducing native grass abundance and diversity, also will serve to exclude any future recruitment of both native grasses and forbs as exotic grasses choke, available inter-tussock space.

The projected improvement in quality, from 51/100 to 63/100, recorded in Table 3, assumes management with the goal of conservation, maintained in perpetuity. This scenario is based on implementation of the processes outlined in the Management Actions section. This will include controlled grazing, to reduce biomass and control weeds, as well as active weed control and pest animal management to reduce competition pressures on native vegetation.

Table 3. Projected Vegetation Quality Assessment of the offset area assuming offset presence/absence over a ten-year period.

Vegetation Quality Assessment			Current Quality	Projected Quality without Offset	Projected Quality with Offset
Bioregion			Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain
EVC name			Plains Grassland	Plains Grassland	Plains Grassland
EVC number			132_61	132_61	132_61
Conservation rating within bioregion			Endangered	Endangered	Endangered
Assessment Criteria		**Max. Score**	**Patch Score**	**Patch Score**	**Patch Score**
Site Condition	a. Large old trees	10	N/A	N/A	N/A
	b. Canopy cover	5	N/A	N/A	N/A
	c. Understorey	25	15	10	15
	d. Lack of weeds	15	6	2	9
	e. Recruitment	10	6	3	10
	f. Organic litter	5	3	2	5
	g. Logs	5	N/A	N/A	N/A
	h. Total (sum of a-g)	**75**	**30**	**17**	**39**
Standardised Score			(x 1.36) 41	(x 1.36) 23	(x 1.36) 53
Landscape	j. Patch size	10	8	8	8
	k. Neighbourhood	10	1	1	1
	l. Distance to core	5	1	1	1
m. Habitat Score (sum of h-l)		**100**	**51**	**33**	**63**
n. Habitat score out of 1 (m÷100)		1	0.51	0.33	0.63
Size (ha)			16.286	16.286	16.286
Large Trees*			**0**	**0**	**0**

A ten-year period is considered adequate to achieve the required gain in vegetation quality for the NTGVVP located on site. Grasslands are dynamic in nature, and can respond rapidly to changes in management regime, including weed and biomass control. Table 4, below outlines performance targets and appropriate timings.

Table 4. Performance targets over ten years.

Management Action	Responsibility	Performance Targets		Timing
Security Agreement	Landowner, The GPT Group	1.1	Register Section 173 Agreement	Year 1
Security Agreement	Landowner, Trust for Nature, The GPT Group	1.2	Covenant secured on site.	Year 1
Fencing	Landowner	2.1	Appropriate fencing erected	Year 1
Signage	Landowner	3.1	Signs placed along offset area fences, and at gates	Year 1
Biomass Management	Landowner	4.1	Assess inter-tussock space targets	Every October
		4.2	If possible, implement two ecological burns after year two	Years 3 and 8
Weed Management	Landowner	5.1	Reduce total weed cover to <25%	Year 1-10
		5.2	<1% cover of high threat weedy dicots	Year 1-10
		5.3	Reduce perennial grass cover to <5% cover	Year 1-10
Pest Animal Management	Landowner	6.1	Pest animal control occurs as needed	Year 1-10
Monitoring and Reporting	Landowner, Qualified Ecologist, The GPT Group, DCCEEW	7.1	Install five photo points	Year 1
		7.2	Site monitoring	Year 1-10
		7.3	Annual report to be submitted to Trust for Nature and DCCEEW	End of each Year
		7.5	Vegetation Quality and Management Assessments undertaken, and report submitted to The GPT Group, Trust for Nature and DCCEEW	Years 2, 5, 8 and 10
		7.6	Quality of NTGVVP improved and maintained at 60/100.	Year 10

Adaptive Management

Continual re-evaluation, monitoring and review of the outlined management actions must be implemented by the land manager to ensure the performance targets are achieved over the ten-year period. Incorporating adaptive management is necessary to ensure long term gains when regarding this offset area. This is especially true, given NTGVVP's dynamic ecology, which varies in abundance and diversity given changing seasons, management, and climate conditions. An adaptive management approach will allow the land manager agility and flexibility when adjusting techniques to handle unforeseen challenges such as seasonal variations in weed abundance.

In keeping with adaptive management principles, alterations, or adjustments to the methods of management activities outlined below may need to occur, given they align with the objectives of the OMP. However, any alterations, beyond the scope outlined within this OMP, must be pre-approved with Trust for Nature prior to implementation.

Management Prescriptions

Security Agreement

The offset area must be permanently secured under a Trust for Nature on-title Deed of Covenant for the Conservation of Land (Covenant), a Section 173 Agreement will serve to secure the offset area in the interim. This Covenant will be present on the properties title and will administrate permanent protection and restrict land uses that do not serve the ultimate purpose of conservation. Including development, recreation, some agricultural practices such as cropping or and any other damaging or exploitative activities. Some limited pastoral activities may be allowed with the ultimate goal of conservation such as sheep grazing which may be permitted for achieving the goals of biomass and weed management.

Fencing

The offset area sits within a wider paddock that was observed to be fenced on all sides and kept in good working order, as were the gates to this paddock. If the areas adjacent the offset area, within the wider paddock are intended for any prohibited land-uses, such as intensive grazing or cultivating, further fencing must be erected to protect the offset area.

The fences shall be maintained and repaired, or replaced as soon as practicable after damage. This will aid in enabling implementation of the controlled grazing regime and protecting the site from unauthorised access.

Signage

Signage will be erected, along the offset area boundary fences, and at any gates, within the first three months of implementation of this OMP. This will alert any visitors, assessors, land managers or neighbours to the presence of the offset area, and prohibited activities within the offset area.

Biomass Management

Diversity within native grassland ecosystems, is often dependent on available inter-tussock space, this component of grassland ecosystems is important to preserve and manage. In turn, biomass management will improve and maintain available inter-tussock space to promote the recruitment of native herbs.

The current cover of inter-tussock space within the offset area is approximately 20%. Biomass control will aim to maintain inter-tussock space to a cover of 20-40%, by late October annually, ensuring adequate recruitment of native vegetation occurs. Furthermore, native grasses shall not be grazed to a height, less than five centimetres, this metric will prevent any possible overgrazing of native grasses within the offset area.

Controlled Grazing

Livestock grazing can be utilised in the pursuit of biomass management, however, the approach taken must be controlled to reduce chances of off-target damage. Sheep grazing, incorporating a rest regime in spring or summer has been found to result in better gains for cover and diversity metrics, as

opposed to set-stocking or exclusion. However, excluding grazing over both spring and summer has been found to reduce cover and diversity of native vegetation (Dorrough, McIntyre Stol 2008).

Grazing outcomes are often site specific, and require careful monitoring, consideration and implementation, including such factors as seasonal conditions and species composition. As a reasonable amount of present grasses, excluding inter-tussock space are annual species a grazing regime will be an important component of biomass management. The grazing regime will follow the below prescriptions:

- A light intensity grazing of six Dry Sheep Equivalent per hectare (DSE/ha) in early spring;
- Reduce grazing pressure to less than four DSE/ha over late spring to allow native forbs natural recruitment;
- Extend exclusion periods to allow native grasses to recover at least three tillers of growth;
- Remove stock over summer to allow for seeding of native perennial grasses; and,
- Remove stock from the area entirely during dry periods to prevent over grazing, or wet areas to prevent pugging of the soil.

Ecological Burning

The process of ecological burning can be utilised in reducing biomass, encouraging germination of native vegetation and as a targeted weed control method. Utilising fire for ecological outcomes can be a complex process, and requires trial and error testing, at the landowner's discretion. Only an autumn burn is recommended, to an extent of 20% of the area, in either a non-targeted mosaic pattern or targeted to multiple areas, less than one hectare in extent. Spring burns may be implemented by the landowner, only following approval by Trust for Nature.

Burns are considered important to the ecological processes of NTGVVP, however, should occur five years apart, in the case of this offset area. The rest periods between burns will allow the landowner opportunity to assess and monitor the outcomes of the burn, as well as remain adaptive to seasonal conditions, this includes not conducting any burns if they cannot be properly implemented. Grazing should be excluded until sufficient recovery of native grasses has been observed, largely consisting of the establishment of three tillers as a minimum. Ecological burning must be undertaken in accordance with the CFA and Colac Otway Shire planning stipulations.

Weed Management

The offset area, and wider paddock is largely clear of woody weeds, some occasional presence of noxious weeds such as Spear Thistle *Cirsium vulgare* at approximately 1% cover, within the offset area, was noted. Cover of pasture grasses and environmental weeds was recorded at approximately 30%. Table 5 records all present weeds within the offset area, threat status, and control measures. Over the life of this OMP the total weed cover will be reduced and maintained to less than 25% cover, with high threat weeds reduced to less than 1% cover. This will be achieved by appropriate monitoring and control of emerging environmental and noxious weeds.

Weed management will often be commensurate with biomass management and will be achieved through the methods of burning and controlled grazing outlined above. Further methods that may be undertaken will include herbicide application, or manual removal.

Herbicide Application

Herbicide can be utilised to control the presence of many species of invasive vegetation effectively and efficiently. Usage must always be in accordance with the manufacturer's instruction, and carried out under an Agricultural Chemical Users Permit. Application methods vary widely and can be adapted to achieve high levels of efficacy and low levels of off-target damage. Methods may include spot spraying, cut and paint, drill and fill and swiping or dabbing.

Table 5. Weeds observed, threat status and management methods.

Weed Type	Scientific Name	Threat Status	Cover	Management Method	Timing	Target Cover
Annual Grasses	Quicksilver Grass, Lesser Quaking-grass Bearded Oat, Annual Meadow-grass and Squirrel-tailed Fescue	Moderate	20%	Controlled grazing and ecological burning	Spring and Autumn	<10%
Perennial Grasses	Yorkshire Fog and Toowoomba Canary-grass	High	5%	Controlled grazing, ecological burning, and herbicide application	Year-round	<5%
Herbaceous weeds	Common Sow-thistle, Flatweed, Chickweed, Capeweed and Greater Plantain,	Moderate	5%	Controlled grazing, herbicide application prior to flowering in infestations only, hand pull or chipping.	Spring	<5%
Noxious Weeds	Spear Thistle	High	1%	Herbicide application prior to flowering, chip, or hand pull	Spring - Summer	<1%

Pest Animal Management

Whilst no pest animals were observed within the offset area, rabbits and rabbit warrens were observed across the wider property. Rabbits, and foxes are 'established pest animals' under *The Catchment and Land Protection Act 1994 (Vic)* and all landowners must take reasonable steps to, as far as is reasonably practicable, eradicate them.

Pest animals will be monitoring and managed throughout the year, as necessary. Shooting is the recommended control method, however, fumigation and burrow ripping may also be utilised as needed. Harbour should also be targeted including rubbish and stockpiles; however, indigenous

plants, logs or rocks should be maintained on site. Ripping of burrows must not involve the use of heavy machinery and must be completed by hand.

Table 6. Table of pest animal management methods and timings.

Species Name	Method	Timing
Foxes and Rabbits	Shooting	September - January
Foxes and Rabbits	Removal of harbour	Commencement of OMP
Foxes and Rabbits	Fumigation and ripping of burrows	As required
Foxes and Rabbits	Baiting	September - January
Foxes and Rabbits	If baiting, necessary carcass collection to prevent secondary poisoning	November - October
Foxes and Rabbits	Monitor and adaptive management	Ongoing
Emerging pests	Monitoring and adaptive management	Ongoing

Monitoring and Reporting

Annual Reporting

As the OMP commences five photo points, at a minimum, will be emplaced across the offset area. Photographic evidence will be taken at these points annually, occurring in spring.

Quarterly monitoring of the offset area will be undertaken by the landowner, both within the life of the OMP and in perpetuity. Monitoring will largely concern pest animal presence, exotic and native vegetation cover abundance, and any responses the system has to management inputs.

Vegetation Quality and Management Assessment

To evaluate the quality of NTGVVP present at the offset area, in Years Two, Five, Eight and Ten vegetation quality assessments shall be undertaken by suitably qualified ecologists. These assessments will also serve to inform the landowner of percent cover of native and exotic vegetation, biomass targets, and minimum heights of native grasses, to facilitate management practices. The full assessments will include:

- Photographs taken at set photo points;
- Vegetation quadrats, including size and height metrics, photographs and percent cover results, including:
    - Percent cover of exotic annual grasses;
    - Percent cover of exotic perennial grass;
    - Percent cover of exotic herbaceous weeds;
    - Percent cover of noxious weeds;
    - Percent cover of total weeds;
    - Percent cover of native tussock grasses;

    - Percent cover of inter-tussock space;
- A list of present flora species;
- A Vegetation Quality Assessment;
- Application of condition thresholds for NTGVVP to the current conditions of vegetation; and, and,
- Preparation of a report detailing the full outcomes of the assessments.

Timeline and Summary Table

Table 7 below is a complete summary of management actions, appropriate timing and responsible personnel, implemented over a ten-year period.

Table 7. OMP responsibility, actions, and timing, over a ten-year period.

Year(s)	Management Action	Description	Responsible Party	Timing	Performance Target
1	Security Agreement	Secure site with an interim Section 173 Agreement	The GPT Group, Landowner	Commencement of OMP	1.1
1	Security Agreement	Secured offset area under a Trust for Nature Covenant	Trust for Nature, Landowner	Commencement of OMP	1.1
1	Monitoring and Reporting	Establish a minimum of five photograph points	Landowner	Commencement of OMP	7.1
1	Fencing	Install, if necessary, appropriate fencing across southern, western, and eastern boundaries of the offset area.	Landowner, qualified personnel	First three months of OMP	2.1
1	Fencing	Maintain northern boundary fence	Landowner, qualified personnel	Ongoing	2.1
2-10	Fencing	Maintain perimeter fences in good working order	Trust for Nature, Landowner	Ongoing	2.1
1	Signage	Implement signage on all four sides of offset area fencing, and on any gates, to alert any potential parties of its purpose and prohibited land uses.	Landowner, qualified personnel	First three months of OMP	3.1
2-10	Signage	Maintain signage along boundary fences and at any gates	Landowner	Ongoing	3.1
1-10	Biomass Management	Implement a controlled grazing regime to address biomass management	Landowner, qualified personnel	March - September	4.1
1-10	Biomass Management	Reduce sheep grazing pressure in late spring	Landowner, qualified personnel	October - November	4.1
1-10	Biomass Management	Remove sheep from area over summer	Landowner, qualified personnel	December - February	4.1
3-8	Biomass Management	Undertake up to two ecological burns <20% of site within years three through eight, with allowances for unsuitable weather.	Landowner, qualified personnel	Autumn	4.2

Year(s)	Management Action	Description	Responsible Party	Timing	Performance Target
1-10	Weed Management	Undertake required weed control to reach cover targets (Table 5)	Landowner, qualified personnel	Ongoing	5.1, 5.2, 5.3
1-10	Pest Animal Management	Undertake pest animal management as required, consistently monitor for presence and impacts (Table 6)	Landowner, qualified personnel	Ongoing	6.1
1-10	Monitoring and Reporting	Undertake quarterly monitoring of the offset area, including photographs, and responses to management actions	Landowner	Quarterly	7.2
2,5,8 and 10	Monitoring and Reporting	Undertake a Vegetation Quality and Management Assessment to evaluate and provide data to assist in on-going management	The GPT Group, qualified ecologist	September - November	7.5
1-10	Monitoring and Reporting	Prepare (Landowner) and submit for review (Trust for Nature) an annual report	Landowner, Trust for Nature	Submitted two months prior to the date of registration, in final year	7.3

Ongoing Management Requirements

At the end of the ten-year period outlined in this OMP, the landowner is obliged to undertake continual management to maintain the extent and quality of the NTGVVP on site, in perpetuity. Ongoing management, responsibility and targets are outlined below in Table 8.

Table 8. Offset management to be implemented in perpetuity.

Management Action	Responsible Party	Performance Target
Security Agreement	Landowner, Trust for Nature	Trust for Nature Covenant to remain on-title
Fencing	Landowner	Appropriate fences exclude stock and restrict vehicle access
Signage	Landowner	Signs are visible and present on boundary fences and gates
Biomass Management	Landowner	A cover of 20-40% inter-tussock space is maintained
Weed Management Landowner		0% Woody weed cover
		<1% Noxious weed cover
		<5% perennial pasture grasses
		<25% cover of all weeds
Pest Animal Management	Landowner	Pest animals monitored and controlled as appropriate
Monitoring and Reporting	Landowner, Trust for Nature	Site continues to be monitored to enact adaptive management to maintain performance targets
		NTGVVP extent and quality is maintained at a minimum of 60/100

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Plates

Plate 1. The southern paddock, exhibiting some native and some exotic vegetation (11 October 2023).

Plate 2. The northern paddock, exhibiting high cover of native vegetation (11 October 2023).

Plate 3. Toowoomba Canary-grass occurring in the southern paddock (11 October 2023).

Plate 4. Squirrel-tailed Fescue, an annual grass, dominating inter-tussock space within the southern paddock (30 May 2023).

Plate 5. Swamp Isotome, one of several forbs observed occurring within inter-tussock space in the northern paddock (30 May 2023).

Plate 6. A lower presence of biomass observed within the northern paddock (30 May 2023).

Figures

Figure 1: Results of the current assessment

185 Mt Gow Road, Shelford, Victoria

Legend

- Property Boundary

Offset Area

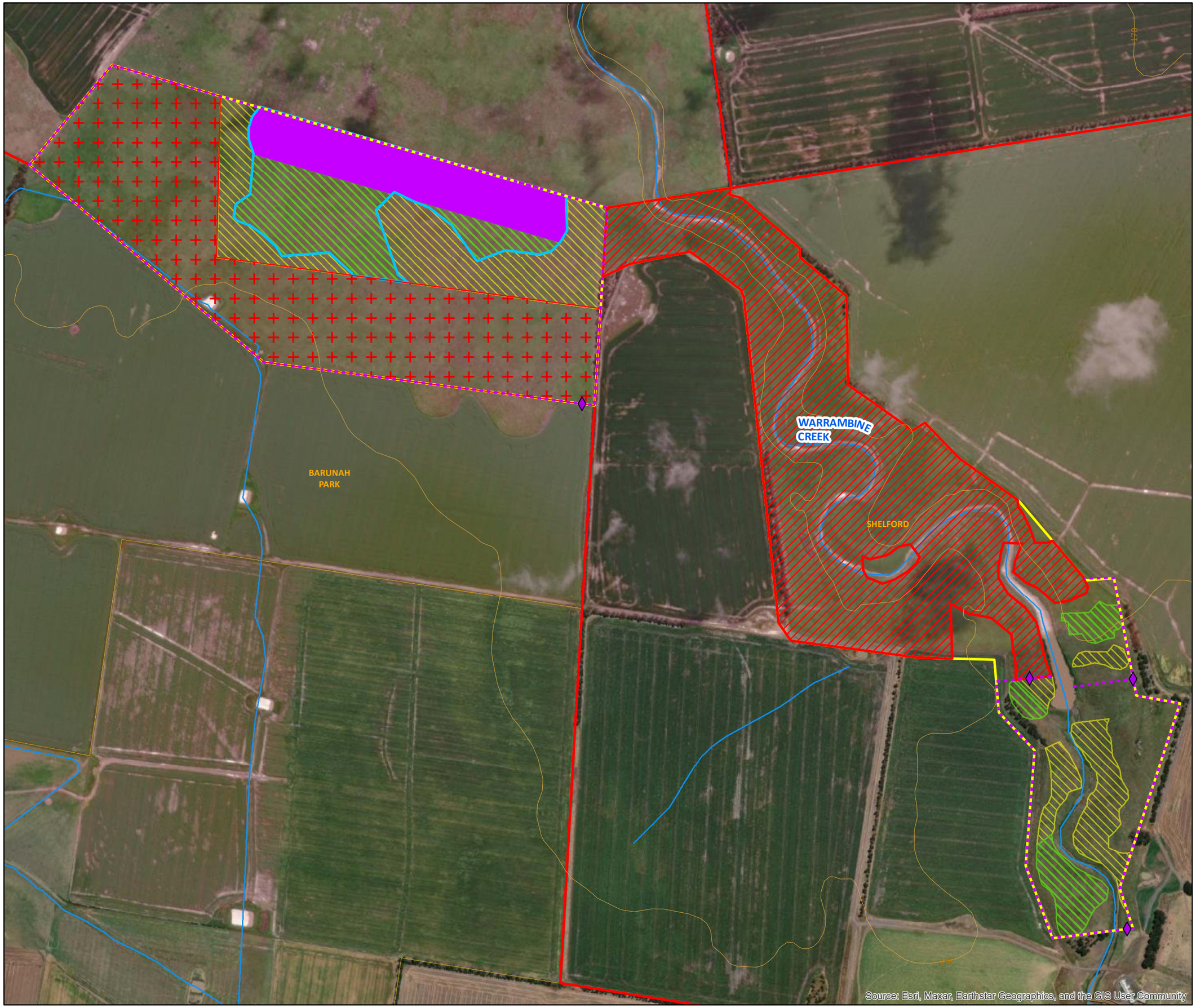
- Property Subset
- Proposed Offsets
- Existing Offsets
- Not Assessed
- Fences in Working Order
- Gates

Patches of Native Vegetation

- Natural Temperate Grasslands of the Victorian Volcanic Plain
- Plains Grassland
- VLQ-9382 Offset Site

0 100 200 300 400 Meters

ecolink consulting



Appendices

Appendix 1. Flora and Fauna Tables

Table A1. Flora species recorded within the offset site

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	African Box-thorn	*Lycium ferocissimum*	Yes	Controlled
*	Annual Meadow-grass	*Poa annua* s.l.	-	-
*	Barley-grass	*Hordeum murinum*	-	-
*	Bearded Oat	*Avena barbata*	-	-
*	Big Heron's-bill	*Erodium botrys*	-	-
	Blue Devil	*Eryngium ovinum*	-	-
	Bristly Wallaby-grass	*Rytidosperma setaceum* var. *setaceum*	-	-
*	Cape Weed	*Arctotheca calendula*	-	-
*	Chickweed	*Stellaria media*	-	-
*	Cocksfoot	*Dactylis glomerata*	-	-
	Common Bog-sedge	*Schoenus apogon*	-	-
*	Common Sow-thistle	*Sonchus oleraceus*	-	-
	Common Spike-sedge	*Eleocharis acuta*	-	-
	Common Tussock-grass	*Poa labillardierei*	-	-
	Common Wallaby-grass	*Rytidosperma caespitosum*	-	-
	Common Woodruff	*Asperula conferta*	-	-
	Curled Dock	*Rumex crispus.*	-	-
	Finger Rush	*Juncus subsecundus*	-	-
*	Flatweed	*Hypochaeris radicata*	-	-
	Grassland Wood-sorrel	*Oxalis perennans*	-	-
	Grey Tussock-grass	*Poa sieberiana* var. *sieberiana*	-	-
	Kangaroo Grass	*Themeda triandra*	-	-
	Kneed Spear-grass	*Austrostipa bigeniculata*	-	-
*	Large Quaking-grass	*Briza maxima*	-	-
	Lemon Beauty-heads	*Calocephalus citreus*	-	-
*	Lesser Quaking-grass	*Briza minor*	-	-
*	Narrow-leaf Clover	*Trifolium angustifolium* var. *angustifolium*	-	-
*	Onion Grass	*Romulea rosea*	-	-
*	Perennial Rye-grass	*Lolium perenne*	-	-
*	Prostrate Knotweed	*Polygonum aviculare* s.l.	-	-
*	Quicksilver Grass	*Aira cupaniana*	-	-
*	Ribwort	*Plantago lanceolata*	-	-
*	Serrated Tussock	*Nassella trichotoma*	Yes	Controlled

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
	Sheep's Burr	*Acaena echinata*	-	-
	Small Loosestrife	*Lythrum hyssopifolia*	-	-
*	Small-flower Mallow	*Malva parviflora*	-	-
*	Soft Brome	*Bromus hordeaceus*	-	-
*	Soursob	*Oxalis pes-caprae*	-	-
*	Spear Thistle	*Cirsium vulgare*	-	Restricted
*	Squirrel-tail Fescue	*Vulpia bromoides*	-	-
*	Sugar Gum	*Eucalyptus cladocalyx*	-	-
	Swamp Isotome	*Isotoma fluviatilis* subsp. *australis*	-	-
*	Toowoomba Canary-grass	*Phalaris aquatica*	-	-
*	Twiggy Turnip	*Brassica fruticulosa*	-	-
*	Variegated Thistle	*Silybum marianum*	-	Restricted
	Water Ribbons	*Cycnogeton* spp.	-	-
*	Yorkshire Fog	*Holcus lanatus*	-	-

Table Notes:

* – Exotic # – naturalised

This table does not include ornamental plants, trees or shrubs that were not spreading or reproducing beyond where they were planted.

Appendix 2. Annual Report Template

Table A2. Annual Report Template

Landowner Name				**Trust for Nature Site ID**	
Offset site address	2150 Wingeel Road Barunah Park, VIC, 3329			**OMP No. (If applicable)**	
Responsible Authority				**Annual Report Number**	
Matters of National Environmental Significance	*Natural Temperate Grassland of the Victorian Volcanic Plain*				
Management Action	**Performance Target**	**Management Action Implemented**	**Timing**	**Performance Target Met? (Y/N)**	**Description of action and outcome. (provide evidence and comments)**
Eg. Biomass Management	Maintain 20-40% of inter-tussock space	Controlled sheep grazing	March through September	Y	
Signed				**Date**	