



Management Plan for Post Office Creek

88a-90 Wedge St, Kyneton

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Acronyms and abbreviations

| Item | Definition |
|----------|----------------------------------------------------------------------|
| AEP | Annual exceedance probability |
| CaLP Act | Catchment and Land Protection Act 1994 |
| СМА | Catchment management area |
| DELWP | Department of Environment, Land, Water and Planning |
| DPIPWE | Department Of Primary Industries, Parks, Water and Environment (Tas) |
| EPA | Environmental Protection Agency |
| EVC | Ecological vegetation class |
| FFG Act | Flora and Fauna Guarantee Act 1988 |
| ha | hectares |
| km | kilometres |
| LGA | Local government area |
| LSIO | Land Subject to Inundation Overlay |
| MNES | Matters of National Environmental Significance |
| MRSC | Macedon Ranges Shire Council |
| TEC | Threatened Ecological Communities |

1. Introduction

1.1. Background

NGH Pty Ltd was engaged by Tomkinson Group Pty Ltd (2022) to undertake an ecological assessment for the proposed subdivision at 88A-90 Wedge Street, Kyneton. This ecological assessment was completed in June 2022 and determined the potential impacts on threatened entities, the extent of native vegetation present on site, and subsequent offset requirements (NGH 2022). The management plan is an addition to the ecology report based on Macedon Ranges Shire Council Request for further Information for further management of Post Office Creek riparian area.

The proposal entails an 18-lot subdivision that is located at 88A Wedge St (Lot 1 PS524086) and 90 Wedge St (Lot 2 PS524086 and CA25, CA26 and CA27\PP5439 (multiple lots)). The proposed subdivision Development Footprint covers an area of 1.95 hectares (ha).

Post Office Creek has historically been cleared of the remnant native vegetation, however, has been revegetated with a mix of native Australia plants, local native plants and some exotic vegetation covering 0.55 ha. No revegetation is proposed to be removed along the creek except for a small dam which will be filled and altered for the subdivision stormwater management.

1.2. Purpose of this report

This report is in response to the Macedon Ranges Shire Council's (MRSC) Request for Further Information (RFI), following the submission of the Ecology Assessment in June 2022. This management plan aims to address the following questions from the RFI:

14. An overall management plan is required for the riparian zone along the north bank of the Post Office Creek. This should not only detail weed management (as submitted), but also detail any specialist habitat areas, stabilisation of the bank and overland drainage, ongoing vegetation management (including weeding and additional planting of indigenous plants). This management plan should include how the area is to be maintained, how ongoing maintenance will be financed and a regular review period of the area once every five years to ensure that the creek bank is being maintained appropriately.

17. Although the ecology report submitted provides details about weed management now and into the future for the Post Office Creek area, no overall management plan has been provided to articulate how the north bank of the Creek will be maintained. This should include any specialist habitat areas, stabilisation of the bank and overland drainage, ongoing vegetation management (including weeding and planting of indigenous plants), etc. This management plan should include how the area is to be maintained and a regular review period of the area once every 5 years to ensure that the Creek bank is being maintained appropriately.

NGH proposes to incorporate the weed management plan from the ecology assessment (NGH 2022) and expand this to include the following:

- Weed management and control measures.
- Identify areas for additional planting to increase species diversity (improve habitat areas) and contribute to bank stabilisation.
- Ongoing vegetation management and maintenance including timing schedule.
- Replacement planting strategy
- Ongoing financial management

1.3. Location and natural features

88A-90 Wedge Street, Kyneton is in the Macedon Ranges Local Government Area (LGA). The property is approximately 1.6 kilometres (kms) from the centre of Kyneton. Post Office Creek reserve has been planted with a mix of local indigenous and regional Australian trees, shrubs and understorey covering 0.55 ha. This management plan does not propose to remove any of this vegetation but to enhance the biodiversity values through additional planting.

The Post Office Creek Reserve is located in the Central Victorian Uplands Bioregion. The geology formations of the Central Victorian Uplands include Lower Palaeozoic deposits with dissected uplands at higher elevations, among granitic and sedimentary (with Tertiary colluvial aprons) terrain with metamorphic and old volcanic rocks which have formed steeply sloped peaks and ridges (DELWP, 2022).

1.4. Waterway management and stream bank stabilisation

The Post Office Creek Reserve is located within the Campaspe River basin of the North Central Catchment Management Area (NCCMA) (North Central Catchment Management Authority, 2023). Post Office Creek joins Campaspe River to the northwest of the site. There is also a dam on site that covers 0.19 ha (Figure 1-1). The dam will be removed and reshaped as part of the subdivision stormwater management.

A Stormwater Management Strategy for the Post Office Creek Reserve, prepared by Tomkinson, shows peak flood modelling for a 1% Annual Exceedance Probability (AEP) (1 in 100-year event) (Tomkinson, 2023). Using the NCCMA 'Floodeye' tool, an indicative flood depth for a 1% AEP was modelled for the Post Office Creek Reserve (Tomkinson, 2023). The report mapped the south of the site to lie within a Land Subject to Inundation Overlay (LSIO), triggering flood management measures to ensure the development does not impede the existing waterway and flood plain (Tomkinson, 2023). To meet NCCMA and Goulburn-Murray Water requirements, the lots of the subdivision have an average setback of 30 m from the top of the creekbank (Tomkinson, 2023). The raingarden is proposed to be located in land subjected to inundation, and appropriate measures have been taken to ensure damage is mitigated during times of inundation (Tomkinson, 2023).

The creek banks are currently covered with exotic grasses and considered stable. There is potential during peak flow periods, for stream bank erosion to increase due to the increased creek velocity. This management plan will include passive stream bank management through supplementary planting. No earthworks are considered as part of this management plan for streambank erosion management given the stream bank is currently stable and vegetation cover, although exotic, reduces erosion. Any future earthworks for bank stabilisation should be completed in consultation in the NCCMA.

88a-90 Wedge St, Kyneton



Figure 1-1 Locality Map

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2. Site Results

A site inspection was conducted by Michelle Patrick, NGH Ecologist, on October 11, 2021 (as part of the Ecological Assessment). This site inspection included an assessment of vegetation (planted, native & exotic), and noxious weeds.

2.1. Native and Planted Native Vegetation

The vegetation along Post Office Creek includes trees, shrubs and understorey that was a mix of native planted and exotic vegetation. The vegetation present is planted Eucalypts and Acacias from the locality/region planted on the upper slopes of Post Office Creek. The creekline vegetation will be retained and covers 0.55 ha. This planted vegetation will not be impacted. No large trees were recorded on site. The tree and shrub plantings proposed as part of this rehabilitation plan aim to fill in open canopy spaces. The species listed in Sections 5.1 & 5.2 can also be used for future revegetation and replacement plantings.

2.1.1. Ecological Vegetation Class (EVC)

Historically, the EVC of the Post Office Creek Reserve is mapped as EVC 55 – Central Victorian Uplands. This historic mapping is based on Pre-1750 European EVCs Modelling (DSE 2004).

EVC 55 Plains Grassy Woodland is described by (DSE, 2004):

"An open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types. 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."

Figure 2-1 below shows the extent of EVC 55, the locality of the Post Office Creek Reserve prior to 1750.

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Figure 2-1 Pre 1750 EVC mapping of the Study Area, Post Office Creek Reserve and Locality

2.2. Exotic Vegetation

The understorey vegetation and stream bank vegetation are an exotic mix of herbs and grasses and noxious weeds. The exotic grasses and herbs will only be controlled in areas set aside for revegetation. Noxious weed control is outlined in the next section.

2.2.1. Noxious weed control

The high threat weeds recorded on site are listed under the *Catchment and Land Protection Act, 1994* (CaLP Act). Noxious weeds are classified by NCCMA (The Shires of Mitchell, Macedon Ranges and Mount Alexander, 2015). The weeds present on site and their catchment classification is listed in Table 2-1 and shown in Figure 2-2 below.

| Scientific Name | Common Name | CaLP Act Weed Listing Status |
|--------------------|---------------|------------------------------|
| Allium triquetrum | Angled Onion | Restricted |
| Rosa rubiginosa | Sweet Briar | Regionally Controlled |
| Salix fragilis | Crack Willow | Restricted |
| Foeniculum vulgare | Fennel | Restricted |
| Cirsium vulgare | Spear Thistle | Regionally Controlled |
| Crataegus monogyna | Hawthorn | Regionally Controlled |

Table 2-1 Declared noxious weeds recorded on site.

2.2.2. Weed control.

Weed control includes manual removal and hand weeding as the preferred control methods (Table 2-2) in the riparian areas of Post Office Creek due to appropriate water protection and limited chemical use (DPIPWE, 2022).

Weed control near waterbodies requires a long-term commitment to eradication, perhaps 5–10 years or more, as the seed banks of many 'woody' weed species (e.g., Hawthorn, Sweet Briar) may remain viable for decades (DPIPWE, 2022). Weeds can also spread along watercourses, making their control difficult. Gradual and consistent weed control and re-establishment of local native plant species are integral to sustainable restoration and management of riparian areas (EPA, 2017).

Recommendations for weed control in the Macedon Ranges includes the following control methods detailed in Table 2-2 (The Macedon Ranges Shire Council, 2015) (Atlas Ecology, 2013).

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| Weed Species | Control Methods | Frequency | Optimal Time Period |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------|
| Angled Onion Allium triquetrum | - Chemical - Manual removal - Grooming | Seasonal (before species flowers) Annually for 5 subsequent years | June - November |
| Sweet Briar Rosa rubiginosa | Chemical Manual removal Cut and paint with appropriate herbicide | Seasonal (before species flowers) Annually for 5 subsequent years | October - December |
| Crack Willow Salix fragilis | - Chemical - Manual removal - Drill and fill | Seasonal (before species flowers) Annually for 5 subsequent years | All year |
| Fennel Foeniculum vulgare | - Chemical - Manual removal | Seasonal (before species flowers) Annually for 5 subsequent years | Winter – spring June - November |
| Spear Thistle Cirsium vulgare | - Chemical - Manual removal | Seasonal (before species flowers) Annually for 5 subsequent years | August - December |
| Hawthorn Crataegus monogyna | Chemical Manual removal Cut and paint with appropriate herbicide. Grooming | Seasonal (before species flowers) Annually for 5 subsequent years | October - February |

Table 2-2 Control methods for noxious weeds.

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Figure 2-2 Noxious weed species in Post Office Creek Reserve

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3. Site Preparation

Restoring native vegetation helps to reduce the presence of weed species, ensures the stability of banks, shades the waterway (which helps prevent future weed invasion), and provides habitat for native fauna and flora (DPIPWE, 2022). Site preparation is required prior to any revegetation.

3.1. Weed Management

Post Office Creek will require site preparation. Site preparation includes weed management to reduce weed competition to improve the survival rate of the revegetation.

Weed control includes spraying or hand weeding the areas set aside for planting. Weed control should be planned approximately three weeks before planting. As part of the planting stage, a native blend of potting mix with a suitable slow-release fertiliser to improve water retention and plant establishment can be applied. All plants should be well watered at planting and follow up watering for the first 12 months.

Groundstorey plants can be densely planted to reduce weed competition and would not require tree guards, however, hand weeding should continue during watering in the first 12 months. If weed cover of exotic grasses is high, bark mulch may be applied.

Trees and shrubs should have tree guards to assist in creating a suitable microclimate, protection from frost and improve water retention. The trees and shrubs should also include a native blend of potting mix and bark mulch at the planting stage to reduce weed competition. Bark mulch only needs to extend just beyond the tree guard but can be extended to cover a larger area. The area inside the tree guards requires hand weeding when watering. Watering should be regular depending on weather conditions. For example, monthly or fortnightly in wetter months, or weekly in drought or hotter months for the first 12 months, or the maintenance period. Consistent watering and weed control will improve survival rates and decrease the risk of replacing plants during the maintenance period.

A planting schedule which details the recommended endemic flora species and timings for revegetation is detailed in Section 5.1 & 5.2.

4. Planting Schedule

Revegetation should begin three weeks post weed control to minimise the risk of weed species reestablishing in the area.

Planting is recommended to occur in autumn (prior to frost) or early spring. This timing will allow the plants to establish before frost or the summer heat.

Revegetation species were selected based EVC modelling, site parameters and species common in Macedon Ranges that survive well based on climate and soil conditions. Post Office Creek runs along the southern boundary of the study area, where revegetation efforts are intended to occur, it is important that the species chosen are somewhat flood tolerant to increase their survival rate.

The planting schedule is separated into two types, 1) shrub and tree species, and 2) groundcover species. The shrub and tree species revegetation areas are shown in Figure 4-1 below. Table 5-2 details the chosen species for revegetation and number of each species to be planted in Planting Areas 1 and 2 on the map.

Revegetation of groundcover species has not been defined to particular areas. The areas can be selected along Post Office Creek in suitable locations. There are five recommended plots covering 25 m². The groundcover species and the recommended number to occur in each plot is detailed in Table 5-1.

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Figure 4-1 Revegetation planting zones for tree and shrub species

5. Maintenance Schedule

5.1. Ground Cover Planting Schedule

Table 5-1 Ground cover species planting schedule

| Scientific Nome | Common Name | Number of plants | | | | | Timing |
|------------------------------------|------------------------|------------------|--------|--------|--------|--------|-----------|
| | | Plot 1 | Plot 2 | Plot 3 | Plot 4 | Plot 5 | Tinnig |
| Dianella revoluta var. revoluta | Black-anther Flax-lily | 25 | 25 | 25 | 25 | 25 | April-May |
| Hardenbergia violacea | Purple Coral-pea | 25 | 25 | 25 | 25 | 25 | April-May |
| Lomandra longifolia | Spiny-head Mat-rush | 25 | 25 | 25 | 25 | 25 | April-May |
| Poa labillardierei | Common Tussock-grass | 25 | 25 | 25 | 25 | 25 | April-May |

5.2. Trees and Shrubs Planting Schedule

Table 5-2 Tree and shrub species planting schedule

| Scientific Name | Common Name | Plant Type | Number of plants | | Timing |
|----------------------|----------------------|------------|------------------|--------------|-------------|
| | | | Plant Area 1 | Plant Area 2 | |
| Eucalyptus viminalis | Manna Gum | Tree | 2 | 0 | April - May |
| Eucalyptus rubida | Candlebark | Tree | 2 | 0 | April - May |
| Eucalyptus ovata | Swamp Gum | Tree | 2 | 0 | April - May |
| Acacia melanoxylon | Blackwood | Shrub | 2 | 2 | April - May |
| Acacia dealbata | Silver Wattle | Shrub | 2 | 2 | April - May |
| Acacia mearnsii | Black Wattle | Shrub | 2 | 2 | April - May |
| Goodenia ovata | Hop Goodenia | Shrub | 1 | 3 | April - May |
| Solanum laciniatum | Large Kangaroo Apple | Shrub | 1 | 3 | April - May |

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| Scientific Name | Common Name | Plant Type | Number of plants | | Timing |
|---------------------|-------------------|------------|------------------|--------------|-------------|
| | | | Plant Area 1 | Plant Area 2 | |
| Bursaria spinosa | Blackthorn | Shrub | 1 | 3 | April - May |
| Callistemon sieberi | River Bottlebrush | Shrub | 1 | 3 | April - May |
| Banksia spinulosa | Hairpin Banksia | Shrub | 1 | 3 | April - May |

5.3. Site Maintenance

Table 5-3 Site maintenance tasks

| Task | Method | Aim | Timing |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weed control for revegetation areas | Hand weeding should be carried out for all revegetation areas particularly around plants as part of the watering schedule. Spread bark mulch to reduce exotic grasses and herbs re- establishing | Improve the survival rate for the planted vegetation. | Monthly or fortnightly as part of watering schedule for the maintenance period Annually for 5 subsequent years |
| Plant revegetation beds | The riparian zone should be replanted with species detailed in the planting schedule. During summer, the planted areas should be regularly watered. Add additional potting mix (native blend) with plants with native fertiliser. | Improve habitat connectivity, minimise erosion, create habitat for native flora and fauna | Planting should occur in autumn or early spring. |
| Watering | Watering for all revegetation areas | Improve the survival rate for the planted vegetation. | Monthly or fortnightly as part of watering schedule for the maintenance period Increase to weekly if drought or in the summer months for the maintenance period |
| Replacement planting | Replace any plants that do not survive during the maintenance period. Select plants from tables 5.1 and | Retain the plant cover and diversity to improve the biodiversity values of Post Office Creek. | Autumn each year following the planting schedule in this plan. |

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| Task | Method | Aim | Timing |
|------|--------------------------------------------------|-----|--------|
| | 5.2 based on what is surviving and establishing. | | |

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