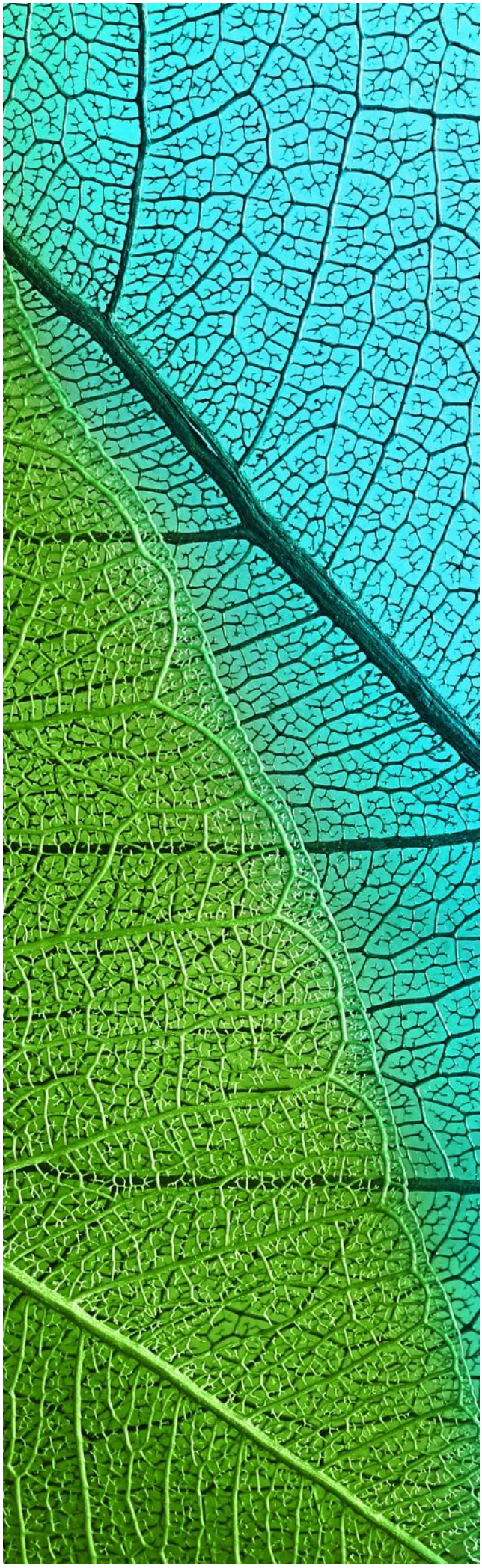

485 Cooper Street, Epping

Conservation Management Plan

Prepared for
The GPT Group

June 2023
Report No. 22076.5 (1.2)

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1. Introduction

The GPT Group engaged Nature Advisory Pty Ltd to produce a Conservation Management Plan (CMP) for a section of a 35-hectare area of private land at 485 Cooper Street, Epping. The area investigated, referred to herein as the 'conservation area or study area', is an approximate 10.3-hectare area in the western section of the property comprising Merri Creek and the riparian vegetation within the property, rocky escarpments adjoining the creek, as well as woodland and grassy woodland adjacent the creek (Figure 1). This Conservation Management Plan (CMP) has been prepared to satisfy the permit condition for the Development Plan Overlay (DPO33), as well as, address decision guidelines of the Environmental Significance Overlay (ES03) and the River Red-gum Protection Policy (Clause 22.10) that apply to the study area.

Nature Advisory Pty Ltd undertook a detailed native vegetation assessment of the study area in August of 2022, during which the extent and condition of native vegetation was identified, and the expected impacts resulting from the proposed development were calculated. A subsequent assessment was conducted in February 2023 to identify ecological values and threats within the conservation area to inform this management plan.

The primary objectives of this CMP are to protect the following matters of environmental significance identified in the area:

- The Merri Creek corridor and Growling Grass Frog (GGF) habitat;
- Remnant River Red-gum trees; and
- Remnant grassland and woodland with the potential to support listed maters such as the Matted Flax-lily.

The conservation area will be managed by the land holder until ownership and management is handed over to the responsible authority.

This plan aims to prescribe management requirements of threats including weeds, pests, biomass, erosion, habitat decline, fencing, lack of natural regeneration and fauna management. Furthermore, it aims to inform management of the area over a 10-year period and includes the following:

- A statement of methods used and sources of information consulted for the investigation, including any limitations, where applicable;
- Results of the review of existing information documenting biodiversity, ecological values and management requirements of the site and study area;
- A list of weed/flora species and habitat values identified during the site survey and identification of key threats to ecological values in the study area;
- Maps of the study area showing the ecological values to be conserved, threats and relevant management measures;
- Construction environmental mitigation measures to ensure protection of the environmental values within the conservation area during construction works for the adjacent development; and
- Table of appropriate management actions required.

This Conservation Management Plan (CMP) is designed as a comprehensive framework, setting specific conservation goals for each management zone along with weed control and revegetation targets. It outlines the recommended management techniques to meet these targets. The Plan is created to be dynamic and adaptable, allowing for both planned and impromptu modifications as needed, especially in response to insights gathered by bushland contractors in the field. This flexibility ensures the CMP remains relevant and effective in the face of changing environmental conditions and evolving

conservation needs. The implementation of this CMP must commence immediately upon its approval by the Responsible Authority (City of Whittlesea).

This plan was developed in consultation with Merri Creek Management Committee and prepared by a team from Nature Advisory comprising Merinda Day-Smith (Botanist & Project Manager), Emma Wagner (GIS Analyst) and Cara Cappelletti (Ecologist & Project Manager).

2. Environmental values and threats

2.1. Site assessment method

A site assessment of the property was undertaken by Nature Advisory on 21st February 2023. This assessment aimed to document current environmental values and management issues within the study area, to inform the preparation of this report. During this assessment, the study area was surveyed on foot.

All weed species encountered in the study area were recorded and sites found to support high-threat weeds were mapped using ArcGIS Field Maps (accurate to approximately five metres).

Detailed information about native vegetation and listed flora and fauna values on site was detailed in a separate report, along with expected impacts and implications of the proposed development (Nature Advisory 2022).

Photos of the site are provided in Section 2.3 and 4.2. All photos provided in this plan were taken on 21st February 2023 with the aim of demonstrating the status of the environment in the study area at that time.

2.2. Site description

The property constituted approximately 35 hectares of private land located at land located at 485 Cooper Street, Epping, approximately 16.5 km north of Melbourne CBD and is approximately 500 m south of Quarry Access Road, 2.5km north of the Western Ring Road and is bordered by Merri Creek to the west and the Hume Freeway to the east. The conservation area is 10.3 hectares of the westernmost portion of the property, following the length of Merri Creek and adjacent vegetation.

The study area supports heavy basaltic soils on an undulating landscape sloping downward to Merri Creek which forms the western boundary of the property. The property was formerly part of a golf course, although little evidence of this former use remains. It is understood that the site has not been managed ever since, apart from wildfire mitigation slashing in areas. The surrounding area has since been developed into an industrial area to the west and north and housing to the east.

The conservation area is directly north of the Galada Tambor and Merri Creek Parklands which include the Barry Road Grasslands Reserve. This site provides crucial connectivity for the for the wider Galada Tambor and Merri Creek Corridor which is currently in the planning process of becoming a Regional Parkland (maram baba Parklands). As much of the surround land has been subject to urban and industrial development these parklands provide diverse habitats for protected flora and fauna, as well as provide a unique opportunity for visitors to connect to the natural environment. The Merri Creek corridor is an important indigenous cultural feature, and the conservation area is likely to support Indigenous Cultural Heritage Values.

Vegetation type varies across the conservation area. Riparian woodland vegetation was situated along the creek line comprising a moderate cover of River Red-gum, most immature. The riparian vegetation largely comprised indigenous Common Reed, other native aquatics like Common Ribbon-grass and the noxious weed Spiny Rush. Indigenous and introduced shrubs were scattered along the banks (e.g., River Bottle-brush, Woolly Tea-tree and Gorse) and ground cover was largely invasive grasses Toowoomba Canary-grass, Chilean Needle Grass and potentially Lobed Needle Grass, although some indigenous Tussock Grass was scattered throughout.

Steep rocky escarpments line the southern and northern portions of the creek supported escarpment shrubland comprising a mixture of invasive and indigenous shrubs. Native shrubs included Tree Violet, Sweet Bursaria, Lightwood and Hedge Wattle. Invasive shrubs included African Box-thorn, Common Prickly Pear, Hawthorn, Montpellier Broom, Sweet Briar and Gorse. The ground layer is dominated by

Toowoomba Canary-grass, Chilean Needle Grass and potentially Lobed Needle Grass with some small patch of native Kangaroo Grass. River Red-gum also grew atop the escarpment plateau.

The majority of the conservation area comprises undulating treeless grassland dominated by a dense cover of invasive shrub Gorse. Patches are co-dominated by Toowoomba Canary-grass and Chilean Needle-grass, as well as some herbaceous weeds or in some areas, native Kangaroo Grass and Spear Grass

Native Vegetation within the conservation area is represented by Riparian Woodland (EVC 641) along the Creekline corridor, Escarpment shrubland (EVC 895) situated on and atop the steep Creekline escarpments, and Plains Grassland (EVC 132_61) on the flatter plains and lower lying grassy areas.

The study area lies within the Victorian Volcanic Plain bioregion and falls within the Port Phillip and Western Port catchment (i.e. Melbourne Water CMA region). The conservation area is currently partially zoned Industrial 1 Zone (IN1Z) and Urban Floodway Zone (UFZ) in the Whittlesea Planning Scheme. The following overlays are covering the conservation area:

Land Subject to Inundation Overlay (LSIO) – This overlay is considered irrelevant to the current investigation.

Environmental Significance Overlay (ESO3) – This overlay relates to the Merri Creek and Environs Strategy. The main objective of this overlay is to protect and enhance natural values and heritage of the Merri Creek corridor.

Design Plan Overlay (DPO33) – This overlay relates to the Cooper Street South-West Employment Area plan. Under this overlay, a Conservation Management Plan is required, identifying existing and future habitat links and communities of species identified in the Flora and Fauna Assessment Report (NA 2022). The relevant permit requirements are addressed in this report.

2.3. Environmental values

2.3.1. Merri Creek Corridor

The Merri Creek and its immediate surrounds are host to some of the most threatened ecosystems in Australia. The creek is vital in the preservation of threatened flora and fauna and the maintenance of vegetation communities in the surrounding area. The Merri Creek Corridor is under existing and increasing pressure from development and its associated issues. These include alterations to hydrological regimes, destruction of habitat, imposition of barriers to movement of fauna, reduction in water quality, increases in pest plant and animal threats and more. A key objective of the Conservation Management Plan (CMP) is the strategic management and restoration of native and non-native vegetation within the conservation area. The intent is to reflect the area's historic vegetation, enhancing ecological continuity, and ensuring the preservation of biodiversity. This will involve a combination of invasive species control, strategic revegetation, and ongoing monitoring to achieve a balance that more closely resembles the original ecosystem structure and function.

Golden Sun Moth

Golden Sun Moth (GSM) is listed as vulnerable under the EPBC Act and FFG Act. Conservation advice for the GSM has been prepared by the commonwealth (DAWE 2021). An action plan has been prepared for this species in Victoria (No. 106) (DSE 2004). Golden Sun Moths occur in temperate grasslands, once wide-spread over south-eastern Australia. The GSM is now restricted to fragmented populations across Victoria, NSW and ACT (DEWHA 2009). GSM populations have been restricted due to a number of environmental pressures and stressors but the main threats to the species survival and viability are habitat loss, degradation and fragmentation.

Potential habitat for the GSM exists within the conservation area in the open grassland areas. However, available grassland habitat is degraded and now dominated by weed species Chilean Needle Grass, Kikuyu and Grose. This CMP will aim to enhance GSM habitat by increasing native grass cover, particularly, Wallaby Grass, an important food source for the species and reducing weed cover to maintain an open tussock structure.

Growling Grass Frog

Riparian woodland along Merri Creek supported potential terrestrial and aquatic habitat for the Growling Grass Frog (*Litoria raniformis*), a species listed as vulnerable under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) and the *Flora and Fauna Guarantee Act 1988* (FFG Act). Main threats to the species are habitat removal or disturbance, degradation, fragmentation and pollution, infection from Chytrid Fungus, and predation from introduced fauna. Targeted surveys were undertaken on site and did not detect the species. Notwithstanding this, there may be opportunity for the species to move into the site in the future. This CMP will incorporate management strategies from the *Guidelines for managing Growling Grass Frog in Urbanising Landscapes* (DSE 2010) to preserve and enhance habitat for GGF and other native fauna species, as well as enable the maintain the continuity of the Merri Creek corridor.

River Red Gum Protection Policy

This policy recognises the visual and environmental importance of River Red-gum trees as a part of the open plains grassland within the Whittlesea municipality and that they are under threat from surrounding encroachment of urban development. This policy aims to protect important River Red-gum impacted by development and requires the retention of important trees where possible.

The conservation area supports many young and a few large River Red-gum trees along the creek corridor Riparian Woodland and at the top of the escarpments within Escarpment Shrubland. This CMP will protect and retain all the River Red-gum trees within the habitat area as well enhancing habitat through weed management and mitigating threats.

Native vegetation

The conservation area supports the following native vegetation (Figure 1):

- 1.4 hectares of Riparian Woodland (EVC 641);
- 1.03 hectares of Escarpment Shrubland (EVC 895); and
- 0.726 hectares of *Heavier Soils* Plains Grassland (EVC 132_61).

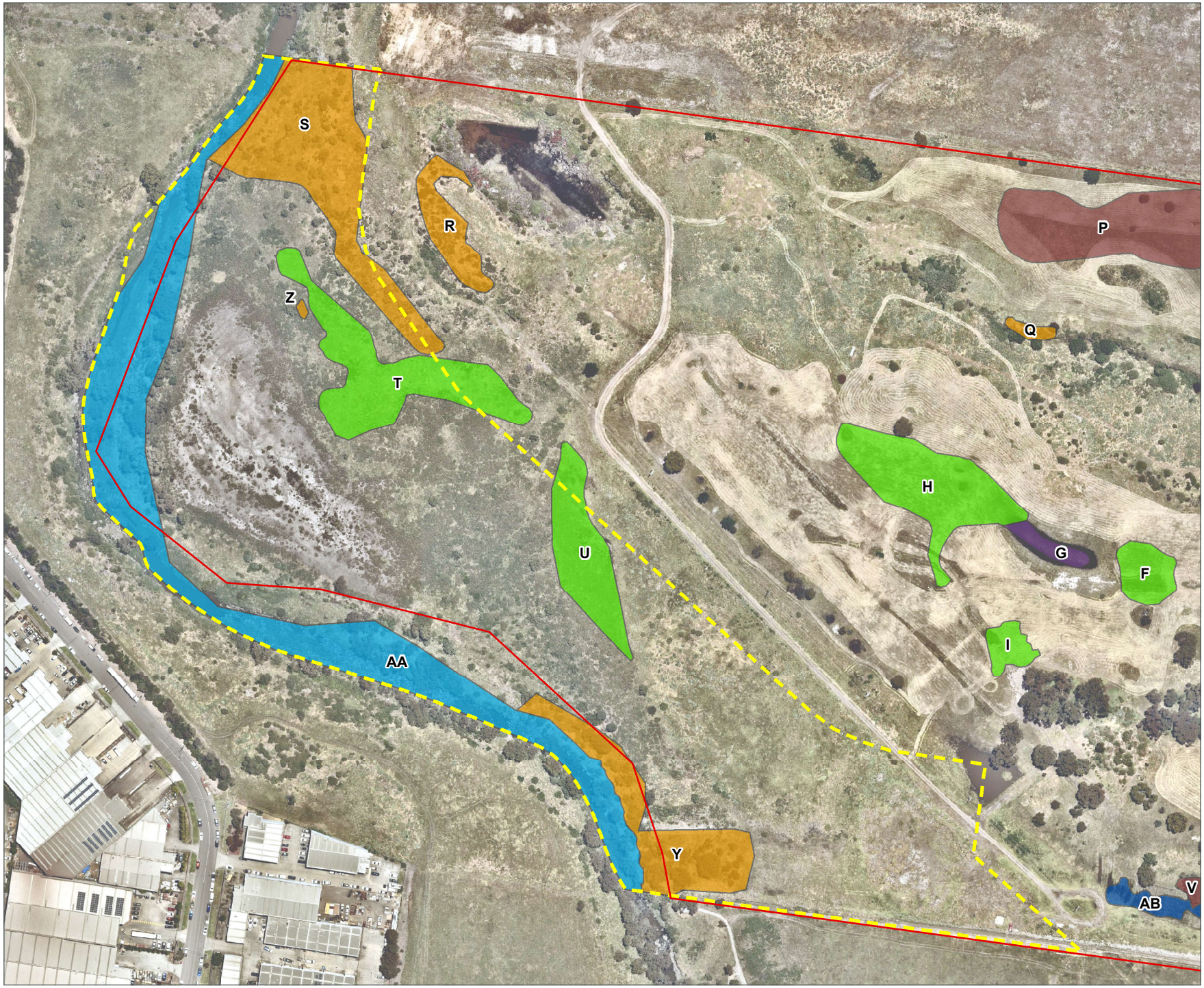

Figure 1: Conservation area and native vegetation

Project: 485 Cooper Street, Epping
Client: The GPT Group
Date: 23/03/2023

Property boundary
Conservation area

Native vegetation

- Escarpment Shrubland (EVC 895)
- Plains Grassland - Heavier-soils (EVC 132_61)
- Plains Grassy Wetland (EVC 125)
- Plains Grassy Woodland (EVC 55)
- Riparian Woodland (EVC 641)
- Tall Marsh (EVC 821)

N

Metres
0 50

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2.4. Management issues and threats

The following sections describe current threats to environmental values in the conservation area and how these can adversely affect environmental values within the conservation area. The management strategy designed to respond to these threats is outlined in Section 4 and 5.

2.4.1. Weeds

High-threat weeds pose a significant risk to native vegetation within the conservation areas. Many of these species are currently out-competing indigenous species across the conservation area and will continue to do so if left untreated. Location and extent of high-threat weed species are shown in Figure 2.

A high-threat weed is determined as any of the following:

- All woody weeds;
- Declared noxious weeds under the CaLP *Act 1994*;
- Prescribed Pest Plants listed under Section 5.6 of the City of Whittlesea General Municipal Law;
- Any other weed deemed to be high-threat due to the potential risk the species poses to the surrounding landscape; or
- Weeds not otherwise accounted for above that are on the *Advisory List of Environmental Weeds* (DELWP 2018) and occurred above a negligible cover.

Weed cover was extensive across the conservation area mainly comprising high threat woody weeds Gorse, Hawthorn, Sweet Briar, Montpellier Broom and Prickly Pear. High threat grassy weeds were also prevalent across the conservation area largely comprising Toowoomba Canary Grass and Chilean Needle-grass.

An infestation site comprises the following:

- The location of a woody weed; or
- A defined area or the location of an herbaceous high-threat weed.

Land managers are required to meet the obligations under the CaLP Act regarding preventing the growth and spread of regionally controlled weeds.

Fifty-seven weed species were recorded during the field study (Appendix 2), of which 17 were woody or high-threat herbaceous weeds and 14 species listed under the CaLP Act.

High-threat weed infestation sites were recorded across the entire the study area, all of which contained at least one CaLP-listed weed.

A priority weed of concern is Lobed Needle Grass listed as Prohibited under the CaLP Act. Prohibited weeds are controlled under the management of the DEECA and must be reported immediately if detected. This species was not detected during the most recent survey although it has observed within the conservation area previously by the Merri Creek Management Committee (MCMC). Further surveying will be conducted to confirm the presence and extent within the conservation area. If this species is confirmed on site, it will be reported to DEECA and weed control efforts will be increased to eliminate this species on site.

With the exception of Lobed Needle Grass, weeds of highest concern within the study area are Gorse, Toowoomba Canary-grass and Chilean Needle-grass. These species are currently densely covering the majority of the study area, out-competing indigenous species and will continue to do so if left untreated. This threat also applies to the remnant scattered trees, under which there is currently a lack of natural regeneration, inhibited by the high biomass of high threat weeds.

Other weed species that pose the highest risk within the property include Sweet Briar, African Boxthorn, and Spear Thistle.

Weed control methods are discussed in Section 4.6.2.

2.4.2. Biomass

The bank of Merri Creek is largely comprised of a thick cover of Toowoomba Canary-grass and Chilean Needle Grass. Scattered occurrences of native species occur throughout this section of the study area. At the current levels of cover, the invasive grasses are out competing native species and not providing inter tussock space, which is crucial to the functionality and biodiversity values of grassland vegetation. In addition to this, high grass biomass on the bank of Merri Creek forms inappropriate habitat for GGF as it decreases mobility of the species. A reduction in biomass will allow for the recruitment or spread of natives and increase the quality of GGF habitat. Measures for the controll of grassy biomass are outlined in Sections 4.6 and 5.3.

Photo 1. High biomass of Toowoomba Canary-grass on Merri Creek.

2.4.3. Pest animals

Evidence of both rabbits and foxes were observed within the conservation area via scat. Rabbits pose a risk to the native vegetation throughout the conservation area through overgrazing and digging around roots. Furthermore, rabbits can cause soil erosion, establishment of opportunistic weeds and high numbers of foxes. Foxes are a threat to native wildlife in general, including preying on frogs, lizards and native mammals.

Eastern Grey Kangaroos have been recorded in high numbers within and around the property suggesting the area is a highly utilised corridor for this species. While care needs to be given to facilitate free movement across the corridor, herbivory from kangaroos can be a significant threat to revegetation efforts. A detailed plan for the management of kangaroos across the entire site is address in a separate Eastern Grey Kangaroo Management Plan.

Pest animal control methods are discussed in Section 4.5.

2.4.4. Rubbish

A moderate amount of rubbish was observed within the conservation area. Rubbish can reduce the amount of space available for regeneration of native vegetation within the study area. Furthermore, it can act as harbour for pest animals such as rabbits.

Rubbish found in the conservation area consisted of list household waste, materials from construction, dumped fill, polystyrene and plastic, etc, mostly occurring from the recent flooding. Examples of some of the rubbish observed within the conservation area are shown in photos below. Locations of rubbish are shown in Figure 2. Removal of rubbish is discussed in Section 4.2.1.

Photo 2. Examples of rubbish in conservation area

2.4.5. Unauthorised/inappropriate access

Unauthorised access to the conservation area poses risks to the conservation values, both during the construction phase of future development (i.e. by construction work personnel, equipment and activities) and during the post-occupancy phase. Unauthorised or inappropriate access may lead or has led to destruction or degradation of health of environmental values through:

- Habitat destruction and soil compaction;
- Weed invasion;
- Introduction of pests and diseases; and
- Dumping of rubbish.

The property is currently fenced off from public access, however the conservation area will require fencing for protection throughout the construction phase and a permanent delineation of the conservation area through the use of bollards to limit access in the future to pedestrian foot traffic only.

Inappropriate and broken barb wire fencing was recorded within the conservation area along the bank of Merri Creek. This fencing will have to be removed to ensure native fauna is not harmed. Sections 4.4 and 3.2 discusses fencing requirements.

Photo 3. Inappropriate barb wire fence inside conservation area

Figure 2: Existing threats

Project: 485 Cooper Street, Epping
Client: The GPT Group
Date: 27/03/2023

- Property boundary
- Conservation area

Weed infestations

- Artichoke Thistle, Chilean Needle-grass, Galenia
- English Ivy
- Gorse
- Hawthorn
- Kikuyu
- Phalaris
- Phalaris and Chilean Needle-grass
- Toowoomba Canary-grass, Gorse, Sweetbriar
- Blackberry
- Common Prickly-pear

Other threats

- Rubbish

N

Metres
0 50

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3. Construction environmental management measures

The following mitigation measures will be put in place to ensure no adverse impacts occur to the environmental values in conservation area from the adjacent construction works. A full report addressing environmental threats relating to construction including, sediment and dust control, water quality control and contamination for the entire site is addressed in a separate Construction Environmental Management Plan (CEMP).

These mitigation measures refer specifically to the construction area and are to be undertaken alongside management actions relating to the conservation area outlined in Section 4.

Detailed construction environmental management actions are provided in Appendix 1. Compliance indicators are provided to enable monitoring of the success or failure of these actions. Management actions are to be reviewed and adapted if the associated compliance indicators are not being achieved.

All construction contractors must be inducted into the content of this chapter prior to accessing the site for the first time.

3.1. Erosion control

3.1.1. Stockpiles

If soil is stockpiled, the capture and trapping of sediment runoff should be managed to prevent any runoff with use of adequate sediment barriers.

3.1.2. Construction sites

Diversion swales /cut off drains should be installed above the construction site to minimise runoff through the construction site. Cut-off drains should not flow directly into reserve but be distributed by outfall drains, which dissipate energy and minimise erosion; the use of a silt trap may also be necessary.

3.1.3. Sediment fencing

Sediment fencing must be installed on the downward slope of the site between the bioretention basin construction footprint and the conservation area. The following measures must be undertaken to ensure that indirect impacts to native vegetation and waterway are avoided:

- All earthworks must be undertaken in a manner that will minimise soil erosion and adhere to EPA Publication 1834: Civil construction, building and demolition guide (2023).
- No stormwater, runoff or wash-water can leave the site during the construction phase without being retained and treated to the Best Practice Environmental Management Guidelines for Urban Stormwater, 1999 (BEPM). These requirements are outlined in the CEMP. EPA construction guidelines are provided below in Figures 3 and 4 (EPA 2004).

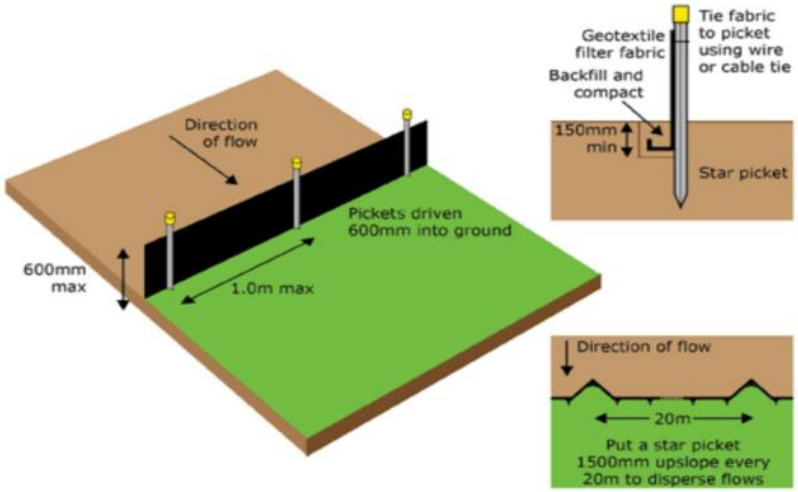

Figure 3: EPA guidelines for sediment fencing construction

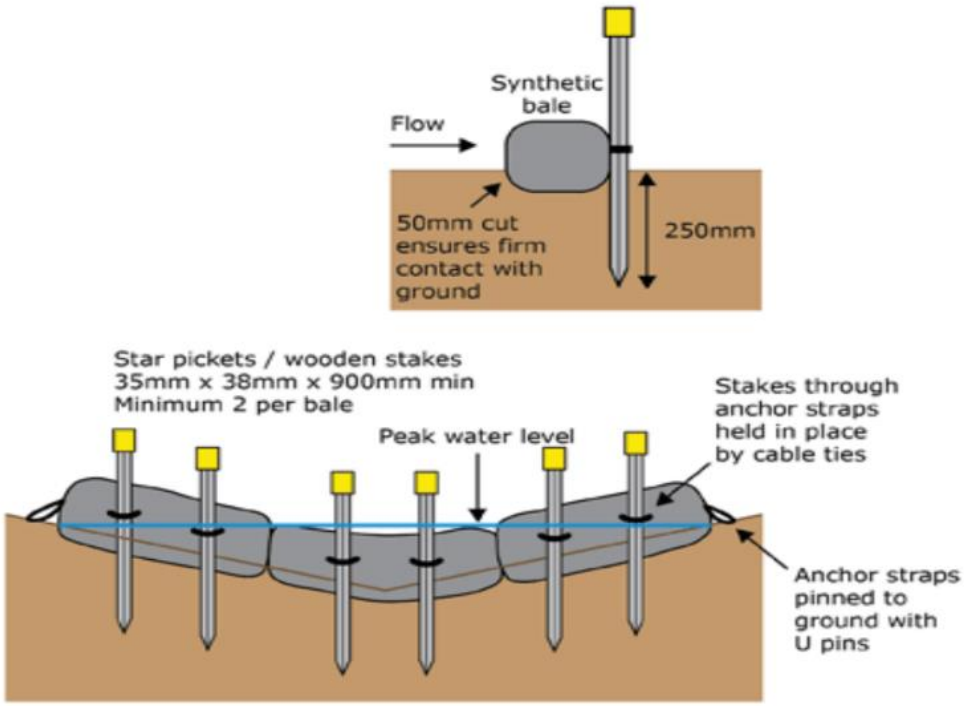

Figure 4: EPA guidelines for synthetic bale sediment control construction

3.2. Frog exclusion fencing

Temporary frog exclusion fencing may be required to deter frogs from entering construction impact zones. It is requirement that the fencing is upgraded to frog proof fencing where the area of works encroaches within 20 metres of permanent waterbodies. All construction is occurring more than 20 meters from any permanent waterbodies and does not require frog exclusion fencing. Frog fencing requirements for areas outside of the conservation area will be addressed in the CEMP.

3.3. Clean-down location

Establishment of a clean-down area must be incorporated prior to the commencement of works. This area must be selected based on the following criteria:

- In close proximity to site access/egress;
- At least 30 metres away from waterways, drainage lines or wetlands;
- Avoid areas of native vegetation and Tree Protection Zones; and

- Be bunded to prevent sediment run-off.

As such, the clean-down area will be located at the entry/exit of the site on northern boundary, outside of the conservation area, as the vegetation is devoid of native species and represents the current point of entry to the property.

A layer of gravel is to be used to minimise mud and improve drainage.

Signage indicating the clean-down area must be clearly visible and include suitable instructions to works staff, particularly those leaving the site.

Waste collected from clean-down bays must be managed on site by burying the waste below the topsoil. Care must be taken to prevent discharge off site to waterways and drainage.

3.4. Clean-down procedures

All site personnel must be inducted into this section of the plan and given instructions of the location of and how to use the clean-down area.

A logbook must be kept on site and all personnel who use this facility must sign in, declaring the machinery/vehicle to be free from weed propagules (Appendix 5).

The clean-down area must provide facilities for adequate washdown of machinery and vehicle exteriors. These facilities should include a high-pressure water hose and manual implements such as brooms and brushes, which can also be used to clean contaminated footwear.

All vehicles, machinery and plant entering or exiting the construction site must be examined and cleaned of mud, vegetation and seeds before entering the site and upon leaving. Particular attention must be made to critical areas of contamination commonly associated with earthmoving and other construction vehicles, as illustrated in Appendix 3.

3.5. Biosecurity

Construction personnel must reduce the potential for the spread of Chytrid Fungus (a lethal pathogen of frogs), weed seeds and other pathogens by implementing biosecurity controls:

- Installing rumble grids and brush/washdown stations to remove soil/plant material from vehicles, equipment and/or footwear that are not free of soil/plant material as they enter and exit the site.
- Sourcing fill material (if required) from a reputable company.
- Cleaning rumble grids and washdown/brush areas of mud and debris as required.
- Designating susceptible water waterways as ‘no go’ zones with work prohibited unless approved by the SER. If works are approved by the SER, then:
    - Machinery and plant must be free of mud and debris.
    - Personnel must disinfect hands, boots/shoes and any other clothing that has contacted water, mud or damp soil with Phytoclean or similar fungicide
    - The use of Phytoclean should be at least 10 metres from waterbodies, and no risk of draining to waterbodies to minimise the risk of chemical contamination.
- Including a requirement for new plant and machinery to be free of (weed seed and pathogen free) prior to arrival on site in the plant pre-acceptance checklist. Vehicles and soil contamination zones must be sprayed with Phytoclean upon arrival to site. Works on site must not commence until this checklist is complete.
- Maintaining a register that includes details such as date, personnel and equipment approved to enter the ‘no-go’ zone.

- Contain waste from rumble grids and washdown stations to prevent contaminants entering waterways.
- Seek Melbourne Water approval to discharge water into any tributary.

If Lobed Needle Grass is recorded on site these measures will be adjusted where required in consultation with DEECA to ensure the biohazard is contained.

For the purposes of this report, it is assumed pathogens like Chytrid fungus are present on site within relevant dams, waterways and tributaries.

3.6. Weed control and monitoring

The aim of weed control in the construction area is to prevent the spread of high-threat weeds from within the study area into the conservation area. A separate Weed Management Plan has been prepared to address weed control within the developable area and outside the conservation area (Nature Advisory 2023). A wash-down facility must be situated on site and any fill material that enters the site must be monitored. Location and details are outlined in the Construction Environmental Management Plan (CEMP).

4. Conservation Area Management Plan

The following sections describe the management strategy to be undertaken for the 10-year period that will commence upon approval of the CMP. A summary of management actions is provided in Table 4.

A baseline survey was undertaken by a botanist from Nature Advisory as part of the preparation of this report. This survey determined the status of the environmental values and management issues within the conservation area. Weed cover estimates were also recorded and are provided in Table 2.

Weed control and revegetation works are key management action and are outlined in detail in Section 4.6.2 and Section 6 respectively.

4.1. Security and management responsibility

The CMP is secured to the title and the property will be managed in the lead up to, during and post construction, and for the duration of this plan by the landholder or titleholder.

4.2. Management zone overview

The conservation area has been divided into five zones (Figure 3) as detailed in the following sections. Each zone will be prescribed different management actions and revegetation works. These zones and objectives are summarised below.

Management Zone 1

MZ1 pertains to the Riparian Zone of the Merri Creek. This zone is identified as supporting moderate quality remnant native vegetation that aligns with the Riparian Woodland (EVC641). Assessment has shown that canopy vegetation for this zone is relatively well represented in diversity and cover but the understorey is dominated by dense exotic grass, namely Toowoomba Canary-grass and the shrub layer largely comprised woody weeds. This zone is important as an integral part of the Merri Creek corridor, supporting the movement of the Growling Grass Frog and other aquatic fauna. The management objectives for this zone are to improve the habitat values for the Growling Grass Frog and other fauna in consultation with the *Growling Grass Frog Habitat Design Standards* (DELWP 2017) by sensitively reducing the cover or biomass of the exotic grasses, replacing with appropriate native grasses; managing woody weeds; introducing other habitat elements that are beneficial to fauna of the Merri Creek and managing pest animals which may prey on sensitive fauna. As this zone is also subject to flooding, periodic litter removal and monitoring for new and emerging weeds will require ongoing action. This plan will outline recommendations for management of this zone however, MZ1 lies largely outside the property boundary, therefore ongoing management decisions will ultimately be determined in consultation with Melbourne Water.

Photo 4. Riparian zone of Management Zone 1.

Management Zone 2

MZ2 is represented by moderate quality Escarpment Shrubland (EVC 895) in the northern and southern sections of the Conservation Area and the lower lying grassland adjacent to the Creekline corridor dominated by grassy weeds and small patches native grasses. Escarpment areas are represented by a diverse native shrublayer comprising Lightwood, Tree Violet, Sweet Bursaria and Drooping Sheoak. The understorey is largely dominated by woody weeds Gorse, Prickly Pear, Montpellier Broom and African Boxthorn, and grassy weeds Toowoomba Canary-grass, Chilean Needle Grass and potentially Lobed Needle Grass. The grassland area is dominated by Toowoomba Canary Grass, Chilean Needle Grass and Gorse. Scattered occurrences of native grasses (Kangaroo Grass, Spear Grass and Wallaby Grass) and native herbs (Tufted Bluebell, Native Flax and Ruby Saltbush) indicates a native seed bank could persist in the soil. The goal for this management area is to enhance existing native vegetation through the elimination of the high-threat woody weeds and reduction of grassy weeds and biomass cover. Management of this zone will largely involve replacement of woody weeds using medium and large native shrubs as habitat for local mammal, reptile and bird species.

Photo 5. Exotic grassland (MZ3) with Escarpment Shrubland (MZ2) in background.

Photo 6. Marginal native grassland in Management zone 2.

Management Zone 3

MZ3 is a large area that historically supported native grassland. It is now overrun by thick swathes of Gorse and patches of introduced weedy grasses. There is evidence of native grasses persisting in the seedbank through the scattered occurrences of Kangaroo Grass and Spear Grass underneath the Gorse infestations. The objectives of this management zone will focus on the restoration of the existing native grassland and surrounding areas. There is opportunity to enhance this zone through selective weed control, particularly Gorse, and potentially fire management (where appropriate), followed by revegetation in order to re-establish the EPBC Act listed community, NTGVVP. Although this is not a legislative requirement to restore this area to NTGVVP quality and will not be used to achieve a net

gain, rehabilitation of this area will aim to compensate for removal of this community within the developable area.

Photo 7. Gorse densely populating most of Management Zone 3.

Management Zone 4

MZ4 relates to the proposed frog wetland area. This area was historically intensively scraped and is depauperate of flora, native and non-native. Revegetation of this zone will aim to provide potential habitat for Growling Grass Frog and includes ponds and foraging areas, as well as potentially creating a habitat linkage for GGF between the wetland and the creek. This zone will be designed in accordance to the GGF habitat design standards and lopped trees and boulders from civil works will be recycled to create habitat where possible. The detailed design for this zone is beyond the scope of the current investigation and will be addressed in a separate Wetland Design Plan.

Photo 8. Scrapped grassland where potential GGF wetland is proposed.

Management Zone 5

This management zone is the proposed site of a stormwater retention basin. The proposed area currently lacks native vegetation. The design of the retention basins will be outlined in the stormwater retention design plan.

Photo 9. Area of proposed stormwater retention basin.

4.2.1. Adaptive management

This CMP is designed to be highly dynamic. It provides informed recommendations tailored to the current condition of the site. If site conditions are to change or a management practice has proven to be unsuccessful or inappropriate, methods can be subject to change through consultation with important stakeholders such as, but not limited to the Merri Creek Management Committee, Wurundjeri Woi-wurrung Indigenous Group and Melbourne Water.

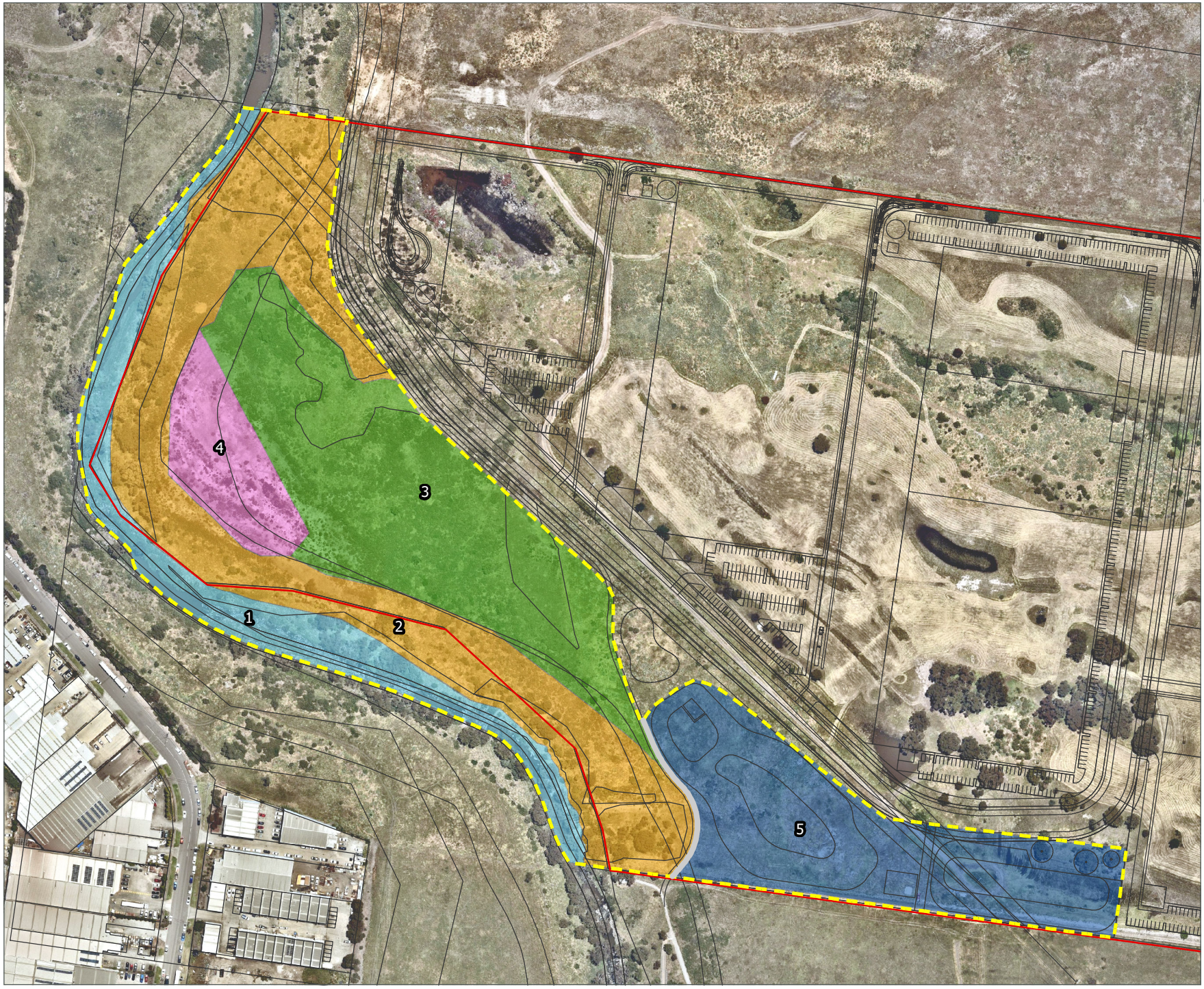

Figure 3: Management zones

Project: 485 Cooper Street, Epping
Client: The GPT Group
Date: 17/07/2023

- Property boundary
- Conservation area
- Shared path

Management zones

- Zone 1
- Zone 2
- Zone 3
- Zone 4 - Frog habitat wetland
- Zone 5 - Stormwater basin

N

Metres
0 50

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4.3. Remove rubbish

All rubbish in the vicinity of the conservation area must be promptly removed before any management measures are performed. Rubbish, comprising mainly plastic litter and some metal waste, was observed along the banks of Merri Creek and on the escarpment occurring mainly from high floodwaters moving debris down the creek. Removal must be undertaken in such a way that the native vegetation in the conservation area is not adversely impacted. Rubbish must be disposed of at an approved landfill site and adequate fencing must be installed to prevent continual dumping of rubbish. Merri Creek should be monitored after heavy rain to maintain low rubbish levels.

4.4. Fencing

Prior to the installation of the perimeter fencing, all internal fencing is to be removed. The existing fencing may impede on management actions such as weed control and revegetation efforts.

Stockpiling, equipment lay-down and personnel rest areas will be located outside of the conservation area to prevent any impact on the conservation area.

4.4.1. Temporary exclusion fencing

The conservation area should be entirely fenced during proposed works to exclude inappropriate/unauthorised access. Fencing must be placed a minimum of 2 metres **outside** of the conservation area and will have 'Conservation Area – NO GO ZONE' signs affixed at 30-metre intervals and at a height of 1.5 metres. Temporary exclusion fencing must also be applied around the wetland construction area with at least a two-metre buffer from native vegetation. Fencing around the wetland must also include sediment fencing, see Section 3.1

Fencing specifications are to be adapted and reviewed by a qualified person. Recommended construction fencing details are presented below, as per *DELWP requirements for Construction Environmental Management Plans under the Melbourne Strategic Assessment* (DELWP 2020):

- Posts are vertical steel pipes to a height of 1.8 metres at 3 metre intervals, and can either be driven 0.7 metres into the ground or resting in concrete bollards.
- Chain link or welded mesh fencing affixed to posts.

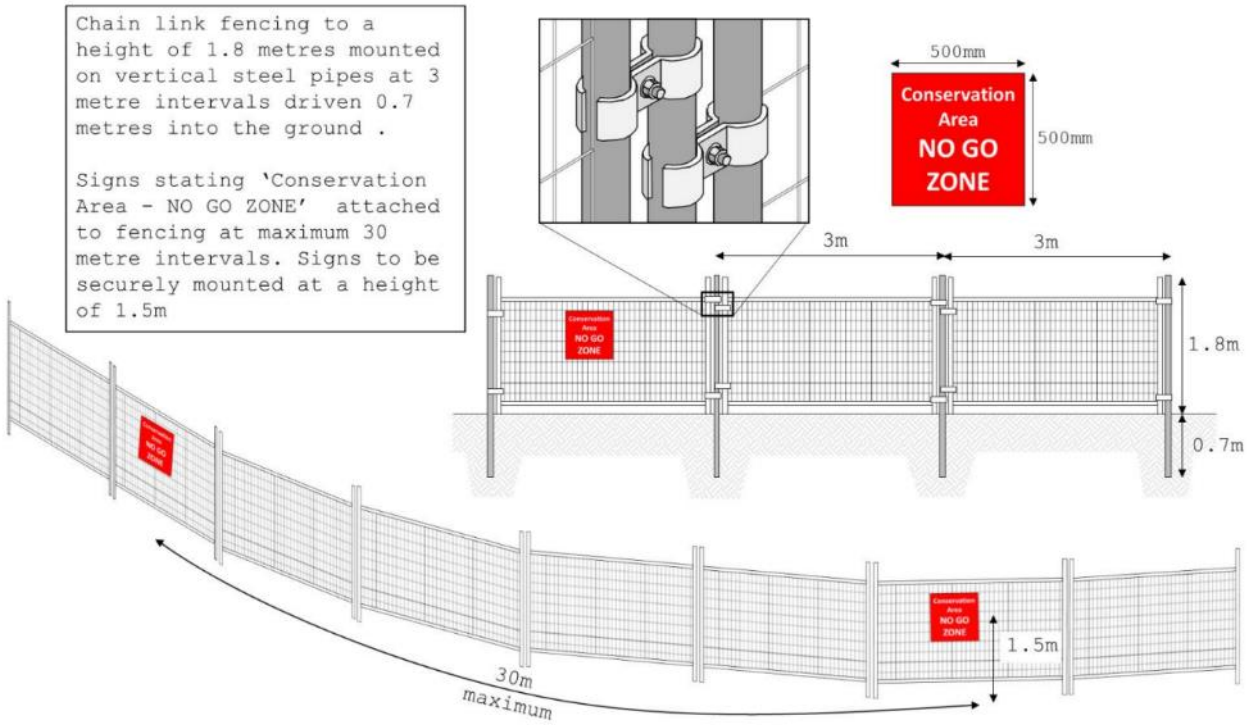

Figure 6: Temporary perimeter fencing

Once construction work has been completed, temporary construction fencing must be removed. The permanent perimeter fencing (described below) must stay in place to exclude threats, such as vehicular and pedestrian access, domestic pets and pest animals.

4.4.2. Permanent perimeter fencing

The landowner has an obligation under this current plan to install, upgrade and maintain fencing to exclude threats for the duration of the plan. Fencing helps manage threats to native vegetation from construction personnel as well as limiting access to the area. The conservation area will be accessible to the public to encourage connection and appreciation of the Merri Creek corridor. Permanent fencing surrounding the Conservation Reserve should be based on the use of bollards/ post and rail in accordance to Council landscape standards to restrict vehicle access, while facilitating the movement of native fauna and people.

The conservation area boundary fence must only encourage public access at designated entry/exit points that are linked to existing pathway or future installation of an environmentally sensitive boardwalk.

Fence bollards must be installed and upgraded (if required) within three months of this plan being approved by the responsible authority, and prior to the commencement of construction.

In addition to the fencing, installation of interpretative signage is recommended to detail:

- ecological and indigenous values;
- benefits of basalt boulders and woody debris for native fauna (to discourage firewood collection); and
- requirements to keep dogs on leashes.

4.4.3. Fencing removal

Where redundant fencing exists on site, it is likely to pose a threat to native animals, especially if it is barbed. Wire from redundant fencing must be removed and disposed of at an appropriate facility.

4.4.4. Adaptive management

Considerations of revegetation survival and targets should be taken when deciding fencing specifications and installation methodologies. Fencing requirements are up to the discretion of a qualified contractor.

In the future, if new threats arise, such as inappropriate access from humans, pest animals or native herbivores, fencing may have to be upgraded to such a standard which protects the environmental values of the site.

4.5. Pest animal control

Evidence of rabbits and foxes were observed from scat in the conservation area. All pest animals are to be monitored and controlled as required within the reserve for the life of the plan. Regular monitoring will be required throughout the year to inform the control methods used.

4.5.1. Rabbit control

The control of rabbits is particularly important as they could encourage permanent populations of other introduced species including cats and foxes, in addition to promoting erosion and loss of native flora.

Combining several control methods listed in Table 1 is more effective in controlling rabbit populations than limiting control to one method. Specific site conditions may mean that some of the below methods are not appropriate.

Rabbit control, where required, should prioritise harbour removal (i.e. invasive shrubs) and warren destruction. Where numbers are high, baiting should be considered prior to warren ripping only as a last resort. Any baiting would require careful stock or fauna management to ensure they were not poisoned as well. Shooting should not be considered as a method due to the proximity to urban development and industrial estate.

Temporary rabbit proof fencing can be considered for revegetation areas when other pest management strategies are observed to be ineffective.

Table 1: Summary of possible rabbit control methods

Method	Time	Cost	Advantages	Risks
1080 Baiting with carrot pieces	Late summer	Most cost-effective method	Large areas covered quickly. Foxes killed by eating poisoned rabbit. Most native animals at low risk from ingesting carrot bait.	Dry weather required. No effective antidote. Hazardous to livestock. Not suitable if stock grazing.
Pindone baiting	Late summer	Moderate cost	Less hazardous to domestic animals.	Hazardous to livestock. Not suitable in view of current land use (i.e., grazing land) Risk to some native animals.
Harbor removal	Any time	Labor-intensive	Good follow-up method to combine with other treatments.	Few where native vegetation not present
Warren fumigation and ripping	After autumn rains when soil softens	Labor intensive	Removes shelter – effective when undertaken in combination with harbor removal.	Limited

Method	Time	Cost	Advantages	Risks
Rabbit-proof fencing	Before planting/ seeding.	Very labor-intensive. High initial cost	Long-term effect, stops reinvasion.	Need regular checking. May also stop native fauna dispersal and would require significant changes in stock management on the farms.
Shooting	All year round. Optimum late summer.	Low to Moderate cost.	Appropriate for low numbers.	Very labor-intensive and unlikely to exclude rabbits permanently

Source: adapted from Farrelly & Merks 2001.

4.5.2. Fox control

Regular monitoring (at least quarterly) must be undertaken to control the pest animals as needed. If dens or warrens are located, they must be destroyed through fumigation and hand collapse. The control of woody weeds with also reduce habitat for foxes.

4.6. Native grassland management

Once established, native grassy vegetation may require occasional biomass reduction (management) and habitat enhancement to maintain the health and diversity of local flora and fauna. This may be achieved through slashing or burning when/if native grasslands have re-established in the latter half of the management plan.

If burning is determined to be a suitable option, it is strongly advised ecological/cultural burning to manage biomass in native grassland areas across all zones, is informed by local RAP and experienced bushland/burn management contractors,.

4.6.1. Ecological burning for grasslands

Biomass levels in grasslands may need reduction to facilitate natural regeneration processes. The frequency of the burning regime implemented on site should be guided by biomass levels (approximately burn frequency of 3-5 years). It is very unlikely the grassland within the Conservation Reserve has been burned within this time frame. Ideally, at least one burn should be undertaken during the life of this plan within the Grassland (Management Zone 3). All burns should be cool and undertaken in smaller patches in a mosaic fashion to allow for retention of habitat for reptiles over time. Burns to be used in unison with management of Gorse regeneration within this area.

As part of meeting safety requirements, a burn plan will need to be prepared. This will need to incorporate fire planning in consultation with CFA or DELWP. The burns should be planned to occur in autumn up to early spring each year outside of the normal annual Fire Danger Period (1st December to 30th April). No burns should occur outside of this period to prevent inadvertent impacts to potential Golden Sun Moth populations.

The purpose of these ecological burns is to increase flora diversity by creating space for herbaceous species to germinate and reduce the exotic grass and woody weed regeneration cover in the higher quality grassland areas. Flora monitoring (pre and post burn) to be incorporated as part of the costs of these burns, as well as follow up weed control (particularly Gorse control. Flora monitoring will guide timing and extent of follow-up weed control post burn, which is essential following a burn to ensure weeds do not set seed.

In preparation for each burn, a boundary needs to be created. This boundary needs careful consideration as it cannot be created by ploughing the rocks and grass to create a mineral earth border. No soil removal or excavation can be carried out. Each burn boundary can be wet down (with water) or slashed with brush

cutters, while utilising optimal weather conditions. The optimal conditions are low wind days with wind direction blowing away from the industrial areas and the Hume Highway. The following is pertinent to the implementation of ecological burns:

- slip on vehicles (vehicles with fire-fighting equipment) may be more appropriate
- consider completing burns in very low wind conditions

Burns may be started with drip torches and extinguished using slip on vehicles afterwards. No fires should be left smouldering or burning without supervision due to the proximity of industrial estates and the Hume Highway. A cool burn would be started with a drip torch and burn at low intensity for a short time and extinguished.

Ecological burning requires bushland management contractors to have appropriate insurance to prepare for and implement such burns. They also need to have experience in undertaking burns and are able to prepare a burn plan that aims to ensure any burns are undertaken at the appropriate time of year, under correct weather conditions and in a mosaic fashion.

4.6.2. Management of grassland fauna habitat

Consideration of protected grassland fauna should be incorporated into weed management (i.e. GSM, Striped Legless Lizard and Tussock Skink habitat), particularly within zone 2 & 3. Considerations should include:

- Place logs within existing areas of native vegetation and in revegetation areas. Smaller logs and timber such as old fenceposts may be placed in piles, while larger, hollow-forming logs may be placed individually. These logs and any timber used must be untreated.
- Place stones within existing areas of native vegetation and in revegetation areas. These stones should be matched to the geology of the study area, and range in size from 10cm to over 1 metre in diameter.
- Place logs within the GGF habitat revegetation area to provide shelter and overwintering opportunities (DEHWA 2009).
- Place fringing rock piles within the water adjacent to the aquatic/GGF habitat revegetation area using a range of rock sizes between 10cm and one metre in diameter. These rock piles must be at least one metre deep (DELWP 2017).
- Non-native vegetation must be maintained at a low height through mowing. Low, grassy vegetation does not need to be native to be suitable Growling Grass Frog habitat (DELWP 2017).
- If undertaking biomass management through ecological burning where appropriate, ensure only small areas are burnt at any one time in a mosaic fashion to allow reptiles to retreat to unburnt areas.

Photo 10. Stone stockpile useful for habitat enhancement. Location in Figure 2.

5. Weed Management Plan

A total of 20 priority weeds to be controlled were identified during the field assessment. These weeds were assessed as being a priority for management based on the following criteria:

- All woody weeds;
- Declared noxious weeds under the CaLP *Act 1994*;
- Prescribed Pest Plants listed under Section 5.6 of the City of Whittlesea General Municipal Law;
- Any other weed deemed to be high-threat due to the potential risk the species poses to the surrounding landscape; or
- Weeds not otherwise accounted for above that are on DELWP's *Advisory List of Environmental Weeds* and occurred above a negligible cover.

Management targets for priority weeds to be controlled are discussed in the following sections. Recommended methods for their control, optimal timing for control and current infestation status are detailed in Table 2. The locations of major weed infestations on the site are presented in Figure 2. Weed control will be undertaken at least quarterly each year for the duration of the CMP.

All weed control is to be carried out by a suitably qualified revegetation and/or weed control contractor, with experience in working in ecologically sensitive areas approved by Whittlesea council. A reporting form (Appendix 7) describing the control methods used to manage these species must be completed by the weed control contractor, with the results submitted to council upon request. Any spot-spraying would be undertaken on days with minimal wind to prevent off-target damage by spray-drift.

5.1. High-threat woody weeds

A diverse number of woody weeds occur within the conservation area (see Table 2) however, most are confined to a small number of individuals or low to moderate cover levels. Therefore, the management target is to gradually reduce cover yearly until all infestations are eliminated i.e. **no mature plants present** while emergent seedlings are controlled in a timely manner across all management zones**.**

This target is with the exception of Gorse, which is currently at extremely high cover levels (accounting for 60% of weed cover), particularly in Zone 2 where elimination may not be achievable. The management target for Gorse is **reducing cover of mature plants to <5%.** Recommended methods for gorse control are outlined in Section 5.6.

Management strategies and cover targets for woody species are outlined in Table 2.

All woody weeds are to be removed from the conservation area and disposed of appropriately. The 'cut-and-paint' method is the most effective means of controlling any woody weeds on the site. This entails a clean cut to the main stem/s of the plant followed by immediate application of a non-selective herbicide to the entire surface of the cut stem/s. The dead left over branches should be removed and immediately disposed of at a municipal landfill. Seedlings must be sprayed with an appropriate herbicide during their active growth period.

5.2. High-threat herbaceous weeds

Two high-threat non-woody (herbaceous) weeds recorded within the conservation area (Artichoke Thistle and Fennel) currently exist at moderate cover levels and are to be 'eliminated' (reduced to **less than 1% cover with no concentrated populations present**). These weeds are mostly concentrated management zone 4 and a focus should be on eliminating infestations prior to the construction of the wetland. Herbaceous weeds to be controlled area outlined in Table 2.

These species can be treated with an appropriate broadleaf-selective herbicide.

5.3. High-threat grassy weeds

The application of the following strategies should be evaluated through onsite observations and annual assessments to ensure the effectiveness of the measures and adapt as necessary.

See Table 2 for management targets of specific weed species.

Management Zone 1

MZ1 is predominantly situated within a riparian or floodway area, requiring specific precautions when implementing herbicide applications. Within a 5m radius of the waterway, herbicides like Roundup Biactive or similar biactive formulations of glyphosate could be applied during dry weather conditions to manage invasive species such as Toowoomba Canary-grass and Spiny Rush. This intervention should be guided by a clear objective of enhancing habitat conditions for the Growling Grass Frog (GGF).

However, to protect the GGF's active season, any spray application of biactive glyphosate within its habitat should be scheduled outside this period. Woody weeds may be treated with non-spray applications of the herbicide, such as the "cut and paint" method with neat Roundup Biactive, in dry conditions. This method might also be acceptable during the GGF active season for summer-growing weeds like Blackberry, provided the benefits outweigh the effort required to keep the area weed-free amidst regular inundation.

After weed control replacement of invasive species with native riparian species should be considered. Suggested species for this area are listed in table 3. As MZ1 lies largely outside the property boundary, ongoing management decisions will ultimately be determined in consultation with Melbourne Water.

Further detail on weed management for GGF are outlined in Section 5.2.

Management zone 2

For MZ2, the primary objective is to maintain and enhance existing native vegetation. High-threat invasive grasses within the conservation area will primarily be managed via slashing and biomass reduction. This approach aims to provide an optimal habitat for the Growling Grass Frog (GGF) and other native fauna while fostering the regrowth of native grasses, herbs, and tree species.

In instances where more aggressive control measures are deemed necessary, such as when Toowoomba Canary-grass inhibits the regeneration of native species, a combination of slashing and herbicide application should be considered. These actions are intended to proactively decrease the dominance of such threats, allowing regeneration of native vegetation. Regular monitoring and adaptation of strategies will be integral to the successful conservation of this zone.

Management Zone 3

While the primary objective for MZ3 is the eradication of Gorse, a holistic approach that includes the regeneration of native grasses instead of invasive ones is also crucial. Field surveys indicated the presence of some native grass species beneath the Gorse, suggesting the existence of a native seed bank in the soil.

However, invasive grasses are known opportunists, taking advantage of disturbed areas to establish and potentially outcompete native species. If this is observed, localised spraying and slashing may be warranted to counteract the invasive grasses.

This focused intervention aids in maintaining inter-tussock space, critical for native grasses and herbs, and supports a balanced and biodiverse ecosystem. Regular monitoring and adaptations to the approach will ensure the successful restoration and preservation of this area.

Management Zone 4 & 5

As these areas will be completely revegetated the primary goal for this area is to prevent spread of grassy weeds before and during construction. Grassy weeds should be slashed prior to setting seed and maintained at low levels.

5.4. All other weeds

All other weeds will be controlled such that their combined cover does not exceed current levels.

5.5. Weed management of GGF habitat

Additional considerations have been given for weed management within Management Zone 1 along the Merri Creek corridor for providing habitat for GGF. The management strategy for this area is based on advice given by DEECA, derived from the *Growling Grass Frog Habitat Design Standards* (DELWP 2017).

It is recommended that spot-spraying for Serrated Tussock and herbaceous weeds avoid the GGF active period (September to March). Herbicides specifically intended for use near waterways must be used and must be applied in late summer, when Growling Grass Frogs have reached adult form. While spot-spraying, care must be taken to ensure herbicides do not enter the creek.

Weeds of concern include those that grow quickly, and have the ability to 'smother' out the preferred open grassy structure for GGF, i.e. those than need regular, frequent biomass control. These include Toowoomba Canary-grass (predominantly), but also *Nassella* species, Cocksfoot, Water Couch, Kikuyu and Artichoke Thistle and Spiny Rush.

Woody weeds are also highly problematic, i.e. Gorse, Hawthorn, Sweet Briar and Blackberry as they have the potential to completely cover the ground in dense thickets making it incompatible for GGF. However, theses woody weeds can provide habitat for other fauna. Therefore, they should be removed in a staged process, and replaced with suitable indigenous species.

Care needs to be undertaken during weed control and revegetation works to ensure soil disturbance, and the risk of erosion, is minimised. Replacing woody weeds with indigenous species will reduce the risk of erosion and the movement of sediment-laded runoff into Merri Creek.

Mow/brush cut non-native vegetation

Management Zone 1 excluding areas of vegetation on rock escarpments and native woody vegetation, must be mown or brush cut following the initial round of weed control (once the treated weeds are dead), and as required, in order to achieve and maintain suitable vegetation structure for GGF. All terrestrial GGF habitat must be kept short. Biomass may remain in-situ.

The following targets relating to mowing/brush cutting non-native vegetation are prescribed:

- All non-native vegetation should be mown/brush cut to 10cm; and
- Native vegetation should be monitored every 3 months to determine when mowing/brush cutting is next required;

Mowing and brush cutting should occur:

- Outside of GGF active times (October to March), except where required to address fire risk management;
- When *Nassella* species are not in seed to not spread noxious weeds; and
- Outside of wet or boggy areas to avoid ground disturbance.

Mowing and brush cutting equipment should be cleaned before and after entering the site and in-between management of native/non-native vegetation to avoid weed spread/re-introduction, especially for minimising spread of *Nasella* species.

5.6. Management of Gorse

Given the abundance and density of Gorse on site, the ideal management strategy is sequentially using a combination of methods (VGT 2021).

The following methods are often used by a qualified bushland contractor to control gorse:

- Soil scraping
- Physical removal of plants by hand or machinery
- Chemical control
- Cutting then painting with herbicide
- Burning
- Biological control

Given the unique conditions of the site, such as the infestation density and size, cultural sensitivity considerations, and the potential existence of a native seed bank, certain suggested methods may not be suitable. The recommended approach to manage the pervasive Gorse involves a gradual thinning process, primarily utilizing the cut and paste method, with the biomass either removed from the site or incinerated.

Considering the extent of the infestation, Gorse control and native grass restoration are anticipated to be a multi-year process. Consequently, continuous follow-up treatments are vital in the months and years following the removal of mature Gorse stands. Gorse stumps are likely to resprout for several years post-removal, and high numbers of Gorse seeds may germinate in the first few years, decreasing gradually over the subsequent decades.

For Gorse germinants and resprouting Gorse under 50cm in height, spot spraying with a suitable selective herbicide, such as triclopyr, should be considered as a follow-up treatment. For regrowth exceeding 50cm, the cut and paint method with neat glyphosate is suggested. The usage of glyphosate or metsulfuron-based herbicides for spot spraying is discouraged due to the potential off-target damage to regenerating lilies and herbs. As the Gorse biomass is significantly reduced, the implementation of burning treatments may be considered, if appropriate.

Gorse management will be subject to an annual review and modification process to optimize control strategies and ensure success of the management objectives. This adaptive management will allow for the adjustment of methods based on observed outcomes, enhancing the overall effectiveness and efficiency of the conservation efforts.

5.7. Lobed Needle Grass

Lobed Needle Grass (LNG), classified as a 'State Prohibited Weed' under the CaLP Act, poses a significant threat to native flora and fauna due to its highly invasive nature. According to the CaLP Act, it's the Secretary's duty to take reasonable steps to exterminate State prohibited weeds across The State. However, despite this legal obligation, DEECA has ceased efforts towards the weed's eradication.

Whittlesea Council firmly advises that if LNG is detected, management should aim to eliminate the species from any infested site. Although the most recent field surveys did not record any presence of LNG, past sightings have been reported by bushland contractors.

To ensure accurate detection and reporting, it's recommended that surveys are conducted during the weed's flowering season, which begins in September. These surveys will help document the locations and extent of any LNG infestations. If LNG is identified, it will be immediately reported to both Whittlesea Council and DEECA.

The strategy to eradicate this invasive species will require collaboration with the Council and may involve continued slashing and the application of appropriate herbicides.

5.8. Disposal of weed material

Any fertile weed material, especially that of any CaLP Act-listed weeds **must** be burned or otherwise legally disposed of using appropriate permits for disposal and transportation.

If weeds are to be stockpiled and burned, all fertile or woody weed material must remain on site and be piled in the designated stockpile area, and a permit to do so must be obtained under the relevant legislation. Prior to any burning off, appropriate warning will be given to local residents through a letterbox drop and fire authorities will be notified. Firebreaks will be slashed around the perimeter of the designated stockpile area in the lead up to burns.

Burns will be undertaken on days with only light wind, with sufficient numbers of suitably experienced bushland contractor personnel on hand within firebreaks with portable water supplies to halt the fire if required. Bushland contractors would remain at the site of the burn until an appointed team leader confirms that all fire has been extinguished.

Table 2: Weed control management actions for high threat weeds within the conservation area.

Weed type	Common name	Scientific name	Recommended control method	Timing	Current infestation status	Estimated % cover as at 21/01/2023	Management outcome to be achieved and maintained per species
Woody	Hawthorn	*Crataegus monogyna*	Manual removal of individuals via lopping and spraying or hand pulling.	Spring (drill and fill); any time of year (hand-pulling)	Scattered across rocky escarpment areas and few trees in riparian zone of Merri Creek.	2%	<1%. A reduction target of 20% each year until the elimination of all mature plants. Control of emergent seedlings as required thereafter.
	Desert Ash	*Fraxinus anugstifolia*			Scattered mature individuals on eastern boundary of conservation area	1%	
	Galenia	*Galenia pubescens var. pubescens*	Thoroughly wet the plant with a foliar spray using an appropriate herbicide.	Autumn and Spring	Concentrated to escarpments and open woodland areas. Also densely covering area proposed for wetland.	5%	
	Montpellier Broom	*Genista monspessulana*	Manual removal of individuals via lopping and spraying or hand pulling.	Winter and spring	Concentrated to escarpments and disturbed areas.	2%	
	Atlantic Ivy	*Hedera hibernica*		All year-round.	One infestation on quarry escarpment.	2%	
	African Box-thorn	*Lycium ferocissimum*		Autumn and spring	Sparsely scattered throughout conservation area, mainly on steep escarpments.	5%	
	Radiata Pine	*Pinus radiata*	Manual lopping and removal of mature and emergent individuals.	All year-round	Few individuals on eastern boundary of Conservation Area.	1%	
	Sweet Briar	*Rosa rubiginosa*	Thoroughly wet the plant with a foliar spray using an appropriate herbicide.	Autumn and Spring	Large individuals on Creek banks and scattered throughout escarpments.	3%	
	Blackberry	*Rubus fruticosus spp. agg.*		Spring (drill and fill); any time of year (hand-pulling)	Scattered large brambles in wetter gullies, escarpment areas and riparian Creekline.	1%	
	Prickly Pear	*Opuntia stricta*		Spring to early-summer	Sparsely scattered throughout conservation area.	3%	
	Gorse	*Ulex europaeus*	Multi-disciplinary approach needed e.g. mulching and spraying emergent seedlings.	Autumn	Across majority of conservation area in dense stands.	60%	<5%. Reduction goal of at least 20% each year until cover target is achieved and not concentrated infestations remain. Control and eliminate emergent plants as required thereafter.
High-threat herbaceous weeds	Artichoke Thistle	*Cynara cardunculus subsp. flavescens*	Spot-spray using a broadleaf-selective herbicide or cut and paste with appropriate herbicide.	Early-Mid Spring must be before flower stem thickens.	Scattered across grassland and woodland sections of the conservation area. Dense infestations in disturbed areas on eastern boundary.	15%	<1%. A reduction target of 20% each year until the elimination of all mature plants. Control of emergent seedlings as required thereafter.
	Fennel	*Foeniculum vulgare*		Any time for cut and paste. Early spring for slashing.			
High-threat grassy weeds	Lobed Needle-grass	*Nassella charruana*	Spot spray with an appropriate herbicide. Due to the isolated occurrences of this weed, elimination is recommended.	Minimum biannually in Spring and Autumn, or as required.	Infestation locations and extent need to be determined through targeted surveys.	N/A	<1%. Elimination of all mature plants.
	Chilean Needle-grass	*Nassella neesiana*	Slash prior to flowering to prevent seed development.	Minimum biannually in Spring and Autumn, or as required.	Infestation across entire conservation area. Dense stands on creek banks and higher elevation grassland.	50%	Remain at current levels i.e. prevent further spread.
	Toowoomba Canary-grass	*Phalaris aquatica*		Minimum biannually in Spring and Autumn, or as required.			

Weed type	Common name	Scientific name	Recommended control method	Timing	Current infestation status	Estimated % cover as at 21/01/2023	Management outcome to be achieved and maintained per species
	Couch	*Cynodon dactylon var. dactylon*		Spring	Infestations concentrated to north east corner of study area. 15%	15%	
	Kikuyu	*Cenchrus clandestinus*		Spring to early-summer			
	Paspalum	*Paspalum dilatatum*	Spot spray with an appropriate herbicide. Due to the isolated occurrences of this weed, elimination is recommended.	Spring to early summer.			
	Serrated Tussock	*Nassella trichotoma*		All year-round during periods of active growth	Scattered across grassland at low densities.	10%	Remain at current levels i.e. prevent further spread and maintain suitable habitat for GGF.
	Spiny Rush	*Juncus acutus*	Burn/slash to ground level during summer after an extended period of no rainfall, when the water level is low and plants are not submerged. Follow up with spot spraying of sprouting clumps and seedlings. Ensure no herbicide enters the waterway.	Late summer after extended period of no rainfall	Scattered throughout waterway.	2%	

6. Revegetation

6.1. Revegetation zones and objectives

The revegetation strategy for the conservation area is presented below in the subsections below. This includes a detailed approach for Management Zones 1, 2 and 3. Zone 1 subject to revegetation efforts in consultation with Melbourne Water. Zone 4 will be considered during the wetland landscape design process.

6.2. Revegetation timing

Weed control and must commence as soon as possible to ensure that planting can occur without delay. However, revegetation should not be initiated until sufficient weed control has taken place, this may take several seasons. Adaptive management will determine optimised timing for revegetation efforts to begin.

Revegetation works must be initiated in autumn to early spring after and ideally preceding a forecast of a significant rain event to encourage successful establishment of new plants.

6.3. Planting Preparation

Planting should be conducted within one month of the last weed control efforts to reduce competition from weeds and in turn increase the likelihood of plant establishment and survival. Ideally weed control should occur in the spring and autumn before planting occurs.

6.4. Planting Guide

Species recommended for revegetation of management zones were largely determined using local indigenous species observed on site and in nearby intact remnant vegetation. Other resources consulted include the Victorian Volcanic Plain bioregion benchmarks Escarpment Shrubland (EVC 895) and Plains Grassland (EVC 132_61), species listed in *Start With the Grasslands* (VNPA 2013)and plants listed in the *Growling Grass Frog Habitat Design Standards* (DELWP 2017). All species chosen are widely distributed and robust options. Final planting schedule will be refined and adapted in consultation with bushland contractors.

A planting guide has been designed to rapidly revegetate and stabilise the ground, and a variety of plants have been chosen to enhance the biodiversity values of the area. The following sections describe revegetation within each zone. Recommended revegetation species and estimated tube-stock and seed quantities for each zone are listed in Table 3.

The planting schedule summarised in Table 3 is intended as a guide only and local indigenous plant nurseries should be consulted regarding suitable indigenous species for the area and to substitute like-for-like species if others are not available. Given that a large quantity of plants is required, we recommend that a local indigenous nursery be consulted as soon as possible to enable the preparation of tube-stock for planting by spring.

Tube-stock is to be used for all shrubs, as this will increase the likelihood of survival and thereby ensuring a more effective restoration effort. For all other grassy species, only direct seeding will be undertaken. This is best carried out in late winter - early spring or autumn, immediately after a rainfall event and during a period of little to no wind. If it is not feasible to seed following a rainfall event, the area must be soaked prior to and post seeding.

For each revegetation zone, plantings should comprise a combination of the suitable species (indicated by the ✓). Using a mix of species will create a diverse habitat structure and have a lower risk of failure

than using a few select species. Planting sites and density will ultimately be determined by a bushland contractor based on the estimates stated in Table 3.

6.4.1. Zone 2 – Escarpment shrubland and grassland

Planting of native shrubs should be considered where woody weeds have been removed, higher rises and escarpments. This will offset habitat lost and provide habitat variability for invertebrates and bird species. This will also improve the visual amenity of the reserve.

Revegetation within this area should be limited to supplementary plantings of scattered shrubs and trees appropriate to the landscape and provide similar habitat function as the weeds being replaced. The following species suggestions fulfill these requirements:

- Lightwood (*Acacia implexa*)
- Drooping Sheoak (*Allocasuarina verticillatala*)
- Black Wattle (*Acacia mearnsii*)
- Sweet Bursaria (*Bursaria spinosa*)
- Tree Violet (*Melicytus dentatus*)
- Hedge Wattle (*Acacia paradoxa*)

As GGF require low grassy vegetation, replacement planting should occur on the higher rises and escarpments. Land managers should plant understorey life forms in dense patches to create a mosaic effect and to provide some competitive advantage against weeds, while ensuring that disturbance to any native ground cover areas is minimised, although projective cover of planted shrub/tree vegetation should not exceed 10%.

6.4.2. Zone 3 – Establishment of NTGVPP

The native vegetation within this zone is present in the form of *Heavier soils* Plains Grassland (EVC 132_61), therefore revegetation design should be in line with a species composition reflective of this EVC type and account for local variances. The management objective for this zone is to restore the grassland to NTGVVP standards. This will be achieved by meeting following condition thresholds:

- The total perennial tussock cover represented by native grasses Kangaroo grass (*Themeda*), Wallaby grass (*Rytidosperma*), Spear Grass (*Austrostipa*) or Tussock Grass (*Poa*) is at least 50%; and
- The cover of non-grassy weeds is less than 30% of total vegetation cover at any time of year.

All plantings and reseeding must be of Indigenous local provenance with seed sourced from *Heavier soils* Plains Grassland soil type and receiving at least 500mm annual rainfall. For grassy species direct seeding will be undertaken. This is best carried out in late winter–early spring or autumn.

The following target is to be achieved in regard to vegetation restoration within Zone 3:

- Establish 70% native vegetation cover, derived from a mix of grasses.

The target of 70% exceeds the required 50% cover to qualify for NTGVVP is to account for potential mortality. Seeding efforts (plant health and mortality) must be monitored to determine the necessity and timing of management actions and adapted accordingly. Supplementary planting in order to achieve the cover target for each lifeform may include tube-stock planting or over sowing with seed. The quantity of seed is intended to comprise multiple species as indicated in Table 3 below and should not be considered as a rate for each specific species. A combination of the below species and their representative seeding

quantities should be used dependent on seed availability and the recommendation of the contractor. Using a mix of species will create a diverse habitat structure and have a lower risk of failure than using a few select species.

Table 3: Suggested planting schedule for Revegetation Zones

Common name	Scientific name	Zone 1	Zone 2	Zone 3
Shrubs and herbs (tube-stock) approx. 1/square meter in revegetation areas				
Lightwood	*Allocasuarina verticillatala*		✓	
Drooping Sheoak	*Acacia mearnsii*		✓	
Black Wattle	*Bursaria spinosa*		✓	
Sweet Bursaria	*Melicytus dentatus*		✓	
Hedge Wattle	*Acacia paradoxa*		✓	
Rock Correa	*Correa glabra*		✓	
Ruby Saltbush	*Enchylaena tormentosa*		✓	✓
Plains Everlasting	*Chrysocephalum* sp 1		✓	✓
Lemon Beauty-heads	*Calocephalus citreus*		✓	✓
Black-anther Flax-lily	*Dianella revoluta var. revoluta*		✓	✓
Common Sedge	*Carex tereticornis*	✓		
Common Tussock-grass	*Poa labillardierei*	✓		
Running Marsh-flower	*Villarisa reniformis*	✓		
Pondweed*	*Potamogeton spp.*	✓		
Water Ribbons*	*Triglochin procerum*	✓		
Grasses (seeds) 30kg/ha				
Kangaroo Grass	*Themeda triandra*			✓
Wallaby-grasses	*Rytidosperma spp.*			✓
Weeping Grass	*Microlaena stipoides var. stipoides*			✓
Common Wheat-grass	*Anthosachne scabra*			✓
Kneed Spear-grass	*Austrostipa bigenticulata*			✓

6.4.3. Zone 4 & 5 – Stormwater infrastructure and future wetland

A bioretarding basin is proposed for southeast of the conservation area and wetland is proposed within the scraped area of MZ4 (Figure 3). Management and mitigation measures will be considered during the landscape design process. Although GGF was not recorded during targeted surveys the intention is to revegetate the wetland in order to provide habitat for GGF and other native fauna. Considerations will be given to the Growling Grass Frog Habitat Design Standards (DELWP 2017) and may include the habitat enhancement measures outlined in Section 4.6.2.**Error! Reference source not found.**

In addition, water treatment measures should be considered if there is a risk of the wetland collecting water coming directly from a possible polluting source, such as those carrying sediments, heavy metals, pollutants, and disease directly into the aquatic ecosystem. Water can be treated prior entering the system in the following ways:

- Install a sediment trap and constructed wetland according to Melbourne Water guidelines to treat water from the pollutant prior to entering the wetland; and
- Allow the wetland to dry and flood naturally, helping heavy metals filtrate and lock into the soil.

These improvements will provide habitat features for fauna, primarily through the provision of shelter, but will also likely have other benefits relating to improved sources of food and water.

6.5. Plant Protection

Temporary rabbit proof and Kangaroo fencing and browsing control should be considered for revegetation areas only when other pest management are observed to be ineffective. All newly planted trees will be protected with a stake and tree guards.

6.6. Maintenance and adaptive management

Seeding and planting schedules should be aligned with the Melbourne revegetation season (e.g. April-September). It is recommended the Greening Australia (2003) 'Guide to timing of revegetation activities' (see figure 7) is used to guide timing of practice.

Occasional watering, dependent on rainfall and climate, may be required to aid plant establishment, growth and survival (particularly in summer). Watering must occur at the time of seeding and two weeks after seeding (if no follow up rains have occurred in this time after seeding).

Weed control must be conducted post planting to facilitate the natural growth and recruitment of understory vegetation.

It is recommended that a monitoring assessment be conducted at two months and at six months post-planting to assess the progress/success of rehabilitation and determine the need for supplementary planting, weed control or watering. This monitoring can be conducted by land manager or bushland contractor. That way any ad-hoc changes in management or planting can be easily implemented. Supplementary planting in order to achieve the cover target for each lifeform may include additional tube-stock planting.

Further monitoring should be conducted every 12 months on the anniversary of CMP implementation. This assessment must be conducted by a qualified ecologist (independent of the weed control contractor) and the results of monitoring must be reported to Whittlesea Council within a month of the monitoring see (Section 7).

Guide to timing of revegetation activities

Activity	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring
1. Planning*									
2. Preparing the ground									
Soil preparation									
Weed control*									
3. Pest animal management									
Pest control									
Fencing									
4. Seeds and seedlings									
Seed collection, cleaning and ordering*									
Plant orders and propagation*									
5. Revegetation									
Natural regeneration									
Direct seeding and planting									
6. Maintenance									
7. Monitoring									

Refers to the timing of activities for both semi-arid and medium to high rainfall environments

Refers to medium to high rainfall (500mm plus p.a.) areas only

Refers to semi-arid (250-500mm rainfall p.a.) areas only

*These activities should commence in advance of the seasons shown. Ideally:
- begin planning two or more years ahead of seeding or planting;
- start weed control at least twelve months prior to seeding or planting or earlier depending on the site;
- order seed two years before seeding or planting;
- order plants at least twelve months prior to planting.

Figure 7: Guide to timing of revegetation activities

7. Monitoring and reporting

This CMP requires the site manager to monitor and maintain the sites by an engaged contractor at least quarterly. The agreement also requires annual monitoring by a suitably qualified third party to measure management objectives against the baseline data detailed within this plan.

A report will be submitted to the responsible authority annually for each year of this management plan until the land is handed over. Reports are to be submitted by the anniversary date of the execution of the agreement, using the Annual Report template provided by the Department.

The Annual Report addresses progress against the commitments set out in this plan. Annual Reports must provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of, or progress towards meeting the commitments. A minimum of one piece of evidence is to be provided per management commitment, such as a work log, photographs of works, before/after photos, receipts/invoices for equipment, materials, labour or professional fees.

The responsible authority will coordinate this monitoring, which will include:

- Extent and quality of retained native vegetation;
- Weed cover estimates to be recorded for each weed species that occurs in the conservation;
- An overall weed cover estimate for the conservation area;
- Monitoring of pest animals to determine the need for pest animal control;
- Monitoring of revegetation progress;
- Monitoring of fencing; and
- Monitoring of rubbish levels

Findings recorded during this periodic monitoring will be documented in a report, which will include:

- A summary of works completed since the last monitoring event;
- Assessment of the integrity of the property fencing for plant protection;
- Extent and quality of native vegetation and percentage cover of declared noxious weeds and high-threat weeds within the conservation area;
- Assessment of the status of weed control works;
- Identification of any new and emerging weeds, including extent of infestation;
- Assessment of the status of revegetation works;
- Assessment of the effects of pest animal activity;
- Discussion and evidence of the progress of the management actions listed in Section 8 and whether or not targets have been achieved; and
- Recommendations for future management of the site.

The responsible landowner will provide the periodic reporting to Whittlesea Council within three months of the anniversary of the commencement this plan.

7.1. Ongoing management

The conservation area will be managed for conservation beyond the nominal 10-year period of this plan until handover of the land to the responsible authority.

7.2. Adaptive management

By monitoring the outcomes of actions, management may be adapted to ensure the stated commitments in the plan are upheld. For example, new techniques for controlling high threat weeds may become available or further information on the ecology and status of vegetation communities may necessitate adjustment to management actions.

8. Management actions and timing

The following table provide the management actions to be undertaken and proposed timelines.

Table 4: Management actions and timing

Management Action	Timing	Target to be achieved	Responsible person	CMP reference	Completed (Yes/No)	Month completed
Year 1						
Establish conservation area	Upon approval of this plan	Defines the start of the prescribed management period under this Plan	Landowner	N/A		
Demarcate conservation area – establish markers to identify boundary of the conservation area to assist with its management and monitoring	Prior to commencement of civil construction	Boundary of conservation area clearly demarcated onsite	Landowner in consultation with land surveyor	Figure 1		
Erect temporary construction fencing around the boundary of the conservation area and silt fencing around wetland construction area.	Prior to commencement of civil construction	Temporary construction fencing to be erected prior to commencement of civil construction.	Landowner	Section 3 & 4.4		
Erect permanent bollard/post and rail fencing around the boundary of the conservation area in accordance to Council landscape standards.	Upon implementation of this Plan	Permanent fencing to be established prior to management actions being undertaken.	Landowner-nominated contractor	Section 4.4.2		
Removal of rubbish	Upon implementation of this Plan	All rubbish to be removed from the conservation area. Regular monitoring after heavy rain to maintain low rubbish levels along the creek.	Landowner-nominated contractor	Section 4.3 and Figure 2		
Removal of inappropriate fencing	Upon implementation of this Plan	Complete removal of barbed wire fencing running along the Merri Creek escarpment.	Landowner nominated contractor	Section 4.4.3		
Biomass control in areas of non-native vegetation all management zones. Maintaining grass levels at less than 10cm for management zone 1.	Minimum biannually during spring and autumn	Ensure grasses are slashed prior to flowering and seed formation	Landowner nominated contractor	Section 4.6 and 5.3		
Weed control	As required as per optimal time for each species in each zone	See Section 5.1 for weed control targets for each species, each weed type and total weed cover.	Landowner-nominated contractor	Section 5 and Table 3		
Pest animal control Implement rabbit and fox control as required	Autumn (or at commencement)	Pest animals are monitored regularly and controlled when required	Landowner-nominated contractor	Section 4.5		
Revegetation of Zone 2 Supplementary planting of shrubs after woody weed removal	Autumn or early spring and preceding a forecast of a large rain event	Only conducted if weeds are at suitable levels. Achieve at least an 80% survival rate of planted species.	Landowner nominated contractor	Section 6.4.1		
Revegetation of Zone 3 Seeding with native grasses after woody weed removal	late winter–early spring or autumn, as soon as possible after weed management, preceding rain event.	Only conducted if weeds are at suitable levels. Achieve at least 70% cover of mature native grasses and the reduction of non-grassy weed to below 30%	Landowner nominated contractor	Section 6.4.2		

Management Action	Timing	Target to be achieved	Responsible person	CMP reference	Completed (Yes/No)	Month completed
Monitoring of revegetation efforts and supplementary planting if required	3 months and 6 months after every planning effort	Meeting the revegetation goals for each zone	Landowner nominated contractor	Section 6.6		
Site quality audit	No later than three months after anniversary of implementation of this Plan	Results will inform management approaches and techniques.	Qualified ecologist engaged by the landowner	Section 7		
Monitoring to determine fencing integrity and timeliness of management actions	Permanent conservation area boundary fencing inspected annually; each management action monitored annually	Boundary fencing effective and management actions undertaken on time	Landowner	Section 4 and 7		
Report to be prepared documenting management actions undertaken and monitoring results	No later than three months after anniversary of implementation of this Plan	Report delivered to Whittlesea council no later than three months after anniversary of commencement	Landowner	Section 7		
Year 2 onwards						
Biomass reduction	Minimum biannually during spring and autumn	Grassy biomass layer reduced Inter-tussock spaces maintained to optimise ecological function	Landowner nominated contractor	Section 4.7 and 5.2.		
Pest animal monitoring and control if required	Monitored annually in autumn control implemented as required	Pest animals controlled	Landowner nominated ecologist for monitoring an contractor for control	Section 4.5.		
Weed monitoring	Annually in September to November	Results will inform management approaches and techniques. All new and emerging weeds should be controlled where possible (i.e. not in areas where GGF habitat would be impacted).	Landowner nominated ecologist	Section 5.1 and Table 1.		
Implement weed control if required. Herbicide and mechanical removal.	March to May or September to November as required as per optimal time for each species	As per targets outlined in Section 3.4	Landowner nominated contractor	Section 5.1 and Table 1.		
Monitoring of revegetation efforts of Zone 2 to determine if supplementary seeding or planting required	Once annually	Achieve at least 80% survival rate of planted species.	Landowner nominated ecologist	Section 6.4.2		
Follow up revegetation of Zone 3 Seeding of areas where weed control was recently conducted	late winter–early spring or autumn, as soon as possible after weed management, preceding rain event. Continuing supplementary seeding when appropriate until target is achieved.	Achieve at least 70% cover of mature native grasses and the reduction of non-grassy weed to below 30%	Landowner nominated contractor	Section 6.4.2		
Site quality audit (includes pest control, weed control, revegetation progress, fencing condition and rubbish levels)	Annually late spring to early summer	Results will inform management approaches and techniques	Landowner nominated ecologist	Section 4		

Management Action	Timing	Target to be achieved	Responsible person	CMP reference	Completed (Yes/No)	Month completed
Report to be prepared documenting management actions undertaken and monitoring results.	No later than three months after anniversary of commencement. Annually after the first report.	Report delivered to Melton Council no later than three months after anniversary of commencement	Landowner nominated ecologist	Section 7		

9. References

Department of Sustainability and Environment (DSE) 2006, *Native Vegetation Revegetation Planting Standards*, Victorian Government, Department of Sustainability and Environment, East Melbourne.

DELWP 2017, *Growling Grass Frog Habitat Design Standards*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria.

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Department of Jobs, Precincts and Regions (DJPR) 2017, Machinery Hygeine, Agriculture Victoria website, State of Victoria Department of Jobs, Precincts and Regions, http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/weeds/weedstop-vehicle-hygiene-program/machinery-hygiene.

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Marshall, A. (2013). *Start with the grasslands: Design guidelines to support native grasslands in urban areas.* Melbourne, Victorian National Parks Association.

Muyt, A 2001, Bush invaders of south-east Australia: a guide to the identification and control of environmental weeds found in south-east Australia, RG & FJ Richardson, Meredith.

VGT 2021, Gorse (Ulex europaeus) Best Practice Guide, Victorian Gorse Taskforce (VGT), Attwood.

White, M, Cheal, D, Carr, GW, Adair, R, Blood, K & Meagher, D 2018, Advisory list of environmental weeds in Victoria, Arthur Rylah Institute for Environmental Research Technical Report Series No. 287, Department of Environment, Land, Water and Planning, Heidelberg.

Appendix 1: Construction environmental management actions

Management actions	Responsibility	Monitoring frequency
Fence the conservation reserve with temporary fencing constructed to the fencing requirements detailed in section 4.4.1. Affix '**VEGETATION PROTECTION ZONE – No Access Permitted**' signage at 30 metre intervals. One farm gate entry to each zone provided to allow entry for management. NO GO ZONES strictly enforced to exclude pedestrian or vehicle access, material storage or equipment laydown. Ensure that fencing and signage is maintained and effective for the duration of this Plan.	Responsible landowner/ Construction Contractor	Ongoing
Control all weed outbreaks in disturbed areas within 20 metres of the reserve to prevent spread into the conservation reserve.	Responsible landowner/ Construction Contractor	Monthly
All vehicle washdown, equipment lay down and personnel rest areas are to be clearly defined (fenced and/or signed) and located to prevent any detrimental impact on the reserve.	Construction Contractor	Daily
Manage surface runoff from stormwater or construction works (e.g. hosing down or clean-up) so that no excess runoff is directed towards the reserve.	Construction Contractor	Weekly and after any rain
Stockpile soil/fill outside at least 20 metres from the reserve. Bund all soil/fill stockpiles.	Construction Contractor	Daily during earthworks

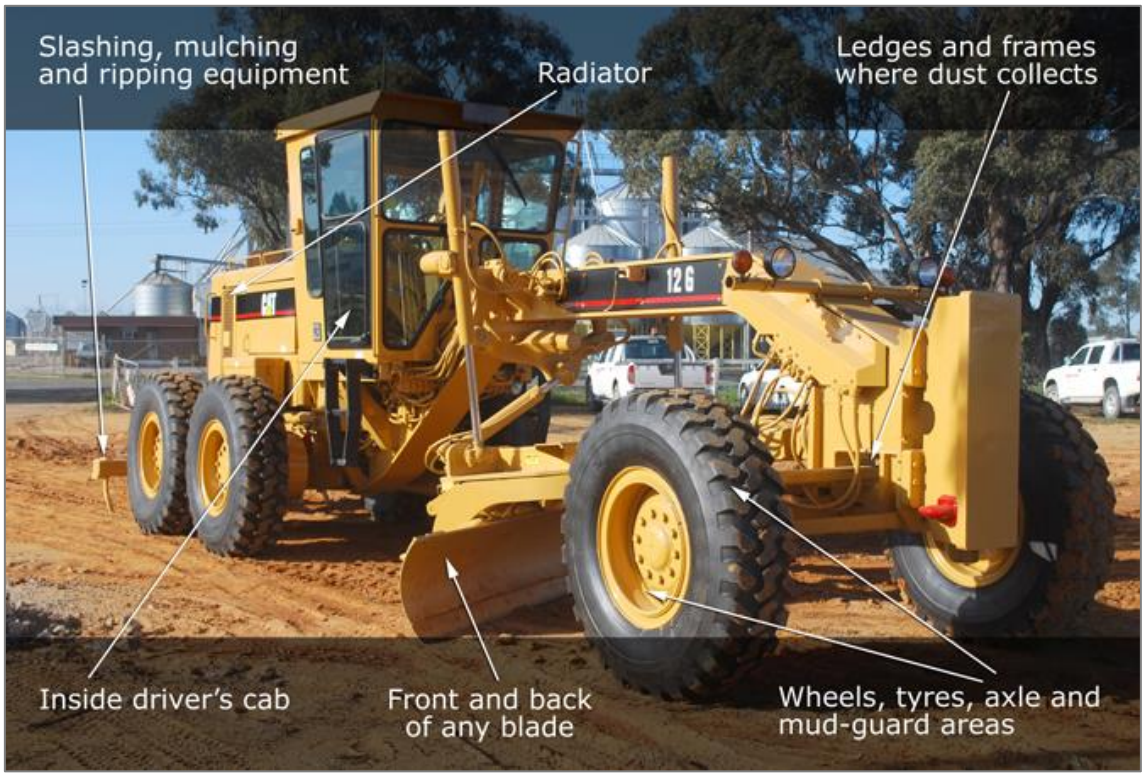
Appendix 2: Weed Species recorded in study area

Common name	Scientific name	DELWP	CaLP Act	WONS
Sheep Sorrel	*Acetosella vulgaris*	Y		
Agapanthus	*Agapanthus praecox*	Y		
Galenia	*Aizoon pubescens*	Y		
Belladonna Lily	*Amaryllis belladonna*	Y		
Wild Oat	*Avena fatua*	Y		
Twiggy Turnip	*Brassica fruticulosa*	Y		
Large Quaking Grass	*Briza maxima*	Y		
Kikuyu	*Cenchrus clandestinus*	Y		
Common Centaury	*Centaurium erythraea*	Y		
Spear Thistle	*Cirsium vulgare*	Y	C	
Hawthorn	*Crataegus monogyna*	Y	C	
Artichoke Thistle	*Cynara cardunculus subsp. flavescens*	Y	C	
Couch	*Cynodon dactylon*	Y		
Rough Dog's-tail	*Cynosurus echinatus*	Y		
Drain Flat-sedge	*Cyperus eragrostis*	Y		
Cocksfoot	*Dactylis glomerata*	Y		
Paterson's Curse	*Echium plantagineum*	Y	C	
Panic Veldt-grass	*Ehrharta erecta*	Y		
Fleabane	*Erigeron spp.*	Y		
Fennel	*Foeniculum vulgare*	Y	R	
Desert Ash	*Fraxinus angustifolia*	Y		
Cleavers	*Galium aparine*	Y		
Montpellier Broom	*Genista monspessulana*	Y	C	WONS
Atlantic Ivy	*Hedera hibernica*	Y		
Ox-tongue	*Helminthotheca echioides*	Y		
Yorkshire Fog	*Holcus lanatus*	Y		
Barley-grass	*Hordeum leporinum*	Y		
Flatweed	*Hypochaeris radicata*	Y		
Spiny Rush	*Juncus acutus subsp. acutus*	Y	C	
Prickly Lettuce	*Lactuca serriola*	Y		
Common Peppercress	*Lepidium africanum*	Y		
Rye Grass	*Lolium spp.*	Y		
African Boxthorn	*Lycium ferocissimum*	Y	C	WONS
Small-flower Mallow	*Malva parviflora*	Y		
Cane Needle-grass	*Nassella hyalina*	Y		
Chilean Needle-grass	*Nassella neesiana*	Y	R	WONS

Common name	Scientific name	DELWP	CaLP Act	WONS
Serrated Tussock	*Nassella trichotoma*	Y	C	WONS
Watercress	*Nasturtium officinale*	Y		
Common Prickly Pear	*Opuntia stricta*	Y	C	WONS
Paspalum	*Paspalum dilatatum*	Y		
Water Couch	*Paspalum distichum*	Y		
Toowoomba Canary-grass	*Phalaris aquatica*	Y		
Radiata pine	*Pinus radiata*	Y		
Ribwort	*Plantago lanceolata*	Y		
Annual Meadow-grass	*Poa annua s.l.*	Y		
Prostrate Knotweed	*Polygonum aviculare s.l.*	Y		
Onion Grass	*Romulea rosea*	Y		
Sweet Briar	*Rosa rubiginosa*	Y	C	
Blackberry	*Rubus fruticosus spp. agg.*	Y	C	WONS
Curled Dock	*Rumex crispus*	Y		
Black Nightshade	*Solanum nigrum s.l.*	Y		
Sonchus asper	*Sonchus asper*	Y		
Common Sow-thistle	*Sonchus oleraceus*	Y		
Gorse	*Ulex europaeus*	Y	C	WONS
Common Vetch	*Vicia sativa*	Y		
Fescue	*Vulpia spp.*	Y		

Notes: EPBC = threatened species status under the EPBC Act; **FFG-T** = threatened species status under the FFG Act; **FFG-P**: listed as protected under the FFG Act; **CaLP Act**: declared noxious weeds under the CaLP Act (S = State Prohibited Weeds [any infestations are to be reported to DELWP. DELWP is responsible for control of State Prohibited Weeds]; P = Regionally Prohibited Weeds [Land owners must take all reasonable steps to eradicate regionally prohibited weeds on their land]; C = Regionally Controlled Weeds [Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally controlled weeds on their land]; R = Restricted Weeds [Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials is prohibited].

Appendix 3: Critical contamination areas in earthmoving vehicles



Source: DJPR (2017).

Appendix 4: Logbook for weed survey and weed control

Date										
Initials										
Monitoring checklist										
Site entrance										
Clean-down bay and discharge areas										
Materials transported to the site										
Stockpiles										
Areas of soil disturbance										
Disposal of sediment at clean-down bay as required										
Monitor remainder of site not included above										

Appendix 5: Logbook for recording clean-down facility

All personnel who utilise the clean-down area must populate the logbook below. Ensure no material remains on or within the vehicle before entering the site.

Date	Time	Name/company	Machine type	Rego/ identification	Last location of machine	Destination within site	Adequately cleaned	Declaration (Signature)

Appendix 6: Logbook for recording importation of materials

Record all importation of organic material that has the potential to contain weed seeds, plant parts and/or pathogens: gravel, soil, bark, etc.

Date	Time	Name/company	Supplier	Composition	Source location (if known)	Destination of material within site	Declaration that material is propagule-free (Signature)

Appendix 7: Reporting form for weed control

Weed type	Common name	Scientific name	Control method used	Date implemented	No. of infestations treated (%)	Management outcome to be achieved and maintained	Name of company/contractor undertaking works	Name of herbicide and rate applied
Woody	Hawthorn	*Crataegus monogyna*				<1%.		
	Desert Ash	*Fraxinus anugstifolia*				A reduction target of 20% each year until the elimination of all mature plants. Control of emergent seedlings as required thereafter.		
	Galenia	*Galenia pubescens var. pubescens*						
	Montpellier Broom	*Genista monspessulana*						
	Atlantic Ivy	*Hedera hibernica*						
	African Box-thorn	*Lycium ferocissimum*						
	Radiata Pine	*Pinus radiata*						
	Sweet Briar	*Rosa rubiginosa*						
	Blackberry	*Rubus fruticosus spp. agg.*						
	Prickly Pear	*Opuntia stricta*						
	Gorse	*Ulex europaeus*				<5%.- Reduction goal of at least 20% each year until cover target is achieved and not concentrated infestations remain. Control and eliminate emergent plants as required thereafter.		
High-threat herbaceous weeds	Artichoke Thistle	*Cynara cardunculus subsp. flavescens*				<1%.		
	Fennel	*Foeniculum vulgare*				A reduction target of 20% each year until the elimination of all mature plants. Control of emergent seedlings as required thereafter.		
High-threat grassy weeds	Chilean Needle-grass	*Nassella neesiana*				Remain at current levels i.e. prevent further spread.		
	Toowoomba Canary-grass	*Phalaris aquatica*						

Weed type	Common name	Scientific name	Control method used	Date implemented	No. of infestations treated (%)	Management outcome to be achieved and maintained	Name of company/contractor undertaking works	Name of herbicide and rate applied
	Couch	*Cynodon dactylon var. dactylon*						
	Kikuyu	*Cenchrus clandestinus*						
	Paspalum	*Paspalum dilatatum*						
	Serrated Tussock	*Nassella trichotoma*				Remain at current levels i.e. prevent further spread and maintain suitable habitat for GGF.		
	Spiny Rush	*Juncus acutus*						