Adopted 26 May 2021

Environmental Management Plan for Bunjil Creek and Howey Creek, Gisborne

Prepared for: Gisborne Landcare, Macedon Ranges Shire Council and Melbourne Water

March 2021

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Issue and Revision Record

Version	Date	Author	Changes
1	17/07/2020	Mark Vergara & Julian Thompson	initial draft
2	21/08/2020	Mark Vergara & Matt Hall	address comments from MRSC, Melbourne Water and Gisborne Landcare
3	26/08/2020	Mark Vergara & Matt Hall	address additional comments from MRSC
4	07/01/2021	Mark Vergara	address public comments and additional comments from MRSC
5	14/02/2021	Mark Vergara	address additional comments from MRSC and Gisborne Landcare
6	22/03/2021	Mark Vergara	Address additional comments from MRSC and Gisborne Landcare

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Glossary

Term	Definition
Benchmark	A standard vegetation-quality reference point relevant to the vegetation type that is applied in habitat hectare assessments. Represents the average characteristics of a mature and apparently long-undisturbed state of the same vegetation type.
Ecological Vegetation Class (EVC)	a native vegetation classification system that incorporates vegetation structure, floristic and ecological characteristics together with environmental attributes such as aspect, slope, elevation, rainfall and soils
Environmental Weed	Plant species that invade native ecosystems and have the potential to adversely affect the survival of native flora or fauna or the functioning of ecosystems
Exotic	Introduced plant species, non-native to Victoria
Noxious Weeds	Declared Noxious Weeds in Victoria under CaLP Act 1994
Revegetation	Establishment of native vegetation to a minimum standard in formerly cleared areas, outside a remnant patch.
WoNS	Weeds of National Significance

1. INTRODUCTION

1.1 Acknowledgement of Country

We acknowledge the Traditional Owners of the country around Bunjil and Howey Creek, the Wurundjeri Woi wurrung People. We recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging."

"Gisborne is located on Jacksons Creek, an important Wurundjeri travel route and source of resources. It is close to Mt Macedon, an important landmark seen across much of Wurundjeri Country, and the Sunbury Rings one of many culturally significant ceremony places." - Gisborne Futures - Wurundjeri Cultural Values of Gisborne

Bunjil and Howey Creeks are noted as areas of Aboriginal Heritage Sensitivity. 'Areas of cultural heritage sensitivity' are defined in the Aboriginal Heritage Regulations 2018 (the Regulations) and relate to landforms and soil types where Aboriginal places are more likely to be located. This includes land within 200 metres of named waterways. This means a cultural heritage management plan may be required before any high impact activities are undertaken along the creeks.

1.2 Vision

The implementation of this plan meets Gisborne Landcare's vision: *To engage the local community in order to protect, and enhance native vegetation, fauna, water quality and general environmental health within Gisborne and the surrounding area, thus improving the region's overall biodiversity and natural character*".

1.3 Background

Acacia Environmental Management was engaged by Gisborne Landcare, in partnership with the Macedon Ranges Shire Council and Melbourne Water, to develop an Environmental Management Plan for Bunjil Creek and Howey Creek, Gisborne.

The objectives of the Environmental Management Plan are to:

- develop a long-term vision for the creeks;
- develop a 5-year Environmental Action Plan;
- confirm the existing ecological values of the waterways;
- identify management objectives for the waterways in collaboration with relevant stakeholders; and,
- identify suitable actions to achieve the management objectives.

Bunjil Creek is located in the township of Gisborne, ~54km northwest of Melbourne. It is a tributary to Jacksons Creek and extends approximately 4.2km south to its origin at the summit of Mount Gisborne. Bunjil Creek was formerly known as South Gisborne Drain and was only officially renamed on 26 July 2018 by Melbourne Water.

The project area covers ~2.8km of riparian zone and open space along Bunjil Creek from the confluence at Jacksons Creek and south of Wyralla Crescent and ~1.7km of Howey Creek, a tributary of Bunjil Creek, from its confluence north of Fersfeld Road to south of Brooking Road (Figure 1).

The following documents were consulted prior to developing this Environmental Management Plan:

- Gisborne Flood Study. 2006. Water Technology.
- Protecting Victoria's Environment - Biodiversity 2037. 2017. State of Victoria Department of Environment, Land, Water and Planning.
- Gisborne Futures – Gisborne Structure Plan Heritage Assessment 2019. Extent Heritage Advisors.
- Gisborne Futures - Wurundjeri Cultural Values of Gisborne 2020. Fiona McConachie.

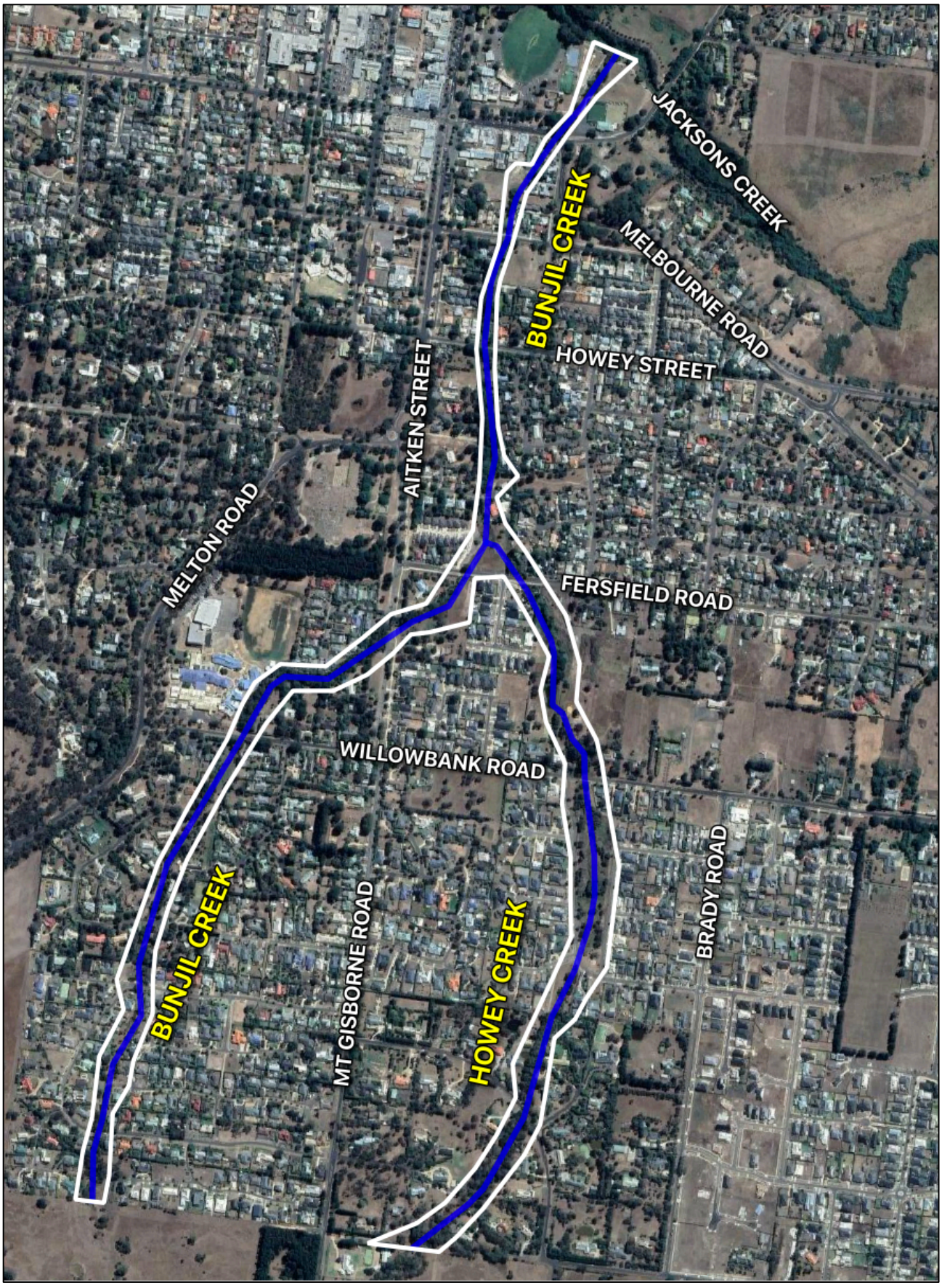

Figure 1: General location of the project area bounded by white polygon.

2. METHODOLOGY

2.1 Desktop Assessment

A search of DELWP NatureKit was undertaken to identify the present and historical Ecological Vegetation Classes (EVC) existing within the project area. The EVCs were then mapped using vector data acquired from DELWP Spatial Datamart Victoria.

A search of DELWP Victorian Biodiversity Atlas (VBA) was also undertaken to identify historical records of rare or threatened flora and fauna species recorded in the vicinity of the project area.

Mapping and associated calculations were undertaken in QGIS.

Flora species were classified based on their origin or natural distribution as indicated in Flora of Victoria – RBGV online database. Weed status were based on the following lists:

- Weeds of National Significance 2012. Commonwealth of Australia.
- Victorian noxious weeds list by scientific name 20 July2017. Agriculture Victoria.
- Your guide to the Weeds of Central Victoria. 2015. MRSC, MSC, MASC and Landcare Victoria.

Relevant EVC Benchmarks were retrieved from DELWP to identify the revegetation species while planting densities were based on the DSE Native Vegetation Revegetation Planting Standards 2006.

2.2 Field Assessment

General flora and fauna surveys were undertaken along Bunjil Creek and Howey Creek on 24 February, 8-9 April and 25 June 2020. Flora and fauna encountered were identified to the lowest possible taxa and encoded into our customised mapping and field data collector tablet paired with our Konect platform.

While every effort was taken to identify all flora and fauna present in the assessment area, it is acknowledged that some species may have avoided detection due to the following:

- A lack of seasonal sampling;
- An absence of nocturnal sampling;
- A lack of intrusive sampling.

It should be noted therefore that there remains the possibility of false absences being recorded at this location. Accordingly, the lack of a positive record for a particular species during the field survey does not necessarily constitute a definitive absence of that species from the site permanently or seasonally.

2.3 Management Zones

To streamline the field assessments and make data records manageable, the project area has been divided into 14 management zones. The management zones were based primarily on major road crossings and areas that can be readily observed together. In some areas, the management zones have been expanded to include open spaces beyond the riparian zone. The management zones are described in Table 1 and mapped in Figure 2.

Table 1: Description of Management Zones.

Management Zone	Description	Start	End
B01	Bunjil Creek confluence at Jacksons Creek; ~200m	Jacksons Creek	Melbourne Road
B02	Bunjil Creek; ~220m	Melbourne Road	Fisher Street
B03	Bunjil Creek; 220m	Fisher Street	Howey Street
B04	Bunjil Creek; ~300m	Howey Street	Curtis Court
BH5	Bunjil Creek (~170m) and Howey Creek (~100m) confluence	Curtis Court	Fersfield Road
B06	Bunjil Creek; ~180m	Fersfield Road	Aitken Street
B07	Bunjil Creek; ~410m	Aitken Street	Willowbank Road
B08	Bunjil Creek; ~570m	Willowbank Road	Carinya Drive
B09	Bunjil Creek; ~320m	Carinya Drive	Wyralla Crescent
B10	Bunjil Creek; ~140m	Wyralla Crescent	Grange Court
H01	Howey Creek; ~420m	Fersfield Road	Willowbank Road
H02	Howey Creek; 400m; Willowbank Estate Reserve	Willowbank Road	Parkview Street
H03	Howey Creek; ~320m	Parkview Street	Jonathan Road
H04	Howey Creek; ~380m	Jonathan Road	Brooking Road

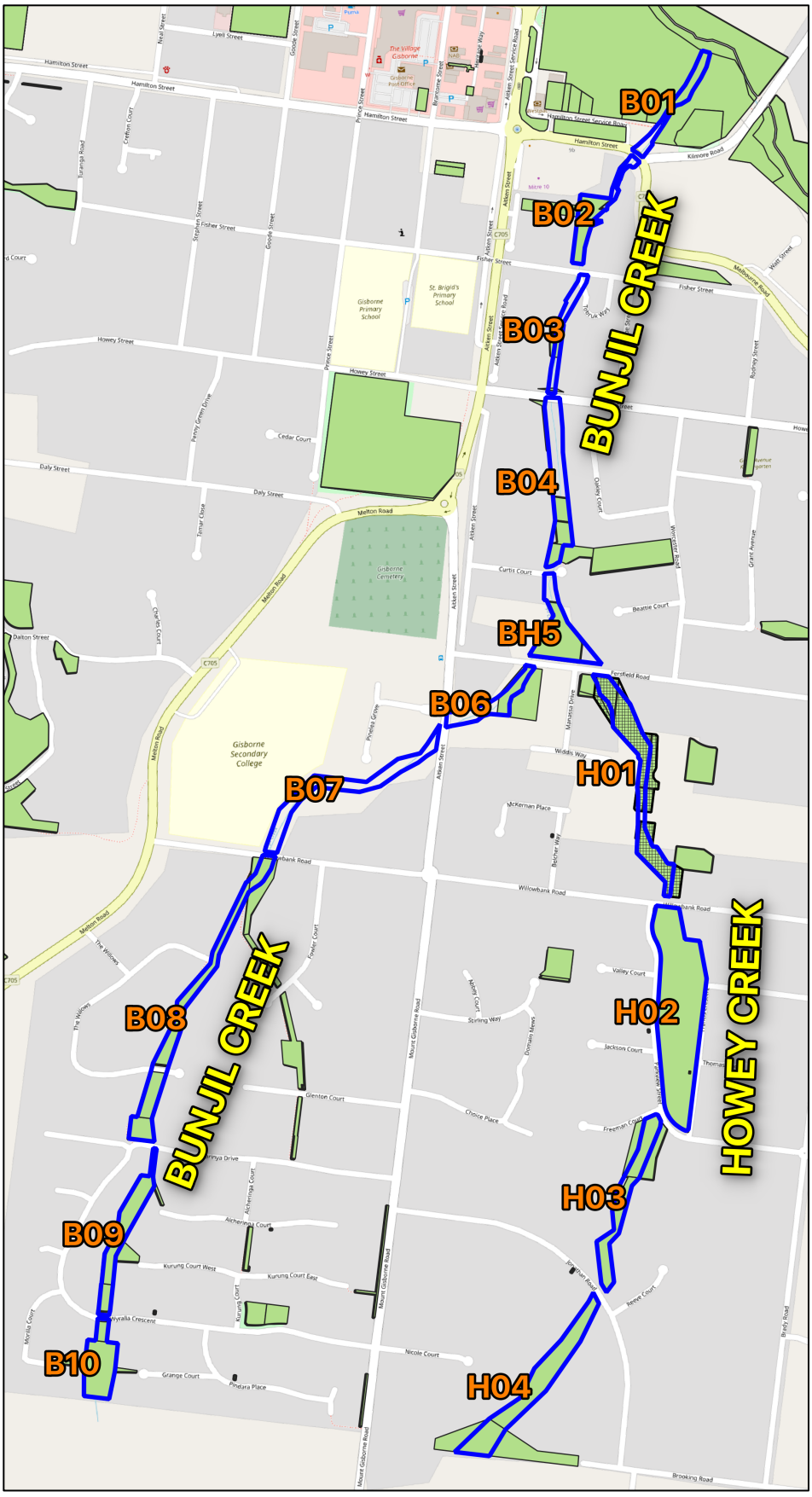

Figure 2: Designated management zones. Green areas indicate current while crossed green areas indicate future Council-managed lands.

2.4 Costing

Costing for restoration work are based on the following items, rates and assumptions:

- Tubestock = $2.00/unit
- 450mm Black Mesh Guard = $1.32/unit
- 750mm Hardwood Stakes = $2.70/unit
- Weed Mat 30cm x 30cm = $1.70/unit
- Grasses and small shrubs/herbs are planted at one stem per 2m^2
- Revegetation labour cost is based on a pair of operators planting 200 units per day
- Mulched revegetation (trees and shrubs) labour cost is based on a crew of 3 per day
- Grassy weed control labour cost is based on knapsack spraying by a pair of operators per day (including herbicide)
- Woody weed control is based on a crew of 4 per day and the use of a woodchipper

Based on these assumptions, the following cost estimates in Table 2 were developed for a 400m^2 area. This area is a common size for the management zones that can be used as a basis for calculating effort for a restoration area. A combination of these costs were used to calculate the proposed restoration costs for each management zone based on site knowledge. For example, Management Zone B01 is estimated to require one set of woody weed treatment ($2,800), one set of grassy weed treatment ($1,120), two sets of mulched revegetation ($3,996), one set of grassy groundcover restoration ($2,664), and one set of planting shrub/woody understorey ($2,664). Therefore, the estimated restoration cost for Management Zone B01 is the sum of all costs which is $13,244.

Table 2: Cost estimates for restoration works calculation.

Restoration Work Type	Cost ($) per 400m^2
Grassy weed treatment	1,120
Woody weed treatment	2,800
Grassy groundcover restoration	2,664
Planting shrub/woody understorey	2,664
Mulched revegetation of shrubs/trees	3,996
Grassy groundcover restoration	2,664
Infill revegetation	1,506

3. SITE ANALYSIS

3.1 Ecological Vegetation Class

A search of DELWP NatureKit indicated that the project area historically supported several Ecological Vegetation Classes (Pre-1750 EVC). These historical EVCs are described below and summarised in Table 3. A map of the historical EVCs along with the management zones is presented in Figure 3.

Table 3: Summary of historical (pre-1750) Ecological Vegetation Classes within the project area.

EVC Name	EVC No.	Bioregion	Conservation Status
Riparian Woodland	EVC 641	Central Victorian Uplands	Endangered
Valley Grassy Forest	EVC 47	Central Victorian Uplands	Vulnerable
Grassy Forest	EVC 128	Central Victorian Uplands	Vulnerable
Plains Grassy Woodland	EVC 55	Central Victorian Uplands	Endangered
Plains Grassy Woodland	EVC 55	Victorian Volcanic Plains	Endangered
Scoria Cone Woodland	EVC 894	Victorian Volcanic Plains	Endangered

Riparian Woodland (EVC 641) Central Victorian Uplands - occurs beside permanent streams, typically on narrow alluvial deposits. Woodland to 15m tall generally dominated by *Eucalyptus camaldulensis* over a tussock grass-dominated understorey. Tall shrubs may be present and amphibious herbs may occur in occasional ponds and beside creeks. While flooding may be common, sites are rarely inundated for lengthy periods.

Valley Grassy Forest (EVC 47) Central Victorian Uplands - occurs under moderate rainfall regimes of 700-800 mm per annum on fertile well-drained colluvial or alluvial soils on gently undulating lower slopes and valley floors. Open forest to 25m tall may carry a variety of eucalypts, usually species that prefer more moist or more fertile conditions over a sparse shrub cover. In season, a rich array of herbs, lilies, grasses and sedges dominate the ground layer but at the drier end of the spectrum the ground layer may be sparse and slightly less diverse, but with the moisture-loving species still remaining.

Grassy Forest (EVC 128) Central Victorian Uplands - low growing forest to 20m tall with an understorey of small and medium shrubs and a rich diversity of herbs. Large shrubs and understorey trees may also be conspicuous. Often grows in areas transitional between drier box stringybark forests and taller herb-rich forests typical of more favourable environments.

Plains Grassy Woodland (EVC 55) Central Victorian Uplands - an open, eucalypt woodland to 15m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer.

Plains Grassy Woodland (EVC 55) Victorian Volcanic Plains - An open, eucalypt woodland to 15m tall. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This variant occupies areas receiving approximately 500 – 700mm annual rainfall.

Scoria Cone Woodland (EVC 894) Victorian Volcanic Plains - Eucalypt woodland to 15m tall or non-eucalypt woodland to 10 m tall over a grassy to bracken-dominated understorey with a range of herbs. Occurs on the slopes of freely-draining scoria cones and spatter areas of more coarse boulder-forming flow sources. Soils are fertile but often skeletal.

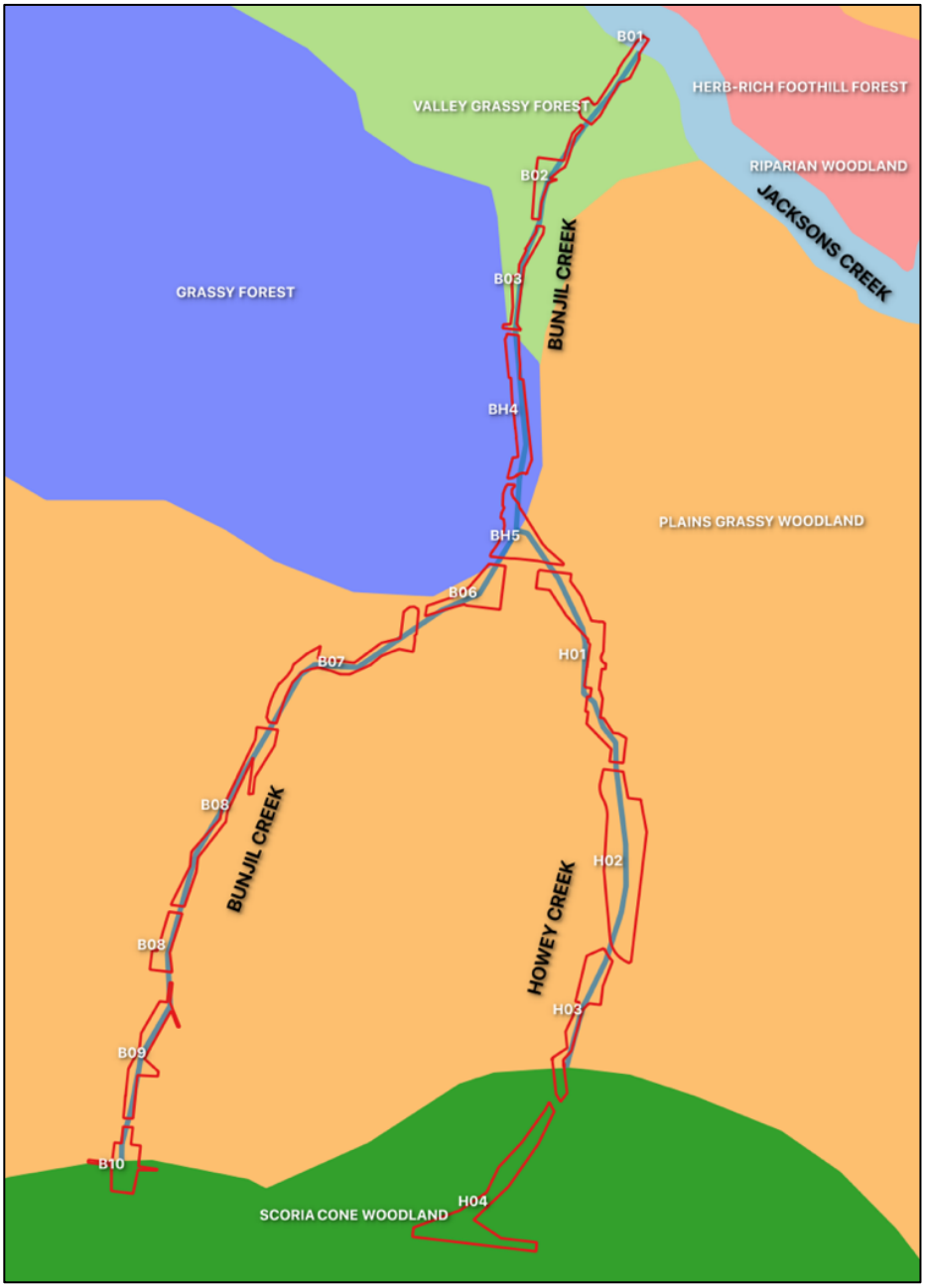

Figure 3: Pre-1750 Modelled Ecological Vegetation Classes of the project area.

3.2 Historical Records of Rare or Threatened Species

A search of DELWP Victorian Biodiversity Atlas for rare or threatened species recorded within in the past 20 years showed that Bacchus Marsh Wattle *Acacia rostriformis* and Lewin's Rail *Lewinia pectoralis* have been recorded within 0.5km of the project area in 2013 and 2018, respectively. Both species are EPBC Act-listed as *Vulnerable* and FFG Act-listed.

3.3 Floral Species Diversity

Field assessments undertaken on 24 February, 8-9 April and 25 June 2020 recorded a total of 140 flora species within the project area. The inventory consisted of 52 native and 88 introduced species.

Significant native species recorded within the project area include eucalypt species such as Manna Gum *Eucalyptus viminalis*, Narrow-leaf Peppermint *E. radiata*, River Red Gum *E. camaldulensis*, and Swamp Gum *E. ovata*.

Of the 88 introduced species observed, nine are Weeds of National Significance (WoNS), 14 are Declared Noxious Weeds in Victoria and 16 species are regarded as Environmental Weeds in Central Victoria.

The complete list of flora species recorded within the project area is attached as **Appendix 1**.

4. SITE PROFILES and PRIORITISATION

A site prioritisation assessment was developed for the project to allow the project proponents to objectively prioritise restoration efforts for Bunjil Creek and Howey Creek. The site prioritisation components included Landscape Value, Site Value, Site Condition and Community Value.

To simplify the process, be less subjective and avoid bias when choosing sites to prioritise for restoration, a scaled score was assigned to every entry in the matrix. A higher score is assigned to a favourable state/ condition based on a range of numeric score (0-3).

The site prioritisation matrix is shown in Table 4. The analysis resulted in the following site prioritisation:

- High Priority – BH5; B08; B10; H02; H03; H04
- Medium Priority – B01; B06; B07; B09; H01
- Low Priority – B02; B03; B04

Table 4: Site prioritisation matrix for Bunjil Creek and Howey Creek.

Management Zone	Landscape Value	Site Value	Site Condition	Community Value	Total	Priority
B01	2	0	1	3	6	medium
B02	1	0	2	1	4	low
B03	1	0	0	0	1	low
B04	1	2	2	0	5	low
BH5	3	2	2	3	10	high
B06	2	1	1	3	7	medium
B07	2	3	1	1	7	medium
B08	2	2	2	2	8	high
B09	2	1	3	0	6	medium
B10	3	2	3	1	9	high
H01	2	3	1	1	7	medium
H02	2	3	3	0	8	high
H03	3	1	3	2	9	high
H04	2	3	3	0	8	high

Site profiles for each of the management zone, including site recommendations are presented in the succeeding sections. A summary of these is presented in Table 5.

Table 5: Summary of site attributes for each management zone.

Attribute	B01	B02	B03	B04	BH5	B06	B07	B08	B09	B10	H01	H02	H03	H04
Area (ha)	0.52	0.44	0.34	0.81	0.95	0.74	1.11	1.34	0.74	0.64	1.62	2.54	0.94	1.75
Riparian Length (m)	200	220	220	300	170 + 100	180	410	570	320	140	420	400	320	380
Total Species	19	15	18	24	27	20	38	29	9	31	38	17	18	16
Native	2	4	1	11	13	4	15	11	5	11	19	10	9	14
Major Weeds	9	6	13	6	4	9	9	5	1	9	7	2	4	2
Large Trees	nil	nil	nil	nil	nil	nil	3	1	nil	nil	1	2	nil	3
Proposed Weed Control Area (ha)	0.34	0.22	0.28	0.66	0.96	0.38	0.86	1.10	0.63	0.49	0.61	0.13	0.56	1.13
Proposed Revegetation Area (ha)	0.16	0.06	0.03	0.23	0.25	0.23	0.16	0.26	0.09	0.20	0.31	0.13	0.25	0.42
Council-managed Land	majority	majority	partial	majority	majority	majority	no	full	full	full	majority	full	full	full
Historical EVC	RW/ VGF	VGF	VGF	GF	GF/ PGW	PGW	PGW	PGW	PGW	PGW/ SCW	PGW	PGW	PGW/ SCW	SCW
Significant Species	1	1	0	4	3	3	7	7	4	5	7	4	5	8
Woody Weed Density	severe; partial	medium	severe	severe; partial	severe; partial	severe	medium	small	small	small	medium; partial	small	medium; partial	medium

Attribute	B01	B02	B03	B04	BH5	B06	B07	B08	B09	B10	H01	H02	H03	H04
Grassy Weed Density	severe	severe	severe; partial	severe; partial	medium	medium; partial	medium	medium	medium	small	severe	medium; partial	medium; partial	medium
Existing Revegetation	Yes	Yes	no	Yes	Yes	no	Yes	Yes	no	no	Yes	Yes	Yes	no

4.1 Management Zone – B01

Management Zone B01 is approximately 200m of riparian zone located at the northern tip of Bunjil Creek at the confluence with Jacksons Creek and bounded by Melbourne Road to the south. The zone was heavily modified for recreational use and dominated by introduced species, supporting only two native species (Black Wattle, Blackwood) out of the total of 19 species recorded during the field assessments (see **Appendix 1**). A summary of the observations and recommendations for management zone B01 is presented in Table 6.

Table 6: Summary of observations and recommendations for management zone B01.

Management Zone	B01
Area	0.52ha
Riparian Length	200m
Total Species	19
Native Species	2
Large Trees	nil
Significant Species	Blackwood
Major Weeds	9
Weeds of National Significance	Blackberry, Crack Willow, Montpellier Broom
Declared Noxious Weeds	Angled Onion, Blackberry, Crack Willow, Hemlock, Montpellier Broom, Spear Thistle
Environmental Weeds	Cherry Plum, Desert Ash, White Poplar
Woody Weed Infestation	Severe
Grassy Weed Infestation	Severe
Historical EVC	Riparian Woodland and Valley Grassy Forest
Land Management	Majority Council-managed

Constraints	Public recreation use area, adjacent bowls club, netball courts and a skate park; public perception of old trees. Removal of large exotic tree might be hampered by future heritage listing.
Opportunities	Large scale weed removal and revegetation enhancement. Community interest from Friends of Jackson's Creek to enhance this area by planting indigenous species.
Proposed Weed Control Area / Estimated Cost	0.34ha/ $3,920
Proposed Revegetation Area / Estimated Cost	0.16ha/ $9,324
Estimated Total Restoration Works	$13,244
Notes/Remarks	Need to ensure compliance with Heritage Order over bridge and old English Elms and English Oaks; existing partial revegetation works

Representative view of B01 – Bunjil Creek

Condition at confluence of Jacksons Creek

Partial revegetation works within Bunjil Creek

Site Priority	**High**

B01 could be improved by implementing large scale weed control to address severe woody weed and grassy weed infestations, including nine major weeds. This should be followed by revegetation works using a combination of species within the Riparian Woodland and Valley Grassy Forest EVC. These areas are shown in Figure 4 and a list of revegetation species with corresponding planting densities is presented as **Appendix 2** and **Appendix 3**, respectively, these planting recommendations have been informed by DSE Native Vegetation Revegetation Planting Standards (2006).

Figure 4: Management Zone B01 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons). Coral coloured circles indicate nominated heritage trees.

Sections of B01 have been proposed for heritage overlays (see Figure 4), therefore, woody weed control efforts should be coordinated with Council to ensure that the nominated heritage trees - English Elms *Ulmus procera* and English Oaks *Quercus robur*, are not impacted.

4.2 Management Zone – B02

Management Zone B02 is approximately 220m of riparian zone of Bunjil Creek located between Melbourne Road and Fisher Street. The zone is narrow between residential properties while the open area is adjacent to ongoing land development. The zone only supported four native species (Broad-leaf Bulrush, Manna Gum, River Bottlebrush, Swamp Gum) of the total 15 species recorded and is dominated by grassy and woody weeds including six major weeds. A summary of the observations and recommendations for management zone B02 is presented in Table 7.

Table 7: Summary of observations and recommendations for management zone B02.

Management Zone	B02
Area	0.44ha
Riparian Length	220m
Total Species	15
Native Species	4
Large Trees	nil
Significant Species	Manna Gum
Major Weeds	6
Weeds of National Significance	Blackberry, Montpellier Broom, Willow
Declared Noxious Weeds	Blackberry, Montpellier Broom, Sweet Briar, Willow
Environmental Weeds	Blue Periwinkle, English Ivy,
Woody Weed Infestation	Medium
Grassy Weed Infestation	Severe
Historical EVC	Valley Grassy Forest
Land Ownership	Majority Council-managed
Constraints	Very close proximity to houses on eastern side
Opportunities	Further weed control, enhance existing revegetation
Proposed Weed Control Area / Estimated Cost	0.22ha/ $3,920

Proposed Revegetation Area / Estimated Cost	0.06ha/ $5,502
Estimated Total Restoration Works	$9,422
Notes/Remarks	Heritage Bluestone rockwork in creek; existing partial revegetation works

Representative view of B02 – Bunjil Creek showing existing revegattion works.

Bluestone rockwork and drains within Bunjil Creek.

View of other weedy section of Bunjil Creek.

Site Priority	**Low**

B02 could be improved by implementing weed control along the whole stretch of the creek and building on the existing revegetation within the open area with species belonging to Valley Grassy Forest EVC. These areas are shown in Figure 5 and a list of revegetation species with corresponding planting densities is presented in **Appendix 3**.

Figure 5: Management Zone B02 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons). Peach coloured area indicate Heritage Overlay along bluestone channel. Coral coloured circle indicates nominated heritage trees.

A Heritage Overlay exists for the bluestone channel, as such, weed control works in this area should be coordinated with Council to ensure the heritage rockwork is not impacted. Revegetation works along the open space should be conducted at a later stage once the future land use has been finalised for the area.

Concerns have been raised by some residents regarding debris build up due to a large log, a tree and dense Bulrush within the creek. Debris and rubbish clearing should be included in the creek restoration action plan.

4.3 Management Zone – B03

Management Zone B03 is approximately 220m of riparian zone of Bunjil Creek located between Fisher Street and Howey Street. This zone is narrow and passes through several residential properties. This management zone only supported one native Rush (*Juncus* sp.) of the total 18 species recorded in and is heavily dominated by grassy and woody weeds including 13 major weeds. A summary of the observations and recommendations for management zone B03 is presented in Table 8.

Table 8: Summary of observations and recommendations for management zone B03.

Management Zone	B03
Area	0.34ha
Riparian Length	220m
Total Species	18
Native Species	1
Large Trees	nil
Significant Species	nil
Major Weeds	13
Weeds of National Significance	Blackberry, Grey Sallow, Tortured Willow, Willow
Declared Noxious Weeds	Blackberry, Grey Sallow, Hawthorn, Hemlock, Tortured Willow, Willow
Environmental Weeds	Blue Periwinkle, Cherry Plum, English Holly, English Ivy, Radiata Pine, Toowoomba Canary Grass, White Poplar
Woody Weed Infestation	Severe
Grassy Weed Infestation	Severe
Historical EVC	Valley Grassy Forest
Land Ownership	Partially Council-managed
Constraints	Difficult access to some areas, residential interface
Opportunities	Large scale weed removal; revegetation
Proposed Weed Control Area / Estimated Cost	0.28ha/ $3,920

Proposed Revegetation Area / Estimated Cost	0.03ha/ $3,996
Estimated Total Restoration Works	$7,916
Notes/Remarks	

Representative view of B03 – Bunjil Creek

Section of the creek showing severe weed infestation

Another section of the creek showing severe weed infestation

Site Priority	**Low**

B03 could be improved by implementing weed control along the whole stretch of the creek and revegetating the wider section with species belonging to Riparian Woodland EVC. These areas are shown in Figure 6 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2**.

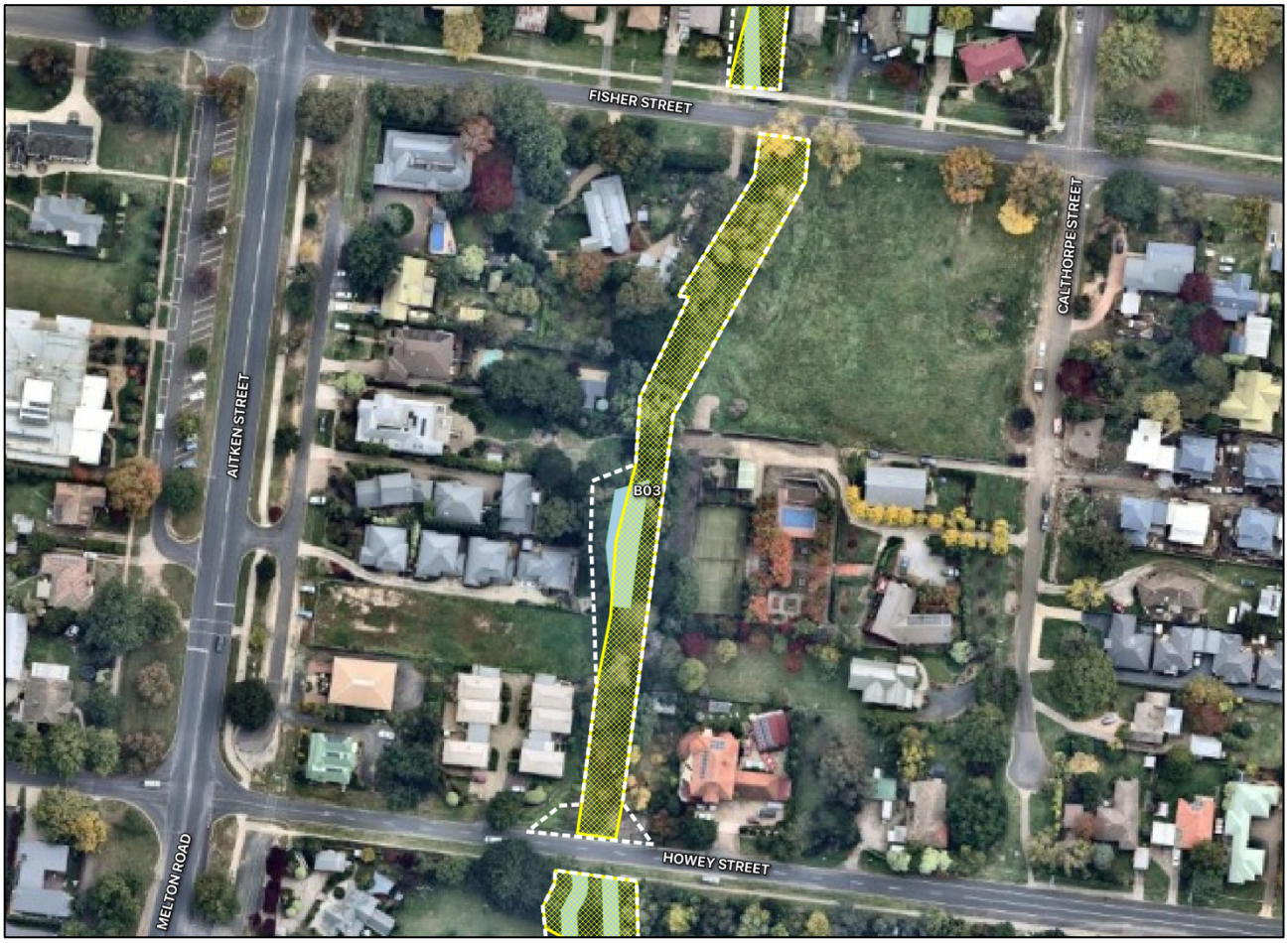

Figure 6: Management Zone B03 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

4.4 Management Zone – B04

Management Zone B04 is approximately 300m of riparian zone of Bunjil Creek located between Howey Street and Curtis Court. The narrow area is severely infested with woody and grassy weeds including six major weeds but also supports a large number of native species along Bunjil Creek (11 out of 24 species recorded). A summary of the observations and recommendations for management zone B04 is presented in Table 9.

Table 9: Summary of observations and recommendations for management zone B04.

Management Zone	B04
Area	0.81ha
Riparian Length	300m
Total Species	24
Native Species	11
Large Trees	nil
Significant Species	Blackwood; Manna Gum, Narrow-leaf Peppermint; Kangaroo Grass
Major Weeds	6
Weeds of National Significance	Gorse, Montpellier Broom; Weeping Willow
Declared Noxious Weeds	Gorse, Hawthorn, Montpellier Broom; Weeping Willow
Environmental Weeds	Cherry Plum, English Ivy
Woody Weed Infestation	Severe - partial
Grassy Weed Infestation	Severe - partial
Historical EVC	Grassy Forest
Land Ownership	Partially Council-managed
Constraints	Residential interface
Opportunities	Build on small revegetation area; large scale weed removal in remaining areas
Proposed Weed Control Area / Estimated Cost	0.66ha/ $7,840

Proposed Revegetation Area / Estimated Cost	0.23ha/ $17,316
Estimated Total Restoration Works	$25,156
Notes/Remarks	Existing partial revegetation works

Representative view of B04 – Bunjil Creek

Section of the creek showing severe weed infestation

Existing revegetation works

Site Priority	**Low**

B04 could be improved by implementing weed control along the majority of the creek and building upon the existing revegetation by supplementary planting with species belonging to Riparian Woodland EVC. These areas are shown in Figure 7 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2**.

Figure 7: Management Zone B04 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

4.5 Management Zone – BH5

Management Zone BH5 located at the confluence of Bunjil Creek and Howey Creek is positioned between Curtis Court and Fersfield Road. The zone is approximately 170m of riparian zone of Bunjil Creek and 100m of riparian zone of Howey Creek. The zone is severely infested with woody weeds in the northern section including four major weeds but supports a large number of native species as well (13 out of 27 species recorded). A summary of the observations and recommendations for management zone HB5 is presented in Table 10.

Table 10: Summary of observations and recommendations for management zone BH5.

Management Zone	BH5
Area	0.95ha
Riparian Length	270m
Total Species	27
Native Species	13
Large Trees	nil
Significant Species	Common Tussock Grass; Kangaroo Grass; Narrow-leaf Peppermint
Major Weeds	4
Weeds of National Significance	Montpellier Broom
Declared Noxious Weeds	Hawthorn; Montpellier Broom; Hemlock
Environmental Weeds	Cherry Plum, English Ivy
Woody Weed Infestation	Severe - partial
Grassy Weed Infestation	Medium
Historical EVC	Grassy Forest and Plains Grassy Woodland
Land Ownership	Majority Council-managed
Constraints	
Opportunities	Continue to enhance revegetation efforts, maintain weed control, develop triangular area after confluence

Proposed Weed Control Area / Estimated Cost	0.96ha/ $2,800 Whole area but not intensive, only spot spraying in most areas
Proposed Revegetation Area / Estimated Cost	0.25ha/ $13,320
Estimated Total Restoration Works	$16,120
Notes/Remarks	Existing revegetation works; good public exposure

Representative view of BH5

Existing revegetation works within the creek

Overview of BH5

Site Priority	**High**

BH5 is in a relatively better condition than the rest of the management zones due to current land management efforts by Melbourne Water and Gisborne Landcare. Nonetheless, the area could still be improved by building upon the existing revegetation works with species belonging to Riparian Woodland, Grassy Forest or Plains Grassy Woodland EVC. These areas are shown in Figure 8 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2, 4 and 5**.

Figure 8: Management Zone BH5 (within white polygon) showing recommended revegetation area (light blue polygons).

4.6 Management Zone – B06

Management Zone B06 is approximately 180m of riparian zone of Bunjil Creek located between Fersfield Road and Aitken Street and passes through residential properties. The area only four native species (Manna Gum, Narrow-leaf Peppermint, Sheep's Burr, Slender Knotweed) out of 20 species recorded and has a severe woody weed infestation including nine major weeds. A summary of the observations and recommendations for management zone B06 is presented in Table 11.

Table 11: Summary of observations and recommendations for management zone B06.

Management Zone	B06
Area	0.74ha
Riparian Length	180m
Total Species	20
Native Species	4
Large Trees	nil
Significant Species	Sheep's Burr; Manna Gum; Narrow-leaf Peppermint
Major Weeds	9
Weeds of National Significance	Blackberry, Gorse, Willow
Declared Noxious Weeds	Blackberry, Gorse, Hawthorn, Hemlock, Willow
Environmental Weeds	Cherry Plum, English Ivy, Radiata Pine, Sycamore Maple
Woody Weed Infestation	Severe
Grassy Weed Infestation	Medium - partial
Historical EVC	Plains Grassy Woodland
Land Ownership	Private and Public
Constraints	Property interface
Opportunities	Good access, vacant land could be revegetated, weed control and planting on creek; interest from neighbouring residents
Proposed Weed Control Area / Estimated Cost	0.38ha/ $6,720

Proposed Revegetation Area / Estimated Cost	0.23ha/ $15,982
Estimated Total Restoration Works	$22,704
Notes/Remarks	Presence of exotic gardens nearby

Representative view of B06 – Bunjil Creek

Section of creek dominated by pine trees

Public land within B06

Site Priority	**Medium**

B06 could be improved by implementing weed control along the whole stretch of the creek and revegetating the whole zone with species belonging to Riparian Woodland and Plains Grassy Woodland EVC. These areas are shown in Figure 9 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **4**, respectively.

Figure 9: Management Zone B03 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons). Light orange shaded area refer to Council-managed land.

As some sections of this management zone is under private ownership, the project proponents should engage the landholder/s with the recommended creek enhancement works, including the support available via Melbourne Water's Stream Frontage Management Program, aimed at reducing the impact of nearby exotic garden plants.

4.7 Management Zone – B07

Management Zone B07 is approximately 410m of riparian zone of Bunjil Creek located between Aitken Street and Willowbank Road and passes through residential areas. The area supports a large number of native species (15 out of 38 species recorded) but has a severe woody weed infestation including nine major weeds. A summary of the observations and recommendations for management zone B07 is presented in Table 12.

Table 12: Summary of observations and recommendations for management zone B07.

Management Zone	B07
Area	1.11ha
Riparian Length	410m
Total Species	38
Native Species	15
Large Trees	Manna Gum; Narrow-leaf Peppermint; Swamp Gum
Significant Species	Blackwood; Common Tussock Grass; Kangaroo Grass; Manna Gum; Narrow-leaf Peppermint; Sheep's Burr; Spear Grass; Yellow Box
Major Weeds	9
Weeds of National Significance	Blackberry, Gorse, Montpellier Broom, Tortured Willow
Declared Noxious Weeds	Blackberry, Gorse, Montpellier Broom, Sweet Briar, Tortured Willow
Environmental Weeds	Agapanthus, Blue Periwinkle, Bluebell Creeper, English Ivy, Toowoomba Canary Grass
Woody Weed Infestation	Severe
Grassy Weed Infestation	Medium - partial
Historical EVC	Plains Grassy Woodland
Land Ownership	Private and public
Constraints	School adjacent lower section, difficult access for large woody removal

Opportunities	Excellent section to develop, public education, build on existing landholder involvement, get school involved
Proposed Weed Control Area / Estimated Cost	0.86ha/ $11,200
Proposed Revegetation Area / Estimated Cost	0.16ha/ $9,324
Estimated Total Restoration Works	$20,524
Notes/Remarks	Presence of exotic gardens nearby; active MW Stream Frontage Management Program - existing revegetation works

<table>
<tr><td colspan="2">  </td></tr>
<tr><td colspan="2">Representative view of B07 – Bunjil Creek</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Existing revegetation works</td><td>Plantings behind school, proposed revegetation area in the foreground</td></tr>
<tr><td>Site Priority</td><td>Medium</td></tr>
</table>

B07 could be improved by implementing weed control along the whole stretch of the creek and building upon the existing revegetation works by revegetating the majority of the zone with species belonging to Riparian Woodland and Plains Grassy Woodland EVCs. These areas are shown in Figure 10 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 10: Management Zone B07 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

As this management zone is under private ownership, the project proponents should engage the landholder/s with the recommended creek enhancement works, including the support available via Melbourne Water's Stream Frontage Management Program, aimed at reducing the impact of nearby exotic garden plants.

4.8 Management Zone – B08

Management Zone B08 is approximately 570m of riparian zone of Bunjil Creek passing through residential properties between Willowbank Road and Carinya Drive. Only 11 of the 29 species recorded were native but eight of those were significant species (*i.e.* species that are indigenous to the local EVCs) indicating a good basis for further restoration. The area has a moderate grassy weed infestation including five major weeds. A summary of the observations and recommendations for management zone B08 is presented in Table 13.

Table 13: Summary of observations and recommendations for management zone B08.

Management Zone	B08
Area	1.30ha
Riparian Length	570m
Total Species	29
Native Species	11
Large Trees	River Red Gum
Significant Species	Blackwood; Bidgee Widgee; Common Tussock Grass; Hedge Wattle; Narrow-leaf Peppermint; River Red Gum; Sheep's Burr; Spear Grass
Major Weeds	5
Weeds of National Significance	Blackberry
Declared Noxious Weeds	Blackberry; Spear thistle
Environmental Weeds	Agapanthus; Desert Ash; Toowoomba Canary Grass
Woody Weed Infestation	Small
Grassy Weed Infestation	Medium
Historical EVC	Plains Grassy Woodland
Land Ownership	Fully Council-managed
Constraints	Public thoroughfare, property interface, public plantings. Resident raised bank erosion issues.

Opportunities	Track development with interpretive signage, further weed control and revegetation, interest from local kindergarten
Proposed Weed Control Area / Estimated Cost	1.09ha/ $2,240 Not intensive, only spot spraying in most areas
Proposed Revegetation Area / Estimated Cost	0.26ha/ $13,320
Estimated Total Restoration Works	$15,560
Notes/Remarks	Presence of exotic gardens nearby; existing substantial revegetation and ongoing weed control works.

Representative view of B08 – Bunjil Creek

Existing revegetation works

Retarding basin within B08

Site Priority	**High**

B08 could be improved by supplementing existing revegetation works with species belonging to Riparian Woodland and Plains Grassy Woodland EVC. These areas are shown in Figure 11 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 11: Management Zone B08 (within white polygon) showing recommended revegetation areas (light blue polygons).

It should be noted that part of the management zone is a designated retarding basin, as such, any proposed planting in this area should be done in consultation with MW and Council's engineering team to ensure that hydraulic capacity is not significantly impacted.

The project proponents should engage the landholders in the adjacent areas to reduce the impact of nearby exotic garden plants to the waterway.

4.9 Management Zone – B09

Management Zone B09 is approximately 320m of riparian zone of Bunjil Creek passing through residential properties between Carinya Drive and Wyralla Crescent. Only nine species were recorded from this zone with five of those native. A summary of the observations and recommendations for management zone B09 is presented in Table 14.

Table 14: Summary of observations and recommendations for management zone B09.

Management Zone	B09
Area	0.74ha
Riparian Length	320m
Total Species	9
Native Species	5
Large Trees	nil
Significant Species	Blackwood; Manna Gum; Spear Grass; Weeping Grass
Major Weeds	1
Weeds of National Significance	nil
Declared Noxious Weeds	nil
Environmental Weeds	Lombardy Poplar
Woody Weed Infestation	Small
Grassy Weed Infestation	Medium
Historical EVC	Plains Grassy Woodland
Land Ownership	Fully Council-managed
Constraints	Existing land use, residential interface
Opportunities	Potential to reinstate creekline, revegetate and extend walking tracks from previous zones
Proposed Weed Control Area / Estimated Cost	0.63ha/ $2,240 Not intensive, only spot spraying in most areas or simple woody weed removal

Proposed Revegetation Area / Estimated Cost	0.09ha/ $5,328
Estimated Total Restoration Works	$7,568
Notes/Remarks	Presence of exotic garden plants nearby

Representative view of B09 – Bunjil Creek

Retarding basin within B09

Potential area for revegetation works

Site Priority	**Medium**

B09 could be improved by revegetating the whole zone with species belonging to Riparian Woodland and Plains Grassy Woodland EVC. These areas are shown in Figure 12and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 12: Management Zone B09 (within white polygon) showing recommended revegetation areas (light blue polygons).

It should be noted that part of the management zone is a designated retarding basin, as such, any proposed planting in this area should be done in consultation with MW and Council's engineering team to ensure that hydraulic capacity is not significantly impacted.

The project proponents should engage the landholders in the adjacent areas to reduce the impact of nearby exotic garden plants to the waterway.

4.10 Management Zone – B10

Management Zone B10 is approximately 140m of riparian zone of Bunjil Creek passing through residential properties and a farm area between Wyralla Crescent and Grange Court. Only 11 of the 31 species recorded were native and the area also had a moderate infestation of grassy weeds including nine major weeds. A summary of the observations and recommendations for management zone B10 is presented in Table 15.

Table 15: Summary of observations and recommendations for management zone B10.

Management Zone	B10
Area	0.64ha
Riparian Length	140m
Total Species	31
Native Species	11
Large Trees	nil
Significant Species	Bidgee Widgee; Common Tussock Grass; Cotton Fireweed; Sheoak; Weeping Grass
Major Weeds	9
Weeds of National Significance	Blackberry; Cut-leaf Bramble; Montpellier Broom
Declared Noxious Weeds	Blackberry; Cut-leaf Bramble; Montpellier Broom; Spear thistle
Environmental Weeds	Blue Periwinkle, Capeweed, Olive, Sweet Vernal Grass, Toowoomba Canary Grass
Woody Weed Infestation	Small
Grassy Weed Infestation	Medium
Historical EVC	Plains Grassy Woodland and Scoria Cone Woodland
Land Ownership	Fully Council-managed
Constraints	Landholder annex of site, small area, fire concerns
Opportunities	Easy win for Landcare, small amount of weed control, good revegetation potential and trail development

Proposed Weed Control Area / Estimated Cost	0.49ha/ $2,240
Proposed Revegetation Area / Estimated Cost	0.20ha/ $6,024
Estimated Total Restoration Works	$8,264
Notes/Remarks	Presence of exotic garden plants nearby

Representative view of B10 – Bunjil Creek

Section of B10 showing adjacent private property

Weed infestation (Cape Broom) within Bunjil Creek

Site Priority	**High**

B10 could be improved by undertaking weed control along the whole stretch of the creek and undertaking revegetation works within the whole zone with species belonging to Riparian Woodland and Scoria Cone Woodland EVC. These areas are shown in Figure 13 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 13: Management Zone B10 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

The project proponents should engage the landholders in the adjacent areas to reduce the impact of nearby exotic garden plants to the waterway.

4.11 Management Zone – H01

Management Zone H01 is approximately 420m of riparian zone of Howey Creek passing through an area under development and farm area between Fersfield Road and Willowbank Road. The area is severely infested with grassy weeds including seven major weeds but supported a large number of native species along Howey Creek (19 out of 38 species recorded). A summary of the observations and recommendations for management zone H01 is presented in Table 15.

Table 16: Summary of observations and recommendations for management zone H01.

Management Zone	H01
Area	1.62ha
Riparian Length	420m
Total Species	38
Native Species	19
Large Trees	Manna Gum
Significant Species	Blackwood; Common Tussock Grass; Kangaroo Grass; Manna Gum; Narrow-leaf Peppermint, Sheep's Burr; Yellow Box
Major Weeds	7
Weeds of National Significance	Blackberry, Gorse, Tortured Willow, Weeping Willow
Declared Noxious Weeds	Blackberry, Gorse, Hawthorn, Sweet Briar, Tortured Willow; Weeping Willow
Environmental Weeds	Radiata Pine, Toowoomba Canary Grass
Woody Weed Infestation	Medium - partial
Grassy Weed Infestation	Severe
Historical EVC	Plains Grassy Woodland
Land Ownership	Majority Council-managed
Constraints	Unknown status of development in northeast corner – development is underway, drainage works
Opportunities	Good access, weed control particularly around ephemeral wetland

Proposed Weed Control Area / Estimated Cost	0.61ha/ $10,080
Proposed Revegetation Area / Estimated Cost	0.31ha/ $19,980
Estimated Total Restoration Works	$30,060
Notes/Remarks	Existing partial revegetation works. This area will likely be treated as part of the development of the adjoining road in the next 5-10 years as per MW.

Representative view of H01 – Howey Creek

Section of creek with severe blackberry infestation

Existing revegetation works

Site Priority	**Medium**

H01 could be improved by implementing weed control along the majority of the creek and building on the existing revegetation by revegetating with species belonging to Riparian Woodland EVC. These areas are shown in Figure 14 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2**.

Figure 14: Management Zone H01 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

It should be noted that the parts of the adjoining area are undergoing major development which will involve works on the waterway. Therefore, enhancement works for this management zone should be planned for a later stage once this development work has been completed or underway. The enhancement works are likely to be undertaken as part of the development in the next 5-10 years.

4.12 Management Zone – H02

Management Zone H02 is approximately 400m of riparian zone of Howey Creek located between Willowbank Road and Parkview Street and designated as Willowbank Estate Reserve. The area appears to be well-managed and supports 10 native species out of the 17 species recorded. A summary of the observations and recommendations for management zone H02 is presented in Table 17.

Table 17: Summary of observations and recommendations for management zone H02.

Management Zone	H02
Area	2.54ha
Riparian Length	400m
Total Species	17
Native Species	10
Large Trees	River Red Gum
Significant Species	Common Tussock Grass; River Red Gum; Sheep's Burr; Weeping Grass
Major Weeds	2
Weeds of National Significance	nil
Declared Noxious Weeds	Sweet Briar
Environmental Weeds	Brown Top Bent
Woody Weed Infestation	Small
Grassy Weed Infestation	Medium - partial
Historical EVC	Plains Grassy Woodland
Land Ownership	Fully Council-managed
Constraints	
Opportunities	Appears to be well managed; enhance revegetation works, control False Oat-grass
Proposed Weed Control Area / Estimated Cost	0.13ha/ $1,120

Proposed Revegetation Area / Estimated Cost	0.13ha/ $4,518
Estimated Total Restoration Works	$5,638
Notes/Remarks	Existing substantial revegetation

Representative view of H02 – Howey Creek

Area dominated by False Oat-grass recommended for weed control and revegetation

Remnant River Red Gum

Site Priority	**High**

H02 could be improved by implementing weed control along a section of the creek and enhancing the existing revegetation works (Figure 15).

Figure 15: Management Zone H02 (within white polygon) showing recommended area for weed control and follow-up revegetation in the same area (yellow cross hatched polygons).

4.13 Management Zone – H03

Management Zone H03 is approximately 320m of riparian zone of Howey Creek located between Parkview Street and Jonathan Road. The area has a moderate infestation of woody and grassy weeds including four major weeds. A summary of the observations and recommendations for management zone H02 is presented in Table 18.

Table 18: Summary of observations and recommendations for management zone H03.

Management Zone	H03
Area	0.94ha
Riparian Length	320m
Total Species	19
Native Species	9
Large Trees	River Red Gum
Significant Species	Blackwood; Common Tussock Grass; River Red Gum; Sheep's Burr; Weeping Grass,
Major Weeds	4
Weeds of National Significance	nil
Declared Noxious Weeds	Hawthorn, Sweet Briar
Environmental Weeds	Brown Top Bent, Toowoomba Canary Grass
Woody Weed Infestation	Medium - partial
Grassy Weed Infestation	Medium - partial
Historical EVC	Plains Grassy Woodland/ Scoria Cone Woodland
Land Ownership	Fully Council-managed
Constraints	Residential interface
Opportunities	Build and enhance revegetation area in northern section, possible weed control beyond that, followed by revegetation. Interest from neighbouring landholders.
Proposed Weed Control Area / Estimated Cost	0.56ha/ $2,240

Proposed Revegetation Area / Estimated Cost	0.25ha/ $15,984
Estimated Total Restoration Works	$18,224
Notes/Remarks	Presence of exotic garden nearby; existing partial revegetation

Representative view of H03 – Howey Creek

Existing partial revegation

Residential interface

Site Priority	**High**

H03 could be improved by implementing weed control along the whole stretch of the creek and building upon the existing revegetation by supplementary planting with species belonging to Riparian Woodland and Plains Grassy Woodland EVC. These areas are shown in Figure 16 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 16: Management Zone H03 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

The project proponents should engage the landholders in the adjacent areas to manage weed infestation and reduce the impact of nearby exotic garden plants to the waterway.

4.14 Management Zone – H04

Management Zone H04 is approximately 380m of riparian zone of Howey Creek passing through bushland, farm and residential properties between Jonathan Road and Brooking Road. The area supports a large number of native species (14 out of 16 species recorded) and has a moderate infestation of woody and grassy weeds. A summary of the observations and recommendations for management zone H04 is presented in Table 19.

Table 19: Summary of observations and recommendations for management zone H04.

Management Zone	H04
Area	1.75ha
Riparian Length	380m
Total Species	16
Native Species	14
Large Trees	Manna Gum; Narrow-leaf Peppermint
Significant Species	Blackwood; Bidgee Widgee; Common Tussock Grass; Cotton Fireweed; Kangaroo Grass; Manna Gum; Narrow-leaf Peppermint; Spear Grass
Major Weeds	2
Weeds of National Significance	Blackberry
Declared Noxious Weeds	Blackberry; Hawthorn
Environmental Weeds	
Woody Weed Infestation	Medium
Grassy Weed Infestation	Medium
Historical EVC	Scoria Cone Woodland
Land Ownership	Fully Council-managed
Constraints	Residential interface. Resident raised the issue of high fuel load.
Opportunities	Relatively moderate weed control, vegetation enhancement and possibly cultural activity. Interest from neighbouring landholders.

Proposed Weed Control Area / Estimated Cost	1.13ha/ $5,600
Proposed Revegetation Area / Estimated Cost	0.42ha/ $6,024
Estimated Total Restoration Works	$11,624
Notes/Remarks	Stunning waterfall, excellent existing ecological value. Weed control should include debris removal due to fire concerns of residents

Representative view of H04 – Howey Creek

Top of waterfall

Opportunity for weed control and revegetation at the waterfall area

Site Priority	**High**

H04 could be improved by implementing weed control along the whole stretch of the creek and revegetating the whole zone with species belonging to Riparian Woodland and Scoria Cone Woodland EVC. These areas are shown in Figure 17 and a list of revegetation species with corresponding planting densities is presented in **Appendix 2** and **Appendix 5**, respectively.

Figure 17: Management Zone H04 (within white polygon) showing recommended areas for weed control (yellow cross hatched polygons) and revegetation areas (light blue polygons).

5. ENVIRONMENTAL ACTION PLAN

This section details the recommended actions required to be undertaken for Bunjil Creek and Howey Creek.

5.1 Weed Management

The *Catchment and Land Protection Act 1994* (CaLP Act) sets out a framework for managing noxious weeds and pest animal matters to prevent degradation to catchments. The Act is applicable across all public and privately managed land throughout Victoria. The Act provides a hierarchy by which invasive species can be ranked based on their potential to degrade landscapes, both agricultural and natural, and specifies management responsibilities for land managers. (MRSC)

Essentially, Declared Noxious Weeds are classified under four levels under CaLP Act 1994:

- State Prohibited - The Victorian State Government is responsible for the eradication of these weeds on all land.
- Regionally Prohibited - The relevant land manager is responsible for the eradication of these weeds.
- Regionally Controlled - The relevant land manager is responsible for prevention of growth and spread of these weeds.
- Restricted - The relevant land manager is responsible for preventing trade or spread (by contamination) of these weeds.
- The Victorian State Government is responsible for ensuring land managers comply with their legal requirements to control weeds.

Section 20 of the CaLP Act lists the following general duties of a landowner that in regard to weed and pest management, a landowner must take all reasonable steps to:

- eradicate regionally prohibited weeds;
- prevent the growth and spread of regionally controlled weeds; and
- prevent the spread of, and as far as possible eradicate, established pest animals.

In addition, some species are considered agricultural or environmental weeds, depending on location (see *Your Guide to the Weeds of Central Victoria*, MRSC et al. 2015).

A list of high threat weed species requiring control within the project area is presented in Table 20. Ideally, all non-native (introduced) species are to be removed from a site but it is understood that this is not always possible due to limited resources or access to the site. Therefore, the species have been ranked in priority as to the urgency for weed control. High priority has been assigned to Declared Noxious Weeds as landowners are required by law to control/eradicate these species. Medium priority has been assigned to environmental weeds that have the potential to spread rapidly and in a wide area (e.g. grassy weeds)

while Low priority has been reserved to environmental weeds that are woody in nature and have less potential to spread rapidly in a wide area.

Table 20: List of high threat weed species requiring control within the project area.

Scientific Name	Common Name	Weed Status	Control Method	Priority
Acacia baileyana	Cootamundra Wattle	Environmental Weed	Cut and Paint; Drill and Fill	Low
Acer pseudoplatanus	Sycamore Maple	Environmental Weed	Cut and Paint; Drill and Fill	Low
Agapanthus praecox	Agapanthus	Environmental Weed	Manual Removal	Medium
Agrostis capillaris	Brown Top Bent	Environmental Weed	Foliar Spray	Medium
Allium triquetrum	Angled Onion	Restricted Weed	Foliar Spray	High
Anthoxanthum odoratum	Sweet Vernal-grass	Environmental Weed	Foliar Spray	Medium
Arctotheca calendula	Capeweed	Environmental Weed	Foliar Spray; Hand Weed	Medium
Cirsium vulgare	Spear Thistle	Regionally Controlled Weed	Foliar Spray	High
Conium maculatum	Hemlock	Regionally Controlled Weed	Foliar Spray	High
Crataegus sp.	Hawthorn	Regionally Controlled Weed	Cut and Paint	High
Fraxinus angustifolia	Desert Ash	Environmental Weed	Cut and Paint; Drill and Fill	Low
Genista monspessulana	Montpellier Broom	WoNS; Regionally Controlled Weed	Foliar Spray; Hand Weed; Cut and Paint	High
Hedera helix	English Ivy	Environmental Weed	Foliar Spray	High
Ilex aquifolium	English Holly	Environmental Weed	Cut and Paint	Low
Olea europaea	Olive	Environmental Weed	Cut and Paint; Drill and Fill	Low
Phalaris aquatica	Toowoomba Canary-grass	Environmental Weed	Foliar Spray	Medium
Pinus radiata	Radiata Pine	Environmental Weed	Drill and Fill; Cut and Paint	Low
Populus spp.	Poplars	Environmental Weed	Cut and Paint; Drill and Fill	Low
Prunus cerasifera	Cherry Plum	Environmental Weed	Cut and Paint; Drill and Fill	Low
Rosa rubiginosa	Sweet Briar	Regionally Controlled Weed	Cut and Paint;	High
Rubus fruticosus spp. agg.	Blackberry	WoNS; Regionally Controlled Weed	Cut and Paint; Foliar Spray;	High
Salix spp.	Willows	WoNS; Restricted Weed	Drill and Fill; Cut and Paint	High

Scientific Name	Common Name	Weed Status	Control Method	Priority
Ulex europaeus	Gorse	WoNS; Regionally Controlled Weed	Cut and Paint; Foliar Spray	High
Vinca major	Blue Periwinkle	Environmental Weed	Foliar Spray; Slashing	Medium

A variety of weed control methods are available for each species but a general approach would include the following:

- Spot praying of grassy species;
- Foliar spray and cut and paint for tall herbs and small shrubs;
- Drill and fill or cut and paint for woody weeds; and,
- Hand weeding for small, scattered species.

In general, weed control is timed before the species sets seed and large woody weeds are typically left onsite to be used as habitat and only removed, if needed, when the dependent organisms have had time to migrate to a suitable alternative or acclimatise to the demise of that woody weed.

5.2 Revegetation and Enhancement Planting

Revegetation should be guided by the historical EVC of the area with the goal of restoring a degraded habitat into an ecologically functional habitat that resembles the historical EVC as close as possible. It should be noted that not all areas require large-scale revegetation, some areas only require enhancement planting, nonetheless, the species to be used for planting in these areas should still refer to the recommended planting schedule for each corresponding EVC.

Where revegetation is planned for areas currently supporting grassy vegetation the ground shall be prepared by spot spraying circles (1m diameter) for each woody stem to be planted (grasses and sedges excepted). This action shall be performed 4-8 weeks before revegetation takes place. In addition, each plant shall be protected by a 900m black mesh guard held in place by three 1400mm hardwood stakes. This shall protect the revegetation from grazing animals (e.g. Kangaroos, Rabbits, stock). The revegetation shall be inspected and competing vegetation controlled, sprayed or slashed, biannually. The protective tree guards may be removed 18 months after planting for grasses and sedges or when trees/shrubs are above 1.5m height.

For erosion-prone areas and where practically possible, jute matting shall be installed, while vegetation planted in the upper bank will only require mulch. Maintenance will include watering, especially during drier months and follow-up weed control.

A summary of the recommended actions associated with this environmental management plan is presented in Table 21. This table can be used as a guide for land managers in the implementation of an Environmental Action Plan. It should be noted, however, that these actions are subject to Council budget and funding availability

Photo point monitoring and baseline fauna surveys have been incorporated into the plan to allow project evaluation at the end of the implementation period.

It should be noted that revegetation works within the waterway should be consulted with and approved by Melbourne Water to ensure that the proposed works do not impact the

hydraulic capacity of the waterway. If the revegetation being undertaken will create a significant change to the area, the proposal should be a referred to Council prior to any planting taking place. This will ensure that opportunities for access are recognised and not compromised through revegetation works, particularly as the creation of pathways could require disruptive earthworks.

Table 21: Recommended works program for Bunjil Creek and Howey Creek.

Year	Seasonal Timing of Works	Management Zones	Actions	Comments
1	Winter	BH5; B08; B10	Weed Control	Commence works in High Priority management zones (with the exception of H01). Works at H01 will commence once adjacent development works have been completed
		BH5; B08; B10	Select monitoring locations and establish photo points	Establish future evaluation areas
	Spring	BH5; B08; B10	Weed Control	Continue weed control over spring growing season
		BH5; B08; B10	Conduct Baseline Fauna Survey	Obtain baseline data for future project evaluation efforts
	Summer	No Works		
	Autumn	BH5; B08; B10	Revegetation Preparation Works (Halo Spraying)	Prepare revegetation areas
2	Winter	BH5; B08; B10	Revegetation	
		H02; H03; H04	Select monitoring locations and establish photo points	Establish future evaluation areas
		H02; H03; H04	Weed Control	Winter weeds (Bulbs and pasture grasses)
	Spring	H02; H03; H04	Fauna Survey	Annual Data collection
		H02; H03; H04	Weed Control	Spring weeds.
	Summer	BH5; B08; B10	Watering 1st Year Revegetation	10L per plant per month (Nov – Mar)
	Autumn	H02; H03; H04	Revegetation Preparation Works (Halo Spraying)	Prepare revegetation areas
3	Winter	H02; H03; H04	Revegetation	
		B01; H01	Select monitoring locations and establish photo points	Establish future evaluation areas
		B01; H01	Weed Control	Winter weeds (Bulbs and pasture grasses)
	Spring	B01; H01	Fauna Survey	Annual Data collection

Year	Seasonal Timing of Works	Management Zones	Actions	Comments
		B01; H01	Weed Control	Spring weeds.
	Summer	H02; H03; H04	Watering 2nd Year Revegetation	10L per plant per month (Nov – Mar)
	Autumn	B01; H01	Prepare revegetation areas	Revegetation Preparation Works (Halo Spraying)
4	**Winter**	B01; H01	Revegetation	
		B06; B07; B09	Select monitoring locations and establish photo points	Establish future evaluation areas
		B06; B07; B09	Weed Control	Winter weeds (Bulbs and pasture grasses)
	Spring	B06; B07; B09	Fauna Survey	Annual Data collection
		B06; B07; B09	Weed Control	Spring weeds
	Summer	B01; H01	Watering 3rd Year Revegetation	10L per plant per month (Nov – Mar)
	Autumn	B06; B07; B09	Revegetation Preparation Works (Halo Spraying)	Prepare revegetation areas
5	**Winter**	B06; B07; B09	Revegetation	
		B02; B03; B04	Select monitoring locations and establish photo points	Establish future evaluation areas
		B02; B03; B04	Weed Control	Winter weeds (Bulbs and pasture grasses)
	Spring	B02; B03; B04	Fauna Survey	Annual Data collection
		B02; B03; B04	Weed Control	Spring weeds
	Summer	B01; H01	Watering 4th Year Revegetation	10L per plant per month (Nov – Mar)
	Autumn	B02; B03; B04	Revegetation Preparation Works (Halo Spraying)	Prepare revegetation areas
6	**Winter**	B02; B03; B04	Revegetation	
	Summer	B02; B03; B04	Watering 5th Year Revegetation	10L per plant per month (Nov – Mar)
	Autumn	All Zones	Progress Report including future management recommendations	Assess program success and plan future management

Note: these actions are subject to Council budget and funding availability.

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7. APPENDICES

Appendix 1: List of flora species recorded within the project area during field assessment.

Appendix 2: Recommended planting schedule for Riparian Woodland (EVC 641 CVU).

Appendix 3: Recommended planting schedule for Valley Grassy Forest (EVC 47 CVU).

Appendix 4: Recommended planting schedule for Plains Grassy Woodland (EVC 55_61 VVP).

Appendix 5: Recommended planting schedule for Scoria Cone Woodland (EVC 894 VVP).

Appendix 1: List of flora species recorded within the project area during field assessments.

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Acacia baileyana	Cootamundra Wattle	Environmental Weed														
Acacia dealbata	Silver Wattle	Native				Y										
Acacia floribunda	White Sallow Wattle	Introduced												Y		
Acacia longifolia subsp. *longifolia*	Sallow Wattle	Native						Y								
Acacia mearnsii	Late Black Wattle	Native	Y					Y			Y					
Acacia melanoxylon	Blackwood	Native	Y			Y		Y		Y	Y		Y	Y	Y	
Acacia paradoxa	Hedge Wattle	Native												Y		
Acacia provincialis	Wirilda	Native				Y										
Acaena echinata	Sheep's Burr	Native						Y	Y	Y		Y		Y		
Acaena novae-zelandiae	Bidgee-widgee	Native									Y			Y		Y
Acer negundo	Box-elder Maple	Introduced		Y									Y			
Acer pseudoplatanus	Sycamore Maple	Environmental Weed										Y				
Agapanthus praecox	Agapanthus	Environmental Weed											Y	Y		
Agrostis capillaris	Brown Top Bent	Environmental Weed							Y	Y						
Alisma plantago-aquatica	Water Plantain	Native											Y			
Allium triquetrum	Angled Onion	Restricted Weed	Y													
Allocasuarina spp.	Sheoak	Native														Y

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Anthoxanthum odoratum	Sweet Vernal-grass	Environmental Weed														Y
Arctotheca calendula	Capeweed	Environmental Weed														Y
Arrhenatherum elatius	False Oat-grass	Introduced							Y							
Asperula conferta	Common Woodruff	Native					Y				Y			Y		
Aster subulatus	Aster-weed	Introduced	Y													
Austrostipa spp.	Spear Grass	Native									Y		Y	Y	Y	
Banksia marginata	Silver Banksia	Native					Y									
Billardiera heterophylla	Bluebell Creeper	Introduced											Y			
Bothriochloa macra	Red Leg-grass	Native									Y					
Brassica spp.	Turnips/Mustards	Introduced	Y									Y				Y
Bromus catharticus	Prairie Grass	Introduced					Y					Y	Y	Y		Y
Bursaria spinosa	Sweet Bursaria	Native					Y	Y	Y	Y			Y			
Callistemon sieberi	River Bottlebrush	Native		Y				Y								
Callistemon spp.	Bottlebrush	Introduced													Y	
Carex pendula	Giant Sedge	Introduced														
Cassinia sifton	Sifton Bush	Native				Y										
Centella cordifolia	Centella	Native							Y							
Cirsium vulgare	Spear Thistle	Regionally Controlled Weed	Y											Y		Y
Conium maculatum	Hemlock	Regionally Controlled Weed	Y		Y		Y					Y				
Conyza spp.	Fleabane	Introduced											Y			

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Cordyline australis	New Zealand Cabbage-tree	Introduced				Y										
Cortaderia spp.	Pampas Grass	Introduced					Y	Y								
Crassula helmsii	Swamp Crassula	Native						Y								
Crataegus sp.	Hawthorn	Regionally Controlled Weed			Y	Y		Y		Y	Y	Y				
Crocosmia X crocosmiiflora	Montbretia	Introduced	Y													
Cynodon dactylon	Couch	Introduced						Y								
Cynoglossum suaveolens	Sweet Hound's-tongue	Native														Y
Cyperus eragrostis	Drain Flat-sedge	Introduced						Y								
Cytisus scoparius	English broom	Introduced														Y
Dactylis glomerata	Cocksfoot	Introduced	Y	Y	Y	Y	Y	Y		Y		Y	Y	Y		Y
Dietes spp.	Peacock Iris	Introduced													Y	
Dimorphotheca ecklonis	Cape Daisy	Introduced											Y			
Ehrharta erecta	Panic Veldt-grass	Introduced	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y
Epilobium spp.	Willow Herb	Native														Y
Eryngium vesiculosum	Prickfoot	Native						Y								
Eucalyptus botryoides	Southern Mahogany	Introduced														
Eucalyptus camaldulensis	River Red Gum	Native							Y	Y						
Eucalyptus cladocalyx	Sugar Gum	Introduced								Y				Y		
Eucalyptus crenulata	Buxton Gum	Introduced											Y			
Eucalyptus globulus	Southern Blue-gum	Introduced														

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Eucalyptus melliodora	Yellow Box	Native						Y					Y			
Eucalyptus ovata	Swamp Gum	Native		Y			Y			Y			Y			
Eucalyptus radiata	Narrow-leaf Peppermint	Native				Y	Y	Y			Y	Y	Y	Y		
Eucalyptus saligna	Sydney Blue Gum	Introduced			Y		Y	Y								
Eucalyptus spp.	Eucalypts	Introduced				Y		Y		Y					Y	
Eucalyptus viminalis	Manna Gum	Native		Y		Y		Y			Y	Y	Y		Y	
Exocarpos cupressiformis	Cherry Ballart	Native											Y			
Festuca arundinacea	Tall Fescue	Introduced	Y					Y								
Fraxinus angustifolia	Desert Ash	Environmental Weed	Y											Y		
Fumaris spp.	Fumitory	Introduced														
Galium aparine	Cleavers	Introduced											Y			
Genista monspessulana	Montpellier Broom	WoNS; Regionally Controlled Weed	Y	Y		Y	Y						Y			Y
Geranium solanderi var. *solanderi* s.s.	Austral Crane's-bill	Native									Y					Y
Goodenia ovata	Hop Goodenia	Native						Y								
Gynatrix pulchella	Hemp Bush	Native					Y									
Hakea salicifolia	Willow-leaf Hakea	Introduced							Y							
Hedera helix	English Ivy	Environmental Weed		Y	Y	Y						Y	Y			
Helminthotheca echioides	Ox-tongue	Introduced		Y												Y

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Hesperocyparis macrocarpa	Monterey Cypress	Introduced				Y							Y	Y		Y
Holcus lanatus	Yorkshire Fog	Introduced						Y								
Ilex aquifolium	English Holly	Environmental Weed			Y											
Juncus spp.	Rush spp.	Native			Y	Y	Y	Y	Y		Y					
Lactuca serriola	Prickly Lettuce	Introduced					Y					Y				
Leptospermum lanigerum	Woolly Tea-tree	Native				Y	Y	Y					Y			
Leptospermum myrsinoides	Heath Tea-tree	Native											Y			
Lolium rigidum	Annual Ryegrass	Introduced			Y											
Lomandra filiformis	Wattle Mat-rush	Native														Y
Lomandra longifolia	Spiny-headed Mat-rush	Native				Y	Y									
Lonicera japonica	Japanese Honeysuckle	Introduced				Y								Y		
Melaleuca hypericifolia	Hillock Bush	Introduced												Y		
Melaleuca linariifolia	Flax-leaf Paperbark	Introduced												Y		
Melaleuca spp.	Honey-myrtle	Introduced						Y								
Melicytus dentatus	Tree Violet	Native				Y			Y							
Melissa officinalis	Lemon Balm	Introduced											Y			
Mentha spp.	Mint	Introduced					Y									
Mentha x piperata	Peppermint	Introduced											Y			
Microlaena stipoides	Weeping Grass	Native							Y	Y					Y	Y
Modiola caroliniana	Red-flower Mallow	Introduced														Y

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Myoporum parvifolium	Creeping Myoporum	Native						Y								
Myosotis spp.	Forget-me-not	Introduced														
Olea europaea	Olive	Environmental Weed														Y
Oxalis spp.	Wood Sorrel	Native														
Paspalum distichum	Water Couch	Introduced						Y								
Paspalum spp.	Paspalum	Introduced						Y		Y		Y	Y	Y		Y
Persicaria decipiens	Slender Knotweed	Native						Y				Y	Y			
Phalaris aquatica	Toowoomba Canary-grass	Environmental Weed			Y		Y	Y		Y			Y	Y		Y
Pinus radiata	Radiata Pine	Environmental Weed			Y		Y	Y				Y				
Plantago lanceolata	Ribwort	Introduced														Y
Poa labillardierei	Common Tussock-grass	Native					Y	Y	Y	Y	Y		Y	Y		Y
Populus alba	White Poplar	Environmental Weed	Y		Y											
Populus nigra 'Italica'	Lombardy Poplar	Environmental Weed													Y	
Potamogeton crispus	Curly Pondweed	Native											Y			
Prunus cerasifera	Cherry Plum	Environmental Weed	Y		Y	Y						Y				
Quercus robur	English Oak	Introduced	Y	Y		Y								Y		
Rhagodia parabolica	Fragrant Saltbush	Native														Y

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Rosa rubiginosa	Sweet Briar	Regionally Controlled Weed		Y				Y	Y	Y			Y			
Rubus fruticosus spp. agg.	Blackberry	WoNS; Regionally Controlled Weed	Y	Y	Y						Y	Y	Y	Y		Y
Rumex spp.	Docks	Introduced												Y		
Rytidosperma spp.	Wallaby Grass	Native							Y	Y	Y				Y	Y
Salix babylonica	Weeping Willow	WoNS; Restricted Weed				Y		Y								
Salix cinerea	Grey Sallow	WoNS; Restricted Weed			Y											
Salix fragilis	Crack Willow	WoNS; Restricted Weed	Y													
Salix matsudana 'Tortuosa'	Tortured Willow	WoNS; Restricted Weed			Y			Y					Y			
Salix sp.	Willows	WoNS; Restricted Weed		Y	Y							Y				
Schinus molle	Pepper Tree	Introduced					Y									
Senecio angulatus	Climbing Groundsel	Introduced												Y		
Senecio quadridentatis	Cotton Fireweed	Native									Y					Y
Senecio spp.	Groundsel	Native					Y									

Scientific Name	Common Name	Origin/ Status	B01	B02	B03	B04	BH05	H01	H02	H03	H04	B06	B07	B08	B09	B10
Solanum laciniatum	Large Kangaroo Apple	Native							Y	Y				Y		
Solanum nigrum	Blackberry Nightshade	Introduced											Y			
Sonchus spp.	Sow Thistle	Introduced					Y									Y
Themeda triandra	Kangaroo Grass	Native				Y	Y	Y			Y		Y			
Tragopogon porrifolius	Salsify	Introduced							Y							
Tricoryne elatior	Yellow Rush-lily	Native												Y		
Typha latifolia	Lesser Reed-mace	Introduced														
Typha orientalis s.l.	Broad-leaf Bullrush	Native		Y			Y	Y								
Ulex europaeus	Gorse	WoNS; Regionally Controlled Weed				Y		Y				Y	Y			
Ulmus procera	English Elm	Introduced	Y									Y				
Veronica gracilis	Slender Speedwell	Native												Y		
Viburnum spp.	Viburnum	Introduced							Y							
Vicia spp.	Vetch	Introduced					Y									
Vinca major	Blue Periwinkle	Environmental Weed		Y	Y								Y			Y
Zantedeschia aethiopica	White Arum-lily	Introduced														
		Total	19	15	18	24	27	38	17	18	16	20	38	29	9	30
		Native	6	6	9	6	10	15	8	7	5	8	13	9	2	14
		Introduced	13	9	9	18	17	23	9	11	11	12	25	20	7	16

Appendix 2: Recommended planting schedule for Riparian Woodland (EVC 641 CVU).

Scientific name	Common Name	Form/ Habit	Planting Density
Eucalyptus camaldulensis	River Red Gum	Canopy Tree	50/ha
Acacia melanoxylon	Blackwood	Tree	150/ha
Bursaria spinosa ssp. spinosa	Sweet Bursaria	Medium Shrub	400/ha
Viminaria juncea	Golden Spray	Medium Shrub	
Rubus parvifolius	Small-leaf Bramble	Small Shrub	100/ha
Wahlenbergia gracilis s.s.	Sprawling Bluebell	Large Herb	1500/ha
Senecio quadridentatus	Cottony Fireweed	Large Herb	
Myriophyllum crispatum	Upright Water-milfoil	Large Herb	
Rumex brownii	Slender Dock	Medium Herb	1000/ha
Oxalis perennans	Grassland Wood-sorrel	Medium Herb	
Mentha australis	River Mint	Medium Herb	
Acaena novae-zelandiae	Bidgee-widgee	Medium Herb	
Dichondra repens	Kidney Weed	Small Herb	500/ha
Poa labillardierei	Common Tussock-grass	Large Tufted Graminoid	1000/ha
Carex appressa	Tall Sedge	Large Tufted Graminoid	
Phragmites australis	Common Reed	Large Non-tufted Graminoid	500/ha
Lachnagrostis filiformis var. *filiformis*	Common Blown-grass	Medium Tufted Graminoid	2000/ha
Triglochin procerum s.l.	Water-ribbons	Medium Tufted Graminoid	
Eleocharis acuta	Common Spike-sedge	Medium Non-tufted Graminoid	500/ha
Calystegia sepium	Large Bindweed	Scrambler or Climber	1000/ha

Note: Revegetation works within the waterway should be consulted with and approved by Melbourne Water and MRSC Engineering team to ensure that the proposed works do not impact the hydraulic capacity of the waterway.

Appendix 3: Recommended planting schedule for Valley Grassy Forest (EVC 47 CVU).

Scientific name	Common Name	Form/ Habit	Planting Density
Eucalyptus melliodora	Yellow Box	Canopy Tree	100/ha
Eucalyptus radiata	Narrow-leaf Peppermint	Canopy Tree	
Eucalyptus obliqua	Messmate Stringybark	Canopy Tree	
Eucalyptus rubida	Candlebark	Canopy Tree	
Acacia melanoxylon	Blackwood	Tree	100/ha
Acacia dealbata	Silver Wattle	Tree	
Daviesia leptophylla	Narrow-leaf Bitter-pea	Medium Shrub	400/ha
Epacris impressa	Common Heath	Medium Shrub	
Hovea heterophylla	Common Hovea	Small Shrub	500/ha
Pimelea humilis	Common Rice-flower	Small Shrub	
Dillwynia cinerascens s.l.	Grey Parrot-pea	Small Shrub	
Acacia aculeatissima	Thin-leaf Wattle	Small Shrub	
Acrotriche serrulata	Honey-pots	Prostrate Shrub	100/ha
Bossiaea prostrata	Creeping Bossiaea	Prostrate Shrub	
Senecio tenuiflorus	Slender Fireweed	Large Herb	100/ha
Senecio quadridentatus	Cottony Fireweed	Large Herb	
Gonocarpus tetragynus	Common Raspwort	Medium Herb	1500/ha
Drosera peltata ssp. *auriculata*	Tall Sundew	Medium Herb	
Burchardia umbellata	Milkmaids	Medium Herb	
Opercularia varia	Variable Stinkweed	Small Herb	500/ha
Goodenia lanata	Trailing Goodenia	Small Herb	
Poa labillardierei	Common Tussock-grass	Large Tufted Graminoid	1000/ha
Deyeuxia quadriseta	Reed Bent-grass	Large Tufted Graminoid	
Lomandra filiformis	Wattle Mat-rush	Medium Tufted Graminoid	2000/ha
Poa sieberiana	Grey Tussock-grass	Medium Tufted Graminoid	
Dianella revoluta s.l.	Black-anther Flax-lily	Medium Tufted Graminoid	
Microlaena stipoides var. *stipoides*	Weeping Grass	Medium Non-tufted Graminoid	500/ha
Pteridium esculentum	Austral Bracken	Ground Fern	500/ha
Hardenbergia violacea	Purple Coral-pea	Scrambler or Climber	100/ha

Note: Revegetation works within the waterway should be consulted with and approved by Melbourne Water and MRSC Engineering team to ensure that the proposed works do not impact the hydraulic capacity of the waterway.

Appendix 4: Recommended planting schedule for Plains Grassy Woodland (EVC 55_61 VVP).

Scientific name	Common Name	Form/ Habit	Planting Density
Eucalyptus camaldulensis	River Red Gum	Canopy Tree	50/ha
Acacia pycnantha	Golden Wattle	Medium Shrub	400/ha
Acacia paradoxa	Hedge Wattle	Medium Shrub	
Pimelea humilis	Common Rice-flower	Small Shrub	100/ha
Astroloma humifusum	Cranberry Heath	Prostrate Shrub	100/ha
Bossiaea prostrata	Creeping Bossiaea	Prostrate Shrub	
Oxalis perennans	Grassland Wood-sorrel	Medium Herb	1500/ha
Gonocarpus tetragynus	Common Raspwort	Medium Herb	
Acaena echinata	Sheep's Burr	Medium Herb	
Dichondra repens	Kidney Weed	Small Herb	500/ha
Hydrocotyle laxiflora	Stinking Pennywort	Small Herb	
Austrostipa mollis	Supple Spear-grass	Large Tufted Graminoid	500/ha
Austrostipa bigeniculata	Kneed Spear-grass	Large Tufted Graminoid	
Themeda triandra	Kangaroo Grass	Medium Tufted Graminoid	4500/ha
Elymus scaber var. *scaber*	Common Wheat-grass	Medium Tufted Graminoid	
Rytidosperma setaceum	Bristly Wallaby-grass	Medium Tufted Graminoid	
Rytidosperma racemosum	Stiped Wallaby-grass	Medium Tufted Graminoid	
Microlaena stipoides var. *stipoides*	Weeping Grass	Medium Non-tufted Graminoid	500/ha

Note: Revegetation works within the waterway should be consulted with and approved by Melbourne Water and MRSC Engineering team to ensure that the proposed works do not impact the hydraulic capacity of the waterway

Appendix 5: Recommended planting schedule for Scoria Cone Woodland (EVC 894 VVP).

Scientific name	Common Name	Form/ Habit	Planting Density
Eucalyptus viminalis	Manna Gum	Canopy Tree	50/ha
Allocasuarina verticillata	Drooping Sheoak	Canopy Tree	
Acacia melanoxylon	Blackwood	Tree	50/ha
Bursaria spinosa	Sweet Bursaria	Medium Shrub	400/ha
Senecio pinnatifolius	Variable Groundsel	Large Herb	500/ha
Rumex brownii	Wiry Dock	Large Herb	
Senecio quadridentatus	Cottony Fireweed	Large Herb	
Acaena novae-zelandiae	Bidgee-widgee	Medium Herb	1000/ha
Geranium potentilloides	Cinquefoil Cranesbill	Medium Herb	
Acaena echinata	Sheep's Burr	Medium Herb	
Viola hederacea	Ivy-leaf Violet	Medium Herb	
Dichondra repens	Kidney-weed	Small Herb	500/ha
Oxalis exilis	Shady Wood-sorrel	Small Herb	
Poa labillardierei	Common Tussock-grass	Large Tufted Graminoid	500/ha
Lomandra filiformis	Wattle Mat-rush	Medium Tufted Graminoid	1500/ha
Dianella revoluta s.l.	Black-anther Flax-lily	Medium Tufted Graminoid	
Carex breviculmis	Short-stem Sedge	Medium Tufted Graminoid	
Austrodanthonia pilosa	Velvet Wallaby-grass	Medium Tufted Graminoid	
Microlaena stipoides var. *stipoides*	Weeping Grass	Medium Non-tufted Graminoid	500/ha
Pteridium esculentum	Austral Bracken	Ground Fern	2000/ha

Note: Revegetation works within the waterway should be consulted with and approved by Melbourne Water and MRSC Engineering team to ensure that the proposed works do not impact the hydraulic capacity of the waterway.