

# Ballarat Line Upgrade

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MELBOURNE METRO  
RAIL AUTHORITY

## BLU-AJM-PWAA-RP-NN-000198 ECOLOGY ASSESSMENT – ADDITIONAL AREAS

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This report should be read in full and no excerpts are to be taken as representative of the findings.

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# Executive Summary

The AJMJV has completed a flora and fauna assessment of additional areas considered as potential works areas for the Ballarat Line Upgrade (project). These areas are in addition to the project areas surveyed by Ecology and Heritage Partners (EHP) in 2016 and 2017 (EHP 2017). The additional areas are shown in Appendix A and include the following:

- **Kerrs Road Stabling (Chainage 53000 to 54300):** From north of Kerrs Road through to north of Rowsley Station Road. Assessed areas comprised VicTrack and private land north and south of the intersection of the rail line with Kerrs Road in Maddingley.
- **Rowsley Stabling (Chainage 54600 to 55700):** From south of Rowsley Station Road to just south of Albys Lane. Road reserve and VicTrack land extending both sides of the rail line between Rowsley Station Road in the north to distance approximately 150m south of the intersection of the rail line with Albys Lane in the south.
- **Ballan Loop (Chainage 77800 to 79300):** From Ingliston Road to Stead Street. There are currently two Ballan loop design options under consideration, which will be later finalised by the alliance delivery partner. The eastern most extent of the optional Ballan Loop (approximately 1.2km) is subject of the AJM JV ecology assessment. Assessed areas comprised VicTrack land adjacent to the rail line between 100 m west of Stead Street to 200 m east of the intersection with Ingliston Road, excluding areas previously assessed by EHP.
- **Warrenheip Duplication (Chainage 106100 to 106700):** From Ti Tree Road west to 200 m east of the intersection between the Ballarat rail line and the Geelong-Ballarat rail line. Assessed areas comprised private and VicTrack land south of the rail line.

The aim of the AJMJV assessment was to identify ecological values within the additional areas, including the extent, type and quality of the native vegetation present, the presence of threatened ecological communities, the availability of habitat for threatened species and the presence of noxious weeds.

The field assessment found that vegetation within the additional areas is generally degraded and dominated by exotic species. No Matters of National Environmental Significance were identified within the survey area. The ecological values identified during the assessment are summarised in Table 0-1.

**TABLE 0-1 FINDINGS OF FIELD ASSESSMENT OF ADDITIONAL AREAS FOR THE BALLARAT LINE UPGRADE**

ADDITIONAL AREA	ECOLOGICAL VALUE	EXTENT WITHIN SURVEYED AREA
Kerrs Road Stabling	Plains Woodland (EVC 803) (includes presence of three Acacia species protected under the FFG Act and Fragrant Saltbush, listed as Rare under the Victoria's Advisory List of Threatened Plant Species)	1.561 ha
	Scattered Trees	8
Rowsley Stabling (BM09)	Plains Woodland (EVC 803)	0.236 ha
	Scattered Trees	3
Ballan Loop	Plains Grassy Woodland (EVC 55)	0.026 ha
	Plains Grassland (EVC 132-51) (synonymous with FFG Act listed ecological community Western (Basalt) Plains	0.048 ha

ADDITIONAL AREA	ECOLOGICAL VALUE	EXTENT WITHIN SURVEYED AREA
	Grassland)	
	Scattered Trees	3
	Planted Vegetation	0.060 ha
Warrenheip Duplication	No native vegetation recorded within additional area assessed.	0

The actual extent of removal of native vegetation across the entire project area will be determined in conjunction with the findings of the EHP (2017) report and with consideration of the final project construction footprint (which is yet to be determined). Based on the findings of this assessment, works associated with the Ballarat Line Upgrade in the survey area will not have a significant impact to ecological values. Also, there is no requirement for any further targeted surveys for threatened flora or fauna species within the additional areas.

# 1 Introduction

## 1.1 Project Information

The Ballarat Line Upgrade comprises a series of upgrades to the existing Ballarat rail line, involving duplication of track, and installation of passing loops, station upgrades and new stabling facilities. The proposed works are located between Deer Park West, in Melbourne's outer western suburbs and Warrenheip, just outside Ballarat.

Upon completion, the Ballarat Line Upgrade will increase service provision on the Ballarat rail line (with two additional services in the morning and afternoon peaks), improve punctuality to target levels and provide capacity for a 40 minute all day, off-peak frequency along the corridor (west of Bacchus Marsh) increasing from the current 60 minute frequency.

In October 2016, the Victorian Government appointed the Melbourne Metro Rail Authority (MMRA) as the delivery agency for the Ballarat Line Upgrade. Pending the timely provision of planning and environmental approvals, major construction works are expected to start in 2018 with early works starting in the fourth quarter of 2017. The project is expected to be completed in 2019.

## 1.2 Purpose

The purpose of this report is to document the findings of an ecological assessment of additional areas identified as potential work areas for the Ballarat Line Upgrade. An initial ecology assessment was completed by Ecology and Heritage Partners (EHP), 'Existing Ecological Conditions Report, Ballarat Line Upgrade (June 2017) (EHP 2017) that covered the majority of the project area. However, design changes have taken place since that assessment was undertaken and as such, an ecological assessment of the additional areas within the project scope is required to understand the ecological values of the project area.

In line with ecological assessments completed to date, the objectives of this report are to:

- Determine the likelihood of threatened (as per the EPBC Act) species and ecological communities being present in the project area;
- Determine the type, quality and extent of native vegetation present (as Ecological Vegetation Class – EVC) within the additional project area in accordance with the Vegetation Quality Assessment Manual (DSE, 2004);
- Map all areas which qualify as an EVC;
- Identify and map constraints, including areas of environmental value, to be avoided; and
- Outline the requirement for further assessments necessary to inform the likely impacts of the project on ecological values.

## 1.3 Survey Area

Works will take place in the rail corridor from west of the Caroline Springs station to east of the Warrenheip station. From Deer Park West to Toolern Creek in Melton South, the project is located within the Melbourne Strategic Assessment (MSA) area. Within this MSA area, a portion of the Ballarat Line Upgrade is subject to the Biodiversity Conservation Strategy (BCS) (DEPI, 2013a), and a portion is subject to the Toolern Precinct Structure Plan (MPA, 2011). The areas covered by this assessment are outside of the MSA area.

Works associated with the Ballarat Line Upgrade will not take place throughout the entire project area but rather at a number of discrete locations. As such, ecological surveys have been completed in areas considered as possible additional work locations. Subsequent to the completion of the Existing Ecological Condition surveys carried out by EHP (EHP 2017), additional 'potential work areas' associated with the project were identified. These areas are shown in Appendix A and comprise the assessment areas relevant to this report. It should be noted that the survey area, the subject of this report, is located both within and outside of the VicTrack corridor as follows;

- Kerrs Road Stabling (Chainage 53000 to 54300): From north of Kerrs Road through to north of Rowsley Station Road. Assessed areas comprised Victrack and private land north and south of the intersection of the rail line with Kerrs Road in Maddingley
  - » North of Kerrs Road, extending both sides of the rail line to a distance approximately 400 m north of the intersection with Kerrs Road
  - » South of Kerrs Road, extending both sides of the rail line to a distance approximately 500 m south of the intersection with Kerrs Road.
- Rowsley Stabling (Chainage 54600 to 55700): From south of Rowsley Station Road to just south of Albys Lane. Assessed areas comprised road reserve and VicTrack land extending both sides of the rail line between Rowsley Station Road in the north to distance approximately 150 m south of the intersection of the rail line with Albys Lane in the south.
- Ballan Loop (Chainage 77800 to 79300): From Ingliston Road to Stead Street. There are currently two Ballan loop design options under consideration, which will be later finalised by the alliance delivery partner. The eastern most extent of the optional Ballan Loop (approximately 1.2km) is subject of the AJM JV ecology assessment. Assessed areas comprised VicTrack land adjacent to the rail line between 100 m west of Stead Street to 200 m east of the intersection with Ingliston Road. A small area south of Cowies Street was also included in the assessment, on the south western edge of the Ballan station area that had been previously assessed. Areas within the overall project area for this element that had previously been assessed (EHP 2017) were not included as part of this assessment.
- Warrenheip Duplication (Chainage 106100 to 106700): From Ti Tree Road west to 200 m east of the intersection between the Ballarat rail line and the Geelong-Ballarat rail line. The survey areas comprised VicTrack and private land extending approximately 100 m south of the rail line, outside of the area previously assessed (EHP 2017).

All assessed areas are within the Victorian Volcanic Plain Bioregion except for the assessed area of Element 5 (Warrenheip Duplication) which is within the Victorian Volcanic Plain (eastern part) and Central Victorian Uplands (western part).

## 1.4 Legislation

A brief summary of the legislation and policies referred to throughout this document is provided in Table 1.1.

**TABLE 1.1 : LEGISLATION RELEVANT TO THE PROJECT**

POLICY / LEGISLATION	DESCRIPTION
<b>Commonwealth</b>	
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	<p>Has significant implications for natural resource and environmental management in Australia. This Act provides for the listing of threatened species, threatened ecological communities and key threatening processes. It also relates to actions likely to have a significant impact on Matters of National Environmental Significance (MNES). MNES relevant to this assessment include:</p> <ul style="list-style-type: none"> <li>• Nationally threatened species and ecological communities</li> <li>• Migratory species</li> <li>• Ramsar wetlands</li> </ul>
<b>State</b>	
<i>Environment Effects Act 1978 (EE Act)</i>	<p>Provides for the assessment of actions that are capable of having a significant environmental effect.</p> <p>Actions which might have a significant environmental effect should be referred to the Victorian Minister for Planning, who decides if an Environment Effects Statement (EES) is required. An EES might be required where:</p> <ul style="list-style-type: none"> <li>• There is a likelihood of regionally or state significant adverse environmental effects.</li> <li>• There is a need for an integrated assessment of social and economic effects of a project or relevant alternatives.</li> <li>• Normal statutory processes would not provide a sufficiently comprehensive, integrated and transparent assessment.</li> </ul>
<i>Flora and Fauna Guarantee Act 1988 (FFG Act)</i>	<p>Provides a framework for biodiversity conservation in Victoria.</p> <p>Threatened species and communities of flora and fauna, as well as threatening processes, are listed under this Act.</p> <p>A number of non-threatened flora species are also listed as protected under the FFG Act. A Permit to Take is required to remove these species from public land.</p> <p>NOTE – the FFG Act is currently under review with changes expected in late 2017. This report has been prepared based on the current requirements of the report and these may change prior to the construction of the Ballarat Line Upgrade.</p>
Department of Environment, Land, Water and Planning (DELWP) (formally DEPI/DSE) Victorian Advisory Lists (VicAdv)	<p>Not a statutory list of threatened species, but rather list of species for which conservation management is recommended by DELWP. The VicAdv lists are comprised of the <i>Advisory List of Rare or Threatened Plants in Victoria – 2014</i> (DEPI, 2014), the <i>Advisory List of Threatened Vertebrate Fauna in Victoria – 2013</i> (DEPI, 2013), and the <i>Advisory List of Threatened Invertebrate Fauna in Victoria – 2009</i> (DSE, 2009).</p> <p>The presence, or likely presence, of a species listed on the VicAdv lists is used to determine whether species specific habitat is required to be offset.</p>
<i>Planning and Environment Act 1987</i>	<p>Applications to remove, destroy, or lop native vegetation in Victoria invoke relevant municipal planning schemes and the <i>Planning and Environment Act 1987</i>, which are given authority through the Victoria Planning Provisions (VPP).</p> <p>A range of exemptions apply under this Act.</p> <p>Depending on the scale of the native vegetation clearance, statutory referral to the DELWP may be required.</p>



POLICY / LEGISLATION	DESCRIPTION
Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines 2013 (the Guidelines)	<p>The Guidelines identify how impacts on biodiversity are to be considered when assessing an application for a permit to remove, lop or destroy native vegetation. For the purpose of the Guidelines the term ‘remove native vegetation’ includes to lop or destroy native vegetation.</p> <p>NOTE – the Native Vegetation regulations under the <i>Planning and Environment Act 1987</i> are currently under review with changes expected in late 2017, including changes to the Guidelines. This report has been prepared based on the current requirements.</p>
Catchment and Land Protection Act 1994 (CaLP Act)	<p>Defines requirements to:</p> <ul style="list-style-type: none"> <li>• Avoid land degradation</li> <li>• Conserve soil</li> <li>• Protect water resources</li> <li>• Eradicate and prevent the spread and establishment of noxious weed and pest animal species.</li> </ul> <p>The Act defines four categories of noxious weeds: State Prohibited Weeds, Regionally Prohibited Weeds, Regionally Controlled Weeds and Restricted Weeds. Noxious weeds species and the category they are placed in is specific to individual CMA regions.</p>

## 2 Method

### 2.1 Literature Review

The desktop assessment provided in the *Existing Ecological Conditions Report* (EHP 2017) addresses a 10 km radius surrounding the project area. As the additional areas are located within this radius, this desktop assessment is considered sufficient to support this assessment.

Desktop findings to date confirm the potential for some threatened ecological communities to occur within the assessment areas, namely:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia, listed as Endangered under the EPBC Act;
- Grassy Eucalypt Woodlands of the Victorian Volcanic Plains, listed as Critically Endangered under the EPBC Act;
- Natural Temperate Grassland of the Victorian Volcanic Plain, listed as Critically Endangered under the EPBC Act;
- Western (Basalt) Plains Grassland Community listed under the FFG Act.

The desktop findings to date also confirm the potential for a range of threatened flora and fauna to occur within the survey areas, primarily:

- Golden Sun Moth in natural and derived native grasslands, or in areas dominated by exotic Needle Grasses, listed under the EPBC Act, FFG Act and on the *Advisory List of Threatened Invertebrate Fauna in Victoria*;
- Growling Grass Frog along waterways and farm dams, listed under the EPBC Act, FFG Act and on the *Advisory List of Threatened Vertebrate Fauna in Victoria*;
- Striped Legless Lizard in native grasslands and grassy woodlands, listed under the EPBC Act, FFG Act and on the *Advisory List of Threatened Vertebrate Fauna in Victoria*;
- Swift Parrot in grassy woodlands, particularly with a presence of Red Ironbark (*Eucalyptus tricarpa*), Mugga Ironbark (*Eucalyptus sideroxylon*), Yellow Gum (*Eucalyptus leucoxylon*) or Grey Box (*Eucalyptus microcarpa*), listed under the EPBC Act, FFG Act and on the *Advisory List of Threatened Vertebrate Fauna in Victoria*; and
- Numerous threatened flora characteristic of native grasslands in the Victorian Volcanic Plain, including the Spiny Rice-flower, Matted Flax-lily, and Large-fruit Groundsel, all listed under the EPBC Act, FFG Act and on the *Advisory List of Rare or Threatened Plants in Victoria*.

## 2.2 Field Assessment

Field assessments of the survey area were undertaken by the AJM JV ecologists over 3 days on 29 and 31 March and 7 April 2017. While field assessments would ordinarily occur at a later time in the year (to maximise detectability of native herbaceous species), the following tasks were able to be undertaken during the assessment:

- Mapping of native vegetation including scattered trees and remnant patches in accordance with the Biodiversity Assessment Guidelines (DEPI 2013);
- Undertaking a Habitat Hectare Assessment of patches of native vegetation in accordance with the Vegetation Quality Assessment Manual v1.3 (DSE 2004);
- Assessing potential habitat for threatened flora and fauna species that may occur in the project area, including the mapping of habitat trees;
- Assessing the presence of threatened communities in accordance with the listing advice for those communities; and
- Describing the vegetation present within the assessed areas.

## 2.3 Assumptions and Limitations

The location of mapped ecological values was recorded on a differential GPS unit which is commonly accurate to within 1 m.

Field assessments occurred outside of spring/summer, when many species common to grasslands and grassy woodlands are easier to identify due to flowering or increased activity. However, it was considered that a sufficient assessment was able to be made as to the extent of native vegetation and habitat for threatened species present. This conclusion is based on experience and knowledge of ecologists completing the assessment, quality parameters of the vegetation observed and existing information including database records and the EHP (2017) report.

# 3 Results

The area assessed in each of the sections below corresponds to that described in Section 1.3 and as shown in maps in Appendix A.

## 3.1 Native Vegetation

Native vegetation, including both remnant patches and scattered trees, was identified within the survey area during the field assessment. A total of 1.871 ha of native vegetation and 14 scattered trees was recorded in the survey area. Further discussion as to the quality of native vegetation recorded is provided below and the extent of native vegetation present is mapped in Appendix A.

### 3.1.1 KERRS ROAD STABLING, MADDINGLEY

The Kerrs Road survey area is comprised of the VicTrack rail reserve to the north and south of Kerrs Road in Maddingley, south of Bacchus Marsh, as shown in maps included in Map 7 and 8, Appendix A. Access tracks run parallel to the rail line on both the east and west sides.

#### 3.1.1.1 North of Kerrs Road

A degraded remnant patch of EVC 803 - Plains Woodland is present on the western side of the rail line immediately north of Kerrs Road, extending north along the western edge of the assessed area (Figure 3.1). The patch overstorey is dominated by Grey Box (*Eucalyptus microcarpa*) with occasional Yellow Gum (*Eucalyptus leucoxylon*) of mixed age. Three large old Grey Box trees (defined as trees larger than 60 cm diameter at breast height) are present within this Plains Woodland patch where the VicTrack boundary extends out from the corridor to form a triangular shape. These trees comprise hollows and provide important habitat for indigenous fauna species.

The understorey within the patch is degraded, however numerous native elements persist, including shrubs; Gold-dust Wattle (*Acacia acinacea*), Wirilda (*A. provincialis*), Golden wattle (*A. pycnantha*), and Fragrant Saltbush (*Rhagodia parabolica*), herbs Nodding Saltbush (*Einadia nutans*) and Wingless Bluebush (*Maireana enchylaenoides*), and grasses; Wallaby grasses (*Rytidosperma* spp.), Spear Grass (*Austrostipa* sp.). These component layers of the patch were dominated by perennial weed species, predominantly Galenia (*Galenia pubescens*) and African Boxthorn (*Lycium ferocissimum*) with occasional Pepper Trees (*Schinus molle*). Also scattered throughout the patch were the noxious weeds Bridal Creeper (*Asparagus asparagoides*) and Serrated Tussock (*Nasella trichotoma*) in low abundance.

This patch has been degraded due to ongoing public access to the area for the dumping of rubbish and dirt-bike riding and, as such, the cover of native species is patchy. The Habitat Hectare score for the patch was 48. It does not qualify as the EPBC listed community *Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* as it does not meet the criteria to be considered the community (DSEWPC 2012). Namely, less than 50% of the plant cover in the ground layer comprises perennial native species and less than 10% of the plant cover in the ground layer is made up of perennial native grass species.



**FIGURE 3.1 : GREY BOX DOMINATED PLAINS WOODLAND WEST OF THE RAIL NORTH OF KERRS ROAD. THE RAISED RAIL LINE AND ACCESS TRACK IS VISIBLE TO THE RIGHT.**

A small patch of degraded EVC 803 - Plains Woodland is present on the eastern side of the rail track north of Kerrs Road. The patch is dominated by weeds; however, the cover of Wallaby Grass, Spear Grass and Black-anther Flax-lily (*Dianella admixta*) exceeds 25% of the vegetation cover at this location. The Habitat Hectare score for this patch is 16. Despite the absence of trees at this location, it is unlikely this patch would qualify as remnant EVC 132 - Plains Grassland given its close proximity to the Plains Woodland identified on the western side of the rail. The patch does not qualify as the EPBC listed community *Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* as it is less than 0.5 ha in size and therefore does not meet the criteria to be considered the community (DSEWPC 2012).

Two small Grey Box trees are present as scattered trees in the survey area located on the east side of the rail line.

The majority of the survey area at this location contains degraded vegetation dominated by a mixture of exotic grasses and other weeds, with little to no ecological value. Dominant weed species included Stick Cape Gooseberry (*Physalis viscosa*) and pasture grasses.

### **3.1.1.2 South of Kerrs Road**

A shelter belt of planted Grey Box trees is present on the immediate south of Kerrs Road, with an understorey dominated by the weed Galenia. Occasional native understorey species were present (Wallaby Grass, Ruby



Saltbush (*Enchylaena tomentosa*) though combined with the immature Grey Box did not account for more than 25% of the vegetation present. Serrated Tussock, a noxious weed, was present throughout the shelterbelt. As such, this area does not qualify as a patch of native vegetation.



**FIGURE 3.2 : GREY BOX WOODLAND AND SCATTERED TREES SOUTH OF KERRS ROAD IN A PREDOMINANTLY CLEARED LANDSCAPE.**

Further south, on the western side of the track, three small patches of EVC 803 - Plains Woodland are present, defined by the canopy of large remnant Grey Box trees (Figure 3.2). The understorey is dominated by weeds such as Galenia and African Box-thorn. Few native species are present, however the Rare (VicAdv) but locally common Fragrant Saltbush forms a component of the vegetation (<10% of the plant cover). The Habitat Hectare Score for these patches is 29.

An area of planted Grey Box trees is present immediately adjacent to the survey area adjacent to Kerrs Road. The trees were young (to 8 m in height) and the understorey was predominantly weedy, dominated by Galenia. Few native species were present.

Six scattered Grey Box trees are also present within the survey area. Three on the east side of the rail line, and three on the west side.

Vegetation observed at this location does not meet the criteria for the EPBC listed community *Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (DSEWPC 2012) as the patch extents are less than 0.5 ha.

The majority of the survey area at this location contains degraded vegetation dominated by a mixture of exotic grasses and other weeds, with little to no ecological value. Dominant weed species included Artichoke Thistle and pasture grasses.

### 3.1.2 ROWSLEY STABLING

At the time of assessment, the majority of the survey area was occupied for track upgrade works (not associated with the Ballarat Line Upgrade). An additional assessment of this area has since been completed as part of the Secondary Construction Areas report (AJMJV, 2017). This location has been designated as Secondary Construction Area BM-09.

Native vegetation was present as patches of EVC 803 - Plains Woodland and remnant Grey Box trees scattered throughout the assessed area. Close to Rowsley Road, three patches of Plains Woodland were identified that included a range of grasses and saltbushes typical of the community, including Seaberry Saltbush (*Atriplex semibaccata*), and Rough Spear-grass (*Austrostipa falcata*). Wetland species are also present; Spike-sedge (*Eleocharis sp.*), Common Nardoo (*Marsilea drummondii*), likely owing to a small drainage line through the area (Figure 3.3). There are a number of large habitat trees in these patches and the Habitat Hectare score was 39.



**FIGURE 3.3 : DISCRETE PATCHES OF GREY BOX DOMINATED PLAINS WOODLAND CLOSE TO ROWSLEY ROAD, WEST OF THE RAIL LINE. THE ACCESS ROAD TO THE CURRENT WORKSITE IS LOCATED ON THE RIGHT OF THE PHOTO.**

South of Albys Lane, two small patches of degraded EVC 803 - Plains Woodland are present along the west edge of the survey area. These patches are present as areas of derived grassland and are dominated by native Wallaby grass, Spear grass, Black-anther Flax-lily, and Gold-dust Wattle shrub, which provide more than 25% cover. The Habitat Hectare score for these patches is 16. The patches have been classified as derived grassland, due to the presence of treed patches in close proximity and in correlation to the DEWLP mapping of EVCs in the area (DELWP, 2017).

Vegetation observed at this location does not meet the criteria for the EPBC listed community *Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (DSEWPC 2012) as the patch extents are less than 0.5 ha.

Three scattered Grey Box trees are present within the survey area.

The majority of the survey area at this location is degraded and dominated by exotic grasses, most commonly Toowoomba Canary Grass, Cocksfoot as well as the weed, Galenia. Native species are also observed scattered throughout the survey area, however they did not meet the 25% cover threshold to be considered a remnant patch.

### 3.1.3 BALLAN LOOP

The Ballan Loop survey area is dominated by exotic herbaceous species and planted trees. The observed dominant exotic species include Kikuyu (*Cenchrus clandestinus*), Couch (*Cynodon dactylon*), and Cocksfoot (*Dactylis glomerata*), and common weeds; Ribwort (*Plantago lanceolata*), and Cats Ear (*Hypochaeris radicata*).

Planted vegetation includes Pine (*Pinus radiata*), Cypress (*Cupressus macrocarpa*) and non-indigenous eucalypts including Blue Gum (*Eucalyptus globulus*), and Sugar Gum (*E. cladocalyx*).

A small patch of EVC 132 - Plains Grassland was recorded on south east of the rail bridge over Stead Street (Figure 3-4). This patch is dominated by Wallaby Grass, with some Kangaroo Grass (*Themeda triandra*), and achieved a Habitat Hectare score of 28. Vegetation observed at this location does not meet the criteria for the EPBC listed community *Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (DSEWPC 2012) as the patch extent is less than 0.5 ha. However, it is considered to be representative of the FFG listed community Western (Basalt) Plains Grassland.

Three small patches of EVC 55 - Plains Grassy Woodland were recorded between Stead Street and Windle Street. These patches are dominated by Blackwood (*Acacia melanoxylon*) and Wallaby Grass comprising a cover of greater than 25%.

Three scattered trees, including Yellow Gums (*E. leucoxylon*), and River Red Gums (*E. camaldulensis*) were also recorded, located between Stead Street and Windle Street. Although it is possible that the observed Yellow Gum and River Red Gum are planted specimens, they have been conservatively recorded as scattered remnant trees.





**FIGURE 3.4 : PLAINS GRASSLAND PATCH ADJACENT TO RAIL LINE CLOSE TO STEAD ST BRIDGE (LEFT) AND SCATTERED RIVER RED GUM TREE WITHIN NON-NATIVE LANDSCAPE (RIGHT).**

### 3.1.4 WARRENHEIP DUPLICATION

The Warrenheip duplication survey area is dominated by exotic species, including Cocksfoot, Toowoomba Canary Grass, and Rye Grasses (*Lolium sp.*), and does not contain any patches of native vegetation or scattered trees. Noxious weeds are present through the area including Gorse (*Ulex europeus*) and Spear Thistle (*Cirsium vulgare*). A small unnamed waterway is present and was flowing at the time. Within the survey area, the banks of the waterway and surrounding area is dominated by non-native vegetation although some native rushes (*Juncus spp.*) were also present. The native rushes did not meet the 25% cover threshold to be considered a remnant patch. A culvert crossing is present at this location. The waterway provides low quality habitat for aquatic fauna, however, given its degraded and highly modified condition, is unlikely to support threatened species.

## 3.2 Habitat for Threatened Flora and Fauna

No threatened fauna species were identified during the current assessment. One state-listed flora species was noted during the field assessment; Fragrant Saltbush. Fragrant Saltbush is listed as Rare on the *Advisory list of rare and threatened plants in Victoria* (DEPI, 2014). This species was detected within patches of Plains Woodland in the Kerrs Road survey area where it is locally common.

A number of *Flora and Fauna Guarantee Act 1988* (FFG Act) protected flora species are present within the additional areas, including Gold-dust Wattle, Wirilda and Golden Wattle. The FFG-listed community Western (Basalt) Plains Grassland is also present within the Ballan Loop area.

It is considered that habitat identified at Kerrs Road, may provide foraging habitat for the Swift Parrot (*Lathamus discolor*). The majority of the habitat is located outside of the survey area, with only 0.49 ha identified within the survey area. The Swift Parrot is migratory, breeding in Tasmania in spring and then moving to mainland Australia in autumn for the non-breeding season (TSSC, 2016). Large Yellow Gum and Grey Box recorded at Kerrs Road provide suitable feeding trees for the parrot. Golden Wattle, also a favoured species of the Parrot was also identified within the area. Two annual censuses (May and August) are conducted for Swift Parrot across eastern Australia. Based on the results of these censuses the surrounding area has not been utilised by the Swift Parrot as key habitat in recent years (DELWP, 2017; TSSC, 2016; BirdLife Australia, 2016). Rather the trees present may be used occasionally by the species; it is known that the species disperses widely on the mainland, as they follow the blossoming of various Eucalypt species (DSE, 2003).

To preserve potential foraging resources, it is recommended that the three habitat trees identified within the corridor should be prioritised for retention. If the removal of any of these three trees is unavoidable the removal will be conducted outside of when the Swift Parrot is present in Victoria from May through to August. Pre-clearance surveys should be completed prior to removal of trees.

Although the preferred food plant (Wallaby Grass) of Golden Sun Moth was detected, the patches in which these grasses provided more than 5% vegetative cover were limited in size (<0.05 ha) and surrounded by highly modified, unsuitable pasture areas. No areas were detected where non-native food plant species, including Chilean and Texan Needle-grasses, were dominant within the survey area.

One waterway was identified within survey area, an unnamed waterway within the Warrenheip duplication area. This waterway is not considered to provide suitable habitat for the Growling Grass Frog. The Growling Grass Frog requires deep permanent pools with a variety of vegetation, including floating vegetation. These habitat attributes were not present at either waterway. Another important factor in determining the presence of Growling Grass Frogs is the presence of populations of Growling Grass Frogs in close proximity (DEWHA, 2009). As part of the preliminary ecological assessment, EHP (2017) completed targeted surveys for Growling Grass Frogs across the broader study area. No evidence of Growling Grass Frogs was detected.

Given that throughout the remainder of the survey areas native vegetation patches are generally small, degraded, and isolated, it is considered unlikely that the additional areas provide suitable habitat for any threatened flora and fauna species. Whilst this finding does not preclude threatened species being found in the patches assessed, the highly modified condition of the surrounding environment means that it is highly unlikely that significant populations of threatened species would utilise the native vegetation that is present in the additional areas.

No additional targeted survey for threatened flora or fauna is recommended for the areas assessed. This is based on the results of previous targeted survey completed by EHP (2017) that did not detect any threatened fauna species within the project area and that grassland patches identified during the current field assessment are small, degraded, and isolated. As such it is considered unlikely that the survey area assessed in the current report provides suitable habitat for threatened flora and fauna species to persist within the landscape.

### 3.3 Significant Weeds

Six noxious weed species were identified within the survey areas. Species listed under the CaLP Act and their classification (AV, 2017) is listed in Table 3.1. Mitigation measures are recommended to be implemented to prevent the spread and establishment of noxious weed species.

**TABLE 3.1 LISTED NOXIOUS WEED SPECIES IDENTIFIED WITHIN THE SURVEY AREA**

COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION (CALP)
African Boxthorn	<i>Lycium ferocissimum</i>	Regionally Controlled
Bridal Creeper	<i>Asparagus asparagoides</i>	Regionally Controlled
Gorse	<i>Ulex europaeus</i>	Regionally Controlled
Prickly Pear	<i>Prickly Pear (Opuntia spp.)</i>	Regionally Controlled
Serrated Tussock	<i>Nassella trichotoma</i>	Restricted
Spear Thistle	<i>Cirsium vulgare</i>	Regionally Controlled

## 3.4 Summary of Ecological Values Identified with Survey Area

The field assessment found that vegetation within the additional areas is generally degraded and dominated by exotic species. However, some ecological values were identified. Table 3.2 summarises the ecological values identified within the survey area during the current assessment.

**TABLE 3.2 SUMMARY OF ECOLOGICAL VALUES IDENTIFIED WITHIN THE SURVEY AREA**

PROJECT ELEMENT	EVC	WITHIN SURVEY AREA	MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE
Kerrs Road Stabling	Plains Woodland (EVC 803)	1.561 ha	No. Potential foraging habitat for the Swift Parrot was identified within and adjacent to the survey area (0.49 ha within the survey area). Identified habitat features (namely habitat trees) are to be retained. Clearing of vegetation from the patch of potential foraging habitat will be minor, where required. Should smaller trees, not identified as habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler.  The minor removal of vegetation associated with the project at this location will not constitute a significant impact under the EPBC Act.
	Scattered Trees	8	
Rowsley Stabling	Plains Woodland (EVC 803)	0.236 ha	No
	Scattered Trees	3	
Ballan Loop	Plains Grassy Woodland (EVC 55)	0.026 ha	No
	Plains Grassland (EVC 132-51) <sup>1</sup>	0.048 ha	
	Scattered Trees	3	

<sup>1</sup> Synonymous with the FFG-listed community Western (Basalt) Plains Grassland

## 4 Conclusions

A flora and fauna assessment of four additional areas (survey area), Kerrs Road Stabling, Rowsley Stabling, Ballan Loop and Warrenheip Duplication has been conducted to identify ecological values within these areas where construction activities may occur as part of Ballarat Line Upgrade. The areas were assessed to determine the presence of native vegetation, threatened ecological communities and habitat for threatened flora and fauna species.

Vegetation within the survey area addressed in this assessment is generally degraded and dominated by exotic species. The scattered presence of native species, providing less than the 25% cover threshold to qualify as a patch is generally characteristic of vegetation throughout the study area. Scattered trees and small, low quality patches of Plains Grassland, Plains Woodland and Plains Grassy Woodland are present as summarised below. Due to the small size and degraded condition of these patches, it is unlikely that they provide suitable habitat for any threatened flora and fauna.

- Plains Grassland (EVC 132-51) detected in two patches comprising 0.048 ha. The Habitat Hectare score for these patches ranged from 23 to 29 and all patches are considered to form the FFG listed community Western (Basalt) Plains Grassland. No patches meet the criteria to be considered the EPBC listed community Natural Temperate Grassland of the Victorian Volcanic Plain;
- Plains Woodland (EVC 803) was detected in 12 patches comprising 1.797 ha and included areas dominated by Grey box as well as derived grasslands where the tree layer had been removed. This community supported the rare (Vic.Adv.) species Fragrant Saltbush that was locally common in the area. The Habitat Hectare score varied from 16 to 48. No patches meet the criteria to be considered the EPBC listed community Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia;
- Plains Grassy Woodland (EVC 55) was detected as patches of naturally occurring Blackwood trees over an exotic ground layer, detected in four patches comprising 0.026 ha. These areas did not constitute any threatened community;
- Foraging habitat for the Swift Parrot is present in areas of Plains Woodland identified to the north of Kerrs Road. Mitigation measures will be implemented to minimise any impact to foraging resources within the project area. The area is not considered a critical feeding resource for the Swift Parrot, and so minor removal of vegetation at this location outside of the foraging season will not constitute a significant impact under the EPBC Act;
- No other habitat considered suitable for threatened species listed under the FFG or EPBC Acts was detected within the assessed survey area;
- Three FFG Act protected flora species have been identified within the additional areas including Gold-dust Wattle, Wirilda and Golden wattle.
- Six noxious weeds listed under the CALP Act were detected throughout the assessed survey area and appropriate weed control measures will be required during the construction phase of the project.

The actual extent of removal of native vegetation across the entire project area will be determined in conjunction with the findings of the EHP (2017) report and with consideration of the final project construction footprint (which is yet to be determined). However, based on the findings of this assessment, it is not considered that impacts to the ecological values identified within this report would be considered significant. The results of the assessment will inform subsequent design discussions, with ecological values avoided where possible given other design constraints.

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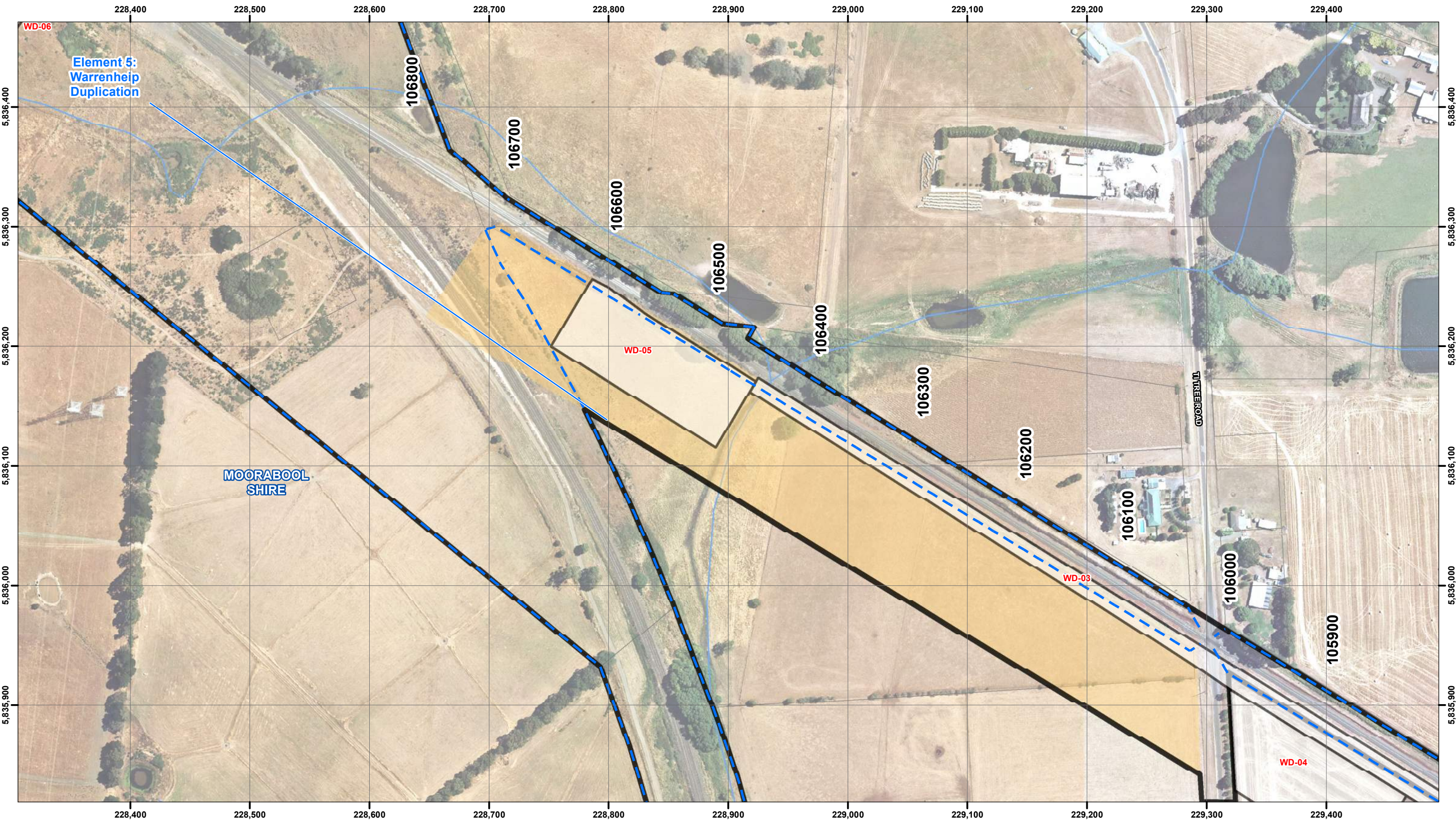
Appendix A

# Ecology Field Mapping



# Appendix A





### Legend

Rail Station	<b>Remnant Vegetation</b>	Plains Grassy Wetland
Watercourse	Creekline Grassy Woodland	Plains Grassy Woodland
VicTrack Reserve boundary	Lignum Swamp	Plains Woodland
Secondary Construction Areas	Plains Grassland	Tall Marsh
Proposed Project Area (Impacted Area)	<b>Surveyed Tree</b>	Scattered Tree
Survey area		
LGA boundary		

### Map 1 of 8

**MELBOURNE METRO RAIL AUTHORITY**

**aurecon**

**JACOBS**

**AJM**  
Joint Venture

**MOTT MACDONALD**

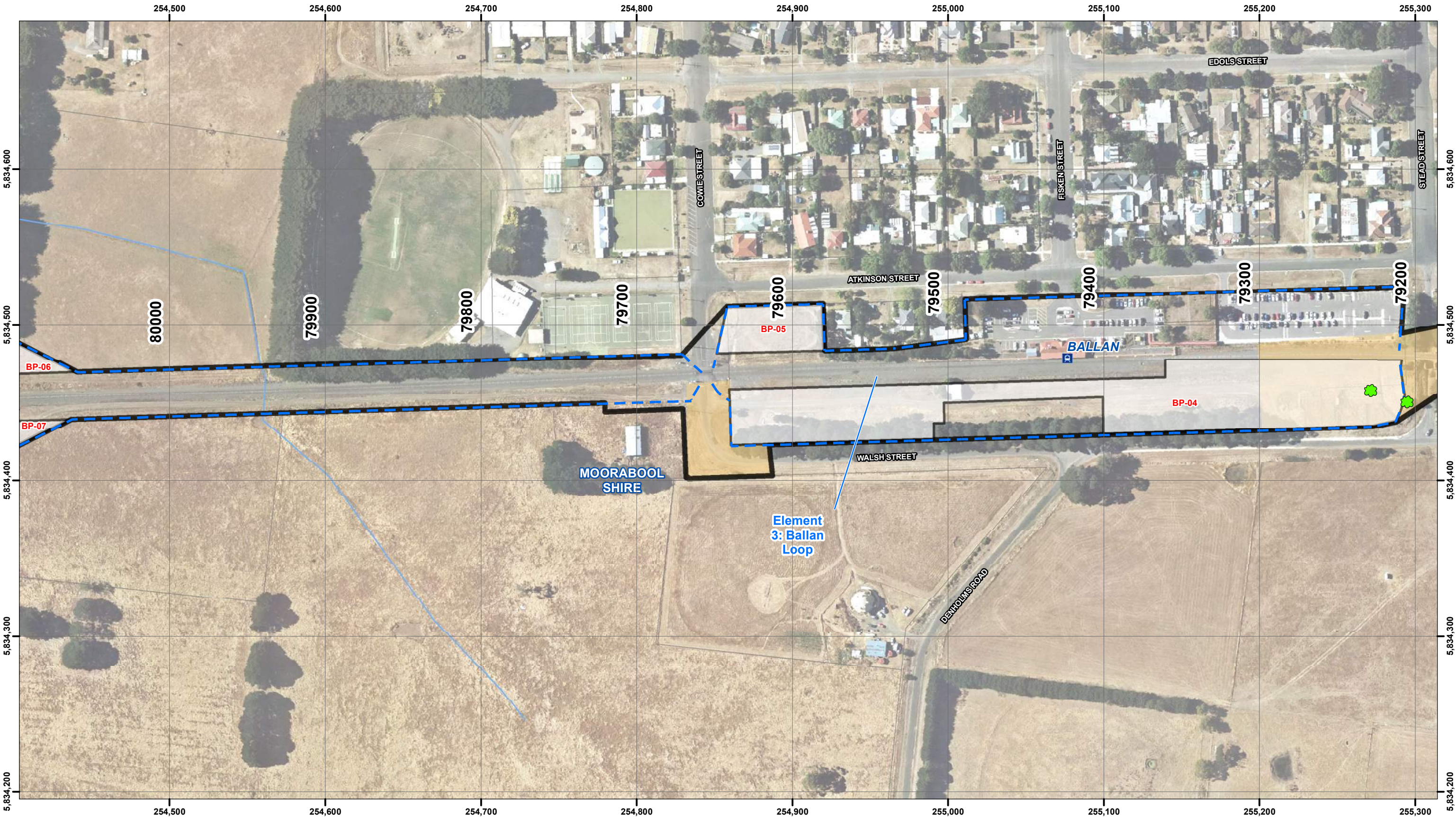
### Ballarat Line Upgrade Project

Ecology Field Mapping - Additional Areas

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Drawn By: A. Berman	Approved By: A. Michael	Date: 27/06/2017	Map Size: A3

Coordinate System: GDA 1994 MGA Zone 55





### Legend

Rail Station

Watercourse

VicTrack Reserve boundary

Secondary Construction Areas

Proposed Project Area (Impacted Area)

Survey area

LGA boundary

#### Remnant Vegetation

Creekline Grassy Woodland

Lignum Swamp

Plains Grassland

Plains Grassy Wetland

Plains Grassy Woodland

Plains Woodland

Tall Marsh

#### Surveyed Tree

Scattered Tree

### Map 2 of 8

Data Sources:  
Reference Design: 22/02/2017  
Vicmap 2016  
VicTrack 2017  
EHP: 25/01/2017  
Aerial photo: DELWP 2016

**MELBOURNE METRO RAIL**  
AUTHORITY

**aurecon**

**JACOBS**

**AJM**  
Joint Venture

**MOTT MACDONALD**

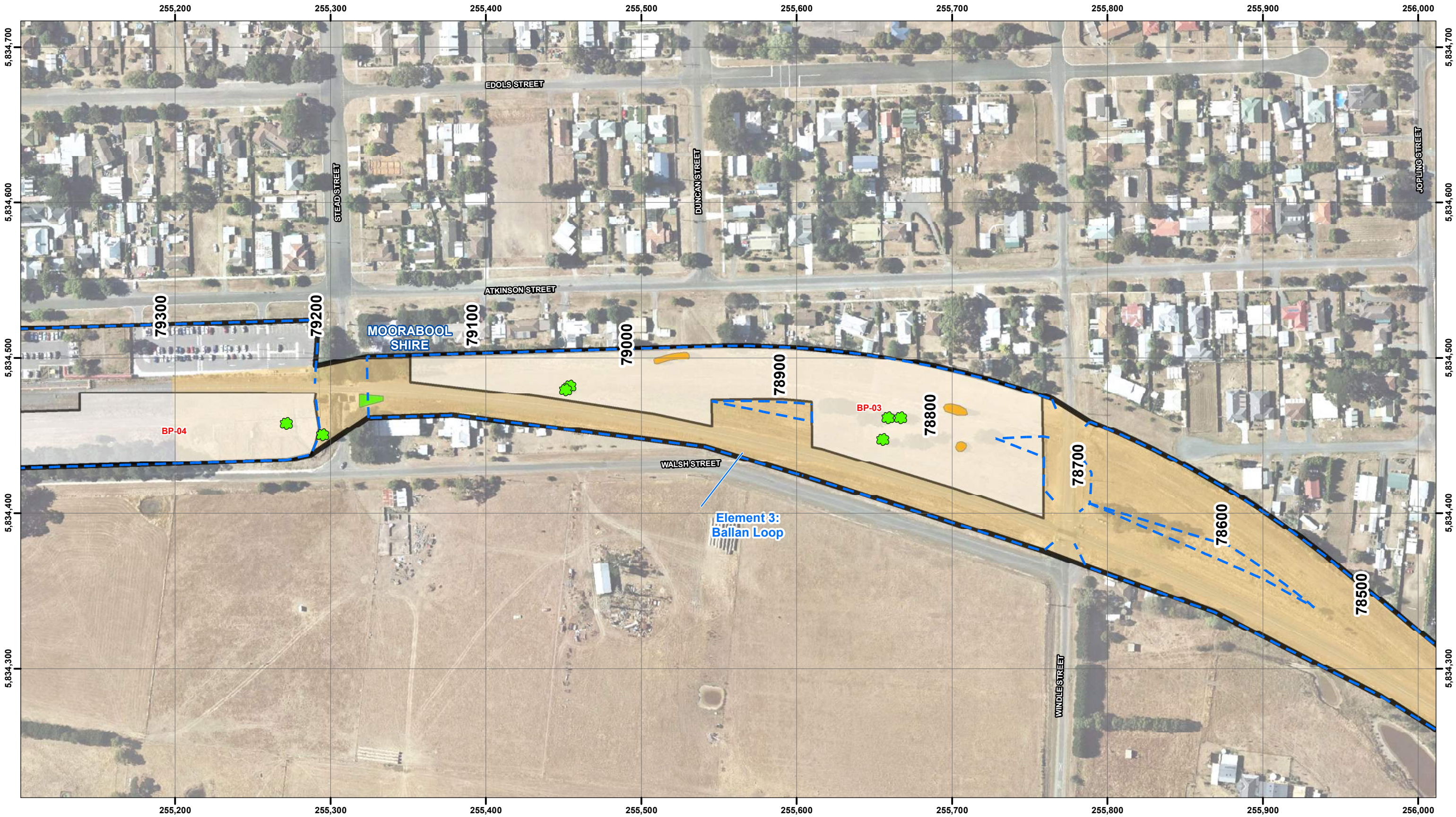
### Ballarat Line Upgrade Project

#### Ecology Field Mapping - Additional Areas

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BLU-AJM-PWAA-MP-NF-600052		P1.4	
Drawn By:	Approved By:	Date:	Map Size:
A. Berman	A. Michael	27/06/2017	A3

Coordinate System: GDA 1994 MGA Zone 55





### Legend

Rail Station

VicTrack Reserve boundary

Secondary Construction Areas

Proposed Project Area (Impacted Area)

Survey area

LGA boundary

#### Remnant Vegetation

Creekline Grassy Woodland

Lignum Swamp

Plains Grassland

Plains Grassy Wetland

Plains Grassy Woodland

Plains Woodland

Tall Marsh

#### Surveyed Tree

Scattered Tree

### Map 3 of 8

Data Sources:  
Reference Design: 22/02/2017  
Vicmap 2016  
VicTrack 2017  
EHP: 25/01/2017  
Aerial photo: DELWP 2016

**MELBOURNE METRO RAIL AUTHORITY**

**aurecon JACOBS**

**AJM MOTT MACDONALD**

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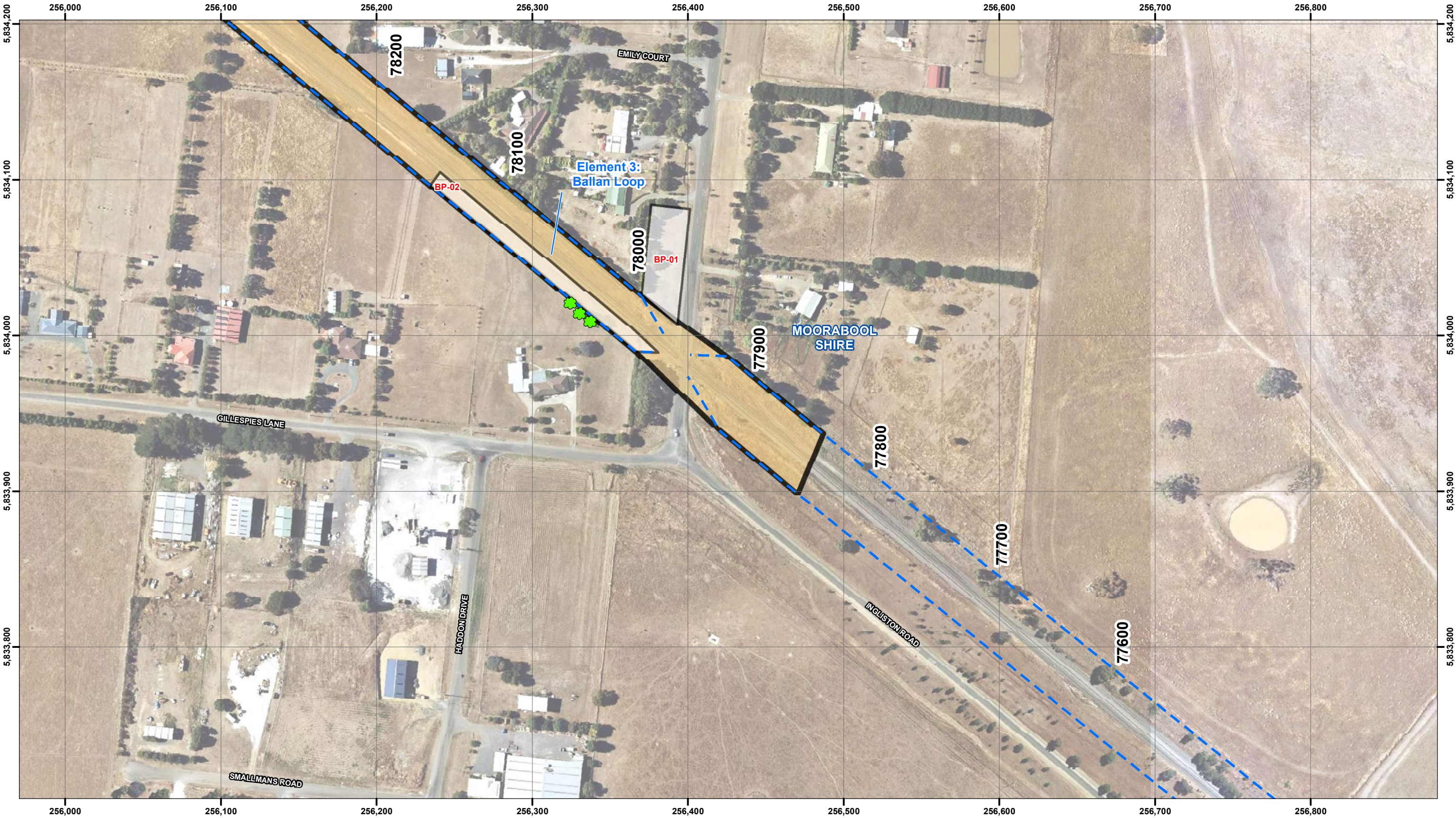
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## Ballarat Line Upgrade Project

### Ecology Field Mapping - Additional Areas

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Drawn By:	Approved By:	Date:	Map Size:
A. Berman	A. Michael	27/06/2017	A3



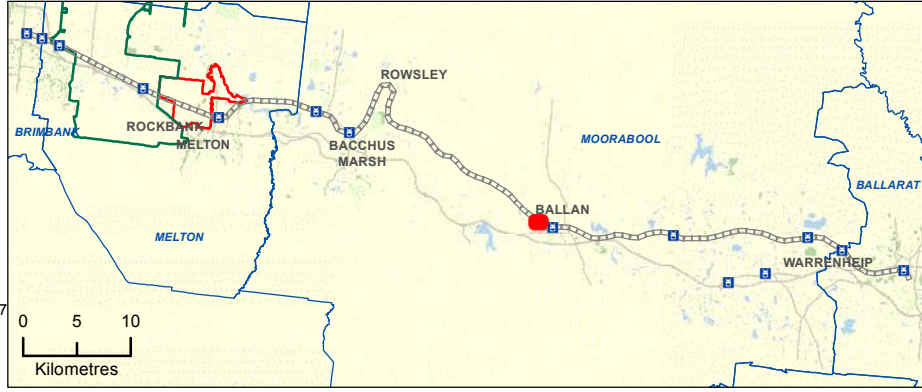


### Legend

- Rail Station
- VicTrack Reserve boundary
- Secondary Construction Areas
- Proposed Project Area (Impacted Area)
- Survey area
- LGA boundary
- Remnant Vegetation**
  - Creekline Grassy Woodland
  - Lignum Swamp
  - Plains Grassland
  - Plains Grassy Wetland
  - Plains Grassy Woodland
  - Plains Woodland
  - Tall Marsh
- Surveyed Tree**
  - Scattered Tree

### Map 4 of 8

Data Sources:  
Reference Design: 22/02/2017  
Vicmap 2016  
VicTrack 2017  
EHP: 25/01/2017  
Aerial photo: DELWP 2016



### Ballarat Line Upgrade Project

#### Ecology Field Mapping - Additional Areas

Drawing Number:		Revision:	
BLU-AJM-PWAA-MP-NF-600052		P1.4	
Drawn By:	Approved By:	Date:	Map Size:
A. Berman	A. Michael	27/06/2017	A3



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Metres  
Coordinate System: GDA 1994 MGA Zone 55





**Legend**

- |                                       |                           |                        |
|---------------------------------------|---------------------------|------------------------|
| Rail Station                          | <b>Remnant Vegetation</b> | Plains Grassy Wetland  |
| VicTrack Reserve boundary             | Creekline Grassy Woodland | Plains Grassy Woodland |
| Secondary Construction Areas          | Lignum Swamp              | Plains Woodland        |
| Proposed Project Area (Impacted Area) | Plains Grassland          | Tall Marsh             |
| Survey area                           |                           | <b>Surveyed Tree</b>   |
| LGA boundary                          |                           | Scattered Tree         |

**Map 5 of 8**

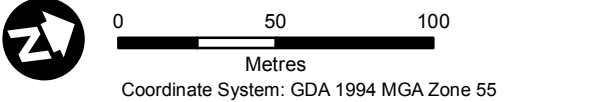
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Aerial photo: DELWP 2016



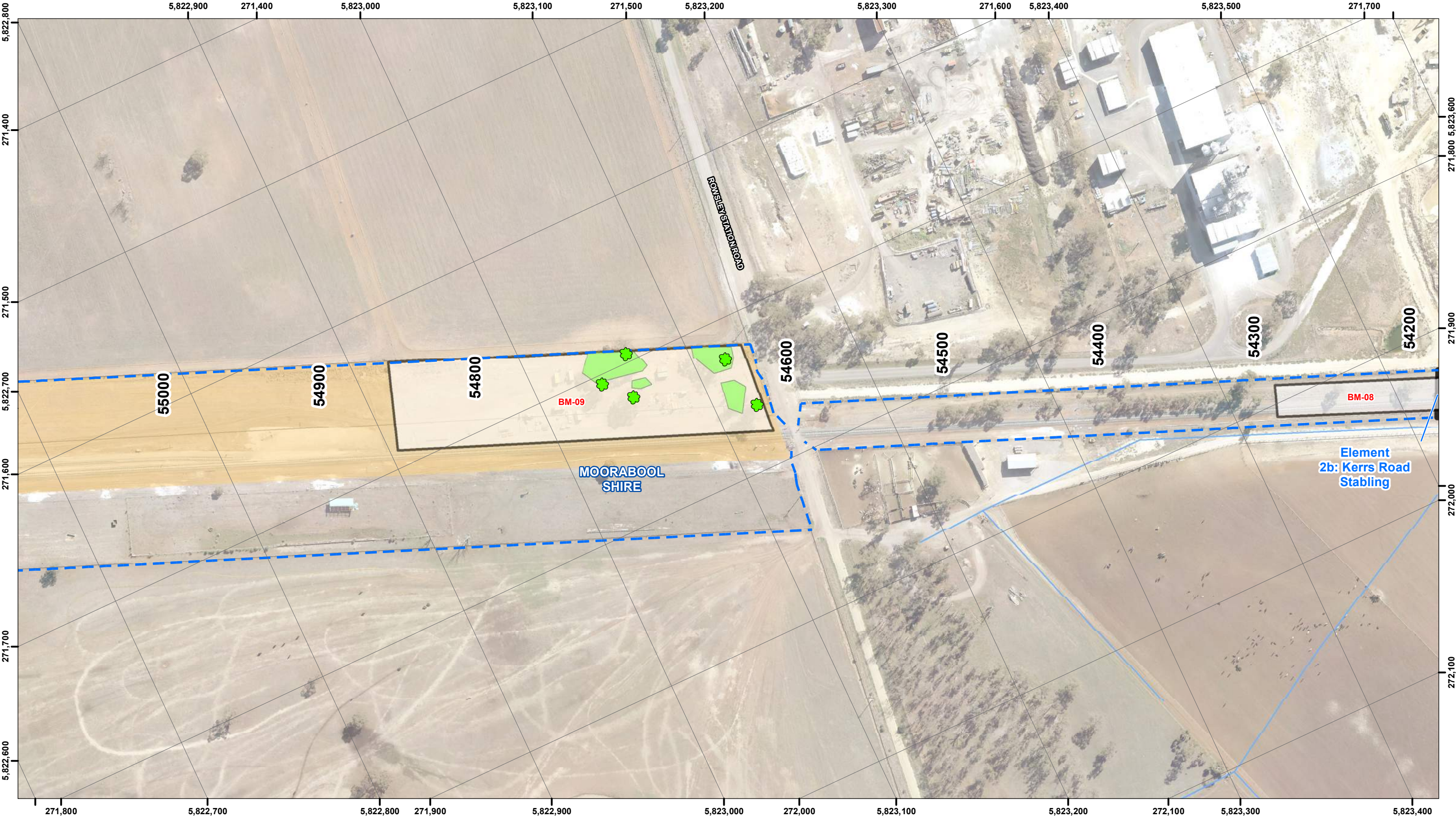
**Ballarat Line Upgrade Project**

**Ecology Field Mapping - Additional Areas**

Drawing Number: BLU-AJM-PWAA-MP-NF-600052		Revision: P1.4	
Drawn By: A. Berman	Approved By: A. Michael	Date: 27/06/2017	Map Size: A3







**Legend**

- Rail Station
- Watercourse
- VicTrack Reserve boundary
- Secondary Construction Areas
- Proposed Project Area (Impacted Area)
- Survey area
- LGA boundary

**Remnant Vegetation**

- Creekline Grassy Woodland
- Lignum Swamp
- Plains Grassland
- Plains Grassy Wetland
- Plains Grassy Woodland
- Plains Woodland
- Tall Marsh

**Surveyed Tree**

- Scattered Tree

**Map 6 of 8**

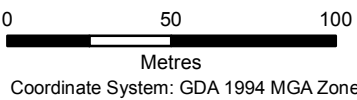
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**Ballarat Line Upgrade Project**

**Ecology Field Mapping - Additional Areas**

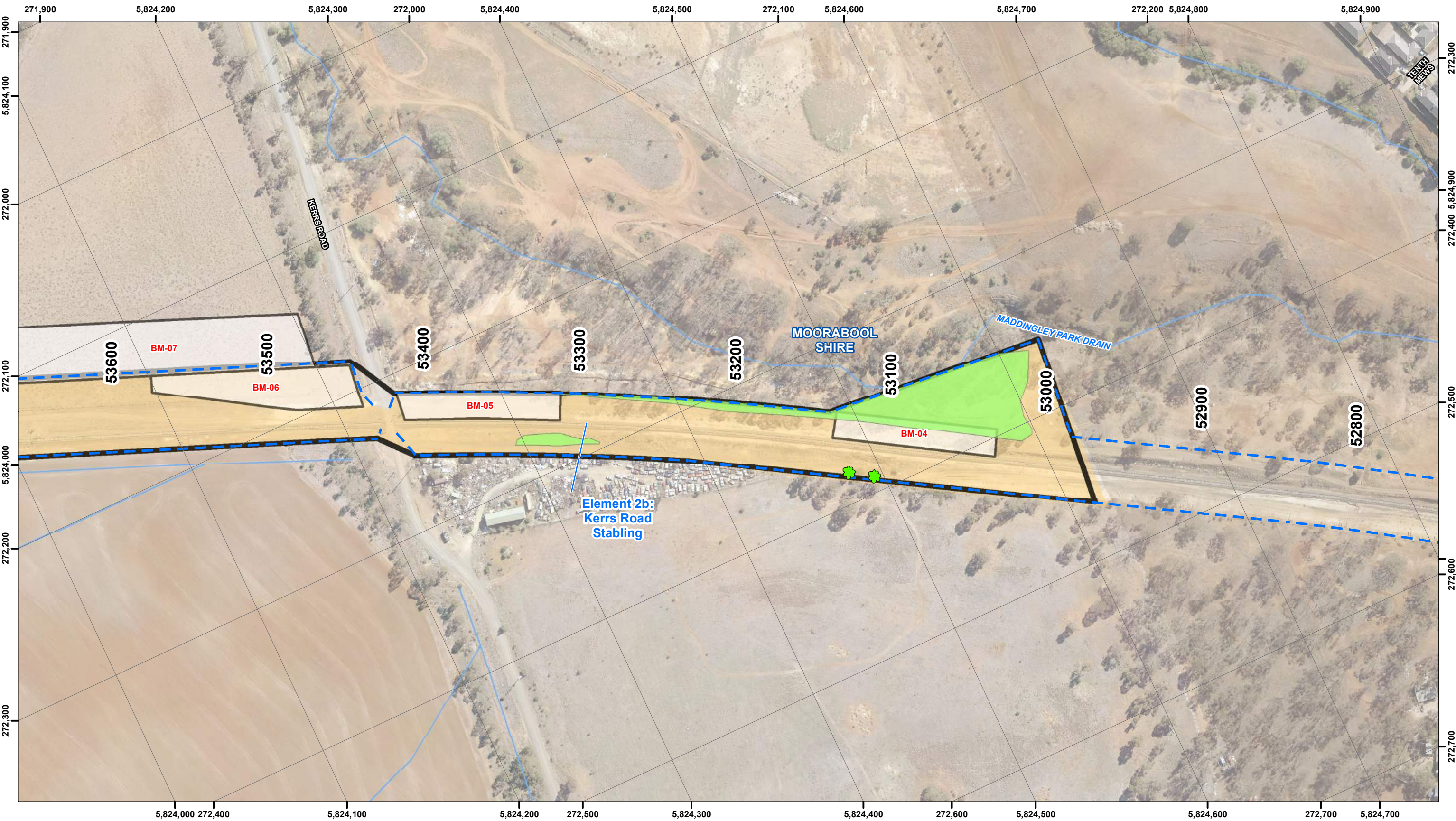
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Drawn By:	Approved By:	Date:	Map Size:
A. Berman	A. Michael	27/06/2017	A3











### Legend

Rail Station

Watercourse

VicTrack Reserve boundary

Secondary Construction Areas

Proposed Project Area (Impacted Area)

Survey area

LGA boundary

#### Remnant Vegetation

Creekline Grassy Woodland

Lignum Swamp

Plains Grassy Wetland

Plains Grassy Woodland

Plains Woodland

Tall Marsh

#### Surveyed Tree

Scattered Tree

### Map 8 of 8

Data Sources:  
Reference Design: 22/02/2017  
Vicmap 2016  
VicTrack 2017  
EHP: 25/01/2017  
Aerial photo: DELWP 2016

### Ballarat Line Upgrade Project

#### Ecology Field Mapping - Additional Areas

Drawing Number:		Revision:	
BLU-AJM-PWAA-MP-NF-600052		P1.4	
Drawn By:	Approved By:	Date:	Map Size:
A. Berman	A. Michael	27/06/2017	A3

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