# Parwan Employment Precinct (PEP)

## Landscape and Visual Character Assessment

Prepared for Victorian Planning Authority

Tract

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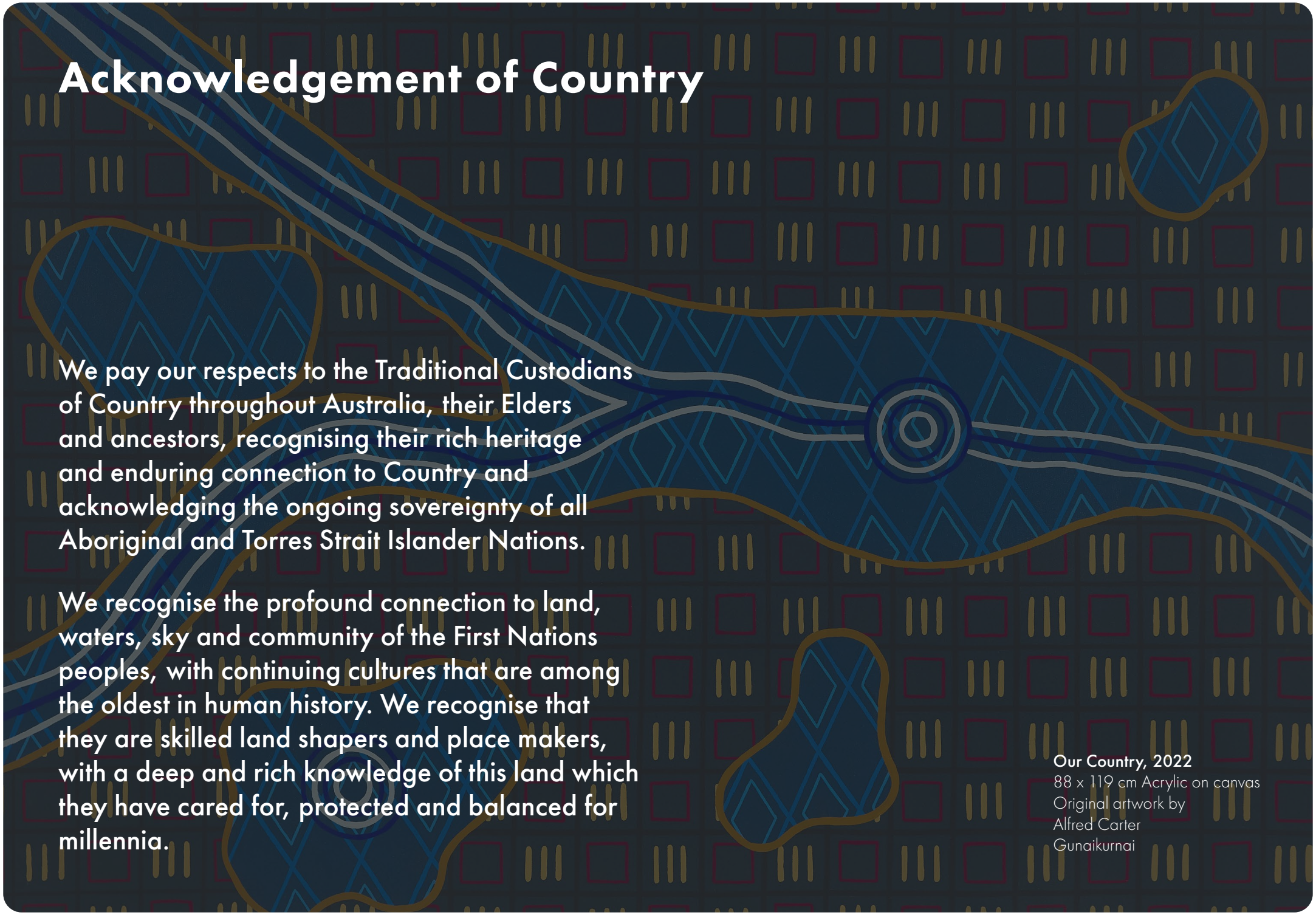
# Acknowledgement of Country

We pay our respects to the Traditional Custodians of Country throughout Australia, their Elders and ancestors, recognising their rich heritage and enduring connection to Country and acknowledging the ongoing sovereignty of all Aboriginal and Torres Strait Islander Nations.

We recognise the profound connection to land, waters, sky and community of the First Nations peoples, with continuing cultures that are among the oldest in human history. We recognise that they are skilled land shapers and place makers, with a deep and rich knowledge of this land which they have cared for, protected and balanced for millennia.



**Our Country, 2022**
88 x 119 cm Acrylic on canvas
Original artwork by
Alfred Carter
Gunaikurnai

# Quality Assurance

**Parwan Employment Precinct (PEP)**
Landscape and Visual Character Assessment
Parwan Employment Precinct (PEP) Framework

**Prepared for**
Victorian Planning Authority

**Project Number**
322-0740-00-L-01-RP02

**Revisions**

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| 01 | 17 July 2023 | Draft | AvdW & IV | MR | MN |
| 02 | 5 October 2023 | Final Report | IV | MR | MN |

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# 1 Introduction

## 1.1 Introduction

This study provides a Landscape Character Assessment of an identified study area referred to as the 'Parwan Employment Precinct (PEP)' within its regional and local context.

The purpose of this assessment process is to understand the existing landscape and visual conditions and to identify the opportunities and constraints of the Precinct. The recommendations identified will then be used to inform the PEP Landscape Framework, which is intended to guide future decision making in the development of the Precinct Structure Plan.

The report is intended to be used by the VPA as well as developers to inform development patterns, site characteristics and connections to the broader landscape setting.

The study methodology is illustrated below in Figure 1.

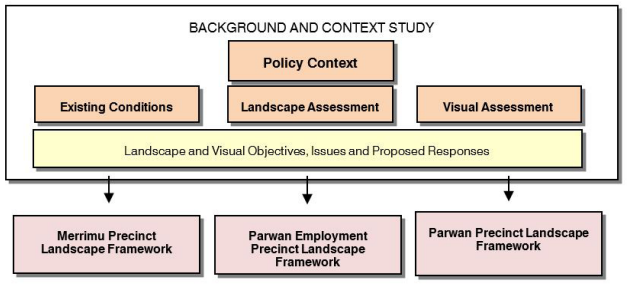


**Figure 1.** Study Approach

## 1.2 Study Approach

The approach adopted for this study was to first understand and assess the study area on a regional scale as a Background Report (Merrimu, Parwan and Parwan Employment Precincts – Background and Context Study,2023).

The background report provided a general understanding of the Precinct and contextual surrounds, while this report provides Precinct specific summary of relevant findings within:

- Section 2: Planning policy & strategic context
- Section 3: Existing conditions
- Section 4: Landscape character & scenic quality
- Section 5: Visual assessment

The assessment of the Precinct's condition has been developed into specific recommendations for PEP as landscape and visual Opportunities and Constraints.

- Section 6: Opportunities and Constraints
- Section 7: Framework Plan

A dedicated Landscape Framework for the precinct has then been provided. The Framework includes landscape and visual objectives, a Framework Plan and a series of supporting Strategies and Guidelines to guide future decision making.

## 1.3 Study Area

The Parwan Employment Precinct (PEP) is located to the south of the Bacchus Marsh town centre (shown in Figure 2), it will cover an area of approximately 2,480ha, incorporating over 80 separate properties including the existing Bacchus Marsh aerodrome.

The PEP has the potential to be a regionally significant employment hub for agribusiness and also a range of mainly vertically integrated businesses that will drive local prosperity and employment growth. Benefits include its position away from residential uses, proximity to the Bacchus Marsh Irrigation District and access to the freeway.

Most of the land within the precinct is currently used for agriculture and rural residential uses, with isolated special use businesses that include the Bacchus Marsh Aerodrome, Parwan Valley Mushrooms, Genetics Australia, Graeme Spargo Transport, two broiler farms, the Western Water Recycled Water Plant and the Sir Jack Brabham Park motor sport complex.

The separate Parwan Precinct area is located immediately north of the Parwan Employment Precinct and while sharing a number of the features of the Parwan Employment Precinct landscape, is subject to separate site planning and land use guidelines.

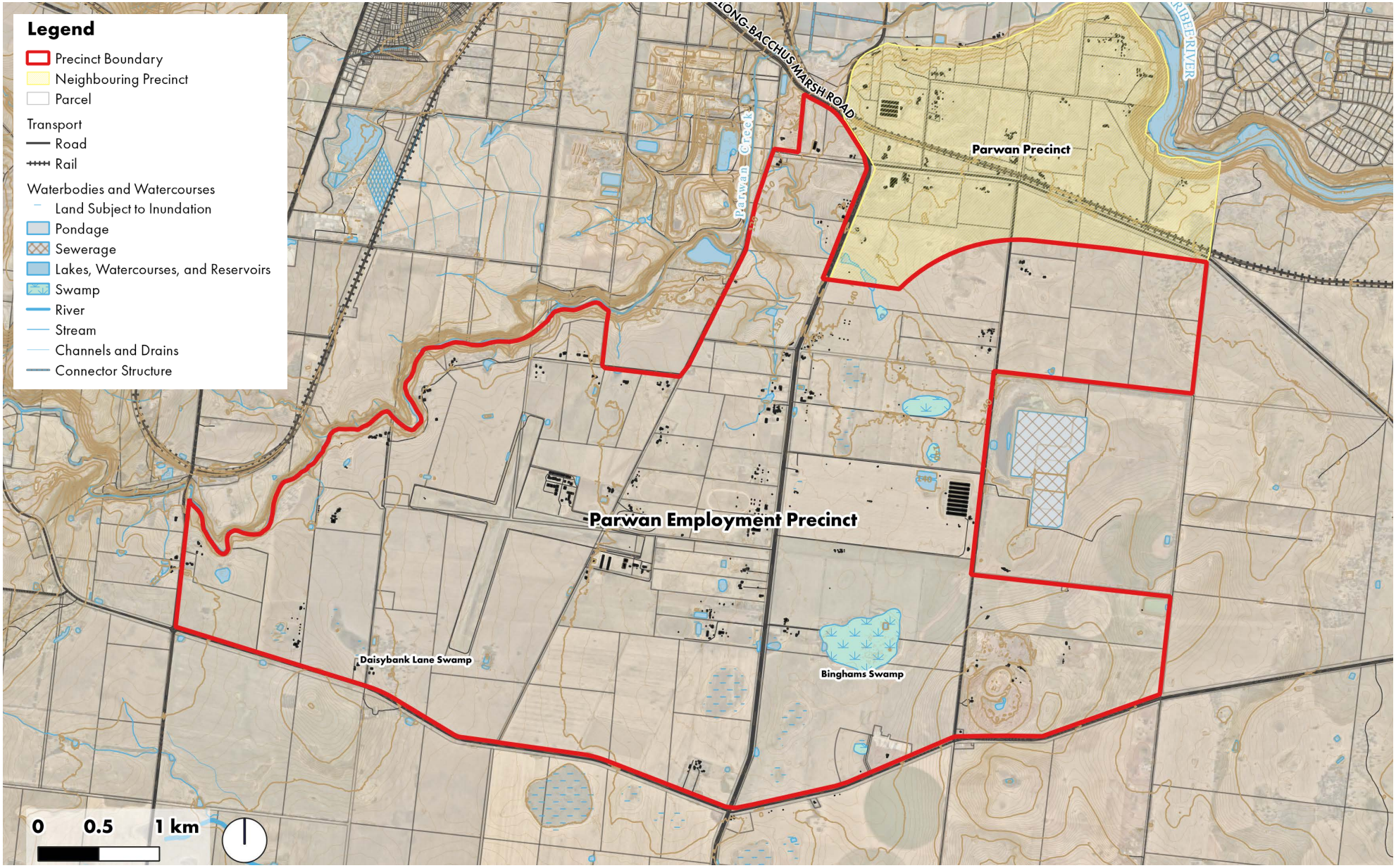


**Figure 2.** Parwan Employment Precinct - Boundary

# 2 Planning Policy, Strategic Context and Major Projects

The purpose of this section is to identify the policies, planning controls that can inform or provide an appropriate reference for the assessment of landscape values.

## 2.1 Policy Context

The Parwan Employment Precinct (PEP) is located to the south of the Bacchus Marsh town centre. The following relevant planning overlays which apply to the Precinct include:

- AEO1 - To ensure that land use and development are compatible with the operation of airports in accordance with the appropriate airport strategy or master plan and with safe air navigation for aircraft approaching and departing the airfield.
- DDO2 - protects the visual amenity in rural, township and vegetated areas.
- ESO2 - protects waterways for 100m on either side thereof through conservation / appropriate uses.
- SLO1 - protects the natural scenic qualities of the hilltops and ridge line areas
- LSIO - protects waterways within the 1:100-year flood zones and other flood prone areas, ensured flood passage and improves floodplain health.

The following strategic context plans relevant for the PEP include:

- Bacchus Marsh Urban Growth Framework (2018)
- PEP Key Issues and Opportunities Paper (2022)

### 2.1.1 Bacchus Marsh Urban Growth Framework (Victorian Planning Authority, 2018)

The vision for the future of Bacchus Marsh as per this Urban Growth Framework, states:

> *"Parwan is suited not to a single agribusiness, but rather a range of mainly vertically integrated businesses that will drive local prosperity and employment growth. Likely occupiers include meat processing, feed lot/saleyards, mushrooms, poultry, hydroponics and associated co-located industries."*

Relevant precinct planning principles are listed below. These principles will be considered as part of the approach to the Landscape and Visual Framework:

- Determine an appropriate road network that considers the Eastern Link Road in consultation with VicRoads.
- Ensure continued operation of Bacchus Marsh Aerodrome and investigate opportunities for private development.
- Encourage large lots of sufficient size to enable flexibility to accommodate new business.
- Prepare a land use amenity plan to provide appropriate buffers to sensitive uses and avoid incompatible land uses.

- Consider precinct-based amenity forms, such as landscaping and bunds, fences and vegetation.
- Prepare design guidelines to create an identity for the PEP, provide a cohesive built form and landscaping theme and protect amenity. Incorporate the wetlands area into an open space network.
- Identify new public open space networks (incorporating environmental values/features, biolinks and cycling/walking trail networks), and show how these integrate with existing/proposed networks beyond the precinct.
- Respond to bushfire risk by undertaking a detailed assessment of bushfire risk, in Bushfire Prone Areas and Bushfire Management Overlay areas, in accordance with State Planning Policy Framework Clause 13.05.
- Provide for sustainable water management in accordance with an Integrated Water Management Plan.
- Define the northern precinct boundary with applicable buffers.

According to the Bacchus Marsh Urban Growth Framework (Victorian Planning Authority, 2018), the vision for the Parwan Employment Precinct is:

- "The PEP holds significant economic and employment growth potential for Bacchus Marsh, with the ability to attract high levels of new industrial investment. To achieve this, it must be serviced, protected against residential encroachment, and properly marketed."
- "It has the capacity to accommodate value-add and high amenity impact businesses, particularly those seeking to relocate to more affordable and unencumbered land close to the metropolitan area."
- "This land is most suited to agriculture and related uses due to its soil quality, proximity to the BMID and ability to be serviced with potable or non-potable water depending on industry needs and availability of supply."
- "Paramount to the success of the PEP is the improvement of connections to the Western Freeway. Second to this is provision of the essential services of gas and water, including recycled water if available. The Bacchus Marsh Aerodrome, located within the precinct, should be utilised for its ability to support surrounding agricultural uses and tourism opportunities."

According to the Parwan Employment Precinct Wadawurrung Country Precinct Structure Plan Key Issues and opportunities (Victorian Planning Authority, 2022):

- "The PEP has the potential to be a regionally significant employment hub for agribusiness and also a range of mainly vertically integrated businesses that will drive local prosperity and employment growth. Benefits include its position away from residential uses, proximity to the Bacchus Marsh Irrigation District and access to the freeway."

### 2.1.2 Parwan Employment Precinct Key Issues and Opportunities (Victorian Planning Authority, 2022)

The relevant issues identified in this document are:

- Ecological communities, wetlands and native vegetation of significance will require protection
- Loss of existing landscape and visual amenity in the current rural setting
- Sensitive areas of aboriginal and historic cultural heritage significance should be retained in their current forms and rehabilitated
- Unknown preferred alignment Bacchus Marsh Eastern Link Road (BMELR) location.

## Parwan Lava Caves (WSP Golder 2022) and Sodic Soils

The assessment has identified several potential land constraints for the precinct. This includes the presence of sodic soils and the extent of the Parwan Lava Caves.

The presence of sodic soils may result in additional works during construction stages which can increase the cost of development, including the cost of infrastructure.

A 10m buffer has been applied to the interpreted extent of the Parwan Lava Cave extents and other voids identified by the geophysics survey. This buffer is labelled as a 'cave protection zone'. We consider development outside of this zone unlikely to impact upon the mapped cave. The cave protection zone is not intended to indicate development is not possible in this area. Rather that development in this area needs to be scrutinized and analysed to ensure it does not affect the cave. We expect that light development could be undertaken in this area without causing an impact to the cave.

## Sensitive Use Buffers

A buffer assessment was undertaken by Pacific Environment as part of the Bacchus Marsh Urban Growth Framework. The known buffers are shown in Figure 3.

These buffers will impact and limit the type of development that can occur in these areas and therefore must be taken into consideration as part of the landscape framework.

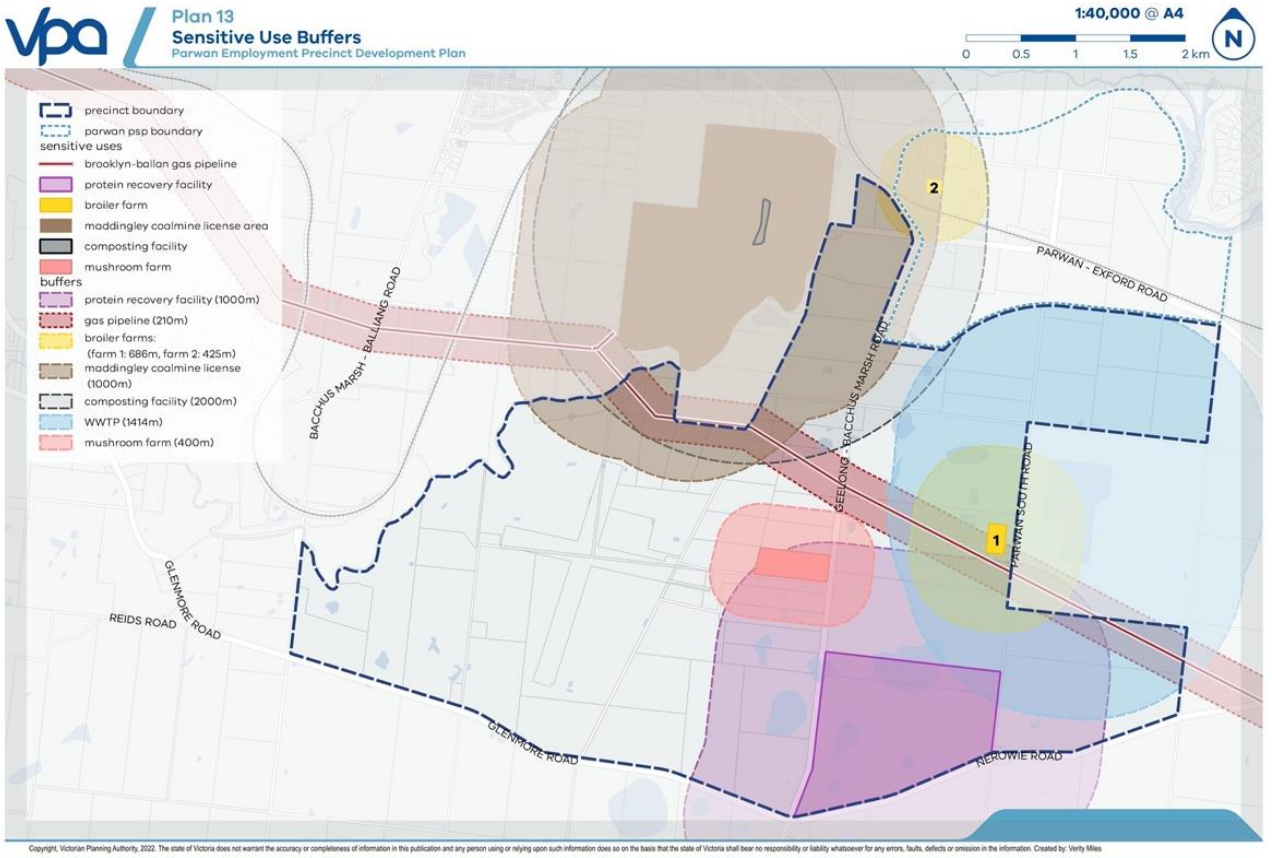


**Figure 3.** Sensitive Use Buffers - VPA

### 2.1.3 Bacchus Marsh Aerodrome Master Plan 2022

This Master Plan provides Moorabool Shire Council (MSC) and Bacchus Marsh Aerodrome Management Inc. (BMAM) with a strategic direction for the future development of Bacchus Marsh Aerodrome. It is a broad strategic document that aims to assist both council and BMAM in their decision-making over the next 20 years. Points that are relevant to the landscape character assessment are the following general guidelines:

- Future use and development should comply with this Master Plan and be compatible with ongoing aerodrome operation;
- Development in any individual precinct should be undertaken in accordance with the detailed precinct development plan;
- Ensure that appropriate utility services are provided for new development;
- Ensure that industrial activities do not produce air emissions that are likely to impact on aviation activities;
- Ensure that buildings do not exceed the heights specified in the established Obstacle Limitation Surfaces (OLS) plan as detailed elsewhere;
- Ensure that neighbouring land uses are not sensitive to aircraft noise (residential uses should generally be discouraged);
- Ensure that land uses and landscaping do not attract wildlife that could be a hazard to aircraft operations;

**Figure 4.** Bacchus Marsh Aerodrome runway

# 3 Existing Conditions

This section provides a summary of the conditions that currently exist within the study area and surrounds, as identified within the Merrimu, Parwan Precinct and Parwan Employment Precincts – Background and Context Study.

The existing conditions have informed the PEP Landscape Framework Plan.

## 3.1 Existing Conditions Summary

### 3.1.1 Geology and Soil

- Sodic and dispersive soils are widespread and prone to erosion, especially when they come into contact with water. This is specifically prevalent on the western edges of the escarpment.
- The ground surface over the plateau included 'basalt outcrops and loose basalt boulders were noted in places...' (Coffey Services Australia Pty Ktd, 2020).
- The Parwan Caves presents risks and significant land constraints.

### 3.1.2 Hydrology, Landform and Slope

- The site is generally flat, with the western part of the site sloping gently towards the north/north-west, and the central part of the site gently slopes to the east.
- The site also slopes towards the Werribee River at the north/north-western site extents.
- The Parwan Creek provides a unique interface with the precinct. The river corridor itself contributes to the amenity of the area
- Binghams Swamp has been identified as an important natural environmental feature, as well as a cultural feature in the local landscape.
- Drainage lines and wetlands are hydrologically sensitive environments.
- Flooding occurs along the Werribee River after prolonged rainfall as well after high intensity events.
- Wetlands represent additional water management structures / opportunities.
- Steep topography (>5%) represents an erosion risk.
- Very flat topography (<1%) does not facilitate runoff and ponding occurs (specific to the wetland on the northern end of the precinct).

### 3.1.3 Vegetation and Biodiversity

- No nationally significant flora was recorded during the field assessments of the accessible land parcels
- Seventy-five (75) flora species (45 indigenous and 30 non-indigenous or introduced) were recorded within the study area on accessible parcels during the field assessment.
- Water dependent riparian and wetland ecosystems are sensitive environments. Many of these are disturbed by land use / invaded by exotics that compromising native vegetation.

Biodiversity Assessment: Parwan Employment and Parwan Precinct Structure Plan (PSP) (VPA/EHP 2022) outlines several features in PEP:

- Large trees in patch located at Binghams Swamp.
- Large and small scattered trees located at the south western corner of the Aerodrome site.
- There is suitable habitat for water-dependent species, including native frogs and waterbirds.
- Scattered trees also provide fauna habitat.

### 3.1.4 Interfaces

- Northern interface with the Parwan Precinct (future mix used and residential)
- Western interface with Parwan Creek
- Interface with arterial roads
- Southern interface with rural residential/agricultural land

### 3.1.5 Land Use

Existing land uses within the PEP are:

- Bacchus Marsh Aerodrome
- The broiler farms on Browns Lane and Geelong Bacchus Marsh Road
- The mushroom farm on Geelong Bacchus Marsh Road
- A protein recovery facility
- Parwan MX Track
- Bacchus Marsh Recycled Water Plant (outside the precinct boundary)

### 3.1.6 Built Form and Settlement

Existing built form mostly consists of argi-industrial buildings and large format sheds.

### 3.1.7 Cultural Heritage

The assessment identified 18 places of interest within the activity area. This included fourteen homesteads, an airfield, quarry, stone fence and a previous school and mechanics institute.

The Former Parwan South (Nerowie) State School No 4175 & Mechanics Institute is a place of local historic significance for its association with the Parwan community.

**Figure 5.** Bacchus Marsh Aerodrome

**Figure 6.** Parwan MX Track


**Figure 7.** Parwan Employment Precinct - Landform and Hydrology

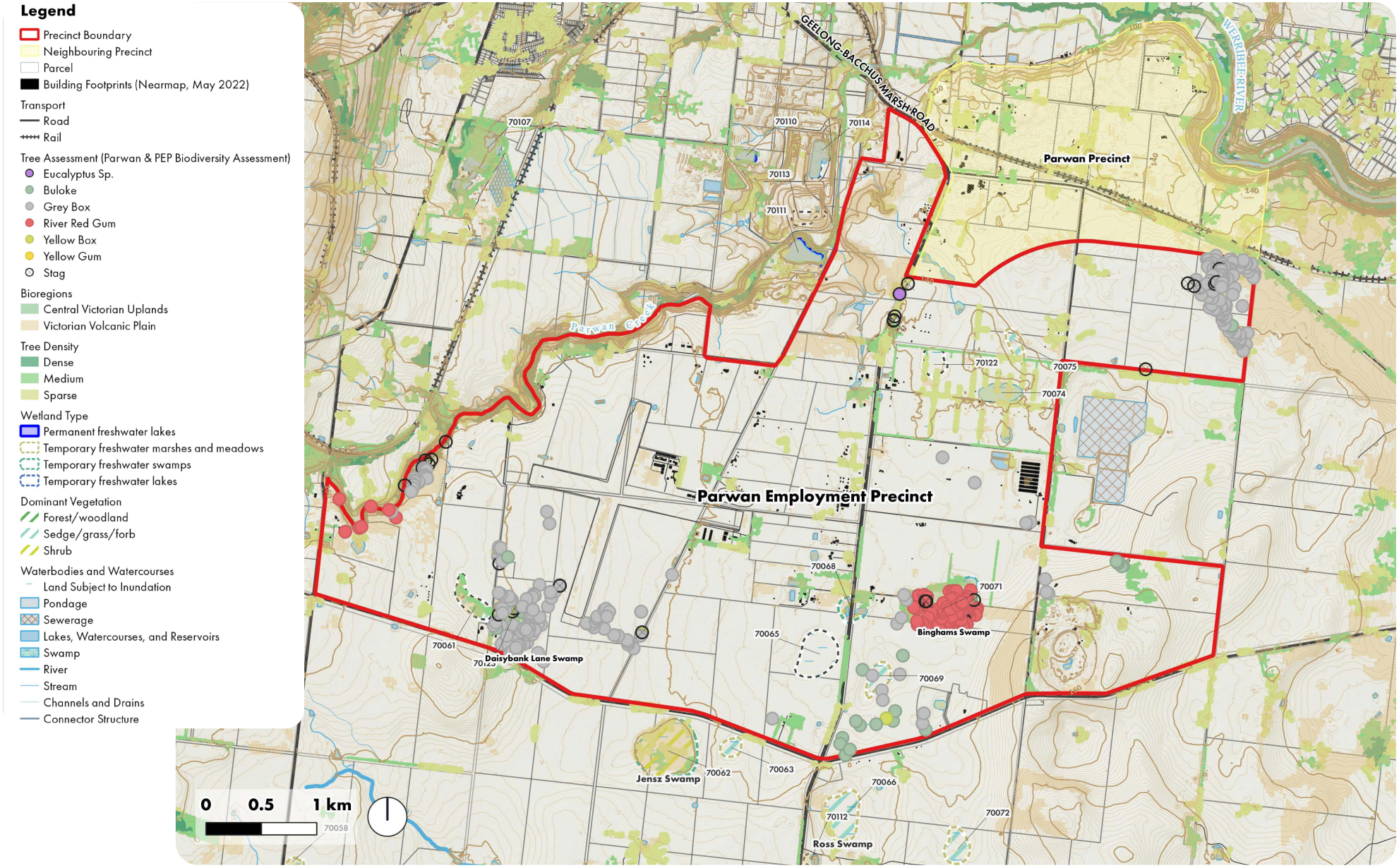


**Figure 8.** Parwan Employment Precinct - Vegetation and Biodiversity

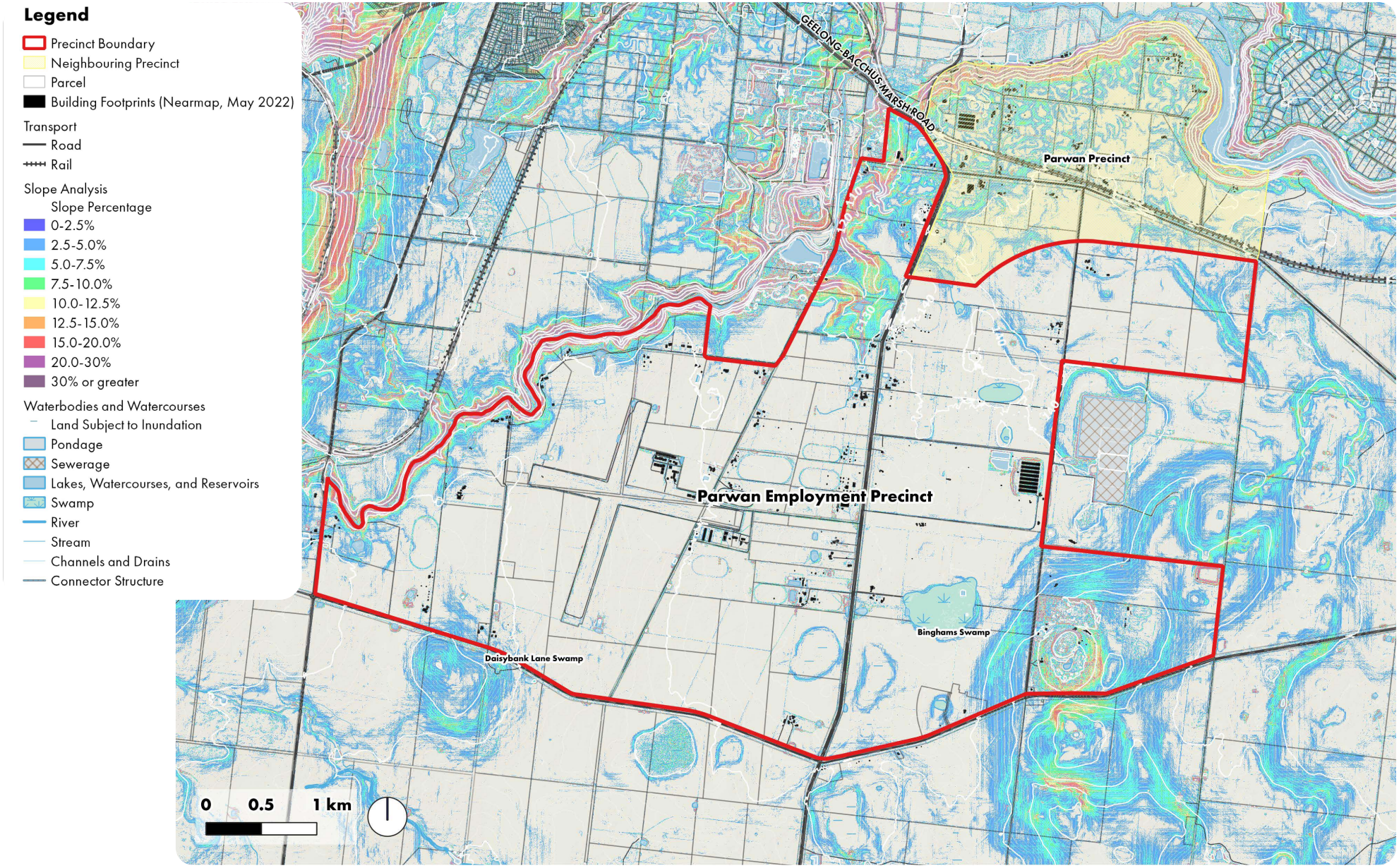


**Figure 9.** Parwan Employment Precinct - Slope analysis

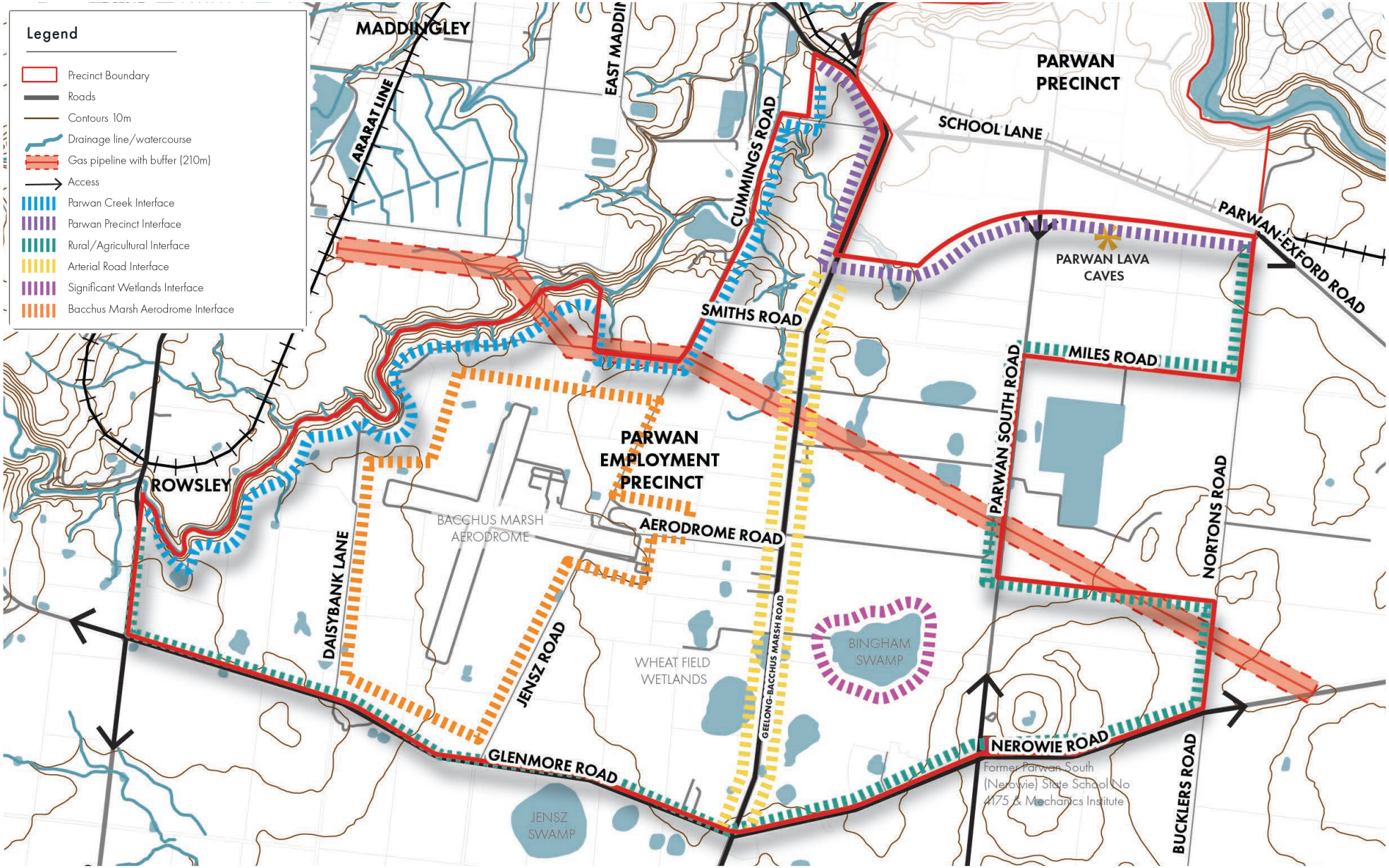


**Figure 10.** Parwan Employment Precinct - Key Interfaces

# 4 Landscape Character and Scenic Qualities

Landscape character and scenic quality are assessed at two levels: **status** and **classification**.

## 4.1 Landscape Status

The landscape includes features with varied scenic qualities and value. Binghams Swamp has been identified as an important natural environmental feature, as well as a cultural feature in the local landscape. The Parwan Creek is a high value landscape that positively contributes to the precinct's landscape amenity.

## 4.2 Landscape Classification

The PEP is positioned within the **Western Plains Landscape Character type**. Refer to the Merrimu, Parwan and Parwan Employment Precincts – Background and Context Study for further detailed information.

The Western Plains classification is predominantly a flat plain (mostly volcanic) including agricultural grasslands. Some stringybark woodlands are present on basalt rises, and shelterbelts are common throughout agricultural grasslands. Water form and landform are typically less common in the northern end of the precinct).

## 4.3 Scenic Quality

The frame of reference for scenic quality of is typically defined by landform, vegetation and water form.

Based on the Assessment within the Merrimu, Parwan and Parwan Employment Precincts – Background and Context Study the following key findings have been deemed relevant in terms of scenic quality for PEP:

Specific to the PEP:

- The Parwan Creek and the escarpments have been identified to have High scenic quality, and are noted to be of High value by the area.
- The Flat Plains has been identified to have a Moderate scenic quality.

**Figure 11.** Exposed rock around Parwan Creek.

**Figure 12.** Typical scenic quality of within the Flat Plains/Parwan Plateau

# 5 Visual Assessment

## 5.1 Pattern of Viewing

The pattern of viewing within the Precinct and surrounding area has been identified to be predominantly experienced while travelling along roads. Examples of the pattern of viewing is shown below, the main views of interest include:

- Access and Gateways
  - Along the Geelong-Bacchus Marsh Road
- Views, Sightline and Visual Connections
  - Specifically views entering the PEP from the north along the Geelong-Bacchus Marsh Road
  - Views from the adjacent residential area of Hopetoun Park (which are of higher relevance to Parwan Precinct)

**Figure 13.** Entry to PEP from Bacchus Marsh-Balliang Road

**Figure 14.** Entry to Parwan/PEP from Geelong-Bacchus Marsh Road

**Figure 15.** Entry to Parwan/PEP from Geelong-Bacchus Marsh Road

## 5.2 Visibility Analysis

A visibility analysis has been conducted through the use of a Zone of Visual Influence (ZVI) modelling within PEP.

It has been used to gain an understanding of the extent of visibility of the Precinct from selected representative viewpoints within the region. The ZVI modelling shows the potential theoretical visibility from a particular viewpoint and shows the areas that can be seen within a direct 'line of sight', based on a Digital Terrain Model (DTM).

The ZVI modelling used a DTM of 1m contour data. The model does not consider existing vegetation or built form. This results in a 'worst case' scenario in terms of the theoretical extent of visibility from a particular viewpoint.

Additionally, the proximity to the relevant visual change in terms of distance factors will influence the magnitude and nature of change.

An analysis of a selected viewpoints was undertaken to explore the potential visibility of the three precincts. Refer to the Merrimu, Parwan and Parwan Employment Precincts – Background and Context Study for further detailed information.

Representative points were selected along the Geelong-Bacchus Marsh Road and from the Hopetoun Park residential area to the north.

These viewpoints are considered most representative as they include both a highly sensitive visual receptor (i.e. the residential area of Hopetoun Park) as well as a main access road into the precinct. Their theoretical Zones of Visual Influence are shown in the graphics that follow.

The cumulative results of the ZVI along these routes are shown within Figure 19. The key findings include:

- Theoretical visibility possible along the Geelong-Bacchus Marsh Road.
- Theoretical visibility possible from Hopetoun Park residential area.

## 5.3 Visual Assessment Findings

The visual assessment identified the following within PEP:

- High visibility of the study area (including the three precincts) from the hills in the west and from regional gateways in context of a larger panoramic view.
- Visibility from the Bacchus Marsh Valley limited to immediate escarpments. The Plateaux beyond are not visible from the valley.
- Escarpment edges represent local vantage points.
- Plateaux offer unrestricted open views, including a mountain backdrop which is a strong visual presence.
- Potential visibility from the BMID, Avenue of Honour and Bacchus Marsh old town
- Potential visibility from Parwan Precinct and escarpment edge.
- Potential visibility from Hopetoun Park and escarpment edge.

Implications to the Landscape Framework:
As there are minimal physical features across the PEP landscape, the Landscape Framework must construct a strong emphasis on celebrating existing features of value, such as the Bingham Swamp and the Parwan Creek Vegetated views to the precinct should be framed to create a sense of arrival into PEP. Emphasis should not be put on screening all elements, but instead applied to improving visual quality.

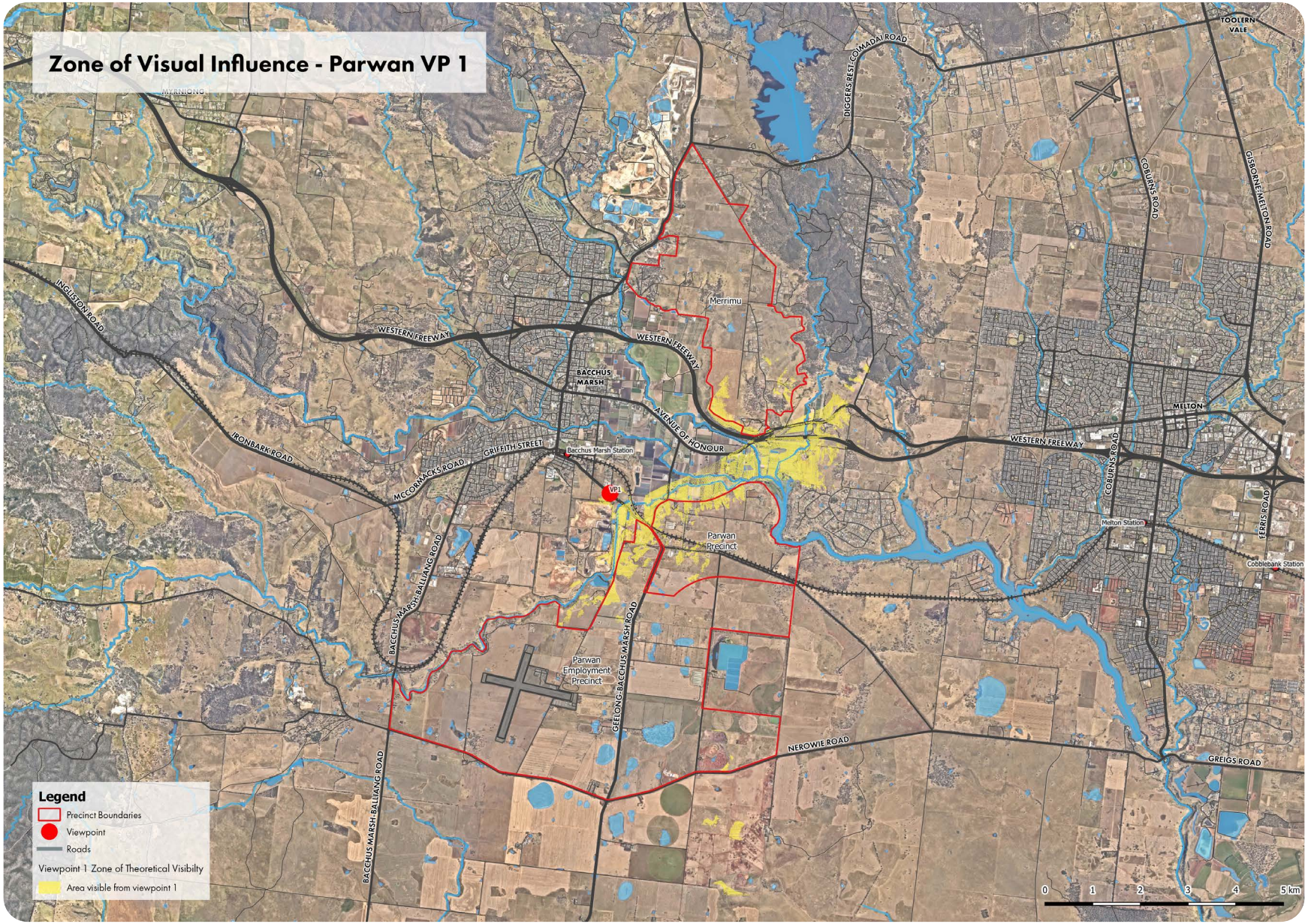


**Figure 16.** Zone of Influence from Viewpoint 1

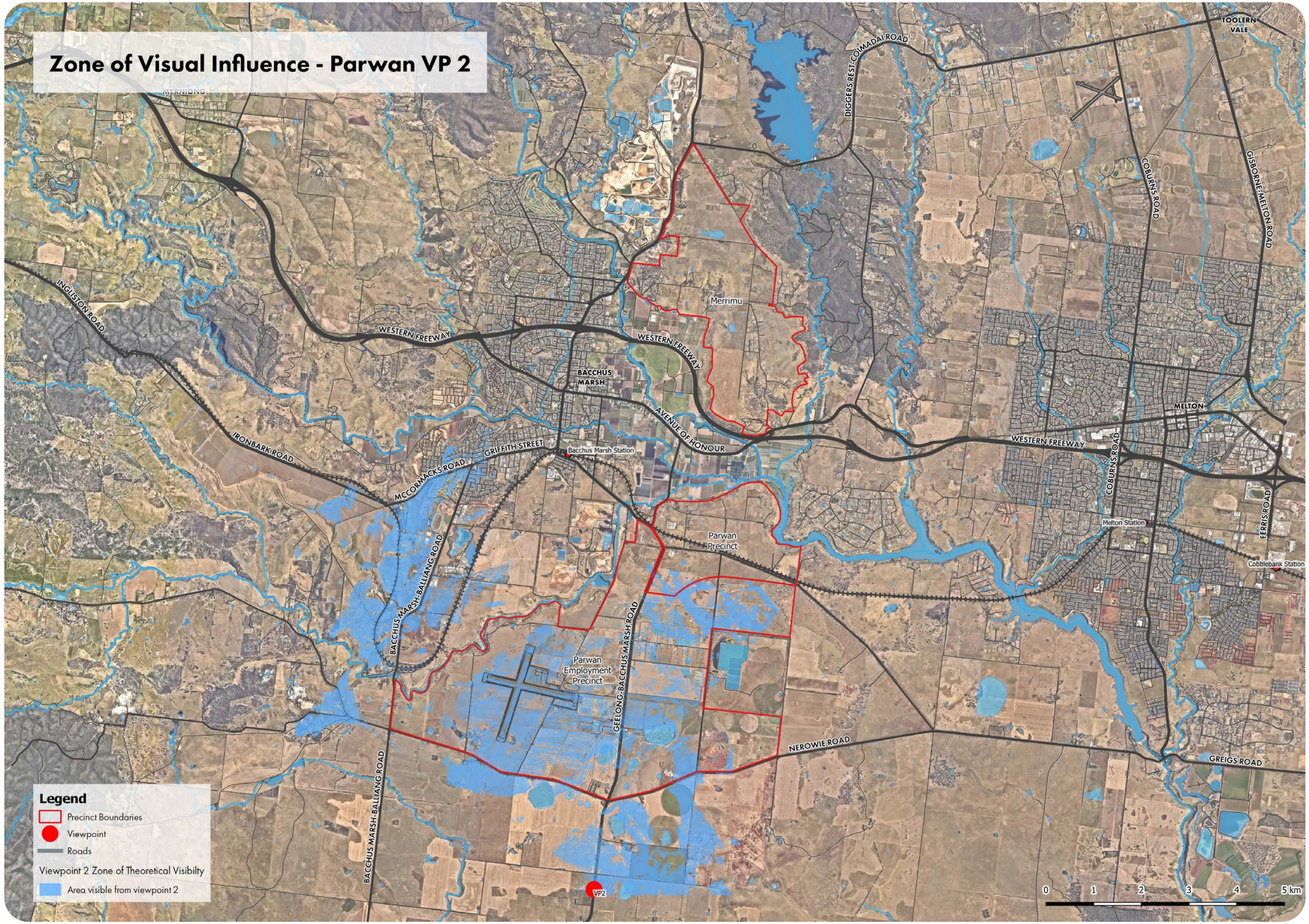


**Figure 17.** Zone of Influence from Viewpoint 2

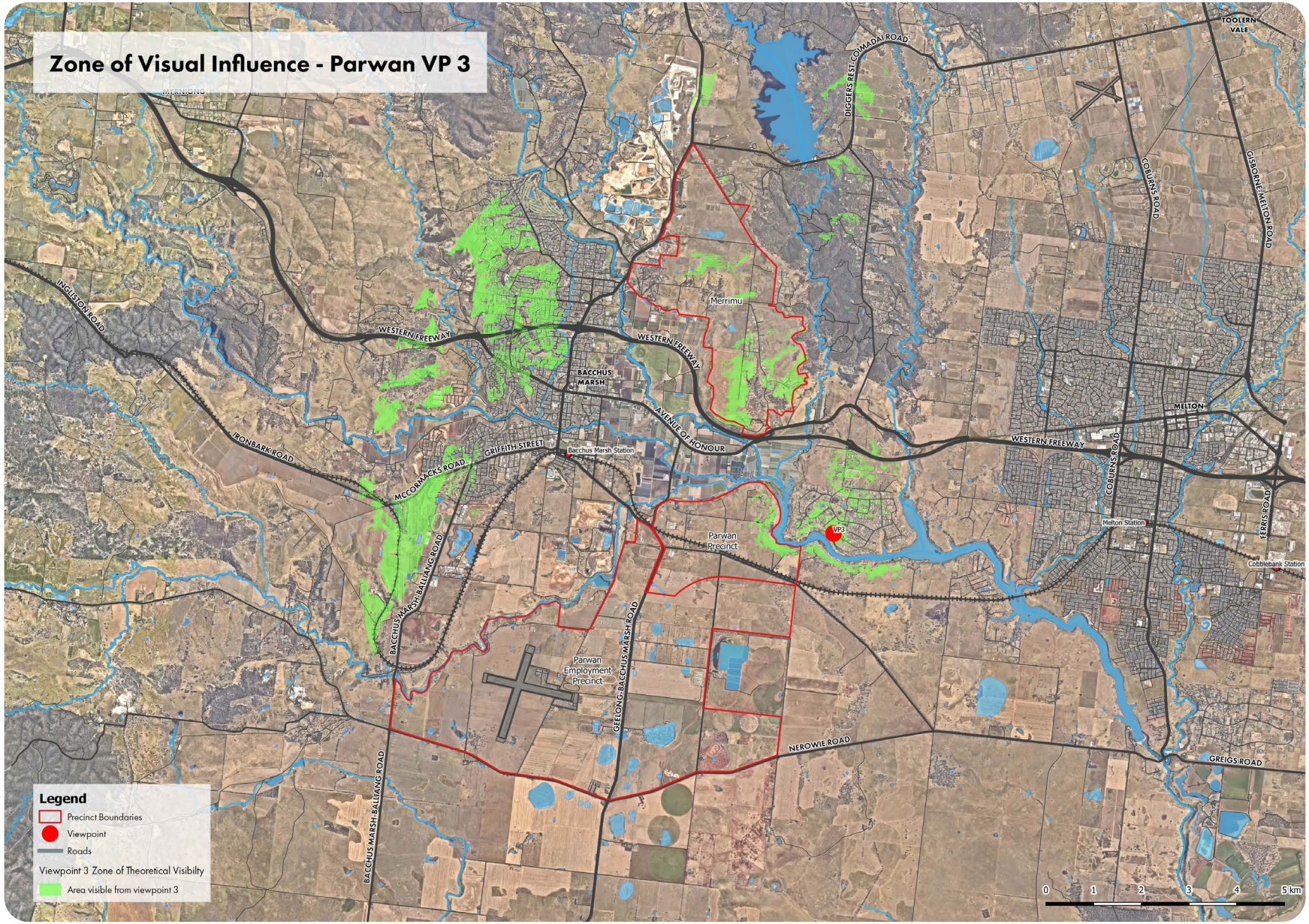


**Figure 18.** Zone of Influence from Viewpoint 3

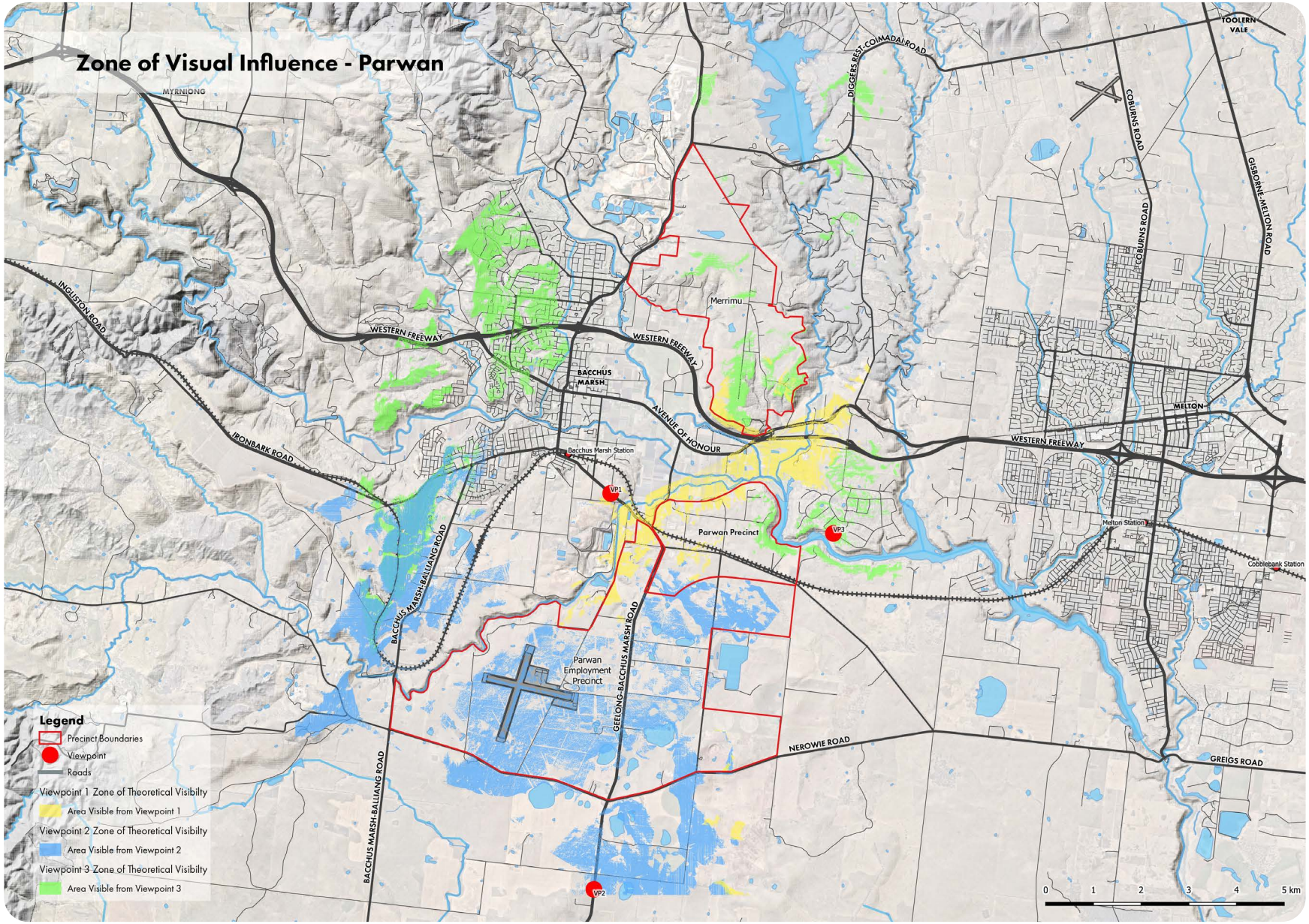


**Figure 19.** Cumulative ZVI for Representative Points Parwan/PEP

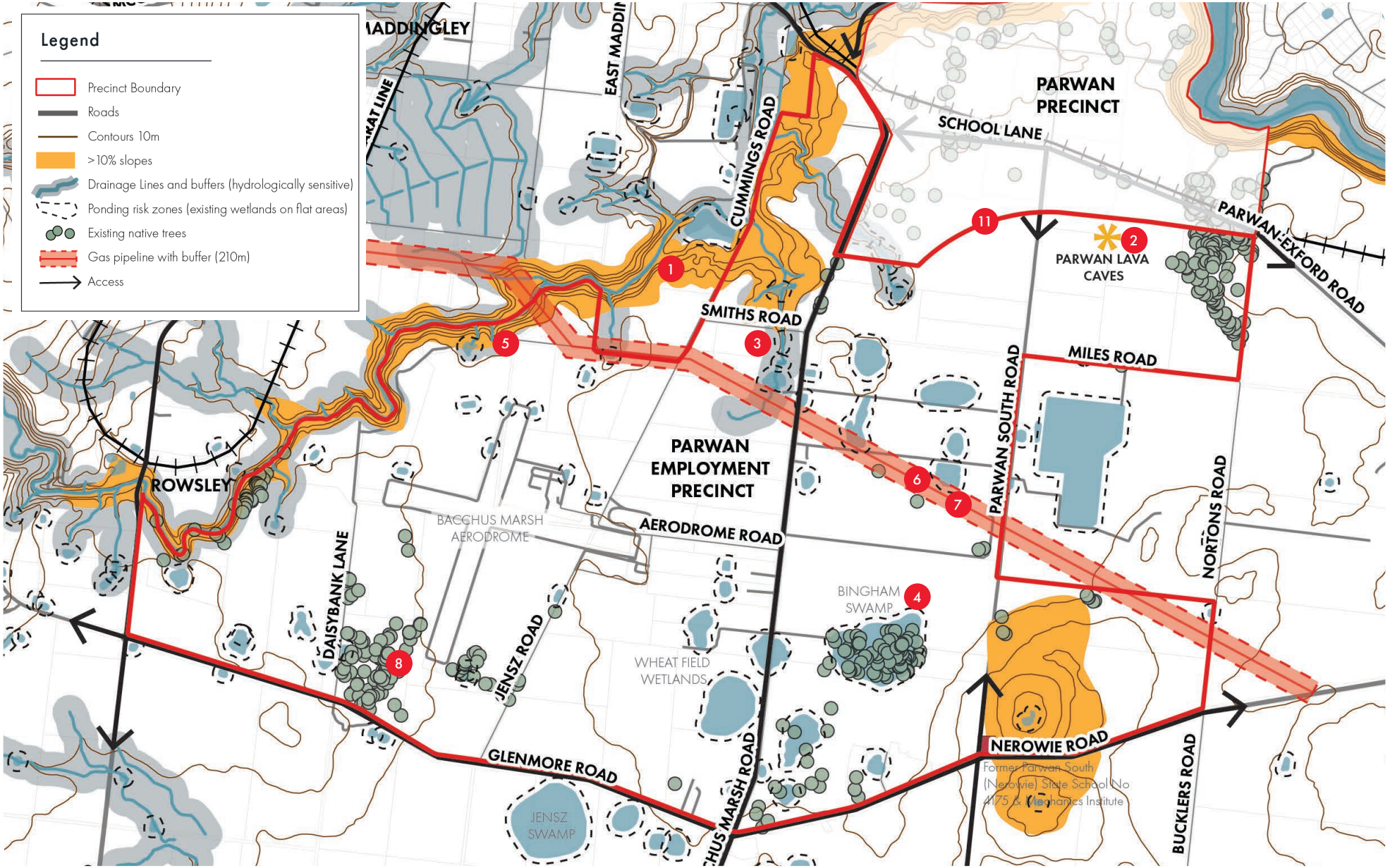


**Figure 20.** Parwan Employment Precinct - Opportunities and Constraints

## 6.1 Precinct Opportunities and Constraints

1. Steep slopes (>10%) along the escarpment edge/ Parwan Creek poses high erosion risk.
2. The Parwan Lava Caves poses a risk to development and significantly limits future land use.
3. Existing waterbodies and tributaries of the Parwan Creek poses inundation risks.
4. Bingham Swamp is a significant environmental and heritage asset in the precinct, located in the southeast of the precinct. Binghams Swamp is recognised as a site of ecological importance with a number of significant fauna identified.
5. Opportunity to maximise views to the escarpment and the Parwan Creek.
6. The gas pipeline requires a 210m buffer, which significantly limit development opportunity.
7. Opportunity to implement a linear reserve along the gas pipeline.
8. Opportunity to retain patches of native vegetation as future pocket parks and open spaces.
9. Opportunity to integrate passive irrigation along major road corridors, such as the Geelong-Bacchus Marsh Road
10. Opportunity to realign some roads to accommodate natural features and existing vegetation.
11. The interface and transition to Parwan Precinct precinct and civic/sensitive land uses must be considered.

# 7 Proposed Landscape Framework

The following section details the rationale for the development of the recommended Landscape Framework Plan for the Parwan Employment Precinct.

The Landscape and Visual Objectives for the three Precincts have been informed by the values identified in the Background Report.

The Framework plan has been informed by the strategic context and existing conditions summarised within this report.

## 7.1 Landscape and Visual Objectives

The overarching objectives include:

1. A landscape that responds and contributes positively to the existing **natural environment**, including its features, its sensitivities and its systems.
2. A landscape that responds and contributes positively to the existing and future **built environment**, including land use planning, infrastructure and built form.
3. A landscape that acknowledges and respects the **cultural heritage** of the environment.
4. A landscape that aligns with the existing **character** of the region, but which is also distinct from other precincts.
5. A landscape that supports **visual quality and views** within, from and to the precinct.
6. A landscape that supports and facilitates a high quality of **everyday life** for users.
7. A landscape that supports and facilitates regional and local **tourism and recreation.**
8. A landscape that supports the development of **community identity** and the creation of a meaningful sense of place.
9. A landscape that functions as a sustainable **ecological system** that contributes both to environmental sustainability and biodiversity.
10. A landscape that responds and contributes positively to existing and future **biodiversity and conservation** planning both

## 7.2 Landscape Framework

The following section details the rationale for the development of the recommended Landscape and Visual Framework Plan for the PEP.

The Framework Vision for the Precinct is as follows:

*The Parwan Employment Precinct (PEP) is a major initiative. The PEP holds significant economic and employment growth potential for Bacchus Marsh, with the ability to attract high levels of new industrial investment. The PEP is beneficially located within the Bacchus Marsh food bowl, close to markets and away from residential land. It has the capacity to accommodate value-add and high amenity impact businesses, particularly those seeking to relocate to more affordable and unencumbered land close to the metropolitan.*

*The importance and potential of the PEP is recognised at the state level and government will undertake planning work to develop this precinct in the short term.*

*The PEP has the potential to be a regionally significant employment hub for agribusiness and also a range of mainly vertically integrated businesses that will drive local prosperity and employment growth. Benefits include its position away from residential uses, proximity to the Bacchus Marsh Irrigation District and access to the freeway.*

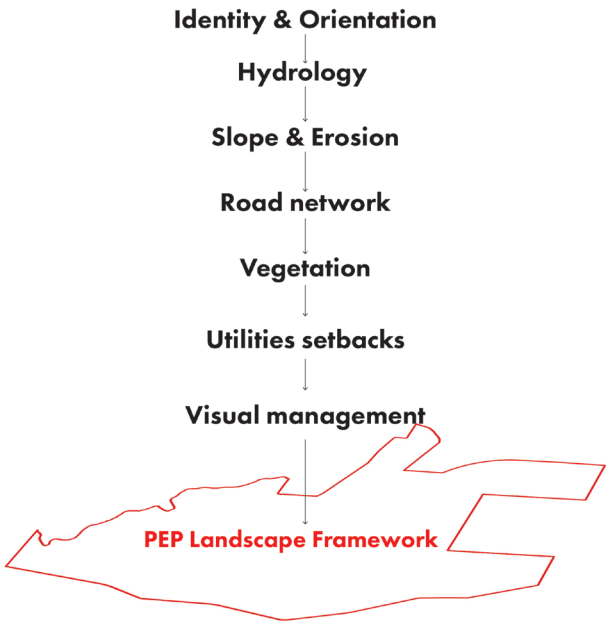


**Figure 21.** Diagram describing the PEP Landscape Framework process.

## 7.3 The Landscape Framework Plan

The Landscape Framework Plan is shown in Figure 22. The Landscape Framework adopts of a three-tiered approach, supported by **Framework Strategies and Guidelines** in **Section 7.4.**

The Landscape Framework is structured as follows:

### 1. Primary Framework - Conservation

This consists of elements that are set to be conserved within the precinct. These elements can range from:

- Sensitive and significant landscape, such as escarpments and high risk steep slopes that are prone to erosion. Due to the levels of dispersive subsoils within the Parwan Employment Precinct, along with evidence of erosion, slopes of 10% or higher have been allocated as conservation to due their associated potential risks for built form and infrastructure. For further detail on erosion risk areas refer to: Parwan Station and Parwan Employment Precinct Structure Plans Geomorphology and vegetation assessment (Alluvium 2022).
- Areas with high levels of visual sensitivity, such as escarpments along Parwan Creek.
- Drainage lines and wetlands with a 50-100m (minimum) riparian offset zone on either side. These drainage lines and wetlands have a mainly hydrological function, with additional conservation and/or open space potential
- Areas identified with high biodiversity and/or environmental value - such as Binghams Swamp.
- Other significant landscape features, including the Parwan lava caves, Parwan Creek, significant and large trees and cultural heritage sites.

### 2. Secondary Framework - Management

This consists of elements that can be managed through urban design guidelines, best practice design principles and/or specific management plans (for example: slope and erosion management plans).

- Areas of medium risk with slopes of 10% or higher may require specific Slope and Erosion Management plans for future development.
- Areas that are highly visible and should be managed to support appropriate visual outcomes for future development within the precinct. The intention is to preserve the visual integrity of regional views onto the precinct, especially around the creek environs.
- Relevant buffer areas associated with existing industrial uses and the gas pipeline.
- Sensitive interfaces, specifically to the escarpment and Parwan Creek.
- Interfaces to existing arterial roads and future uses of Parwan Precinct.
- Connector and local roads to reflect the principles of the 20 Minute Neighbourhoods. Roads must also consider topography and framing of views. The response would ultimately require input from a dedicated Traffic Study and Road Design.
- Built form, lot sizes and siting - further described under **Landscape Management Areas.**

### 3. Tertiary Framework - Enhancement

This includes elements that will contribute to landscape character and visual amenity of the precinct. Some features may include:

- Establishment of new green corridors, specifically along roads and potentially within buffer areas.
- Additional parks and green links to contribute to the future open space network.
- New green corridors to support biodiversity between conservation areas, especially to Parwan Creek.
- Retention of significant mature vegetation where possible (within parks and along road reserves, or incorporated into roundabouts).
- Pockets of vegetation to provide visual screening.

### 7.3.1 Landscape Management Areas

As part of the Secondary Framework, it is proposed that Landscape Management Areas be considered to guide built form and siting outcomes for Parwan Employment Precinct.

The following section outlines the proposed visual performance objectives for future land uses within the precinct:

| Landscape Management Area | Visual Performance Objectives/Outcomes |
|---|---|
| **Visually Managed Development** | These are areas within which development (mainly agri-industrial in PEP) should be controlled to preserve the visual integrity of regional views onto the precinct. This area is informed by the ZVI analysis and the proximity to future. The alignment shown on plan is based on ZVI modelling and will need further interrogation during the planning process.<br><br>These should be developed with strong consideration to slope and terrain. Development should maintain an offset from break of slope (from conservation - high risk erosion area) - to be confirmed by CFA.<br><br>This area should prioritise tree planting to promote 'visual breaks' within the landscape. Large setbacks with generous road widths to support roadside vegetation will improve visual quality and enhance landscape character. |
| **Agri-Industrial** | This will be the majority of the area proposed for PEP, and represent opportunity to develop the largest scale buildings for agri-industrial use, capitalising on easy road access and vegetation screening potential. These areas will generally maintain a portion of large lots that can accommodate businesses that require large buffers to sensitive uses. Ample setbacks will also provide opportunity for canopy tree planting within the lots.<br><br>Drainage lines may cross the sites and the hydrological and ecological integrity of these should be maintained. Larger lots with large setbacks will provide opportunity of buffer and screening planting, either at the front or rear of the lots. This will provide landscape amenity and shade to the precinct. Large and significant trees should be retained where possible. |

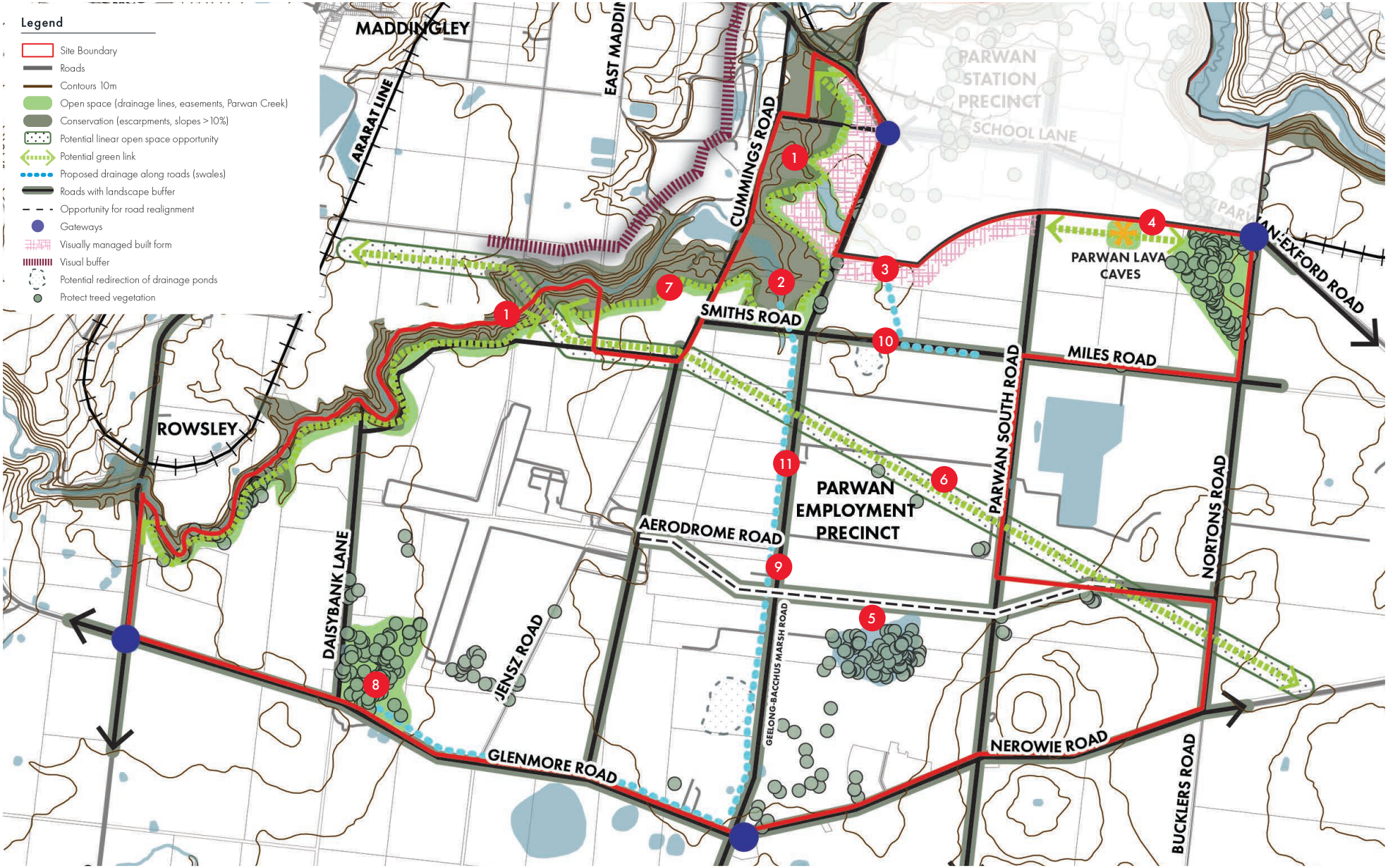


**Figure 22.** Parwan Employment Precinct - Proposed Landscape Framework Plan

Landscape and Visual Framework elements shown on the plan (Figure 22) are:

## Primary Framework - Conservation

1. Areas of steep slope (over 10%) around the Parwan Creek should be designated as conservation.
2. Plan for a 75-100m offset each side from the creek to accommodate for 1 in 100 year flood level.

## Secondary Framework - Management

3. Development adjacent to the Parwan Precinct should be visually managed. ZVI analysis highlights this area is of higher visibility from viewpoint 1 (Geelong-Bacchus Marsh Road) and visual amenity/gateway views should be considered. Consider large (5-10m) lot setbacks to allow for ample planting in order to protect/improve the amenity of the neighbouring residential/mix use precinct.
4. A 10m buffer as suggested by geotechnical reports with opportunity for open space to be provided at the approximate location of the Parwan Caves entry. Opportunity to connect to the patch of vegetation located on the eastern boundary. Further investigation into the full extent of the caves may be required.
5. Protect and enhance the Bingham Swamp, which has been identified as an important environmental feature. Refer to Development Plan: Parwan Industrial Precinct (PIP) (Ricardo 2019) for further direction for this land. Consider realignment of roads to conserve the swamp whilst maintaining efficient lot sizes. Provide a minimum of 20m offset from the wetland.

## Tertiary Framework - Enhancement

6. Opportunity for a linear reserve to provide connectivity along the gas pipeline reserve. Opportunity to align streets to maximise views and access to the reserve.
7. A linear open space along the Parwan Creek will protect the landscape and visual amenity of the escarpment and creek environs. Opportunity for a trail system to run along the creek corridor.
8. Opportunity to retain the patch of native vegetation at the south-western corner of the Aerodrome.
9. Maximise landscape treatments and stormwater management opportunities along road corridors.
10. Consider redirection of existing drainage ponds. Further investigation by specialists required.
11. Consider implementing a ring road to establish a series of sub-precincts within the PEP to assist with orientation and wayfinding.

## 7.4 Framework Strategies and Guidelines

The Strategies and Guidelines included in this section are intended to support the framework. The aim is to protect the sensitive environments, conserve the character and enhance the landscape qualities of the Parwan Employment Precinct (PEP) through an appropriate configuration and balance between built form and landscape areas.

### 7.4.1 Landscape Character

| Strategy | Recommended Guidelines |
|---|---|
| • To support and enhance the Landscape Character of the Parwan Employment Precinct (PEP) by retaining and supplementing key features. | • Existing significant trees within the site should be retained / supplemented.<br>• Ensure larger lots are provided where natural features, including high value trees and vegetation and topography, constrain the site.<br>• Appropriate property setbacks should be created along main and secondary roads to facilitate and support the continuity of new and existing planting.<br>• Maximise landscape treatment of spaces rather than hard surface – being berms, grass, garden beds and revegetation areas in addition to canopy trees.<br>• Maximise opportunities for street tree planting throughout the precinct through supportive and complimentary infrastructure planning, such as undergrounding of electrical infrastructure and consolidated service corridors outside of vegetated road verges. |

**Figure 23.** Opportunity to retain mature roadside vegetation (Glenmore Road)

### 7.4.2 Key Views and View Lines

| Strategy | Recommended Guidelines |
|---|---|
| • To preserve and celebrate views from the escarpments towards the western mountains and over the Bacchus Marsh Valley. | • Create opportunities for formal vantage points from the escarpment edge. Position vantage points at natural and / or planned points of interest in the landscape, such as at road junction points, significant tree stands, outcrops and / or site of Cultural significance.<br>• Orient streets to capture key views towards the open spaces/the Parwan Creek interface, and maintain views from adjoining areas to surrounding landscape elements. |
| • To create and maximise opportunities for short range views from roads and properties into open space.<br>• To screen and minimise views towards the Maddingley Coal Mine and protect visual amenity. | • Opportunities for views into open space should be created through the placement of roads and pathways along the edges of or cutting through open space areas.<br>• Incorporate strategic breaks in roadside and buffer planting that would frame views into open space areas and create visual connections with open space. |

### 7.4.3 Streetscapes

| Strategy | Recommended Guidelines |
|---|---|
| • To provide streetscapes that add landscape value and amenity to the precinct.<br>• To encourage the retention of high value trees and planting of new trees.<br>• To ensure tree planting is provided within all streets. | • Incorporate elements that will contribute to PEP's landscape character, through the provision of verges and incorporating existing significant vegetation. Verges should be wide enough to accommodate large street trees, particularly when located adjacent to a drainage reserve.<br>• Utilise street tree planting species and siting to reinforce the movement hierarchy and desired character for an area. This could include formalised avenue planting for areas such as key entries and planting to reinforce movement connections. |

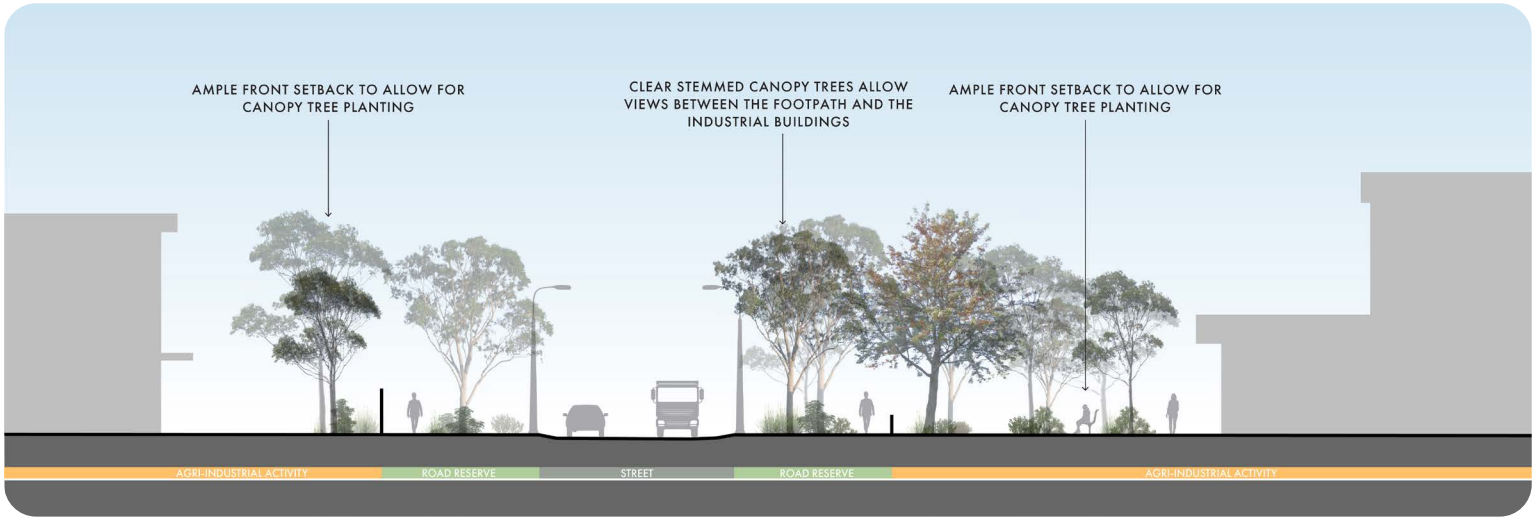


**Figure 24.** Section illustrating planting within front setbacks of agri-industrial lots.

**Figure 25.** Example of a high value tree being retained.

**Figure 26.** Example of high quality open space within an industrial precinct (LOGIS Eco-Industrial Park, Dandenong, VIC)

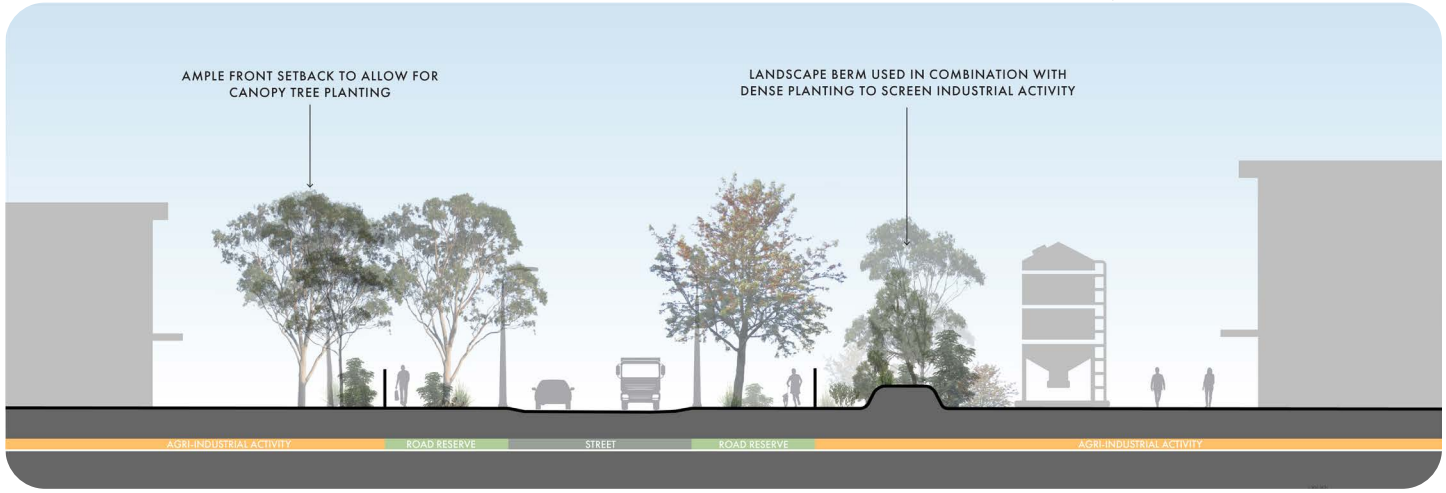


**Figure 27.** Section illustrating use of landscape mounds/berms to screen industrial use and add landscape values.

### 7.4.4 Place Making and Open Space

| Strategy | Recommended Guidelines |
|---|---|
| • To establish and build an identity for the Parwan Employment Precinct that is distinct from that of surrounding landscapes and supports the desired contemporary character of industrial development. | • Integrate natural features and sites such as significant trees, outcrops, wetlands and the escarpment edge into open space or other civic spaces and interpreted for public interest to enrich the landscape.<br>• Optimise open space networks and revegetate these as diverse conservation landscapes. |
| • To maintain and support the identity of Parwan as part of the greater Bacchus Marsh landscape. | • Celebrate new gateways into the precinct by maximising planting, creating a link to the history and heritage of Bacchus Marsh's Avenue of Honour.<br>• Integrate cultural heritage sites and features into open space or other civic spaces and interpreted for public interest to enrich the landscape.<br>• Incorporate elements like roadside stormwater drains throughout the precinct, reminiscent of the surrounding rural landscape character. These could be re-imagined as modified Water Sensitive Urban Design (WSUD) infrastructure along precinct roads. These drains could replace the requirement for subsurface stormwater drainage systems. |
| • To create human scale communal open spaces for staff recreation and amenity. | • Provide an integrated network of parks, open space and trails to connect workers and visitors with the natural assets of the precinct.<br>• Provide high quality, attractive landscaping that positively contributes to the streetscape, sensitive interfaces and the surrounding context.<br>• Local places of value (i.e. natural and cultural)such as the Parwan Creek within the precinct should ideally be connected through walking circuits with interpretive signage and a local palette of materials to encourage appreciation and build awareness. |

**Figure 28.** LOGIS Eco-Industrial Park, Dandenong, VIC

### 7.4.5 Edges and Interfaces

| Strategy | Recommended Guidelines |
|---|---|
| • To protect and preserve the landscape of the escarpments that define the edge of the Parwan plateau and the Parwan Creek. | • Avoid any development, including roads and service infrastructure, along the escarpment (sensitive and erodible slopes) that are allocated a conservation function. Rehabilitate erosion damage and reinstate natural vegetation (preferably EVC) to stabilise the soils.<br>• Rehabilitate erosion damage and reinstate natural vegetation (preferably EVC) to stabilise the soils.<br>• Manage development on sensitive and erodible slopes steeper than 10% to landscape dominant land uses. Ensure that development controls and ongoing resource management requirements are in place to ensure the continued stability of the soils.<br>• Ensure that development on sensitive and erosible slopes steeper than 10% is sensitive in scale and considers suitable grading outcomes and avoids excess use of retaining walls.<br>• Establish a protective landscape buffer along the top edge of the escarpment, with an offset from the break in slope (to be confirmed by CFA) to protect steep and sensitive slopes from runoff emanating from adjacent land uses.<br>• Where retaining walls are unavoidable, ensure that these do not visually dominate streetscapes and views to new residential areas:<br>• For locations where one retaining wall is required:<br>  • The maximum height of retaining wall should not exceed 1.0m.<br>• For locations where two retaining walls are required:<br>  • The maximum height of each retaining wall should not exceed 1.0m in height.<br>• The retaining walls should be staggered with minimum 1.0m distance. |

| Strategy | Recommended Guidelines |
|---|---|
| • To protect and preserve the landscape, biodiversity and cultural heritage values of Parwan Creek and the Werribee River to the north.<br>• To protect the amenity of existing and future sensitive land uses.<br>• To buffer the interface between future precinct development and adjacent sensitive areas. | • Establish a landscape buffer between future agri-industrial uses and the Parwan Creek.<br>• Maintain and reinforce built form setbacks and landscape buffers to adjacent residential/sensitive uses, particularly along the interface to Parwan Precinct to the north.<br><br>North-western interface with Parwan Creek (see Figure 30)<br><br>• Open space and a vegetated buffer should be prioritised along this interface to ensure the landscape, visual and environmental values of Parwan Creek. The visual interface of this edge could be graded through the use of buffer vegetation to appear soft and natural. This would be achievable through use of vegetation from the creek to the back of proposed industrial lots. This network of open space could potentially host a series of trail networks which would provide amenity workers and local residents of Bacchus Marsh and Parwan.<br><br>Northern interface with Parwan Precinct (see Figure 31)<br><br>• The interface between the agri-industrial land uses and future residential and/or civic areas should be softened. This could be done by supplementing planting along road reserves and within development set-backs to create a visual buffer.<br><br>Interface to arterial roads (see Figure 32)<br><br>• The interface to major arterial roads, such as the Geelong-Bacchus Marsh Road, should be sufficiently planted using the width of the road reserve. Where possible, existing vegetation of high value should be retain and incorporated into the development of the precinct.<br><br>Southern interface with rural land<br><br>• The interface between the agri-industrial land uses and existing rural properties should be softened with sufficient setbacks from Glenmore and Nerowie Road to provide for a vegetated buffer and a visual break.<br><br>Interface to Significant Wetlands (Binghams Swamp)<br><br>• Binghams Swamp should be afforded the highest protection. Consider treating this interface appropriate buffers (at least 50m).<br><br>Interface with Bacchus Marsh Aerodrome<br><br>• Ensure that land uses and landscaping do not attract wildlife that could be a hazard to aircraft operations. Further investigation into appropriate species for this area may be required. |


**Figure 29.** Example of interface treatment in response to the gas pipeline linear reserve.

**Figure 30.** Example of industrial lots backing onto a creek with an open space buffer to a creek.

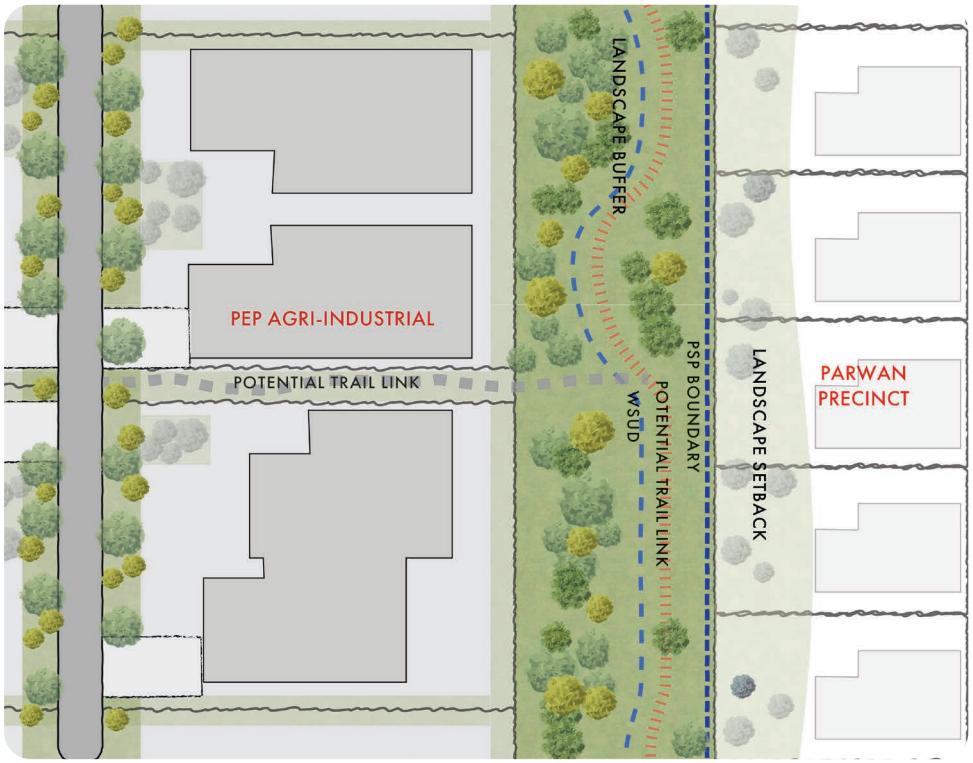


**Figure 31.** Interface between PEP and Parwan Precinct, with a landscape buffer and rear landscape setbacks.

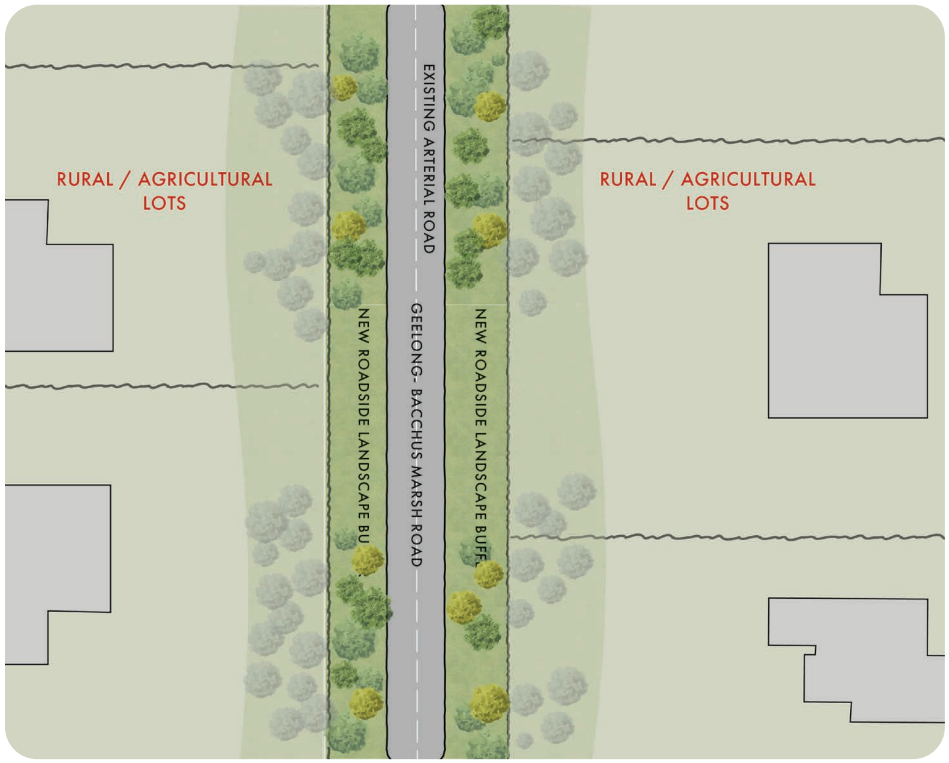


**Figure 32.** Interface to arterial roads.

### 7.4.6 Corridors

| Strategy | Recommended Guidelines |
|---|---|
| • To enhance the ecosystem value of natural corridors within the precinct. | • Enhance roadways as green corridors, providing a framework for storm water management, biodiversity linkage and visual continuity.<br>• Planting along roadways, medians, and along property boundaries should be enriched and extended as continuous visual and ecological corridors.<br>• Drainage lines should be rehabilitated and reinstated as functional hydrological and ecological systems within the site, which link with regional systems within the greater area.<br>• The ecological value of easements and servitudes should be included as functional parts of the ecological and habitat corridors.<br>• Incorporate stormwater management into the design of all landscape beyond the drainage lines and wetlands to reduce runoff stress on drainage lines.<br>• Enhance the functionality and recreational value of conservation areas by creating an integrated network of trails to connect PEP workers and visitors with the natural assets of the precinct. |

**Figure 33.** Opportunity to retain existing vegetation along Geelong-Bacchus Marsh Road

**Figure 34.** Sufficient setback from lot boundary to create cohesive landscaped street frontages

Tract

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