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Development Plan Report
690, 730 and 760 Bridge Inn Road, Mernda
Residential Land Development

June 2004
(Revised March 2005)

Prepared for:
Australand Holdings Limited, Ivanhoe Grammar School and the Rapaport Family

Vantage Point Development Plan– (Amended)

The Amendment to the Development Plan was approved by the City of Whittlesea on 23 November 2004, and amended on 14 August 2012 in accordance with Clause 43.04 Schedule 5 of the Whittlesea Planning Scheme.

14/08/2012 .....

Signature of the Responsible Authority

Coomes Consulting Group Pty Ltd ABN 14 874 072 735 ACN 050 029 635
24 Albert Road PO Box 305 South Melbourne Victoria 3205 Australia
T 61 3 9993 7888 **F** 61 3 9993 7999
consult@coomes.com.au coomes.com.au

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24 Albert Road PO Box 305 South Melbourne Victoria 3205 Australia
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consult@coomes.com.au coomes.com.au

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24 Albert Road PO Box 305 South Melbourne Victoria 3205 Australia
T 61 3 9993 7888 **F** 61 3 9993 7999
consult@coomes.com.au coomes.com.au

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T 61 3 9993 7888 **F** 61 3 9993 7999
consult@coomes.com.au coomes.com.au

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1 Introduction

1.1 Overview

Coomes Consulting Group acts on behalf of:

- Australand Holdings, owner of 690 Bridge Inn Road,
- Ivanhoe Grammar School, owner of 730 Bridge Inn Road, and
- The Rapaport family, owner of 760 Bridge Inn Road, Doreen.

This Report forms part of the Development Plan prepared to support the future residential development of all or part of the abovementioned properties.

The Development Plan area comprises 123.4 hectares and is located approximately 30 kilometres north of Melbourne, within the Mernda/Doreen designated residential growth area (refer Figure 1: Site Location Plan). It is anticipated that the development of the land will occur on a staged basis over the next 5 to 10 years as a new residential estate.

Currently, under the provisions of the Whittlesea Planning Scheme the land is subject to a number of different zones and overlay controls, reflective of existing uses and developments. The properties at 690 and 760 Bridge Inn Road are within the Residential 1 Zone, whilst 730 Bridge Inn Road is subject to the Special Use Zone and the Environmental Rural Zone. A request to amend the planning scheme to introduce consistency to the subject site with the zone and overlay provisions is currently with the Whittlesea Council.

As it is proposed to include the land in the Development Plan Overlay, a development plan which indicates the manner in which the proposed residential estate is to be developed, is required to be prepared for approval by the Council. In addition, the development plan needs to reflect the provisions of the Mernda Strategy Plan.

1.2 Development Plan Purpose

The purpose of this Development Plan is to provide the detailed structure of the proposed design of the Estate having regard to the principles and objectives of the applicable planning provisions and policy, and with reference to site specific studies. In this manner the development planning process seeks to ensure the co-ordinated development of this land over time.

The role of the Development Plan is as a master plan for the ongoing development of the Estate, against which the issue of planning permits for land use and development, including subdivision are considered. To this end, the Whittlesea Planning Scheme requires that the Development Plan include sufficient information to demonstrate that subdivision and development of the land may proceed in an integrated manner with the immediately surrounding area.

In accordance with the provisions of the Whittlesea Planning Scheme, specifically Schedule 5 to Clause 43.04, the Development Plan is required to indicate:

- Application of the principles of the relevant incorporated plan;
- Co-ordination of different land ownerships;
- Local road network;
- Subdivision design, including lot densities;
- A range of dwelling types including apartments, units, terraced and semi-detached houses;
- Topographic details;
- Location of pedestrian and bicycle access through residential areas;
- Location and layout of non residential uses, including activity centres;
- A conceptual level landscape plan including the location and retention of existing vegetation;
- Identification of significant environmental and cultural features and measures to preserve and enhance these features.

1.3 Development Plan Content

This report, together with accompanying plans, comprises the Development Plan for the Estate. This report details the background information and site assessments and analysis from which this Development Plan has been prepared.

Matters addressed in this report include:

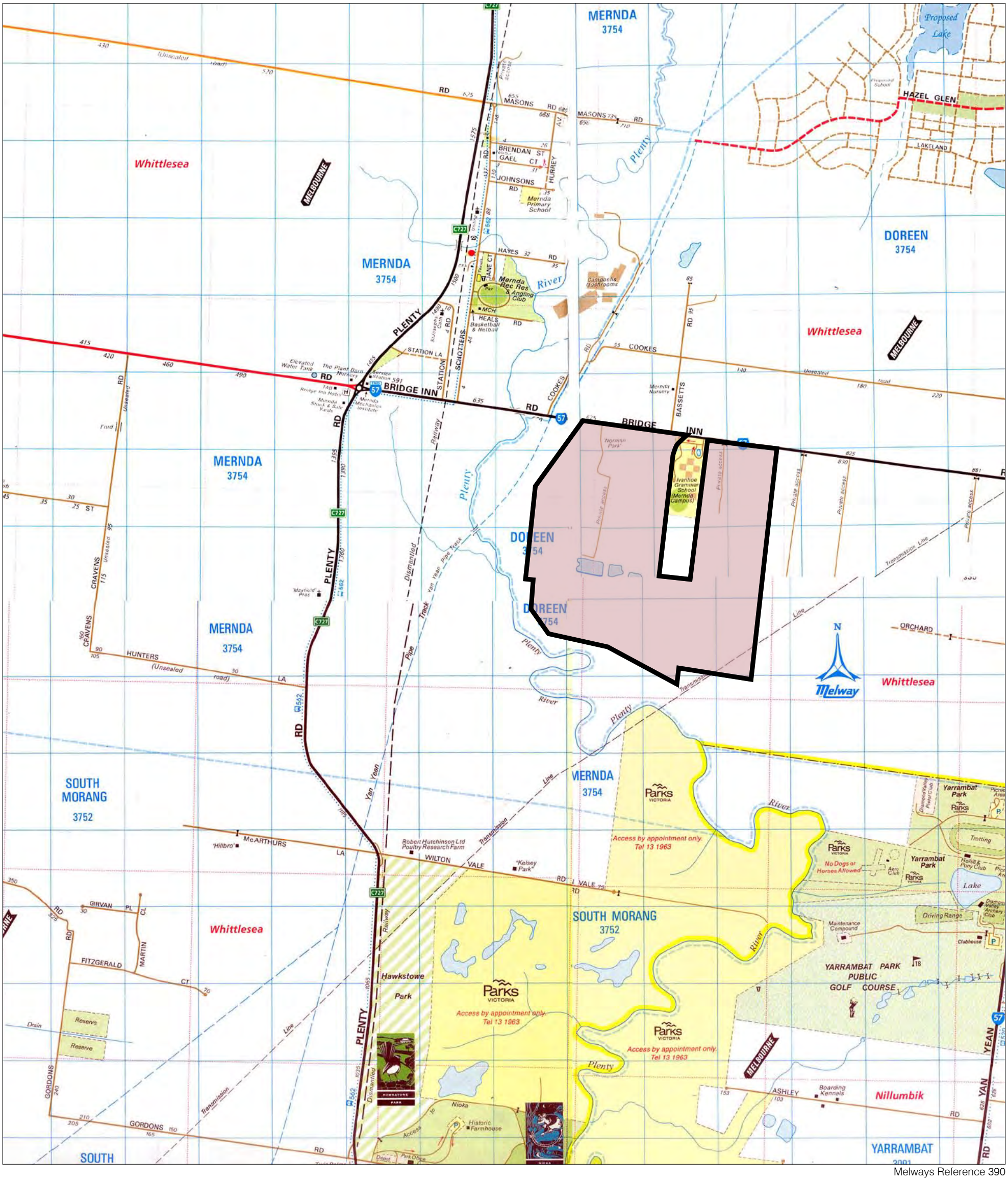
- Summary of strategic context, including consistency with Mernda Strategy Plan
- Description of site characteristics and site analysis
- Relationship with surrounding neighbourhood and areas of potential integration
- Detail of the design philosophy of the Estate and description of the urban form of the proposed residential community
- The values of the existing vegetation and a rationale for open space and the retention of River Red Gums
- Review of the open space, recreation and community services to be provided
- Analysis of the traffic network and identification of the likely impact from Estate on the surrounding road network
- Assessment of the site's environmental, ecological and heritage characteristics
- Summary of infrastructure services and the manner in which they are to be provided
- Detail of the application of development contributions

There are a number of plans which form part of this Development Plan, including:

- Existing Conditions and Site Analysis Plan
- Vegetation Design Response
- Development Plan
- Street Tree and Landscape Master Plan
- Road Hierarchy Plan

A complete list of plans is included in the Table of Contents.

Bridge Inn Road **Mernda**



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Coomes Consulting Group Pty Ltd
24 Albert Road PO Box 305 South Melbourne VIC 3205 **T** 61 3 9993 7888 **F** 61 3 9993 7999
44 Welsford Street PO Box 926 Shepparton VIC 3632 **T** 61 3 5831 4448 **F** 61 3 5831 4449

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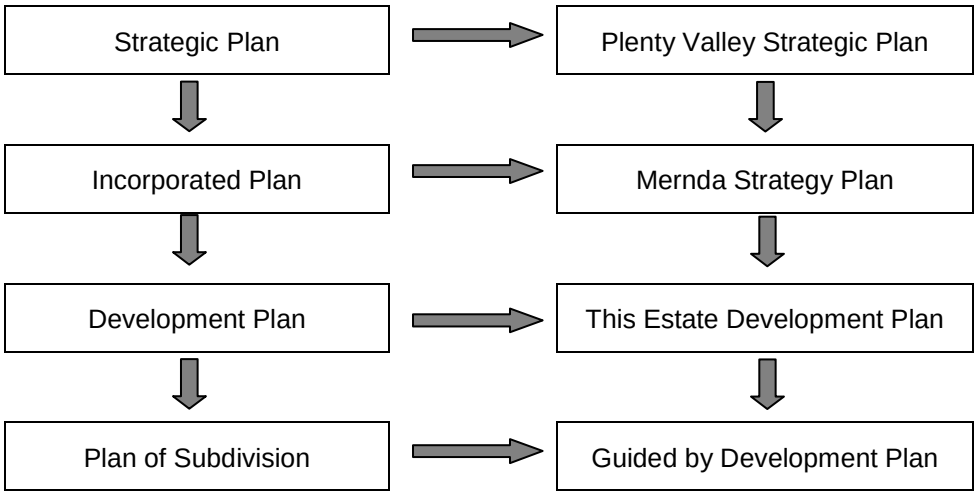
Figure 1 **Site Location Plan**

2 Planning Context

2.1 Overview of Plan Hierarchy



2.2 Strategic Plan: Plenty Valley Strategic Plan

In the broader regional context the subject site is located within the Plenty Valley Strategic Plan (PVSP). The State Government approved the PVSP in 1989/90 and in doing so confirmed the suitability of the Plenty Valley corridor for urban expansion. At this time much of the land within the Mernda/Doreen area of the Plenty Valley was rezoned to allow for this residential growth, and the PVSP was incorporated into the Whittlesea Planning Scheme.

The PVSP sought to ensure a coordinated approach to the planning of the corridor, including managing the provision of infrastructure, defining growth boundaries, preserving cultural and environmental assets, enabling local employment and economic development, and encouraging community cohesion.

With the PVSP providing a guiding framework, it was decided that more comprehensive and localised plans for each precinct within the corridor, including Mernda/Doreen, would need to be prepared. This was formalised through a mechanism that which required that a Local Structure Plan (LSP) be prepared and incorporated into the Whittlesea Planning Scheme before subdivision and development could proceed.

The Mernda Strategy Plan (equivalent to a LSP) constitutes the incorporated plan for the Mernda and Doreen area. Amendment C30 to the Whittlesea Planning Scheme introduced this Strategy Plan to the planning scheme.

The Development Plan area is located within the Mernda Strategy Plan.

2.3 Incorporated Plan: Mernda Strategy Plan

The Mernda Strategy Plan (refer Figure 2: Mernda Strategy Plan) has been prepared to set a strategic direction and provide broad level planning control over the Mernda and Doreen area. As the overarching policy document, the Mernda Strategy Plan sets out the key objectives and planning responses that will be pursued on all levels of planning.

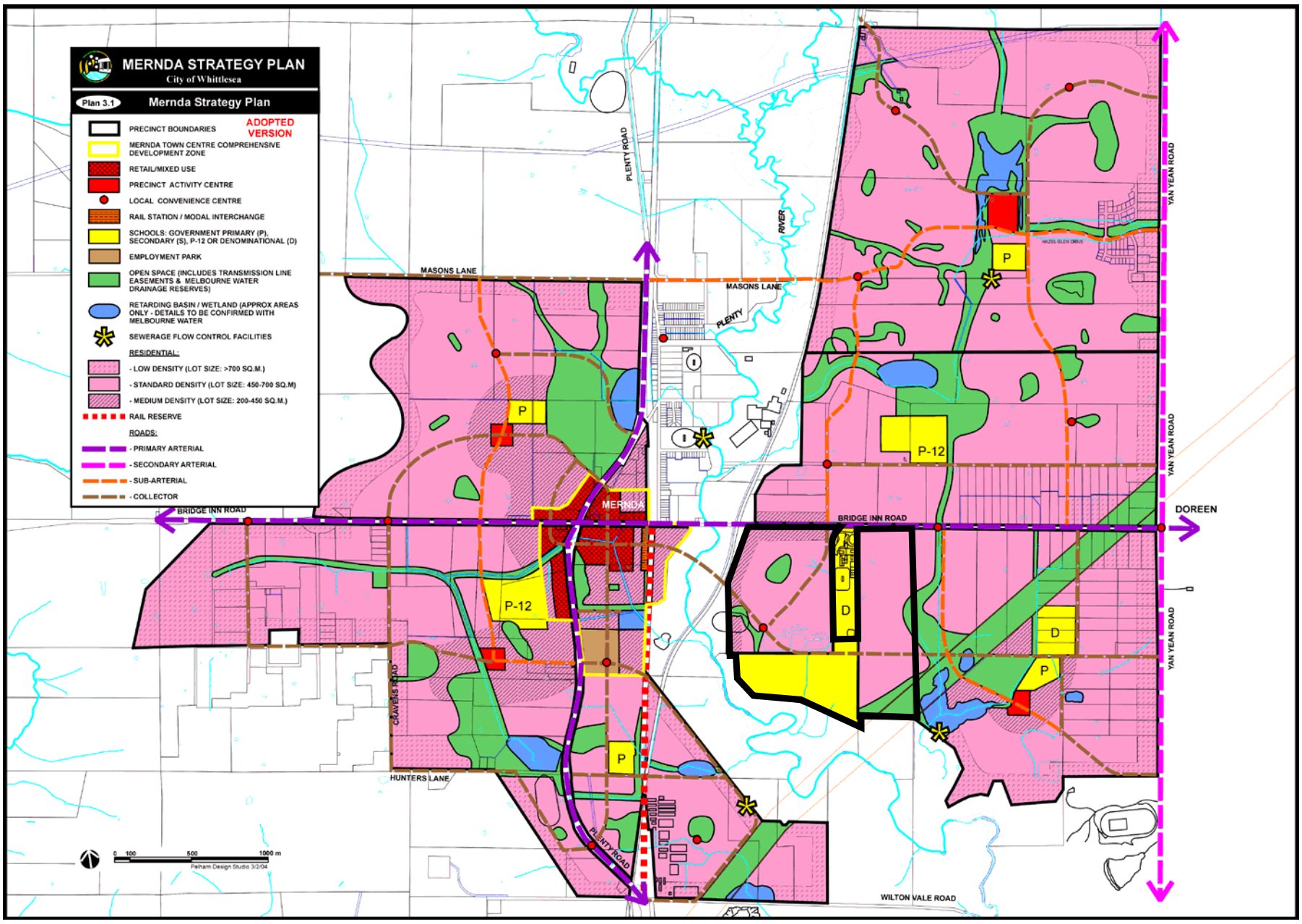
The Mernda Strategy Plan provides the guiding framework against which this Development Plan is required to be designed and developed. The location of major land uses and development criteria have been established in the Strategy Plan on the basis of the principles of the Plenty Valley Strategic Plan. The function of the Development Plan is to detail the subdivision design and to provide a master plan for the issue of planning permits for future development.

2.4 Whittlesea Planning Scheme: Municipal Strategic Statement

The Municipal Strategic Statement (MSS) outlines a framework for the strategic planning and development of new growth areas in Whittlesea. Together with the State Planning Policy Framework, the MSS (in the form of local planning policies and strategies) provides a significant influence on the development of the site. Planning policies of relevance include:

- Clause 21.04 – Vision
- Clause 21.05 – Growth Areas Framework
- Clause 21.06 – Objectives, Strategies and Actions
- Clause 22.01 – Open Space
- Clause 22.04 – Subdivision Design
- Clause 22.10 – River Red Gum Protection

The information contained within this Report demonstrates how the Development Plan achieves the objectives and intended outcomes of these policies.



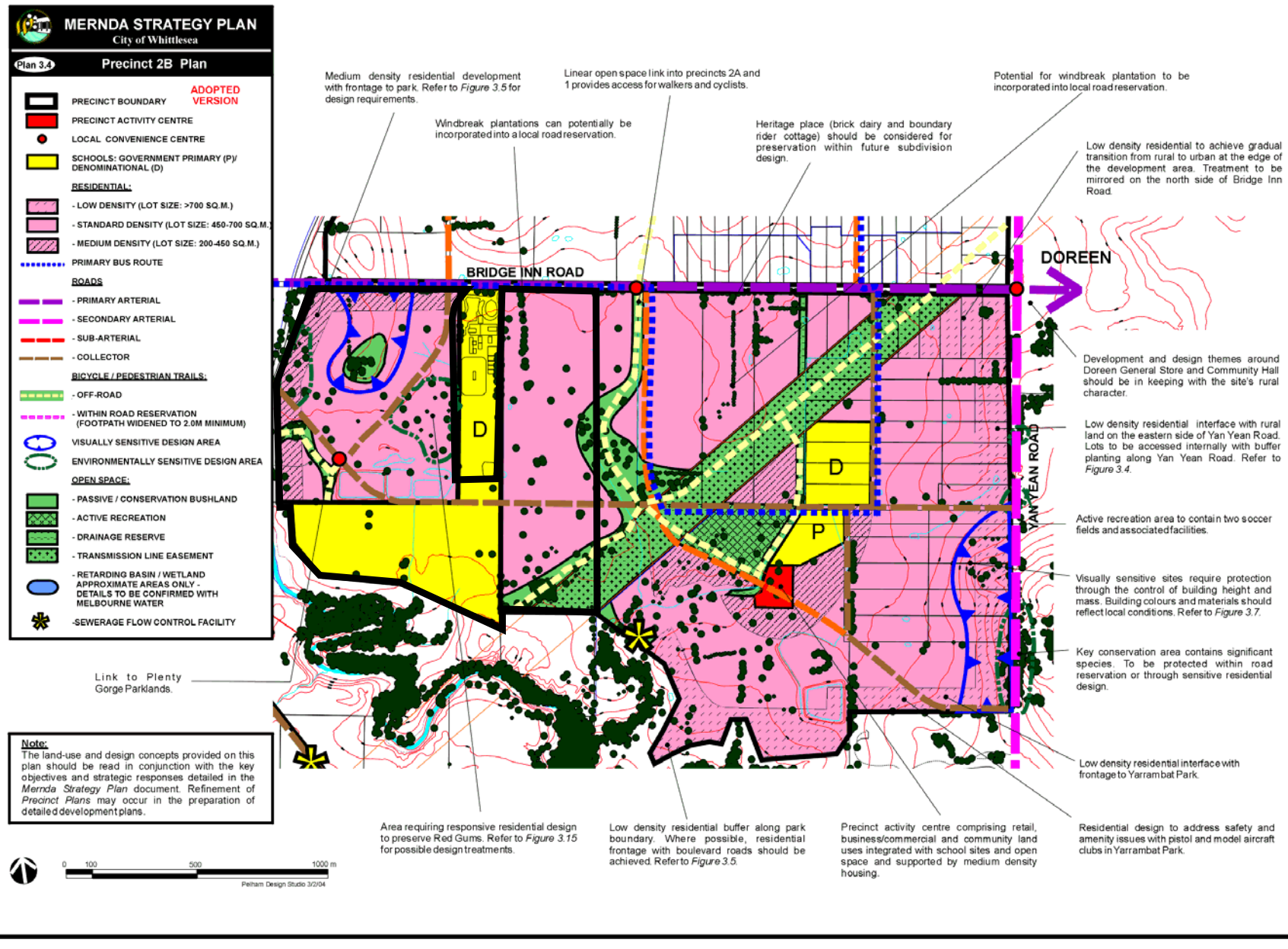


Figure 2 **Mernda Strategy Plan**

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24 Albert Road PO Box 305 South Melbourne VIC 3205 **T** 61 3 9993 7888 **F** 61 3 9993 7999
44 Welsford Street PO Box 926 Shepparton VIC 3632 **T** 61 3 5831 4448 **F** 61 3 5831 4449

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3 Site Context and Analysis

3.1 Site Description

The site of the Development Plan comprises 123.4 hectares and is generally located on the south side of Bridge Inn Road, to the east and north of the Plenty River. The site is approximately 800 metres south east of the proposed Mernda Township as per the Mernda Strategy Plan (refer Figure 3: Site Analysis and Context Plan).

The Development Plan area is irregular and almost forms a U-shape around the Plenty Campus of the Ivanhoe Grammar School. The site has a northern boundary and frontage to Bridge Inn Road of 900 metres, broken by the 160 metre frontage of the IGS. It shares a common boundary with the Plenty Gorge Parklands to the south, and is bound by adjoining farmland to the west and east.

The Development Plan area includes either the whole or part of the following properties:

- 690 Bridge Inn Road – whole property
- 730 Bridge Inn Road – the portion of this property included within the Development Plan is the southern portion, being that part of the site with a longer east west alignment
- 760 Bridge Inn Road – the part of the property within the Residential 1 Zone (majority of the site). A portion of this land adjacent to the Plenty Gorge Parkland is included within the Environment Rural Zone and does not form part of this Development Plan

3.2 Land Use

The properties at 690 and 760 Bridge Inn Road are farming properties, and have been so for many years. These properties each contain a dwelling, as well as buildings and infrastructure associated with the agricultural/rural use of the land.

The land at 730 Bridge Inn Road is owned by the Ivanhoe Grammar School and forms a reverse L-shape. The school buildings and facilities are located on the northern portion of the property, while the balance (southern portion) is vacant. As part of its masterplanning process IGS has reviewed its land holdings and balanced these against the future needs of the School. The southern portion of the School's land has been deemed surplus to their requirements, and is therefore included in the Development Plan as proposed residential.

The site is set within the context of rural properties, however the redevelopment of many of these nearby properties is likely to occur within a short to medium term time frame. Currently Mernda has limited community and commercial facilities, but will develop as the nearby areas evolve in accordance with the Mernda Strategy Plan. The Mernda Township is planned to become a thriving, self-sustaining commercial precinct for the surrounding residential communities.

3.3 Landform

The site falls towards the south and east, to the Plenty River and associated gorges. It is generally flat with a gentle fall, except for the ridges and higher points closer to Bridge Inn Road, in the north west of the site. Significant views of the surrounding rural land and toward the river environs are afforded from these higher points. The ridge generally extends from Bridge Inn Road to the location of the dwellings on 690 Bridge Inn Road. Another ridge is located to the south of the main high point, close to the proposed boundary of the IGS property.

3.4 Access

Vehicular access to each property within the Development Plan area is currently available from Bridge Inn Road. Each property also has a number of internal unsealed roads and tracks leading to various areas of the properties, such as dwellings, farm buildings and other features.

3.5 Zoning and Encumbrances

As stated previously the three properties are subject to different zone and overlay controls (refer Figures 4a and 4b: - Zone and Overlay Plans). These are summarised as follows:

690 Bridge Inn Road

- Residential 1 Zone
- Development Plan Overlay 5 – Mernda Development Plan
- Incorporated Plan Overlay 1 – Mernda Incorporated Plan
- Vegetation Protection Overlay – River Red Gum Grassy Woodland

730 Bridge Inn Road

- Special Use Zone 5 – Ivanhoe Grammar School
- Vegetation Protection Overlay – River Redgum Grassy Woodland

760 Bridge Inn Road

- Residential 1 Zone (majority of the site)
- Environmental Rural Zone (outside Development Plan area)
- Development Plan Overlay 5 – Mernda Development Plan
- Incorporated Plan Overlay 1 – Mernda Incorporated Plan
- Vegetation Protection Overlay – River Redgum Grassy Woodland

A request has been made to the Whittlesea City Council to amend the planning scheme so all properties are within the Residential 1 Zone, and the Development Plan Overlay 5 and Vegetation Protection Overlay 1.

3.6 Flora and Fauna

3.6.1 Summary of Flora and Fauna Assessments

Three separate ecological assessments have been undertaken for the sites:

- Brett Lane and Associates P/L undertook an ecological assessment in November 2002. This study covered both the strip of Environmental Rural Zone land adjacent to the western boundary of 690 Bridge Inn Road (proposed to be rezoned to Residential 1Zone), and the southern portion of the IGS property at 730 Bridge Inn Road.
- Biosis Research undertook an ecological study in support of the Yarrambat North Local Structure Plan in October 1999, which included the Rapaport property at 760 Bridge Inn Road.
- Most recently, in December 2003 and January 2004, Biosis Research completed an updated flora and fauna assessment for the development plan.

The most recent report by Biosis Research is submitted in support of this Development Plan.

The studies found that the original vegetation over much of the study area has been modified to varying extents due to clearing of rock, cultivation and grazing for many years.

The properties currently support remnants of two ecological vegetation classes (Plains Grassy Woodland and Plains Grassy Wetland) with the balance of the study area supporting Predominantly Introduced Vegetation.

No flora species of national or state significance were recorded from the study area, and no fauna of national or state conservation significance were recorded within the study area during the present assessment.

The conservation significance of remnant vegetation within the study area ranges from local to regional. There are a large number of very old River Red Gums present and some modified remnants of Plains Grassy Woodland and Plains Grassy Wetland, both of which are endangered in the Victorian Volcanic Plains bioregion.

The scattered River Red Gums are in poor to good condition. The condition of native vegetation within the remainder of the study area, including the small remnants of Plains Grassy Wetland, is considered to be poor.

The studies recommend that mature River Red Gums should be retained where possible based upon the advice of a qualified arborist. Weed management is deemed critical in order to control several highly invasive species that may threaten the ecological values of the Plenty River system. The most recent Biosis research report lists a number of mitigation measures for the pre-constriction, construction and post constriction phases of the development.

3.6.2 Tree Assessment

The subject site contains numerous significant and attractive River Red Gums which have been assessed in terms of arboricultural, ecological, habitat and aesthetic/ landscape considerations as follows;

- Arboricultural values - Refer Arboricultural Plan (refer Figure 5a)
  The Arboricultural Values figure provides a summary of the arboricultural assessment of existing trees within the development, indicating retention values as identified by arborists Galbraith & Associates. Trees of high significance, medium significance and low significance are indicated on the plan relating to a variety of attributes including species, form and structure, life expectancy, health and landscape value. Trees of medium to high significance are given priority for retention. Refer to Galbraith & Associates reports for details.

- Ecological values – Refer Ecological Values Plan (refer Figure 5b)
  The Ecological Values Plan distils the basic findings of Biosis' Net Gain report, identifying remnant EVCs (ecological vegetation classes) as well as providing individual 'net gain' ratings for the trees. The design response aims to minimise the removal of Very Large Old trees, Large Old trees and Medium Old trees as nominated by Biosis Research. As a priority, clusters or groups of Large and Very large old trees are to be retained within open space areas with smaller groups and isolated River Red Gums to be retained in pocket parks and widened road reserves where possible.

- Habitat values
  A selection of trees of high ecological significance that are proposed for removal have been the subject of a detailed habitat survey to ascertain a more accurate understanding of their habitat value. This detailed study further informed the design process. Given the number of large and very large old trees to be retained within the site it is argued that sufficient habitat will ultimately be available to fauna.

- Aesthetic/landscape character values
  Landscape character has been an underlying factor in the urban design process and in conjunction with the above values will influence selection of trees to be retained. Existing River Red Gums will be the focus of the new estate, ensuring they are still a dominant landscape element. A clear opportunity also exists to strengthen the visual predominance of the River Red Gum canopy through future revegetation.

- Vegetation Design Response (refer Figure 5c)
  The overlaying of the above values presented a challenge in the urban design process as they conflict as well as compliment one another. Each of the above layers of values was considered in the urban design process and this is ultimately reflected in the design response, however a greater emphasis has

been placed on ecological and habitat values. Through a variety of treatments, the above values will be preserved, whether by retaining trees in open space, pocket parks, widened road reserves or in sensitive urban design zones. Refer to the Vegetation Design Response Plan (refer Figure 5c) for a summary of how the values of the trees can be translated into the design.

3.7 Archaeology and Heritage

There have been two separate archaeological assessments undertaken for the subject site, including:

- Biosis Research undertook an archaeological study in support of the Yarrambat North Local Structure Plan in January 2000, which included the Rapaport property at 760 Bridge Inn Road.
- TerraCulture undertook an archaeological assessment of 690 and 730 Bridge Inn Road, as well as surrounding land either side of the Yan Yean pipeline and Plenty River. The investigation was completed in two stages; namely the initial site survey of November 2002 and the subsequent sub-surface testing and additional surface survey of key areas in January 2003.

Whilst the investigations demonstrate ***'the high sensitivity of the Plenty River corridor for Aboriginal archaeological sites and Historic archaeological sites'***, the subject site itself only contains two sites of low-level significance.

The TerraCulture report comes in two parts. The first report is the result of initial pedestrian survey in November 2002 and included the advice that some sub-surface testing would be required. The second report is the result of this sub-surface testing. An addendum to the reports was prepared as a result of the TerraCulture recommendation that prior to a River Red Gum being altered or removed, it should be examined for cultural scarring.

Both TerraCulture reports (two parts plus addendum report) and the Biosis Research report are submitted in support of this Development Plan.

The Biosis study and TerraCulture studies used the Ellender report ('The Archaeological Survey of Aboriginal sites in the Plenty Valley Corridor' by Isabel Ellender, 1989) for reference during their investigations. This is consistent with the Mernda Strategy plan and the recommendations by the Panel in regard to Aboriginal heritage and culture.

3.7.1 Aboriginal Heritage

In terms of Aboriginal archaeological significance, the site is known to contain two scar trees (Ref AAV 7922/0299 and 300) however the exact locations have not been confirmed. The study recommends that prior to any removal or alteration of a mature River Red Gum, the tree be first examined for cultural scarring by an archaeologist or Wurundjeri representative. This examination was undertaken and the results in the addendum report.

TerraCulture identified a new Aboriginal site during their investigations. This site (Ref AAV 7922/0718) is an isolated artefact of a single quartz waste flake. Its condition is poor and scientific rating is low. The site was found near the Joslyn Well (see section 3.7.2 below).

The examination of the trees identified for removal and alteration was undertaken in September 2004. This inspection relocated AAV 7922/0299 in the second most northern paddock at 690 Bridge Inn Road, west of the dwelling and just east of the pipetrack. It is tree reference number 570 (see Attachment 1).

The February Report stated that AAV 7922/0299 was relocated in the pipetrack, however this was found to be incorrect through the September survey.

Scarred tree AAV 7922/0300 was relocated in the southern most paddock of 690 Bridge Inn Road, east of the high dam wall. It is tree reference number 405 (see Attachment 1).

Another scarred tree was located and has tree reference number 573. The origin of the scar is unclear, however Aboriginal cultural origins cannot be discounted. As a result the tree is registered with AAV as AAV 7922/TBA.

These trees have been correctly identified on the Development Plan and will be retained on Park C and Integrated Housing Site D.

3.7.2 European Heritage

The Joslyn Well (Ref H7922/0253) is the only European historic archaeological site within the subject site and although in poor condition and of low overall significance, development at or near this site will require the consent of Heritage Victoria.

3.8 Opportunities and Constraints

The subject site has been identified within the Mernda Strategy Plan for future residential development and presents an ideal opportunity for such development. The primary opportunities and constraints for the development of the site are:

3.8.1 Remnant River Red Gums

A large number of very old remnant River Red Gums scattered throughout the site. These trees have significance both in terms of ecology, habitat and landscape character and are of central importance in the site design. These trees are to be evaluated in terms of ecological, habitat (refer Flora & Fauna and Habitat Assessment Reports), arboricultural and landscape values.

3.8.2 Areas Exposed to Bridge Inn Road

With the future duplication of Bridge Inn Road, the northern interface of the subject site will be further exposed to views and traffic noise. The visibility problems associated with the existing cutting also have the potential to create access issues.

3.8.3 Potential Open Space Areas

Visually and environmentally sensitive areas within the site provide ideal settings for passive open space. The central location of the existing homestead provides for panoramic views of the surrounding landscape and represents a suitable location for a neighbourhood park as identified in the Mernda Strategy Plan. A significant grouping of mature River Red Gums in the south-east of the site is also indicated in the MSP and will serve as a primary open space. Other potential open space areas will enable the preservation of River Red Gums and assist in the viability of regional ecological corridors.

3.8.4 Site Features and Historical Markers

Remnant rock walls, farming artefacts and existing avenues of trees and windbreaks are intrinsic elements that contribute to the rural character of the site. The preservation or reference to such attributes will help to ensure that future development will retain a tangible sense of identity.

3.8.5 Significant Views

Local panoramic views from the homestead site and the associated ridgeline running north are a significant attribute of the site. There is an opportunity to preserve and emphasise these views through the appropriate siting of open space and residential allotments.

3.8.6 Sensitive Urban Design Areas

The Mernda Strategy Plan identifies an area alongside the western boundary of IGS for sensitive urban design due to the location of numerous River Red Gums. As such, this area has been identified on the Development Plan.

3.8.7 Interface Treatments

The development site will require sensitive edge treatment to ensure that future residential areas relate with adjacent land uses. Firstly, the interface with the Plenty River corridor presents possible environmental issues. Ideally, the southern edge of the development site will provide a visual transition between residential land and the river corridor whilst preventing any adverse environmental effects such as urban runoff and pollution. Secondly, the interface between the Ivanhoe Grammar School and the development site needs to address issues of privacy and passive surveillance and create a strong visual and spatial connectivity between the two land uses.

4 Design Response: The Development Plan

4.1 The Vision

In developing a vision for the proposed Bridge Inn Road residential development, the principles of the Mernda Strategy Plan and the directives of the Whittlesea Planning Scheme provided valuable reference. The major focus and defining feature of this proposed residential estate is as an environmentally sustainable and liveable community (refer Figure 6: Development Plan).

This will be achieved by way of appropriate infrastructure and technology; building design and guidelines; landscaping treatments; open space and community facility integration; accessibility to activity/local convenience centres; housing diversity; and integration with the nearby existing communities.

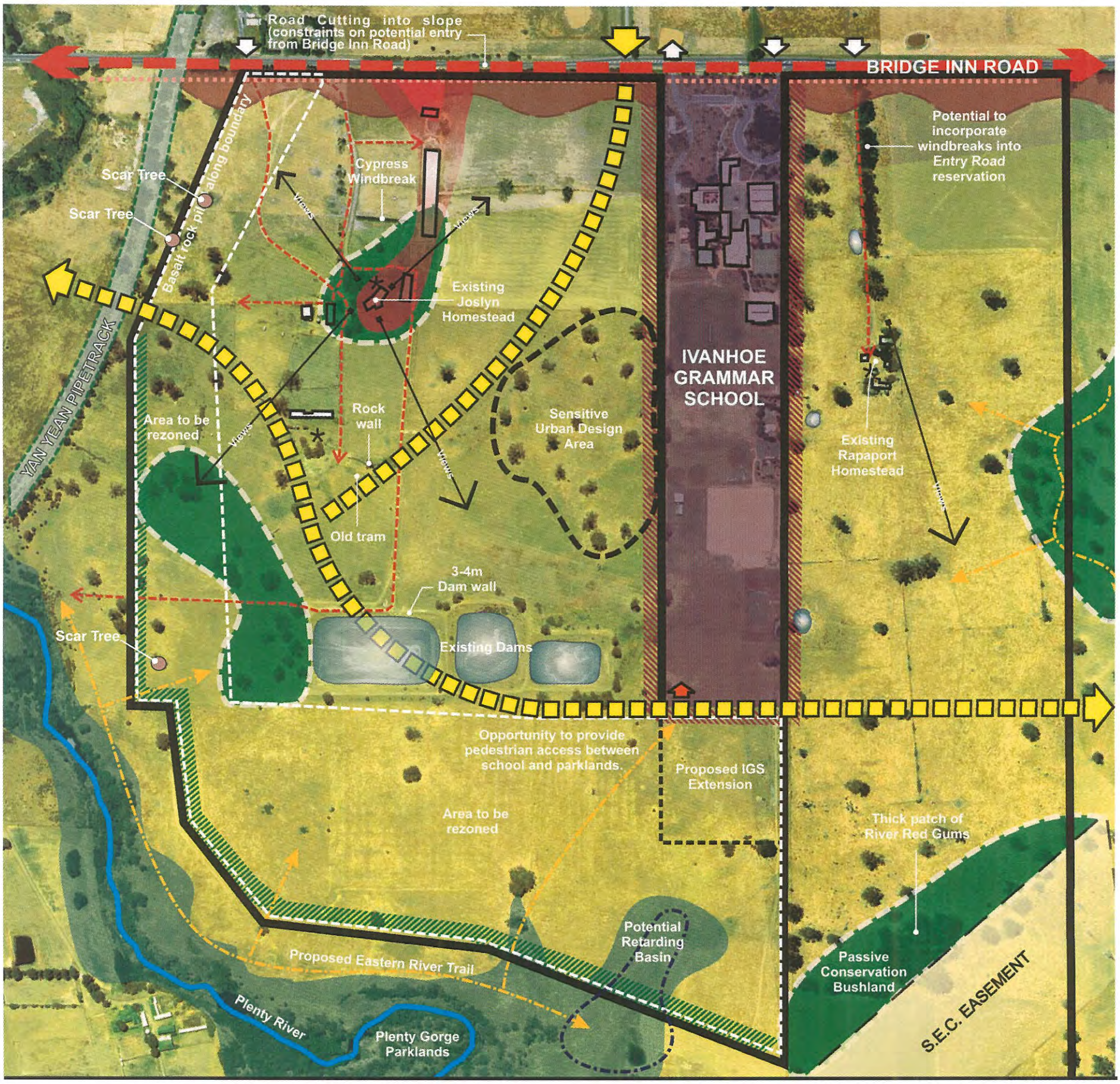
The Development Plan has sought to identify the site's key features from which a sense of place and community can be developed. The topography associated with the Joslyn Homestead, the River Red Gums and panoramic views to the surrounding area are some of the key features that provide the site with its character. The vision is for these elements to be retained where practical and enhanced to create an estate characterised by picturesque views, integration with the surrounding landscape and an informal network of parklands.

It is anticipated that the Bridge Inn Road development will form a unique and vibrant residential estate that will draw upon the intrinsic characteristics of the landscape to provide a distinct sense of place and identity for future residents.

4.2 Principal Elements

The vision will be implemented in accordance with subdivision design polices which respond to site features identified within the site analysis process. The fundamental objectives for the Development Plan design and layout include:

- Maximising of permeability and access through the site, basing the design on a modified north-south, east-west grid. This provides a legible, safe and convenient street network with distinct east-west and north-south linkages both within the Development Plan and with connectivity to the future stages of the MSP.
- Sensitive treatment of the Plenty River interface to maintain the integrity of this degraded but diverse ecological corridor. Views towards the Plenty River parklands will be optimised to increase the sense of community ownership for this borrowed landscape.
- Channelling views towards open space and providing for easy walking access to maximise use and appreciation of the natural environment.
- Maximising passive surveillance over open space and Ivanhoe Grammar School, thereby increasing perceptions of safety.
- Orientation of lots to maximise views while satisfying solar access requirements.



Legend

Land Use

- School Site
- Electricity Easement
- Pipetrack

Topography and Drainage

- Dams / Water bodies
- Elevated areas & ridges
- Creek Valley to be retained as open space

Site Features

- Site boundary
- Existing buildings & sheds
- Unsealed roads & dirt track
- **Existing vegetation**
  Consists primarily of River Red Gums & other Eucalypt Species. Numerous exotic species in close proximity to Joslyn homestead. See arborist, flora & fauna & net gain reports for details.
- **Aboriginal scar trees**
  Registered site of archaeological significance although specific location not confirmed (see archaeological report)
- **Joslyn Well**
  60-70 year old red brick well. The site is in poor condition and is of low overall significance. (Refer Archaeological Report).

Access & Circulation

- Primary Arterial route
- Bus Route/Stop
- **Existing Entry / Exit Point**
  Opportunity to retain historic entry points and utilise existing avenue of trees a design feature
- **Potential Entry Points**
  Primary site entry to be aligned with the future boundary of Ivanhoe Grammar School
- Indicative collector road
- Access point
- **Potential pedestrian links**
  Opportunity to interconnect future pedestrian/cycle paths into the proposed Eastern River trail linking with the Ivanhoe Grammar School, the future Mernda Town Centre and the Plenty Gorge Parklands

Opportunities & Constraints

- **Interface with Bridge Inn Rd**
  The northern edge of the site is exposed to Bridge Inn Road; a Primary Arterial which will be subject to increasing traffic volumes. Setbacks and visual buffering may be required along this interface.
- **Potential Open Space Areas**
  Visually and environmentally significant areas within the site provide ideal settings for passive open space. The existing central location of the Joslyn Homestead provides panoramic views of the surrounding landscape and also contains a range of indigenous and exotic vegetation. Other potential open spaces indicated will enable the preservation of mature River Red Gums.
- **Site features and historical markers**
  Homesteads, remnant rock walls, farming artefacts and existing avenues of trees and windbreaks are intrinsic elements that contribute to the rural character of the site. The preservation of such attributes will help to ensure that future development will still retain a tangible sense of its rural identity.
- **Significant views**
  Local panoramic views from Joslyn & Rapport homestead sites and the associated ridgeline running north are a significant attribute of the site. Urban and landscape design should aim to preserve and emphasise these views
- **Sensitive Urban Design Area**
  The Mernda Strategy Plan identifies this area for responsive residential design to preserve River Red Gums
- **Interface Treatment**
  The development site will require sensitive edge treatment to ensure that future residential areas relate to adjacent land uses.
  1) Firstly, the interface with the Plenty River corridor presents possible environmental issues. Ideally, the southern edge of the development site will provide a visual transition between residential land and the river corridor whilst preventing any adverse environmental effects such as urban runoff and pollution.
  2) Secondly, the edge between the development site and Ivanhoe Grammar needs to address issues of privacy and create a strong visual and spatial connectivity between the two land uses.

N

Scale 1:5000 @ A3

50 75 100 125m

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Figure 3 **Site Analysis Plan**

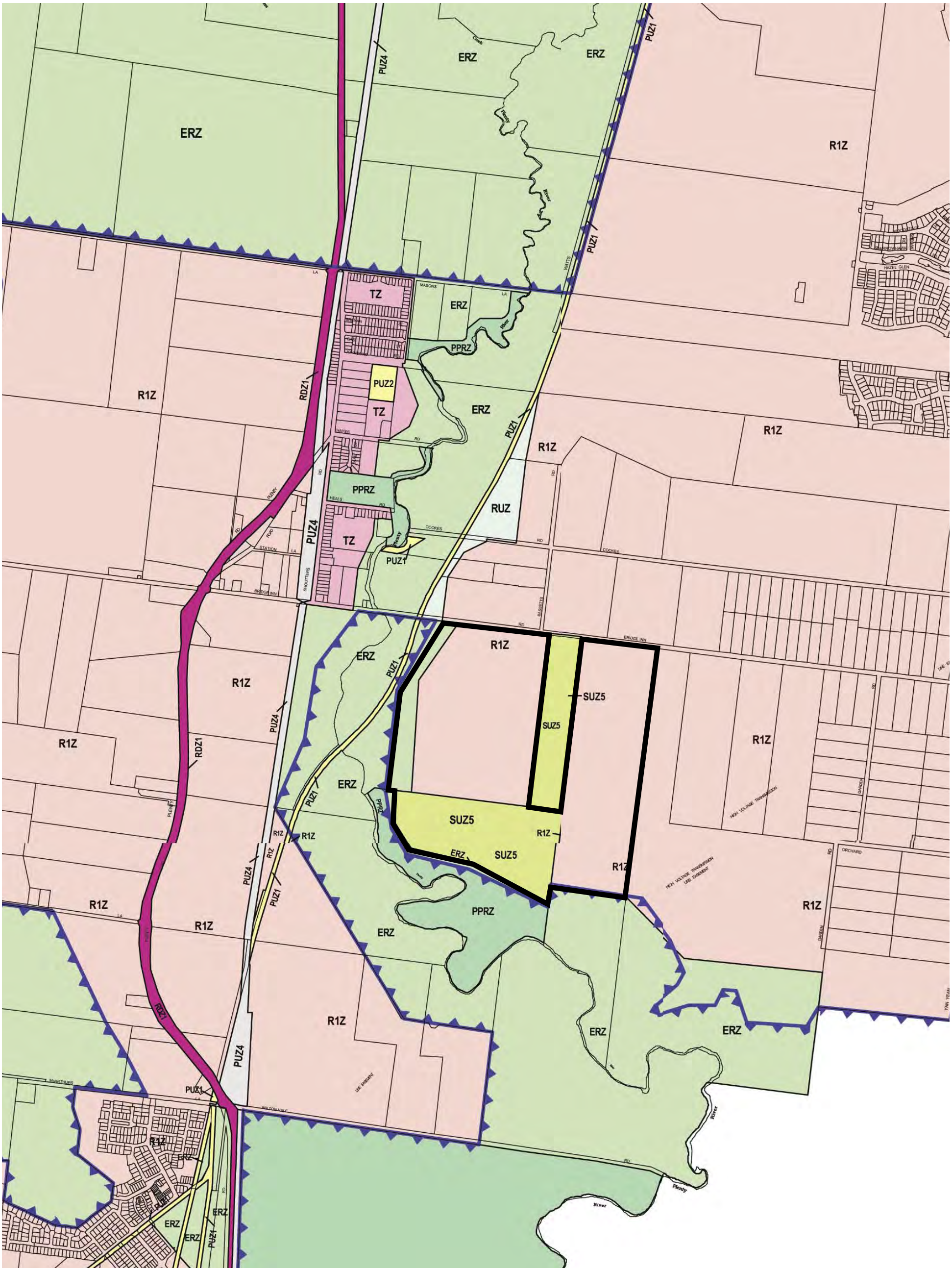

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Figure 4A **Zoning Plan**

Development Plan Overlay

Incorporated Plan Overlay

Public Aquistion Overlay

Vegetation Protection Overlay

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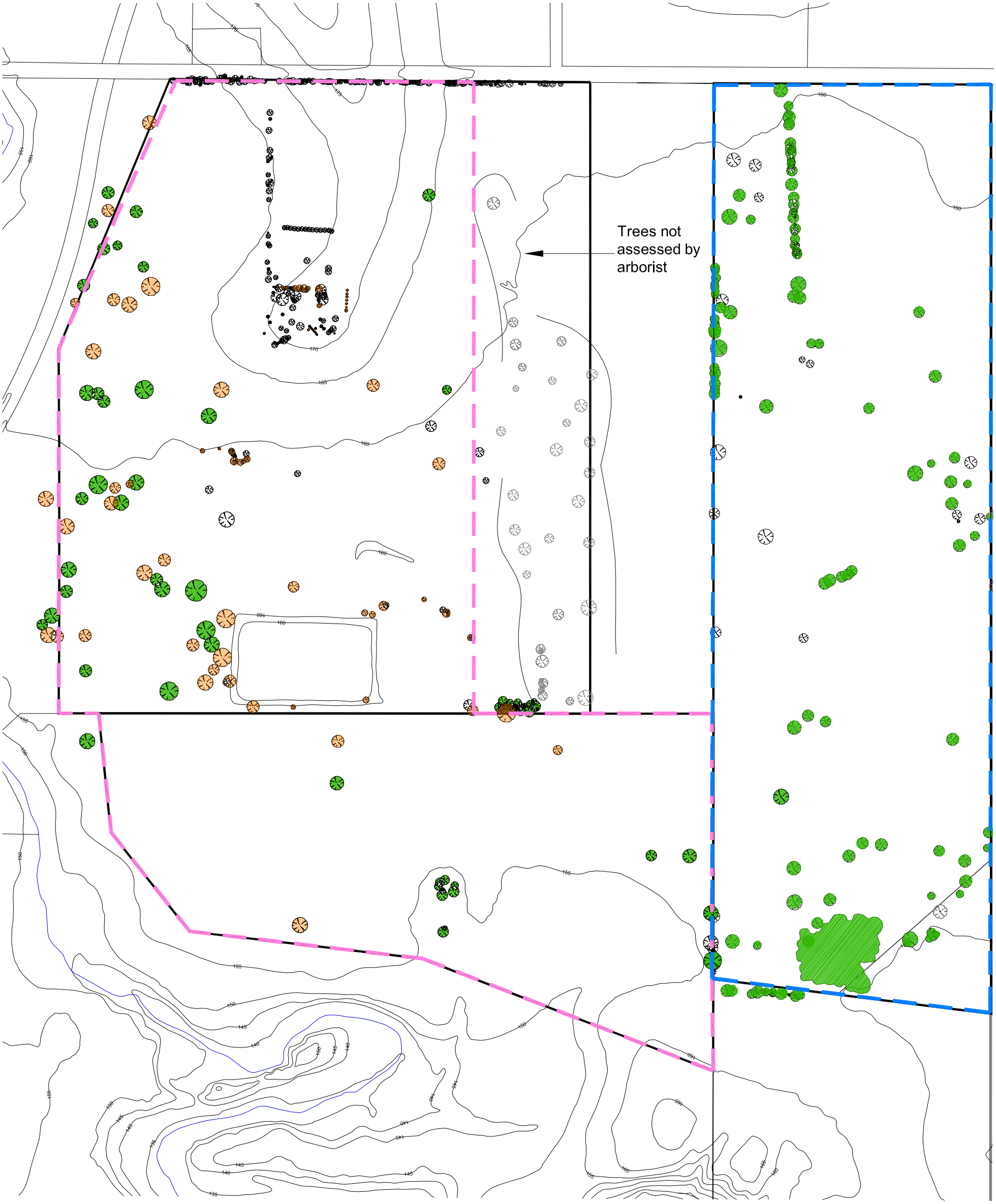
Figure 4B **Planning Scheme Overlays**

Bridge Inn Road **Mernda**



Trees assessed as part of Bridge Inn Road tree assessment (refer Rob Galbriath report)

Trees of high arboricultural value

Trees of medium arboricultural value

Trees of low arboricultural value

Trees assessed ias part of Yarrambat North tree assessment (refer Rob Galbriath report)

Trees of high retention value

Trees of low retentionvalue

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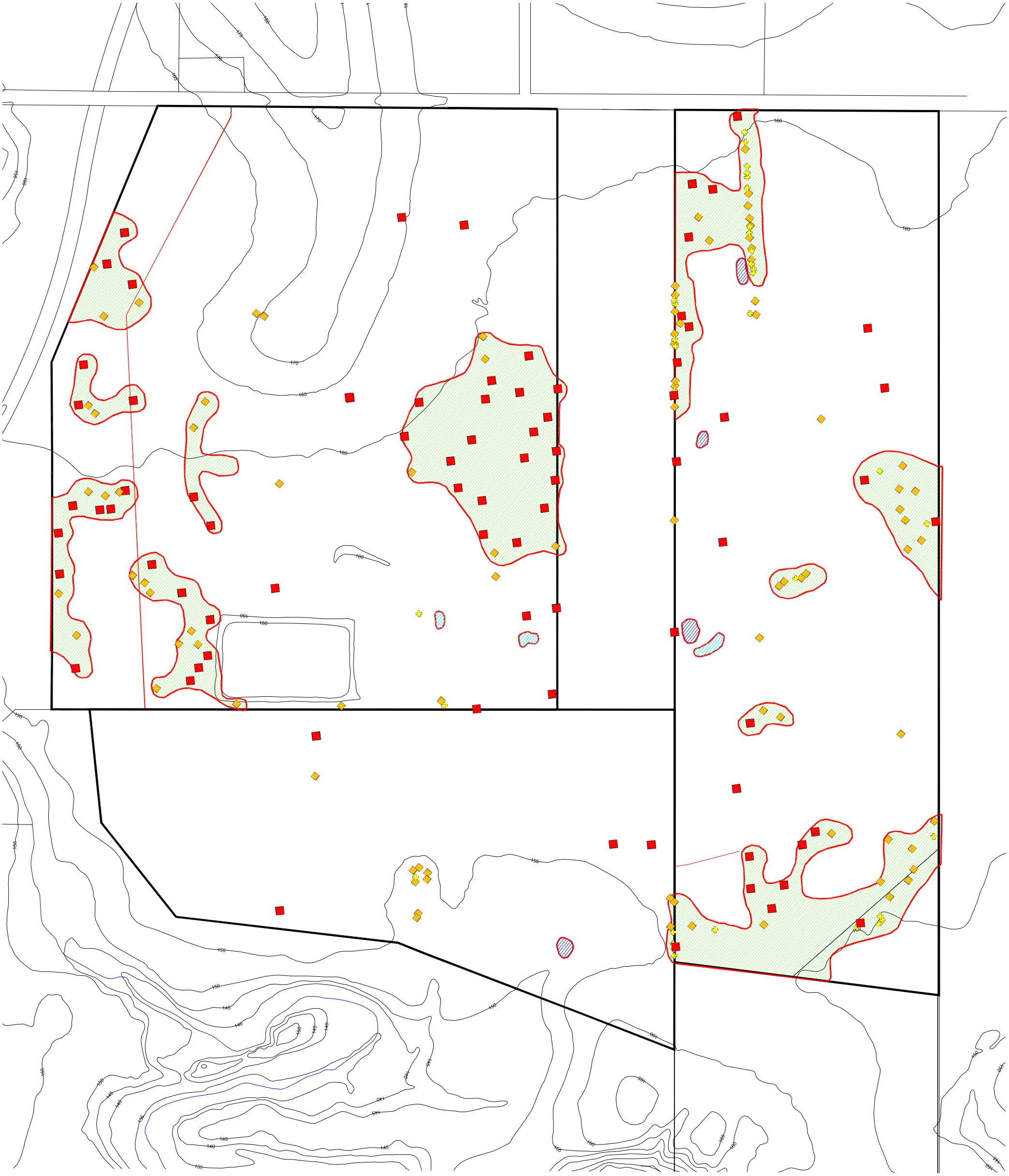
Figure 5a **Arboricultural Plan (refer Rob Galbraith report)**

Bridge Inn Road **Mernda**



Trees assessed as part of Bridge Inn Road 'Net Gain' assessment (refer Biosis report)

- Very Large Old trees
- Large Old trees
- Medium Old trees

Ecological Vegetation Classes identified as part of Bridge Inn Road 'Net Gain' assessment (refer Biosis report)

- Plains Grassy Woodland EvC (modified)
- Plains Grassy Wetland EVC (modified)
- Dam

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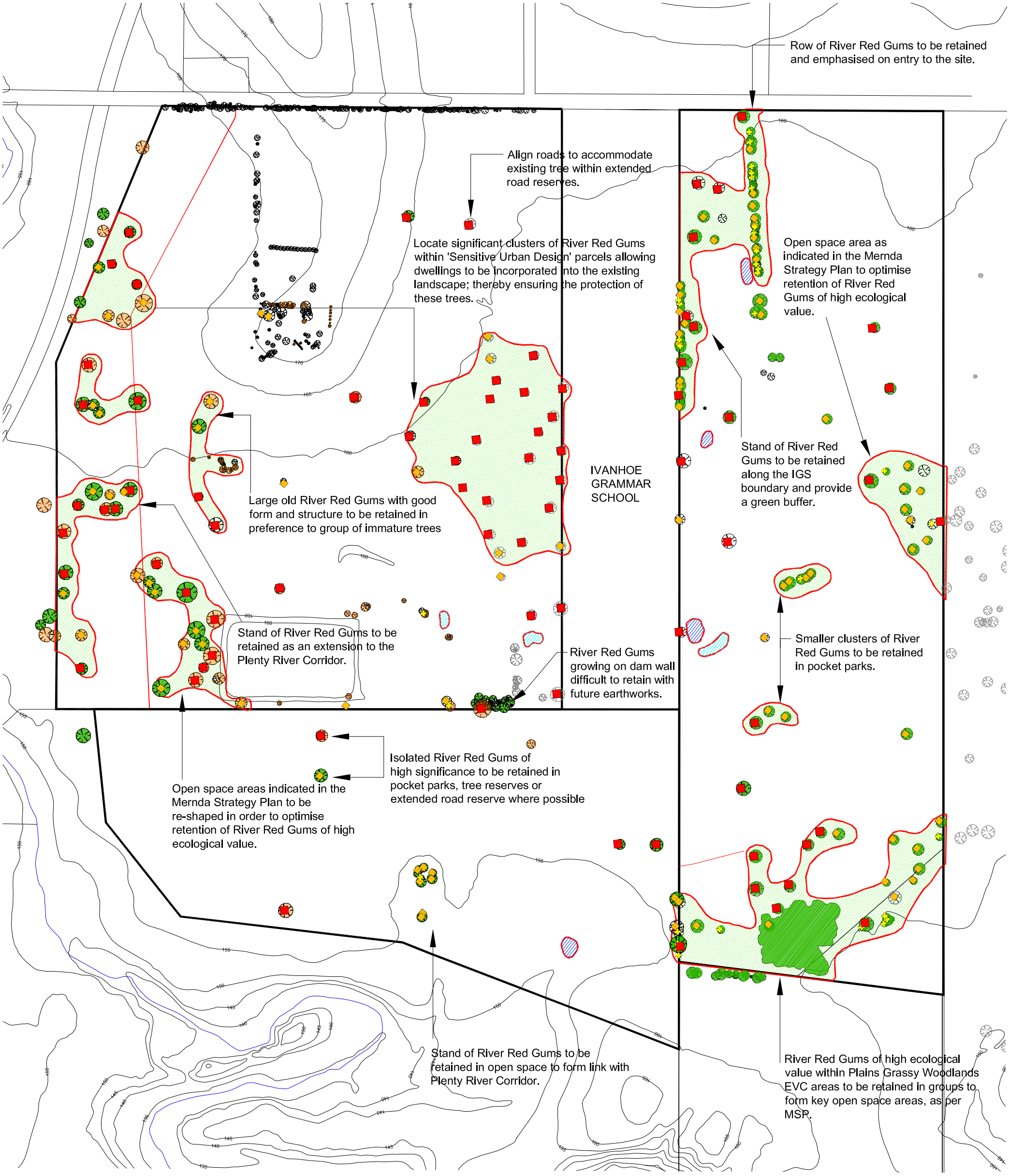
Figure 5b **Ecological Values Plan (refer Biosis report)**

Bridge Inn Road **Mernda**



Design Response

The design response for the Bridge Inn Road development plan recognises the significance of existing indigenous vegetation within the site in terms of landscape character, ecological and habitat value. As such, the design philosophy centres around maximising the retention of native vegetation. In keeping with the principles of the Framework for the Management of Native Vegetation particularly the River Red Gums, the avoid, minimise, mitigate process has been followed.

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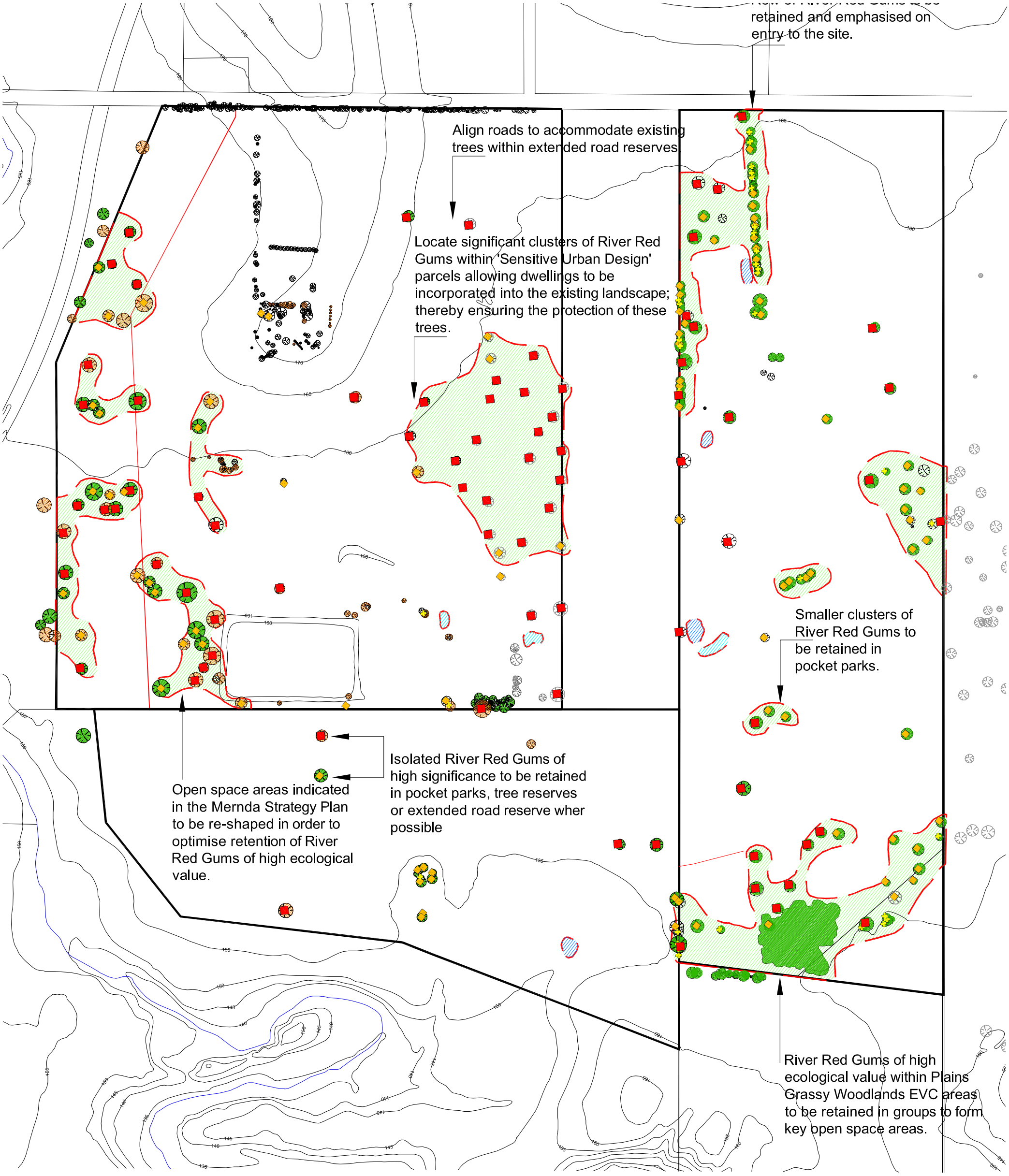
Figure 5c **Vegetation Design Response Plan**

Bridge Inn Road **Mernda**



Design Response

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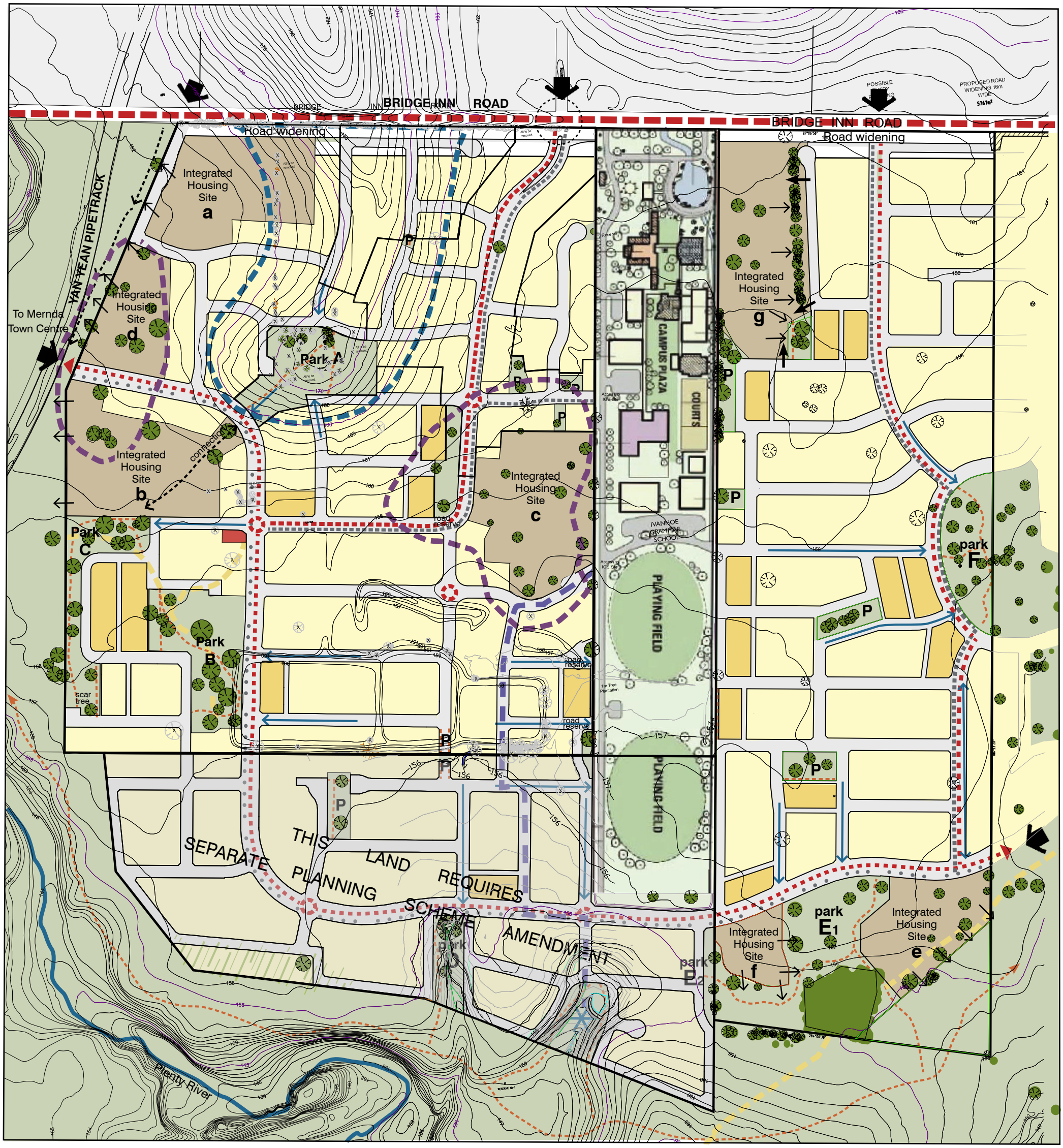
Figure 5d **Vegetation Design Response Plan**



Note: The land contained within the SUZ5 zone (IGS land) is not affected by a D.P.O. Therefore this Development Plan as it relates to this land is indicative only and subject to further work.

Legend

- Standard lots
- Terrace lots
- Integrated housing site
- Open space
- Development potential impacted due to interface issues with Plenty Park
- Existing trees proposed for retention
- Existing trees proposed for removal
- Convenience store
- P — Pocket Parks
- Contours
- Final stormwater treatment mechanism to be resolved with Melbourne Water Corporation
- View line
- Arterial road
- Collector road
- Shared pathway
- On road bicycle lane
- Paths - Mernda Strategy Plan
- Paths - other
- Major entry points & links
- Signallised intersection treatment
- Active interface
- Key connections
- Gate / school access entries & exits as numbered from 1-6:
  - ① Left turn entry and right turn entry
  - ② Left turn exit only
  - ③ Vehicular entry and exit, (includes buses)
  - ④ Vehicular exit, only during school drop off and pick-up (no buses) Other times to service playing fields only.
  - ⑤ Vehicular access to service playing fields and school maintenance
  - ⑥ Locked gate (school maintenance access only)
- High security fence (timber paling or similar)
- Low open fence (post & rail / wire etc)
- Approximate Proposed Alignment of Main Drain (detailed location to be resolved between I.G.S. and Australand with the relevant service authorities)
- Visually Sensitive Design
- Environmentally Sensitive Design

Note: The IGS masterplan was prepared by Smith and Tracy Architects.

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Figure 6 **Development Plan**

- Recognising the environmentally and visually sensitive areas as per the Mernda Strategy Plan. In the environmentally sensitive areas, retention of remnant vegetation is a priority, and for the most part these areas have been designated for integrated housing so as to sensitively integrate housing with the trees. The visually sensitive areas require design guidelines to ensure protection of character and landscape values. In this regard Park A will be sensitively designed given its elevation and views into and from this area.
- Providing a diversity of housing with an emphasis on achieving expected densities within Mernda Precinct 2B. In particular, medium density allotments will be located along the western edge of the site in close proximity to the future Mernda town centre and adjacent to appropriate open space and community activity areas.
- Minimising rear and side fences abutting open space, while maximising frontage of lots onto internal and external open space.
- Designing in such as way as create mutually beneficial outcomes for the future estate and the Ivanhoe Grammar School.
- Retain and protect groupings of mature River Red Gums as well as other individual specimens of high significance and provide for the revegetation of indigenous species to achieve a net gain in habitat area.
- Designing roads and parks to respond to the valleys and ridgelines.

4.3 Land Budget

The Development Plan covers an area of approximately 120.4 hectares. The gross developable area is calculated to be 116.6 hectares with all undevelopable land excluded (as indicated in the tables over the page).

A lot yield of 1,435 lots will be provided. On the basis of an average household size of 2.6 persons per household, a population in the order of 3,700 persons will be accommodated.

Land budgets have been prepared for the whole of the site, and separately for the Australand, Ivanhoe Grammar School and Rapaport properties.

LAND BUDGET: 690 – 760 BRIDGE INN ROAD, DOREEN

140480/05 March 2005 Rev H *Refer Plan 140480/05 U01 Rev F* ***Ha***

TOTAL SITE AREA				**120.35**
Australand Holdings Limited				54.28
Ivanhoe Grammar School				23.28
Rapaport Property				42.79
Undevelopable Land				**3.77**
Road widening to Bridge Inn Road (16m)				1.46
SECV Easement				1.54
Retarding Basin				0.77
Gross Developable Land				**116.58**
Open Space				**11.14**
Open Space as per Mernda Strategy Plan		**8.32 Ha**		
A – Existing Homestead		1.45 Ha		
B – Open Space		1.67 Ha		
C – Open Space		1.13 Ha		
E1 – Open Space		2.96 Ha		
F – Tree Preservation		1.11 Ha		
Other Open Space		**2.82 Ha**		
D – Habitat Corridor & Tree Preservation		0.43 Ha		
E2 – Habitat Corridor & Tree Preservation		0.15 Ha		
P* – Pocket Park & Linear Park		2.15 Ha		
* Bridge Inn Road Tree Reserves		0.09 Ha		
Road Reserves				**26.87**
For detail refer to individual land ownership land budgets				
Integrated Housing (1/400m2)				**9.4**
(sites adjusted for tree preservation)	**Area**		**Lots**	***Balance area**
Site a	2.48 Ha		62	2.48 Ha
Site b	2.84 Ha		63	2.50 Ha
Site c	2.83 Ha		50	2.00 Ha
Site d	1.43 Ha		17	0.88 Ha
Site e	1.77 Ha		45	1.53 Ha
Site f	0.71 Ha		24	0.73 Ha
Site g	3.08 Ha		43	1.71 Ha
			304	
**** the balance area has been adjusted to cater for existing trees as per recommended off sets in tree assessment report***				
****The balance area of IH sites includes 50% of the area of adjoining external roads as effective area to factor road frontage in overall densities***				
Local Convenience Centre (750m^2)				**0.01**
Net Residential Area (NRA), Mix and Yield				**66.81**
Lot size	**% Area**	**No.**	**No.**	
400	14.1%	9.3	163	10m x 30/34
550	50.4%	33.2	686	17m x 32/33
650	26.3%	17.3	252	17/18m x 34/35
750	9.3%	6.1	30	18/20m x 35+
	100.0	**65.9**	**1131**	**Ave = 573m^2**
TOTAL LOTS			**1435**	

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LAND BUDGET: 690 BRIDGE INN ROAD, DOREEN

140480/05 March 2004 Rev H *Refer Plan 140480/05 U01 Rev F* ***Ha***

TOTAL SITE AREA	**54.28**
Area based on existing Joslyn Property	54.28

Undevelopable Land	**0.88**
Road widening to Bridge Inn Road (16m)	0.88

Gross Developable Land	**53.40**

Open Space		**5.05**
Open Space as per Mernda Strategy Plan (Required 3.878ha)	**4.25 Ha**	
A – Open Space	1.45 Ha	
B – Open Space	1.67 Ha	
C – Open Space	1.13 Ha	
P* – Pocket Parks & Linear Tree Reserves	0.80 Ha	
* Bridge Inn Road Tree Reserves	0.05 Ha	

Road Reserves	**Length**	**Width**	**Area**	**11.37**
Sub Arterial (high order collector rd)	674.40	23.8	1.61 Ha	
Trunk Collector road	245.3	26.9	0.66 Ha	
Collector road	542.9	20.8	1.13 Ha	
Local roads	4343.00	15.5	6.73 Ha	
Edge roads	838.9	12.0	1.01 Ha	
Rear Lanes	367.5	6.4	0.24 Ha	

Does not include private roads within Integrated Housing Sites

Integrated Housing (1/400m2)				**9.6**
		Area	**Lots**	***Balance area**
Site a		2.48 Ha	62	2.48 Ha
Site b		2.84 Ha	63	2.50 Ha
Site c		2.83 Ha	50	2.00 Ha
Site d		1.43 Ha	17	0.88 Ha
			192	

**** the balance area has been adjusted to cater for existing trees as per recommended off sets in tree assessment report***

****The balance area of IH sites includes 50% of the area of adjoining external roads as effective area to factor road frontage in overall densities***

Net Residential Area (NRA), Mix and Yield				**27.41**
Lot size	**% Area**	**Area**	**No.**	
400	0.18	5.0	65	10m x 30/34
550	0.40	11.0	267	17m x 32/33
650	0.32	8.7	130	17/18m x 34/35
750	0.11	3.1	12	18/20m x 35+
	100.0	**27.4**	**474**	
TOTAL LOTS			**666**	

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LAND BUDGET: 730 BRIDGE INN ROAD, DOREEN

140480/05 March 2005 Rev H *Refer Plan 140480/05 U01 Rev F* ***Ha***

TOTAL SITE AREA	**23.28**
Ivanhoe Grammar School	23.28
Undevelopable Land	**0.77**
Retarding basin	0.77
Gross Developable Land	**22.51**
Open Space	**0.88**
Open Space not defined in Mernda Strategy Plan	**0.00 Ha**
Other Open Space	**0.88 Ha**
D – Habitat Corridor & Tree Preservation	0.43 Ha
E2 – Habitat Corridor, Drainage & Tree Preservation	0.15 Ha
P* Pocket Parks & Linear Tree Reserves	0.30 Ha

Road Reserves	**Length**	**Width**	**Area**	**6.26**
Sub Arterial (high order collector rd)	745.14	23.8	1.77 Ha	
Local roads	1395.69	15.0	2.09 Ha	
Edge roads	1948.12	12.0	2.34 Ha	
Rear Lanes	82.95	6.4	0.05 Ha	

Does not include private roads within Integrated Housing Sites

Net Residential Area (NRA), Mix and Yield				**15.37**
Lot size	**% Area**	**Area**	**No.**	
400	2.0	0.3	8	10m x 30/34
550	86.0	13.2	240	17m x 32/33
650	9.0	1.4	21	17/18m x 34/35
750	3.0	0.5	6	18/20m x 35+
	100.0	**15.4**	**275**	
TOTAL LOTS			**275**	

LAND BUDGET: 760 BRIDGE INN ROAD, DOREEN

140480/05 June 2004 Rev H *Refer Plan 140480/05 U01 Rev C1* ***Ha***

TOTAL SITE AREA	**42.79**
Rapaport Property	42.79

Undevelopable Land	**2.12**
Road widening to Bridge Inn Road (16m)	0.58
SECV Easement	1.54

Gross Developable Land	**40.67**

Open Space		**5.21**
Open Space as per Mernda Strategy Plan (Required 4.073Ha)	**4.07 Ha**	
E1 – Open Space	2.96 Ha	
F – Open Space	1.11 Ha	
Other Open Space	**1.14 Ha**	
P* Pocket Parks & Linear Tree Reserves	1.10 Ha	
* Bridge Inn Road Tree Reserves	0.04 Ha	

Road Reserves	**Length**	**Width**	**Area**	**9.24**
Sub Arterial (high order collector rd)	362.87	23.8	0.86 Ha	
Trunk Collector road	85.38	26.9	0.23 Ha	
Collector road	912.39	20.8	1.90 Ha	
Local roads	2837.05	15.0	4.26 Ha	
Edge roads	1277.79	12.0	1.53 Ha	
Rear Lanes	721.39	6.4	0.46 Ha	

Does not include private roads within Integrated Housing Sites

Integrated Housing (1/400m2)			**5.6**
	Area	**Lots**	***Balance area**
Site E	1.77 Ha	45	1.53 Ha
Site F	0.71 Ha	24	0.73 Ha
Site G	3.082 Ha	43	1.71 Ha
		112	

**** the balance area has been adjusted to cater for existing trees as per recommended off sets in tree assessment report***

****The balance area of IH sites includes 50% of the area of adjoining external roads as effective area to factor road frontage in overall densities***

Net Residential Area (NRA), Mix and Yield				**20.65**
Lot size	**% Area**	**Area**	**No.**	
400	0.18	3.7	90	10m x 30/34
550	0.40	8.2	179	17m x 32/33
650	0.32	6.5	101	17/18m x 34/35
750	0.11	2.3	12	18/20m x 35+
	100.0	**20.7**	**382**	
TOTAL LOTS			**494**	

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5 Housing

The objective of the Mernda Strategy Plan in regard to housing is:

> ***"To provide a mix of lot sizes and housing forms to cater for a broad range of household types. The design of the dwellings should be site-responsive, energy efficient and contributory to the formation of local identity".***

The Development Plan responds positively to this objective and the sections below describes the design response in regard to diversity of lots sizes and housing type, and energy efficiency.

5.1 Diversity of Lot Sizes and Housing Type

In response to the needs of a 'diverse and changing population', the Development Plan provides the opportunity for housing diversity by identifying areas that are potentially suitable for medium density housing and by proposing a mix of lot sizes within the subdivision layout. Diversity of housing is considered essential to both cater for these various demands and to create 'interest and identity' within this new urban environment.

The concept incorporates a variety of lot sizes ranging from approximately 400m^2 to 750m^2, with an average lot size of 555m^2. Standard lots will typically have a frontage of 17 metres. Medium density lots are concentrated around open space and the western edge of the site closest to the future Mernda Town Centre. The majority of lots are oriented in an east west and north south alignment to provide maximum passive solar access.

As shown on the Development Plan, rear lanes service some medium density housing located abutting open space areas. Where possible rear lanes are limited in length and will have offset planting to increase amenity. Most medium density lots with rear lane access will be 10 metres wide. Therefore garages along the rear lanes will not be continuous and will provide space for gates and planting along the laneway. Opportunity for increased passive surveillance of the rear lanes is provided through design guidelines that may incorporate studios over garages that overlook the lane way. This type of housing style has been successfully incorporated into Innisfail Estate within the City of Wyndham.

5.2 Integrated Housing Sites

Integrated housing is a design approach to urban form that responds to specific requirements of a site which may pose a challenge to traditional individual lot layout. Within this Development Plan integrated housing sites have been located to respond to areas of medium density and sensitive urban design as shown in the Mernda Strategy Plan. Other factors that influenced the siting of the integrated housing include views and proximity to adjacent open space, parkland; and the Ivanhoe Grammar school.

These integrated housing sites will be designed to best take advantage of their prominent location, context, topography and views, and are located as follows:

- Sites A , B and D are located along the western edge of the site within the Mernda Strategy Plan's medium density band, and adjacent to the Plenty River parklands.
- Site C has been located in the sensitive urban design area nominated in the Mernda Strategy Plan, adjacent to Ivanhoe grammar school.
- Sites E and F are located to the south of 760 Bridge Inn Road.
- Site G is located at 760 bridge Inn Road, adjacent to Ivanhoe Grammar School

It is proposed that these integrated housing sites will be managed through the establishment of a body corporate. The body corporate will manage the upkeep, maintenance and on-going protection of areas that serve the wider community within the integrated housing sites. This would include areas of open space reserves, roads and street furniture, (seats, lamp posts etc) utilities infrastructure, common garden area, driveways, paths and the like.

The bodies corporate will be established in accordance with the provisions of the Subdivision Act 1988.

The development of these integrated housing sites will be subject to a separate planning permit approval process. However, to ensure that this housing form is integrated within the surrounding urban fabric, design parameters have been established to address a number of issues. Guidelines have been prepared for the property at 690 Bridge Inn Road, the principles of which can be applied to the balance of the Development Plan area. These guidelines aim to ensure development that is sensitive to the site and environment, and to provide high quality amenity for future residents and their neighbours. Details of the urban design parameters are included in Attachment 2, however they are summarised below:

- Development densities
  - Typically, housing densities in integrated sites are higher than the surrounding residential neighbourhood.
  - Medium density targets will be achieved subject to site opportunities and constraints, and will preserve environmental assets.

- Building setbacks from existing vegetation
  - Large red gums have been noted for retention in the integrated housing sites.
  - Buildings are to be constructed no closer to a radius of 1 metre from the canopy of the existing red gums. Consideration is to be given to the maturity of individual trees and the design layout is to be reviewed with an arborist to ensure that over time, trees will not grow over houses.
  - Development will be designed to maintain the canopy links within groups of red gums.

- View lines
  - A number of the integrated housing sites have frontage to the Plenty River open space corridor.
  - Buildings along the active interfaces should be designed to create internal view lines to adjoining open space areas.
  - Where significant specimens or groups of red gums occur on integrated housing sites, establish open space corridors to the Plenty River corridor that will ensure visual connectivity into and out of the sites.

- Interface treatments
  - Houses located to designated active interfaces are to front the surrounding open space areas.
  - Fence treatments to the front of individual houses are to be transparent so as to reinforce an active interface.
  - Pool type fences, or similar unobtrusive treatments, with muted neutral colours (black, dark green) are recommended.
  - Internal interfaces are to consider a strong and active presentation. Modulated setbacks of garages, fences and walls with appropriate landscape treatments will avoid large expanses of internal blank facades.
  - Interface treatments shall consider visual and accessible permeability with the surrounding neighbourhood.

- Access and Parking Requirements
  - Internal roads and pathways are to contribute to the community as public places, and as such, shall permit clear and legible accessibility to and through the sites.
  - Create streets and open spaces that invite public access. Internal roads and lanes are to contribute positively to the local amenity through appropriate landscape treatments that reinforce the character of the surrounding residential areas.
  - Garage setbacks shall be a minimum of 5 metres to provide off street car parks (other than the garage) for each dwelling.
  - Car parking is to be provided on the sites to cater for visitors. Numbers of visitor car parks will be subject to housing densities, and will consider streetscape character.

- Building Design & Diversity Objectives
  - A variety of house sizes (2, 3 and 4 bedroom) are to be provided to cater for culturally and demographically diverse households.
  - A variety of housing styles (detached, semi-detached and terrace) are to be provided.
  - Modulate and attenuate façade treatments and built form to reduce overall bulk and mass.

- Use materials and colours that are reflective of the existing landscape character

Although the integrated housing sites will be managed by bodies corporate, they will not be private or 'gated' communities. Public access will be available through these areas to provide linkages and access to the adjoining parklands.

5.3 Energy Efficiency

The Development Plan has embraced principles of energy efficiency and sound environmental planning. Many of the specific elements will be incorporated into the detailed design of the subdivision and dwellings, however the Development Plan has included the following:

- Streets are aligned north-south and east-west where possible
- Generally rectangular allotments are included in the design
- A range of densities and allotment sizes

A report on the sustainability aspects of the portion of the Development Plan at 690 Bridge Inn Road has been prepared and submitted to Council. Although this report focuses specifically on one property, the principles can be applied to the balance of the Development Plan area. Future housing development should incorporate, where appropriate, sustainable and energy efficient elements including options for energy efficient and waster saving housing appliances.

5.4 Display Village

A display village is to be established within the Development Plan area to attractively and conveniently demonstrate the range of housing types and styles available for construction within the community. It is likely to be located to the east of the main entrance into the development from Bridge Inn Road. A separate planning permit will be sought for this proposal.

The display village will form an important part of the initial stage of development of this Development Plan. It will provide a focal point for prospective purchasers and the future residential community.

It is intended that this area include a high quality residential dwelling that will be used as the permanent sales office and will also function as temporary community centre/meeting place for community groups until a nearby community centre is established. Appropriate car parking and landscaping will be provided.

6 Landscape Design

6.1 Vision

The landscape vision for the Bridge Inn Road site is to provide a distinctive and authentic setting that will cater for the social and recreational needs of the future community, as well as enhancing the character, aesthetic and environmental values of the site (refer Figure 7: Landscape Framework Plan).

Based on a philosophy of site-responsive design, remnant site elements and character will form the basis for all landscape interventions, thus enlivening the existing landscape rather than supplanting it.

6.2 Landscape Precincts

The site is characterised by three intrinsic character types:

- River Red Gums Grassy Woodland
- Rural character / homestead
- Plenty River Parklands.

These landscape typologies have been used to define and distinguish the site into three landscape precincts. These three precincts will be used to create a faithful dialogue that clearly communicates the inherent identity of the site.

These include the Homestead / Ridgeline Precinct, the Grassy Woodland Precinct and Plenty River Precinct Vegetation within these precincts has been selected to ensure that each precinct exhibits a distinct and identifiable landscape character that references and reinforces the existing landscape types of the site.

6.3 Homestead / Ridgeline Precinct.

The basic intent of this precinct is to reference and reinforce the rural character associated with the homestead and ridgeline, and extend this theme into the adjacent local streets and open space. This precinct is defined by Bridge Inn Road, the collector road that arcs around the base of the ridgeline, and the pipetrack. Trees normally associated with a traditional farming homestead have been selected for this precinct, as well as for their hardiness, seasonal colour and foliage and ability to thrive in the exposed site conditions.

- Brachychiton populneus
- Eucalyptus cladocalyx ‘Nana’
- Lophostemon confertus
- Koelreuteria paniculata
- Malus ioensis ‘Plena’
- Melia azedarach
- Pyrus calleryana ‘Chanticleer’
- Schinus molle
- Tristaniopsis laurina

6.4 Grassy Woodlands Precinct

This precinct will draw inspiration from the existing River Red Gums that dominate the landscape. Street trees planted throughout this precinct will be a mix of native / indigenous species that will thrive in the site conditions and help to reinforce the character of existing stands of River Red Gums. The list is dominated by eucalyptus species, enhancing the existing woodland character and giving a distinct identity to the precinct.

- ***Angophora costata***
- ***Corymbia maculata***
- ***Eucalyptus cladoclayx*** 'Nana'
- ***Eucalyptus tricarpa***
- ***Eucalyptus leucoxylon***
- ***Eucalyptus pauciflora*** ' Little Snowman',

Additional species for use in reserves only:

- ***Eucalyptus camaldulensis***
- ***Acacia dealbata***
- ***Acacia implexa***
- ***Acacia mearnsii***
- ***Callistemon*** 'Kings Park Special'

6.5 Plenty River Precinct

This precinct represents a transition from the Grassy Woodland to the more Riparian woodland / Floodplain vegetation communities in the Plenty River Reserve. Species selected for this precinct reflect the changing landscape conditions, and ease the transition from the estate into the regional open space system. The sense of transition is also achieved through more naturalistic clumped plantings - pairing trees or complimenting with one or more tall shrubs, rather than regular planting of avenues.

- ***Banksia marginata***
- ***Corymbia maculata***
- ***Eucalyptus leucoxylon***
- ***Eucalyptus melliodora***
- ***Tristaniopsis laurina***
- ***Eucalyptus leucoxylon*** 'Euky Dwarf'
- ***Callistemon salignus***

Additional species for use in reserves only:

- ***Acacia dealbata***
- ***Allocasuarina littoralis***
- ***Allocasuarina verticillata***
- ***Callistemon sieberi***
- ***Leptospermum sp.***

6.6 Framework planting

The collector road tree planting is designed to provide a unifying theme or 'framework', linking each of the three precincts together, creating a clear sense of visual connectivity and coherence.

As a distinctive large-canopy native tree, ***Angophora costata*** is proposed along the main east west collector road which will eventually link the site to the Mernda Town Centre. This tree will provide a strong, large form to the streetscape, and contrast with and define the various landscape precincts

The two north-south collector roads will be defined by different street trees. The western north-south collector road will delineate the edge of the homestead precinct and as such the street tree planting will reflect the historical character of homestead plantings in the Whittlesea area.

Corymbia maculata is proposed along the eastern north-south collector road to compliment the existing River Red Gum row that is located in close proximity to the entry.

Streets that act as key links to open space will be delineated with larger canopy trees including ***Corymbia maculata; Eucalyptus melliodora*** and ***Eucalyptus Leucoxylon***. These trees will reinforce the street hierarchy and emphasise viewlines towards open space.

6.7 Accent Trees

Accent trees have been located in visually prominent positions to act as markers, vistas and focal points within the landscape. These species have been selected for their distinct columnar/ pyramidal forms and their ability to contrast with other trees proposed in the development.

- ***Lagerstroemia*** 'Natchez'
- ***Malus ioensis*** 'Plena'
- ***Pyrus calleryana*** 'Chanticleer'
- ***Ulmus parvifolia***
- ***Zelkova serrata*** 'Green Vase'

6.8 Open space

The landscape design objectives common to all open spaces are:

- The retention of existing trees and particularly groups of trees that have significant landscape or ecological value.
- To interconnect open space areas and pedestrian paths to create continuous networks of passive and active recreational space.
- To sensitively integrate the landscape with the adjacent Plenty River parklands and create a smooth transition between the two land uses.
- The selection of plant species for both aesthetic and environmental characteristics that aid and enhance the appreciation of existing landscape themes and vegetation communities.
- The creation of functional, stimulating and contemporary spaces with a variety of uses and experiences.
- To recycle on site materials where possible; particularly the large quantities of basalt piled up in and around the site and River Red Gums elected to be removed.
- The utilisation and integration of multi-functional elements (eg. artwork & play opportunities) within the estate.

6.9 Ecology

Consideration of existing flora and fauna in the design includes:

- Responding to the ecological and habitat values of the site in maximising the retention of remnant indigenous vegetation, particularly preserving key groups of River Red Gums as identified by Biosis.
- For existing trees identified for retention, the removal of deadwood and formative pruning will extend their safe life expectancy
- Use of indigenous and native flora with high habitat values along the southern and eastern boundaries of the site in close proximity to the Plenty River and parklands.
- Provision of additional habitat opportunities for fauna within the peripheral open space areas, swale systems and proposed stormwater retarding wetlands.

7 Interfaces with adjoining properties

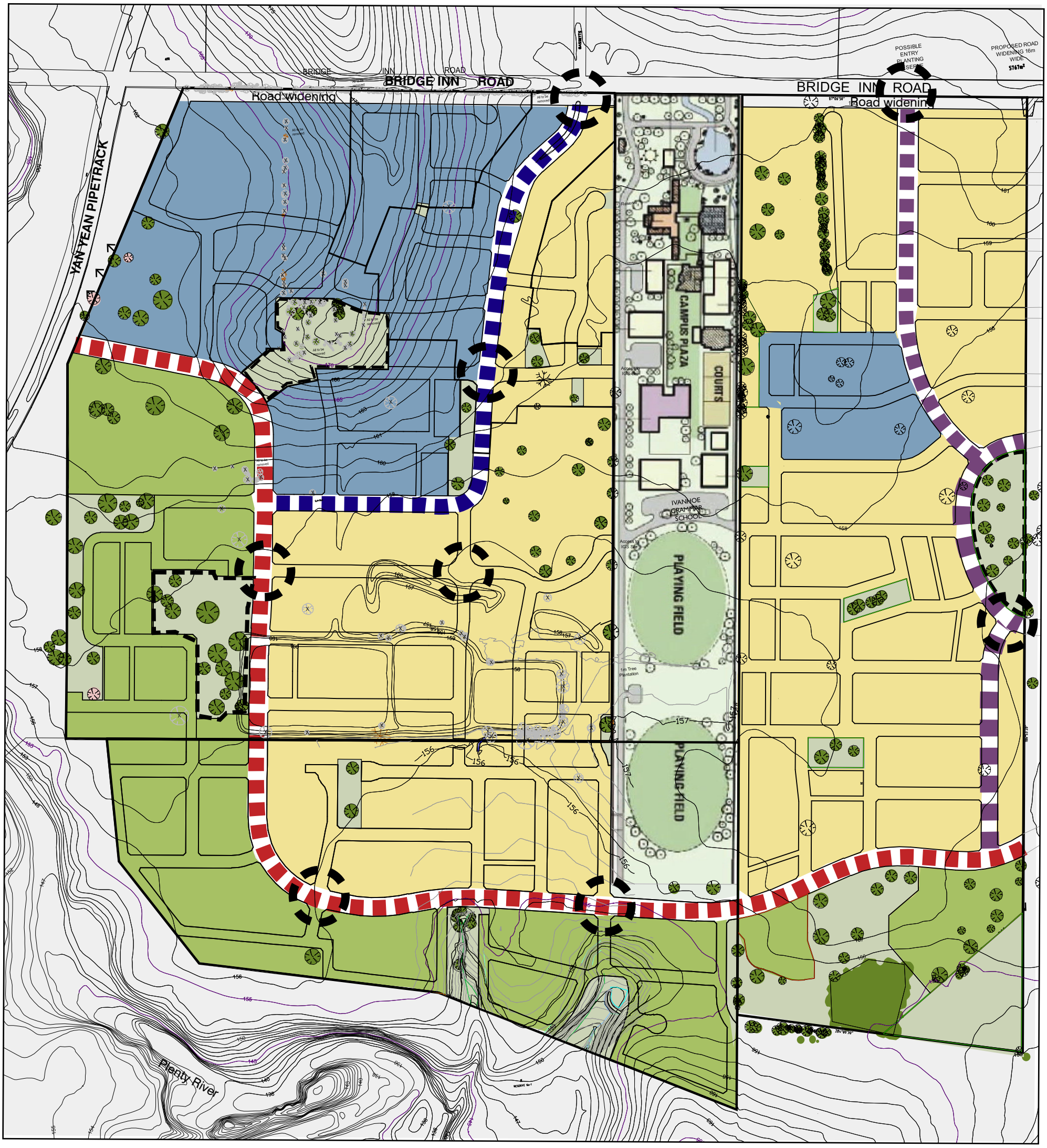
The development plan has responded sensitively and appropriately to the adjoining properties and land uses, being the Plenty Gorge Parkland, the Mernda campus of the Ivanhoe Grammar School, and neighbourhood parks.

7.1 Plenty Gorge Parklands

The Plenty Gorge parklands adjoin the site to the west and south. Figures 8 and 9 demonstrate methods of treating the interfaces between housing and parklands, and the Guidelines that have been prepared for 690 Bridge Inn Road (the principles of which can be applied to the balance of the Development Plan area) address the interface with the parklands (refer Attachment 2).

Generally this sensitive interface has been treated and designed in accordance with the MSP as follows:

- For the majority of the common boundary between the urban land and the parklands, a boulevard road is included to provide both a buffer and active 'public' interface between these adjoining landuses.
- Along the western boundary of the development plan area the interface is treated with a combination of integrated housing sites which will maximise outlook and views to the adjoining parklands, and areas of public open space which will provide protection of the existing significant trees and transition from the urban from to the parklands.
- The interface areas will be characterised by predominantly native and indigenous tree species planted in increasingly naturalistic formations as one moves towards the interface.
- Integrated housing site B does not include a boulevard road along the common boundary between the parklands and urban land, however the development of this site will incorporate innovative and sensitive design to ensure an active and 'public' interface.
- The integrated housing sites will be designed as such that no common boundaries will directly abut the Plenty Gorge Parklands.
- The majority of the southern boundary interface includes a boulevard road treatment, with a section being reserved for the retarding basin. This basin extends into the parklands, however negotiations are occurring between Parks Victoria and the landowner (Ivanhoe Grammar School), as Parks Victoria require an additional portion of land along this boundary for the bridal and shared pathways network. This outcome would enable the retention of a significant river red gum, and provide an area for passive recreation.
- For the entire interface between the urban land and the park, appropriate features will be incorporated to ensure the environmental qualities of the park are not adversely impacts on by urban development.



Precincts

Homestead / Ridgeline Precinct

A mix of hardy natives and exotics to reference the homestead / rural character.

Species include:
Angophora costata
Eucalyptus cladocalyx 'Nana'
Malus ioensis 'Plena'
Zelkova serrata 'Green Vase'
Pyrus calleryana 'Chanticleer'
Tristaniopsis laurina
Lophostemon confertus
Ulmus parvifolia 'Todd'
Lagerstroemia indica 'Natchez'
Corymbia maculata

Plenty River Precinct

This area represents a transition towards riparian woodland / Floodplain vegetation communities in the Plenty River Reserve. Species selected for this precinct reflect the changing conditions and ease the transition from the estate into the regional open space system.

Species include:
Allocasuarina verticillata
Allocasuarina littoralis
Banksia marginata
Eucalyptus leucoxylon 'rosea'
Eucalyptus melliodora
Eucalyptus ovata
Eucalyptus rubida
Acacia spp.

Grassy Woodland Precinct

Dominated by Eucalyptus species this precinct will enhance the existing woodland character giving a distinct identity to the precinct.

Species include:
Angophora Costata
Corymbia maculata
Eucalyptus cladocalyx 'Nana'
Eucalyptus ovata
Eucalyptus torquata
Eucalyptus camaldulensis
Eucalyptus pauciflora ' Little Snowman'
Eucalyptus viminalis

Open Space

Open Space
(Mernda Strategy Plan)

Framework Planting
(subject to Council's approval)

Accent / Focal Points & Gateways
– *Zelkova serrata*
– *Ulmus parvifolia*
– *Corymbia maculata*

Open Space linkages
– *Corymbia maculata*
– *Eucalyptus melliodora*
– *Eucalyptus leucoxylon 'Rosea'*

Collector 1

Collector 2

Collector 3

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Figure 7 **Landscape Framework Plan**

7.2 Ivanhoe Grammar School

Ivanhoe Grammar School has long north south boundaries with both 690 and 760 Bridge Inn Road. The interface between the school and the urban land needs to address issues of privacy and passive surveillance and create strong visual and spatial connectivity between the two land uses.

The interface has been designed to incorporate the following elements:

- Where practical, lots have been designed to front the school property toward areas of open space, especially in the southern portion of the school, where views can be afforded over the playing fields.
- Medium density housing has been located to front on the ovals, using a variety of access treatments (rear lanes, edge roads etc)
- Along the northern portion of the school, a timber paling fence or similar is proposed to provide security to the school buildings after hours.
- The majority of the school's eastern boundary is abutted by the local road network.
- Maximising passive surveillance over Ivanhoe Grammar School, thereby increasing perceptions of safety.

7.3 Houses Adjoining Open Space and Road Reserves

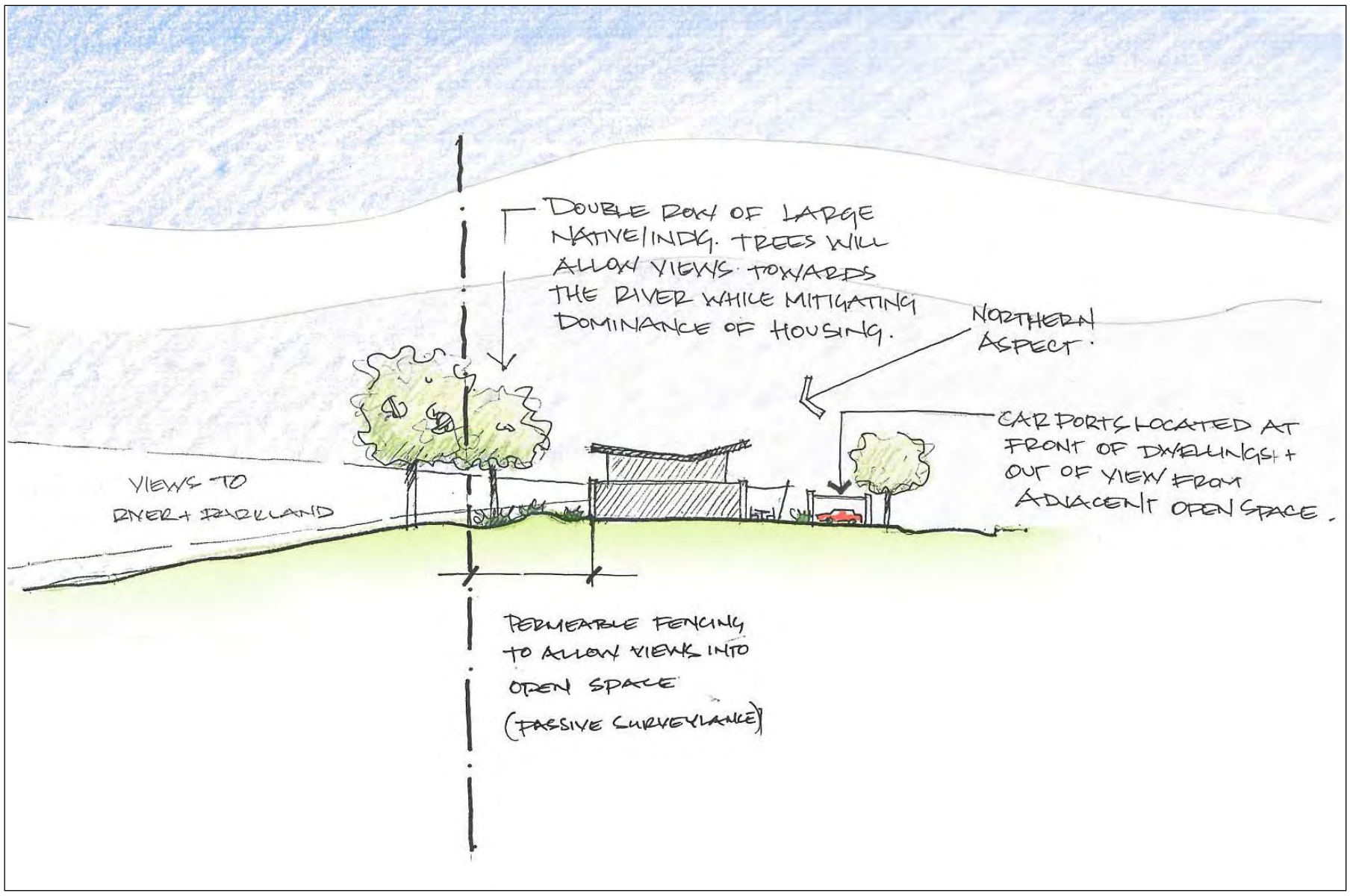
The interface between residential housing sites and neighbourhood open space reserves needs to consider issues of privacy and security, as well as the overall character of the open space. In addition, the interface between these houses and adjoining roads needs to address streetscape character and residential amenity.

The interface between housing and open space is to incorporate the following considerations:

- Park boundary fences should be no greater than 1800mm in height and are to be of permeable construction to ensure visual integration of public and private spaces, and to allow passive surveillance.
- The facades of houses fronting open space areas are to consider a variety of articulation (fenestrations, doors, balconies, verandas) to increase the interaction between the two elements, and to avoid the presentation of uniform solid walls.
- Windows facing the parks should be encouraged to improve passive surveillance that will help create safe open spaces.
- Residents should be encouraged to plant a similar vegetation type to that used in open space areas. This will create unity between private and public space by contributing to and reinforcing the overall character of the park. This will also enable private residences to 'borrow' the public landscape for the outlook from their living spaces.
- Encourage residents to utilise the adjoining open space areas, by incorporating gates within fences and by locating sections of paths in close proximity to house frontages.

The interface between housing and road reserves is to incorporate the following considerations:

- The facade of the rear lanes should be articulated with variable setbacks and heights of garages and fence lines.
- Public safety is to be enhanced by the orientation of windows to look out over the laneways / road reserves, and by providing sections of low or permeable fencing which allow glimpses of gardens and rear entranceways.
- Enhance the pedestrian scale of the streetscape with distinctive gates, fence types and mailboxes, adequate lighting and appropriate planting.



1 Typical Section of Interface Between Housing and River Corridor

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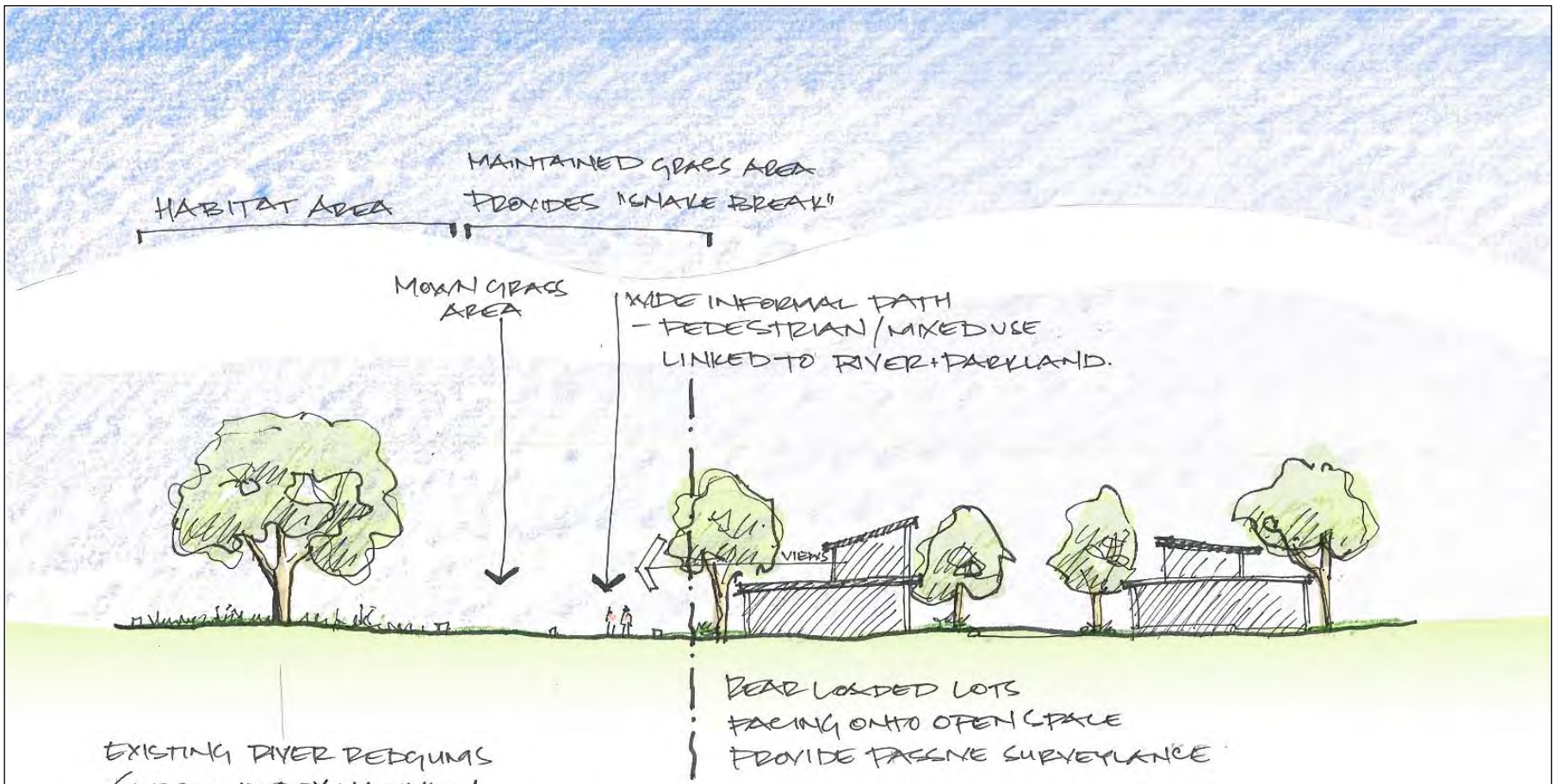
Figure 8 **Interface Treatment Techniques**



Typical Section of Housing and Parks B and C

Figure 9 **Interface Treatment Techniques**

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8 Archaeology and Heritage

The importance of the acknowledgement and inclusion of heritage features within the urban environment is recognised as contributing to the area's interest, identity and diversity.

8.1 Aboriginal Heritage

The three scarred trees identified as AAV 7922/0299, AAV 7922/0300 and AAV 7922/TBA will be retained in Park C and Integrated Housing Site D. These are shown on the Development Plan.

Ongoing site assessment of Aboriginal archaeological sites will be undertaken during the construction of each stage of the project. The investigations will locate, record and assess Aboriginal sites. They will be undertaken in accordance with the requirements of Aboriginal Affairs Victoria, and prior to the disturbance of any identified Aboriginal site, written consent from the Wurundjeri Tribal Council will be requested.

8.2 European Heritage

The Joslyn Well (Ref H7922/0253) is the only historic archaeological site within the subject site and although in poor condition and of low overall significance, development at or near this site will require a Consent to Damage from Heritage Victoria. It is proposed that the well be removed from the site.

9 Native Vegetation Management

Clause 15.09 of the Whittlesea Planning Scheme addresses the conservation of native flora and fauna and includes the objective of:

> ***"To assist the protection and conservation of biodiversity, including native vegetation retention and provision of habitats for native plants and animals and control of pest plants and animals".***

It makes reference to Victoria's Native Vegetation Management Framework and states that if native vegetation is to be removed as part of a land use or development proposal a net gain outcome, as defined by the Framework, should be achieved. This is achieved firstly by avoiding adverse impacts, including clearance, secondly by minimising impacts through appropriate consideration in the planning process and thirdly by identifying appropriate off set actions.

Clause 22.10 of the Whittlesea Planning Scheme includes the local policy for the protection of River Red Gums. This policy includes the objective of:

> ***"To ensure that the development of urban and rural areas takes into account the presence, retention, enhancement and long term viability of River Red Gums in urban areas".***

The policy seeks to ensure that the intrinsic value of River Red Gums is recognised in establishing the character and identity in urban and rural areas. The trees on the site have been assessed by an arborist (refer Section 3.6 and Attachment 1).

This section outlines how the Development Plan has considered the Planning Framework of the Whittlesea Planning Scheme, including the River Red Gum Protection Policy, and the Native Vegetation Management Framework, and how the design responds to avoidance of adverse impacts, minimisation of adverse impacts and identification of appropriate offset actions.

9.1 Avoid Adverse Impacts

An objective of the development for these properties is to avoid the removal of native vegetation, and as such the following principles were adopted:

- Retention of trees with ***high ecological value***
  Retention of trees with ***high habitat value***
- Retention of trees with ***high landscape character value***
- Retention of trees within open space and sensitive urban design areas as nominated in the Mernda Strategy Plan

Tree removal was avoided through the following design response:

- Locating areas of public open space around clusters of significant trees, particularly where trees abut the Plenty Gorge Parklands.
- Preserving trees along the boundary of the Plenty River Parklands thereby maintaining wildlife corridors and refuges.
- Locating integrated housing sites where clusters of significant trees are present, in order to be able to sensitively site dwelling to retain and protect trees.
- Aligning roads to accommodate trees in road reserves, and extend road reserves where required.
- Creating a larger allotment for the local convenience store thereby retaining the existing River Red Gum, and in doing so providing a more attractive setting for the store.
- Including significant trees in smaller pocket parks, and thereby creating an opportunity for medium density housing to look out onto a treed park.

9.2 Minimise Adverse Impacts

Trees and their preservation play a significant role in maintaining the quality and landscape character of this development plan site.

However, it is almost impossible to retain every existing tree on a development site, and this should not be expected. It is inevitable that some trees will either be in poor condition, display hazardous structure or are inappropriate to the landscape and should not be retained. Other trees may not be able to be retained due to the site constraints. Careful considerations must be given to the requirements for sustained tree survival and growth and this needs to be balanced with the landscape character, site usage and building requirements.

The considerations mentioned above are particularly pertinent to this application, given the site's broader strategic importance to the residential development of the Mernda/Doreen corridor. The site forms part of a growth corridor which will be a main focus of new residential development in the coming years.

In assessing the site, and responding to its opportunities and constraints, a balance was struck between the often competing demands of:

- providing a residential development at a density that will sustain the viability and vitality of the nearby Mernda Town Centre
- meeting the objectives for residential growth and development as per the Mernda Strategy Plan,
- meeting the directives of density as per the Melbourne 2030
- the requirements of open space provision as per the Mernda Strategy Plan
- protection of environmental integrity of the site, including native vegetation and the importance role it plays in terms of ecology, habitat and aesthetics.
- meeting the objectives for sustainable development
- providing an attractive area in which to live

In seeking a balance of the above, some trees are proposed for removal. Generally these trees are:

- of lower ecological, habitat and aesthetic value,
- pose a safety threat as they are structurally hazardous, and/or
- have a limited useful life expectancy.

A minor number of trees of medium/high value are proposed to be removed, however these trees are likely to be isolated and their loss can be compensated for by the retention of a nearby cluster of trees or similar or higher value.

The table in Attachment 1 identifies the native trees proposed for removal.

9.3 Mitigate – Appropriate Net Gain Actions

9.3.1 Vegetation Loss Assessment

Biosis Research conducted a loss assessment for native vegetation within the study area for the purpose of identifying Net Gain offset requirements. An assessment of the vegetation loss was undertaken using the current development plans and the interim assessment methods provided by the Department of Sustainability and Environment. In summary this study found:

Habitat hectares

There are three very small patches (0.03 – 0.06 ha each) within the study area where the cover of native understorey species is greater than 10%, however they were considered too small to qualify for assessment using the habitat hectare methodology. The loss of these small areas of Plains Grassy Wetland could be offset by using appropriate indigenous plantings in the development of the retention basin in the south of the study area.

Large Trees

To comply with Net Gain policy, removal of remnant trees must be avoided and minimised as far as possible. The Development Plan proposes the retention and removal of trees as follows:

Size	Removed	Retained	Total
Medium Old Trees	3	38	41
Large Old Trees	25	148	173
Total	**28**	**186**	**214**

9.3.2 Response to Net Gain Offset Requirements

The issue and 'net gain' and its application within the context of the Mernda Strategy Plan were topics of discussion during the Panel Hearing for the MSP. In response to this matter the Panel stated:

"The implementation of the 'net gain objective' has significant implications for the urban development of land at Mernda. It has to be acknowledged that, after the completion of all survey and design work provided for in the Mernda Strategy Plan and discussed above, there will still be some cases where native vegetation will need to be removed or compromised as a result of urban development. There will inevitably be circumstances in which it is just not possible to safely accommodate a mature redgum next to a dwelling. Tree health and safety considerations will dictate removal. The Panel considers that outcomes such as this are likely to be inevitable, even when careful design processes have been put in place to minimise such effects. The likely demand for native vegetation removal would be increased in circumstances where the development density policy emerging from Melbourne 2030 are sought to be implemented."

Following their assessment of vegetation loss, Biosis Research undertook a Net Gain Assessment for the Development Plan. Their Revised Report (October 2004) identified the obligations of the Development Plan for off-sets and recommended that Parks B, C and E be designated as tree recruitment areas.

In regard to the implementation of the net gain requirements we note the Recommendation No. 7 from the MSP Panel report as follows:

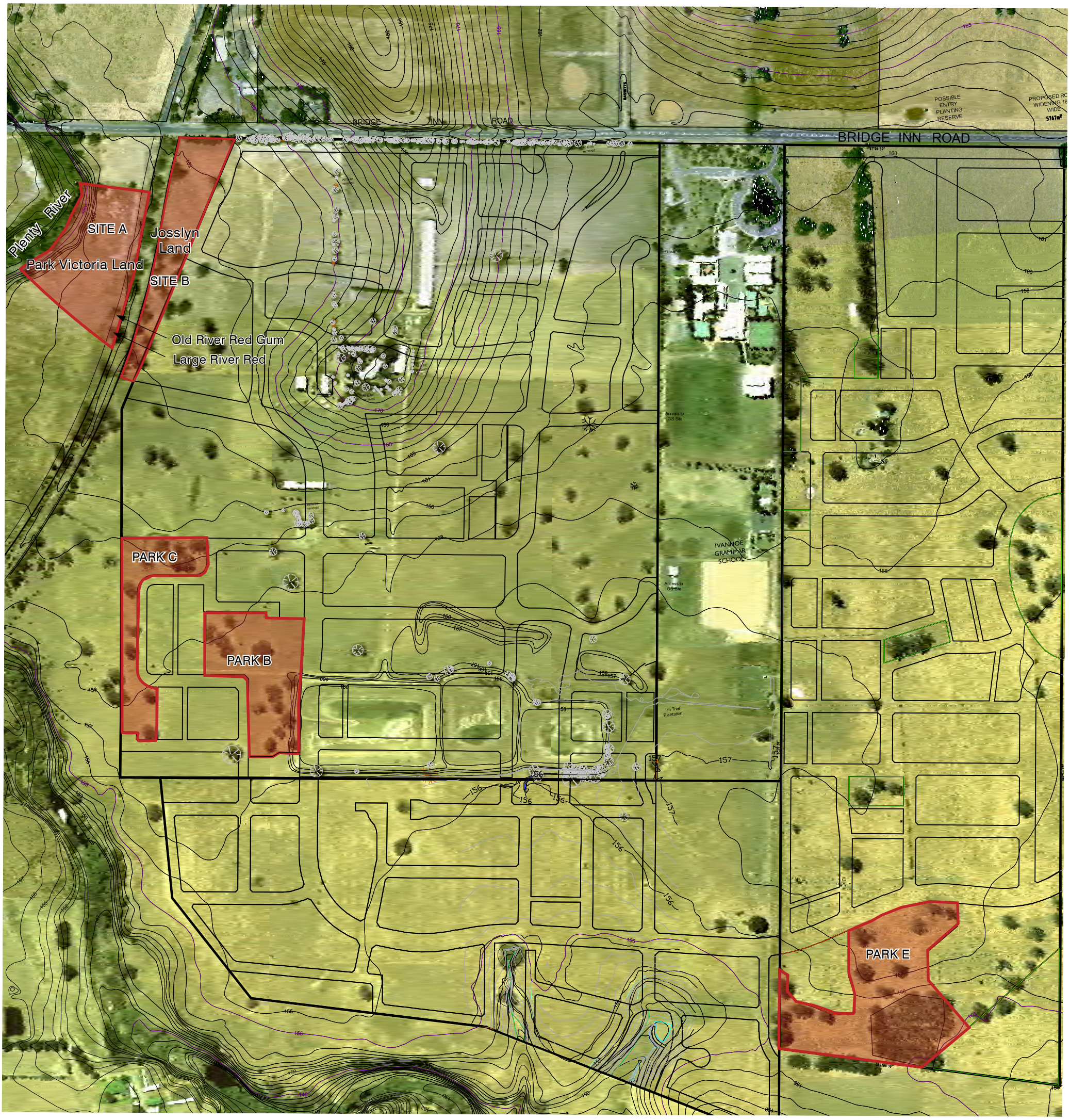
"The Mernda Strategy Plan should recognise that it will not always be either possible or appropriate for 'net gain' to be achieved within the confines of a particular development plan area or permit application site. Whittlesea City Council should investigate opportunities for operating as a broker to facilitate off-site 'net gain' outcomes in partnership with land-owners, developers, community and environmental groups. Areas under investigation should include not only land designated as open space in the area defined by the Mernda Strategy Plan but also relevant areas outside the confines of the plan, including private land in the Plenty River corridor and to the north of the plan area."

In light of the above, the implementation of the net gain requirements has been discussed with the landowners, Whittlesea City Council, the Department of Sustainability and Environment and Parks Victoria.

The discussions between these parties agreed that the Development Plan had achieved the three steps of avoid, minimise and mitigate, and that parks B, C and E could be used for achieving tree recruitment as per the Biosis Research findings. However, Council expressed a desire for Parks B and C to be developed as areas of public open space more akin to those found in residential neighbourhoods, available for passive recreation rather than as fenced of "bush reserves". It was determined that the option of using private land either within or beyond the Development Plan area as an alternative to Parks B and C was not practical in this case. Therefore an area within the Plenty Valley Parklands was identified as an area to achieve net gain offsets. This would be in conjunction with Park E having an increased role in achieving net gain offsets.

Figure 10 shows the location of the areas proposed for net gain offsets – Park E within 760 Bridge Inn Road and an area within the adjoining Plenty Valley Parklands. The identified area within the Park surrounds a River Red Gum which is approximately 1,000 years old and is also a scar tree. It is considered that the use of the surrounds of the tree will result in an ecological benefit for the Park as well as potentially enhancing the longevity of the tree.

Management Plans for these offset areas will need to be developed in consultation with Whittlesea City Council, the Department of Sustainability and Environment and Parks Victoria. These will be subject to separate planning permit application and be prepared in accordance with the guidelines included in the Biosis Research Report (October 2004).



Legend

Net Gain Off-set Planting Area
(Note: offset planting will occur in these areas. The detail and extent will be resolved in a Management Plan that will be prepared in consultation with the relevant stakeholders.)

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Figure 10 **Areas Designated for Net Gain Off-set Planting**

10 Open Space

10.1 Open Space Allocation and Description

The general extent and location of open space in the Bridge Inn Road site is either nominated in the Mernda Strategy Plan or dictated by the location of significant groupings of River Red Gums and drainage channels. The allocation of open space areas is a response to the opportunities and constraints identified in the site analysis. Open space provision details are shown in the table over the page.

Park A is located as show on the Mernda Strategy Plan, and is located where the existing homestead sits. The park preserves the ridgeline for public use and access and provides a central social area free from dense vegetation cover.

Park B is located as shown on the Mernda Strategy Plan and has been provided primarily to retain a stand of River Red Gums and scar tree. This park will provide a more naturalistic setting for passive recreation.

Park C is located along the Plenty River parkland boundary. It preserves a significant stand of River Red Gums and provides an extension of the Plenty River parklands into the site.

Park D serves a dual function of preserving the valley and tributary of the Plenty River as well as a stand of River Red Gums.

Parks E1 and E2 form part of the regional open space network outlined in the Mernda Strategy Plan. They are located adjacent to the Plenty River parklands, and electricity easement, and preserve large stands of River Red Gums, whilst also providing a buffer between the medium density development and the Plenty River parklands.

Park F forms part of a linear spine of open space that will be provided in the property to the east.

In the case of Park C, a substantial area of open space has been set aside which should be considered for inclusion within the Mernda Strategy Plan as recognised open space contributions. These public open space areas help to preserve numerous River Red Gums as well as buffering critical interfaces and as such should be recognised as contributing to the development sites overall Open Space requirement. Credit for the provision of this land needs to be agreed upon in further discussions with council.

All of the reserves within the estate will contribute to the overall development of a regional Plenty River Trail Corridor, with shared pedestrian and bicycle paths and linked active and passive recreation areas.

During each applicable stage of the development, detained design plans for these open spaces will be prepared in consultation with Council, and will be in keeping with the principles set out in the Landscape Framework Plan.

Table 2: Open Space Provision

No.	Description	Area (Ha)
A**	Existing Homestead	1.45
B**	Neighbourhood Park	1.35
C**	Open Space – Linear Park	1.13
D	Habitat corridor and tree reserve	0.43
E1**	Habitat corridor and tree reserve	2.96
E2	Habitat corridor and tree reserve	0.15
F**	Tree reserve	1.11
P	Pocket Parks – Tree reserve	2.15
	Bridge Inn Road Tree reserve	0.09
	Total Open Space	**10.82**

***** Open Space as per Mernda Strategy Plan***

The total open space area of approximately 11 hectares within the Development Plan area represents approximately 9.3% of the gross developable area. In addition to this, 0.77 hectares is set aside for drainage and water retention.

The location of open space has been provided to ensure that all residents within the development are within easy walking distance of recreational areas.

11 Community facilities

The provision of community facilities including schools, activity centres and employment and economic development opportunities are discussed in the Mernda Strategy Plan. This Development Plan reflects the direction of the MSP in the provision of such facilities.

11.1 Local Convenience Centre

A local convenience centre will be provided at 690 Bridge Inn Road in accordance with the MSP.

This centre will be located on the south west corner of the intersection between the two collector roads, towards the western side of 690 Bridge Inn Road.

It will comprise approximately 250m^2 in floor area.

The location of this local convenience centre was originally identified to be close to Bridge Inn Road. However, changes to the to the precinct plan of the Mernda Strategy Plan affecting the subject site (Precinct 2B) to introduce a second river crossing resulted in a number of changes overall, including the location of the store. A summary of the changes as described in the Panel Report is below:

> ***"Plan 5.4: Precinct 2B Plan. The location of the precinct activity centre and school campuses had been changed, largely contingent on a significant change to the sub arterial and collector road system. This supported removal of a proposed road entry point from Yarrambat Park, together with linkages via a new proposed river crossing to the town centre."***

These changes saw the relocation of local convenience centre to the intersection of the two collector roads, one of which provides access to the Mernda town centre via the second river crossing.

11.2 Nearby Activity Centres

As per the MSP, the Development Plan area will have ready access to the Mernda Town Centre to the west and a precinct centre to the east.

12 Traffic and Transport

12.1 Objective

Within residential developments the road network should facilitate the movement of traffic, public transport, pedestrians and cyclists in an efficient and safe manner. The design of the road hierarchy and the transport network within the Development Plan area and beyond is recognised as an important aspect of the liveability of the development as it directly impacts on accessibility to services and movement efficiency.

The provision of an efficient and direct public transport link, cycle and pedestrian paths to key destinations is essential in reducing dependence upon private cars for transportation within newly developing residential estates.

12.2 Traffic and Transport Assessment

An assessment of the traffic and transport implications of the Development Plan was undertaken by Traffix Group. The final report prepared by Traffix Group should be read in conjunction with this Development Plan.

Their report assessed:

- Likely traffic volumes and functions of roads
- Road reservations and carriageway widths
- Intersection treatments and traffic management
- Access for service and emergency vehicles
- T-head and/or court bowl treatments
- Access for pedestrians and cyclists

In summary their report found that there would be no adverse impacts of the surround road network or intersections as a result of the proposed development, and there are no traffic reasons why a permit should not be granted for proposed residential subdivision.

The following provides a summary of some aspects of the traffic and transport assessment.

12.2.1 Traffic Generation and Road Hierarchy

It is expected that based on 10 trips per dwellings per day, the development will yield less than 14,500 trips per day. Of these it is expected that up to 10% will be internal to the subdivision.

Traffic volumes are likely to be as follows:

- Access place – less than 300 trips/day
- Access street – less than 1,000 trips/day
- Collector street – up to 3,000 trips/day. The northern section of the north-south collector road to the west of Ivanhoe Grammar School is expected to carry up to 4,000 trips/day.

A road hierarchy has been established on the basis of the above estimates and consistent with the Mernda Strategy Plan (refer Figure 11: Road Hierarchy Plan).

There are three collector roads within the subdivision:

- The first runs north-south to the west of Ivanhoe Grammar School, and connects to Bridge Inn Road at its intersection with Bassets Road. To the south it bends west and connects to another collector road.
- The second collector road travels east-west and it is understood that ultimately this will provide a link to the future Mernda Town Centre via a bridge crossing of the Plenty River.
- The third collector road runs north-south to the east of Ivanhoe Grammar School and also connects to Bridge Inn Road.

12.2.2 Road Cross-sections

The recommended road cross sections are described in the table below (also refer to Figure 12: Typical Road Cross-sections). These are in accordance with the requirements of the Mernda Strategy Plan.

Road Type	Total Reserve (metres)	Carriageway width (metres)[1]	Verges (metres)
Sub Arterial	23.8	14.4	4.70 each side
Collector street	20.8	11.0	4.40 one side & 5.40 other side
Access street [2]	15.5 – 16.0	7.2	4.15 – 4.40 varies
Access place	15.0	5.5	4.45 each side
Access street/place, park edge, service rd	12.0	5.5	4.8 adjacent to residential lots, 1.7 adjacent to reserve/open space
Rear laneway	6.4	6.4	Any planting opposite the rear of dwellings should be low lying to allow for vehicle overhang

Note [1] – measurement from face of kerb.

Note [2] – intent is to vary width where possible to gain increased nature strip for street tree.

12.2.3 Parking Provision

On-street parking is provided within the carriageway of each of the roads:

- Collector street – two 2metre parking lanes with two lanes traffic flow.
- Access street – parking to occur on both sides with one lane traffic flow.
- Access place – parking to occur on one side with one lane traffic flow.

12.2.4 Pedestrian Access

Footpaths will be provided on both sides of the collector and access streets/ places where dwellings abut both sides. In access streets/places (park edges) and service roads footpath on one side, adjacent to residential allotments, is appropriate. Footpaths should be 1.5 metres wide. It is also recommended that the footpath on one side of the collector roads be widened to 2.5 metres to accommodate a shared off-street pedestrian/cycle path.

13 Physical Infrastructure

13.1 Road Infrastructure

Bridge Inn Road is to be duplicated as a 4 lane divided carriageway with a central median wide enough to accommodate a dedicated public transport lane. The road is to be widened on the south side across the development's frontage.

Duplication is scheduled to occur when development east of Plenty Road reaches 5,000 lots occupied.

Precinct 2B of the Mernda Strategy Plan (MSP) also identifies principle access to the site at the intersection of Bassetts Road and Bridge Inn Road. This intersection will ultimately be signalised.

Secondary entries from Bridge Inn Road are identified on the Development Concept Plan near the western boundary of the site and east of the school.

Collector roads are proposed to traverse the site, linking the development to Bridge Inn Road at Bassetts Road to areas east of Ivanhoe Grammar and west across Plenty River to the town centre.

Following the recommendations of the Traffic Engineering report, the standard cross sections as set out in the MSP have been revised slightly. Collector roads have a 21.8m wide reservation and 10.5m wide carriageway including indented parking lanes. Access streets of 15m - 16m reservation have a 7.0m carriageway.

13.2 Sewer

Yarra Valley Water (YVW) is the sewer authority for the area. The site is within the Authority's Mernda-Doreen Sewerage Strategy Area.

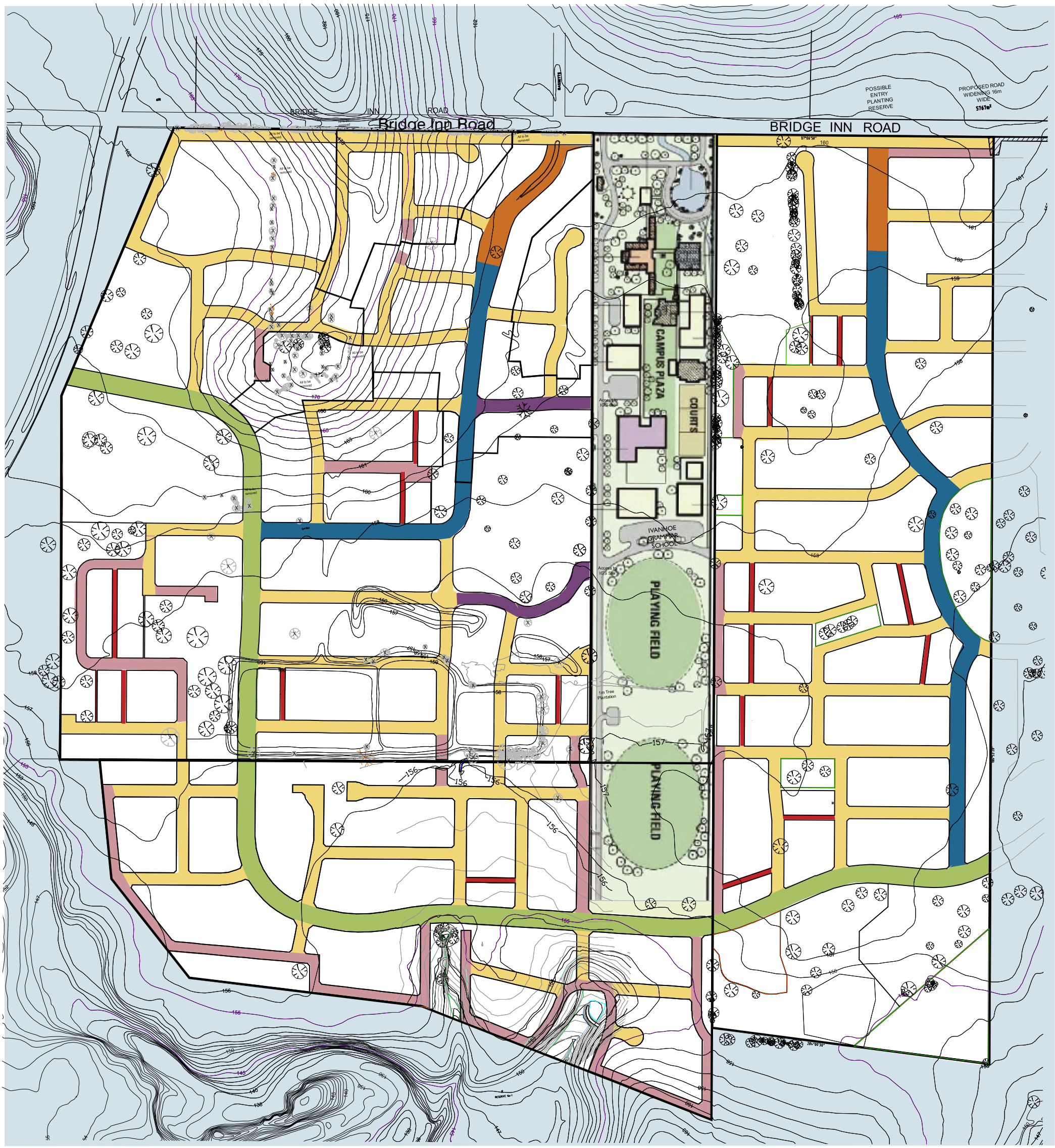
Due to the limited capacity in the downstream sewer system, the Strategy provides for a number of Flow Control Facilities (FCF) to restrict discharge prior to transfer to the existing sewer point of connection in Diamond Creek, via an existing 9km pressure main in Yan Yean Road.

The large diameter Branch Sewers identified in Yarra Valley Water's Mernda – Doreen Sewerage Strategy (Annexure C) will be located in public reservations.

The alignment of the proposed 600mm dia branch sewer within the development will be resolved in discussion with YVW. The Mernda South Branch sewer traverses the southern part of the site.

YVW is currently negotiating the acquisition of a FCF site, and is targeting completion of the first stage in late 2005.

In the interim, the Authority has advised that eduction of up to 100 lots would be permitted.



LEGEND

- Sub Arterial (high order collector road)
- Trunk Collector Road
- Collector Road
- Access Street
- Access Place
- Rear Lane
- School Entry Collector Road

Figure 11 **Road Hierarchy Plan**

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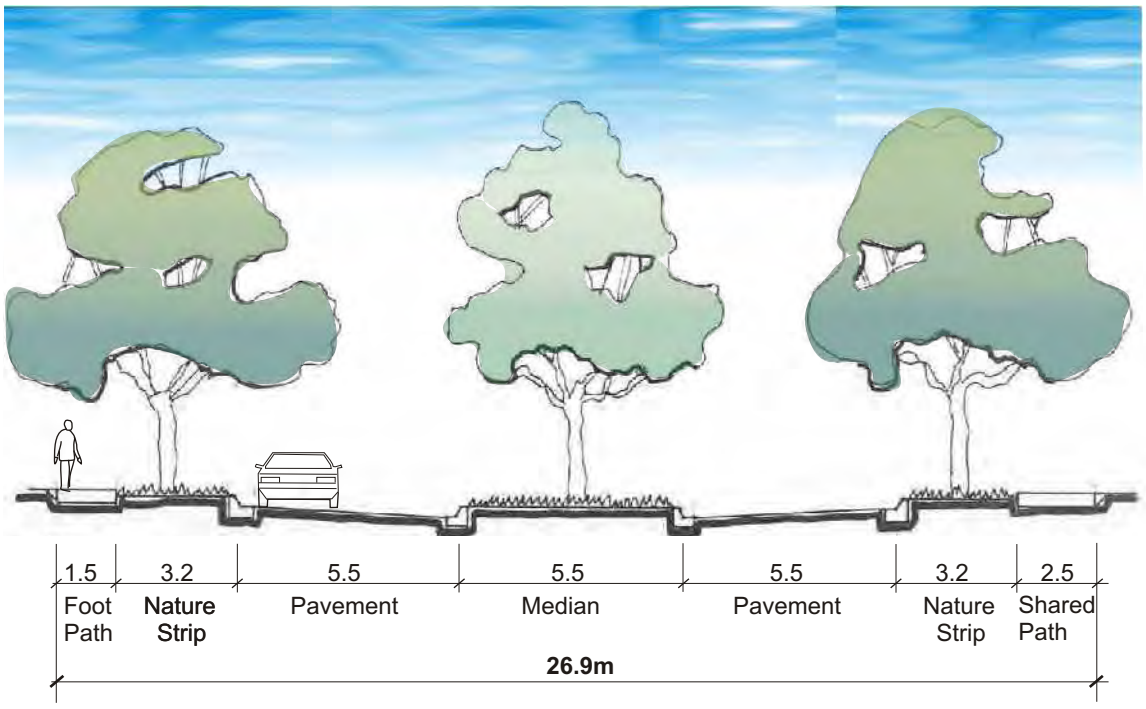
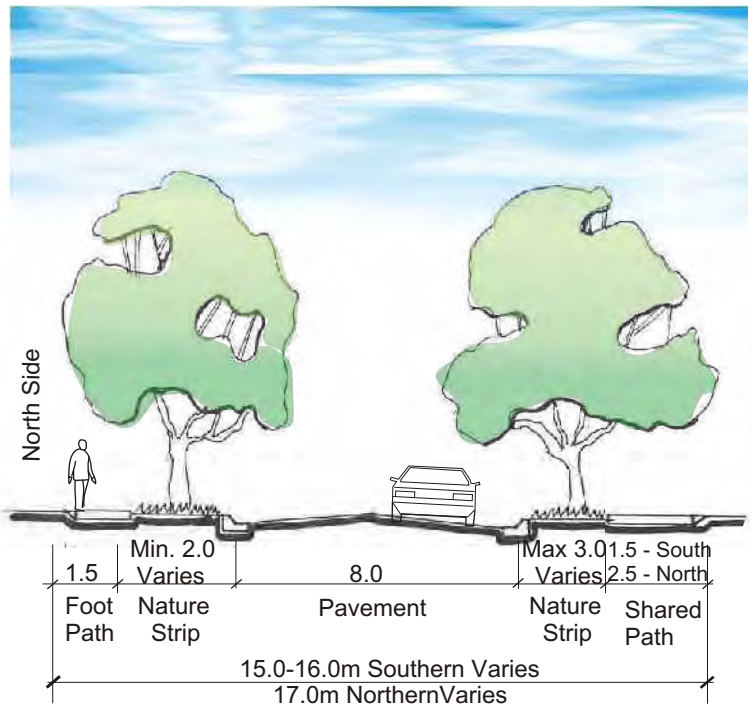
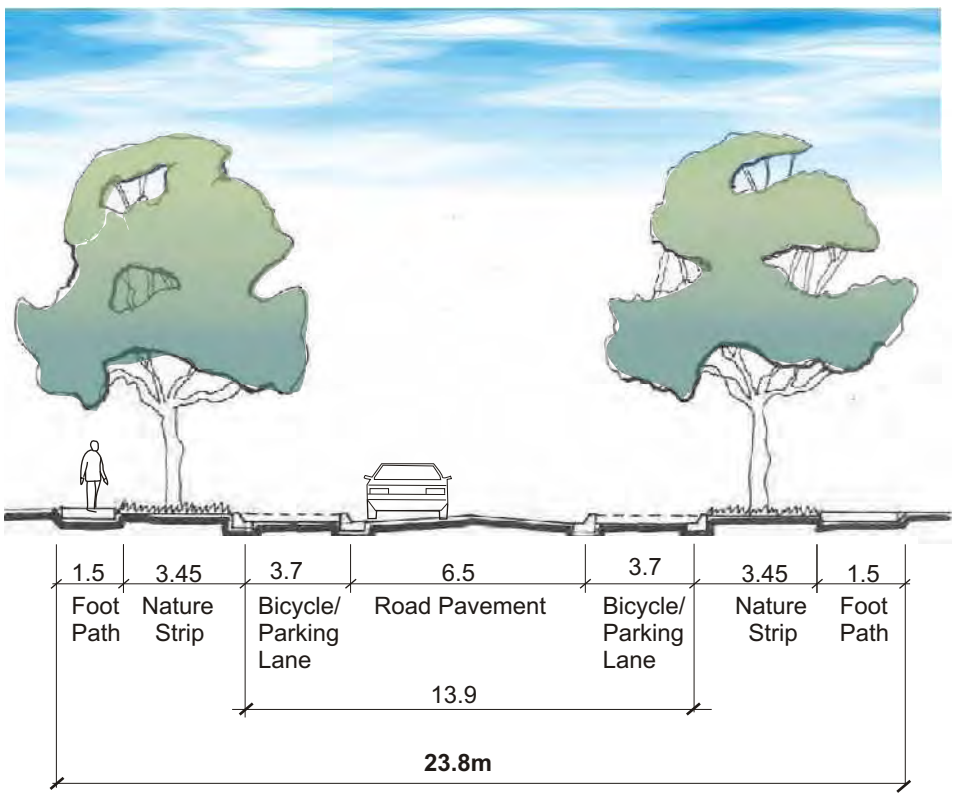
Bridge Inn Road **Mernda**



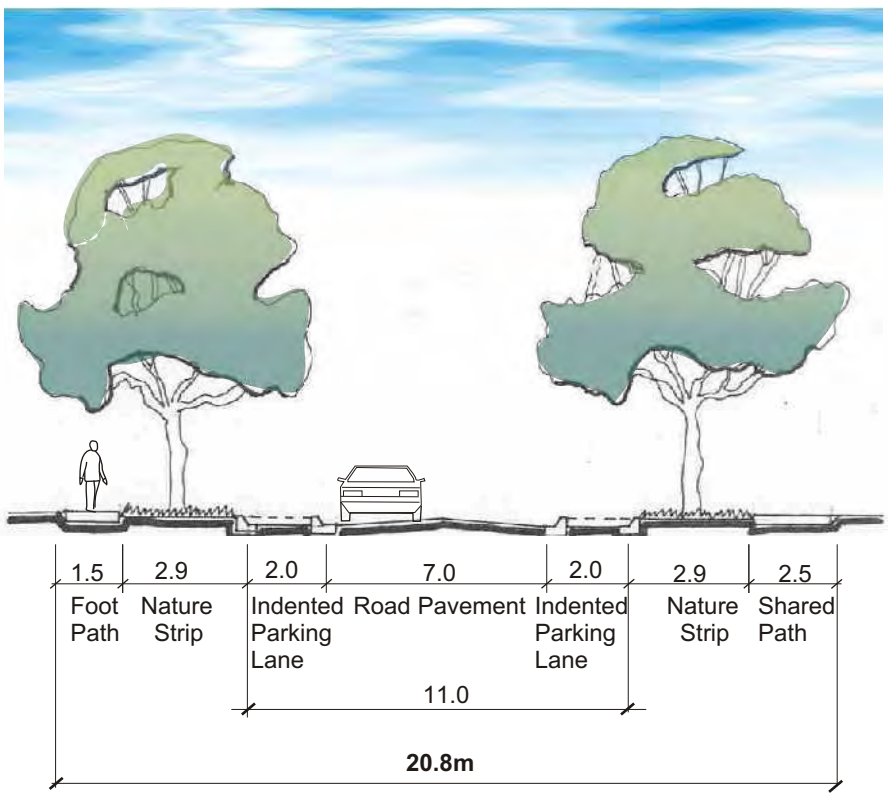
TRUNK COLLECTOR
(Divided Road)



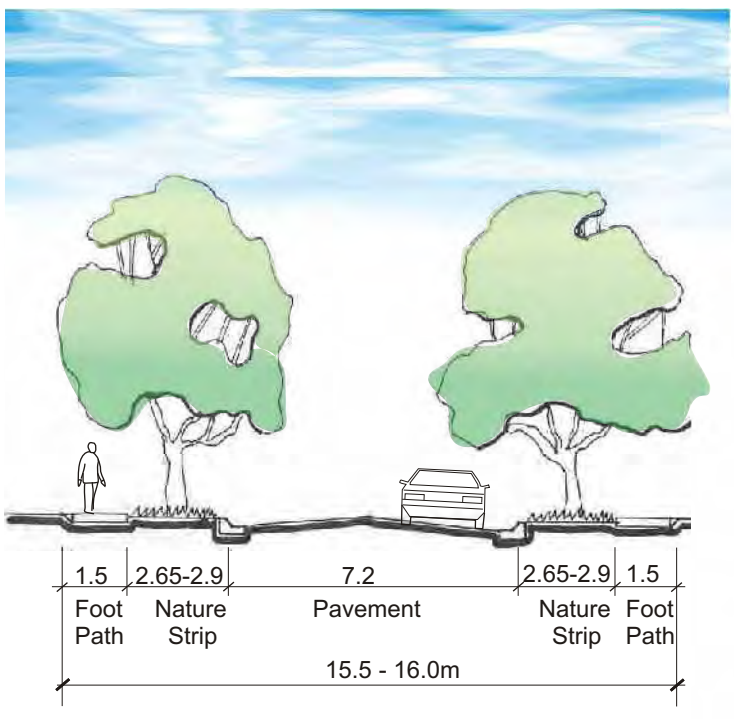
COLLECTOR ROAD
(School Entries)



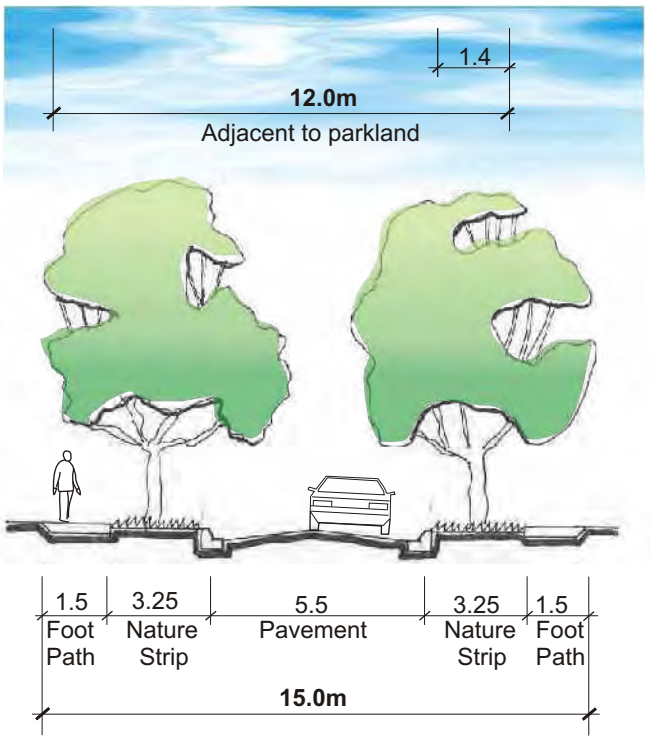
SUB-ARTERIAL
(High Order Collector Road)



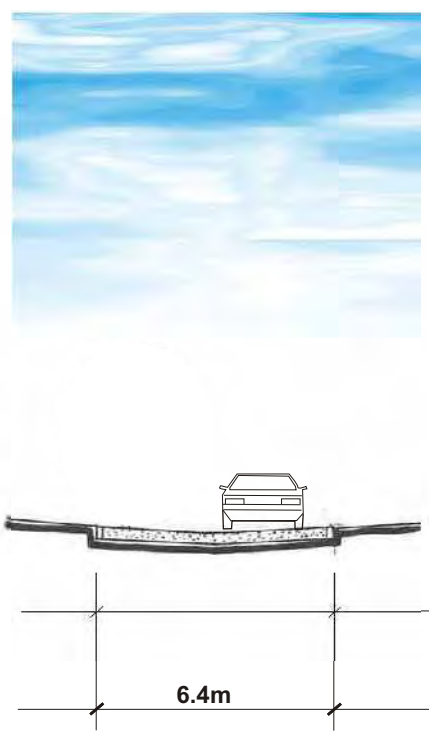
COLLECTOR ROAD



ACCESS STREET



ACCESS PLACE



REAR LANEWAY - *Minimum allocation- may extend to 8m to accommodate parking and planting.*

Notes

The back of footpaths are normally offset 50mm from title.
Kerb channel is 'Barrier' of total wide 0.45m or 0.15m from face of kerb to back
Naturestrip for School Entry Collector Roads may vary to take into account existing trees.

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Figure 12 **Typical Road Cross Sections**

13.3 Water

Yarra Valley Water is the water supply authority for the area.

The development would be supplied from a 450mm diameter main in Bridge Inn Road along the property's frontage. The Authority advises that there is currently available capacity of approximately 700 lots in the Quarry Hills Tank Zone, which covers this site.

The new Quarry Hills tank will supply areas above 185m elevation and augment supply in the Mernda Doreen area. An upgrade of the existing Mernda pumping station in Cookes Road is also proposed. YVW has been granted a planning permit for the tank and anticipates commissioning within two years. The site is below the 185m contour limit and is therefore not initially reliant on the construction of this high level supply.

Should the 700 lot capacity be consumed prior to the availability of supply from the proposed tank, it would be necessary to upgrade the Mernda pumping station.

13.4 Drainage

The site is within Melbourne Water's Doreen Drainage Scheme. The Scheme has not yet been formalised.

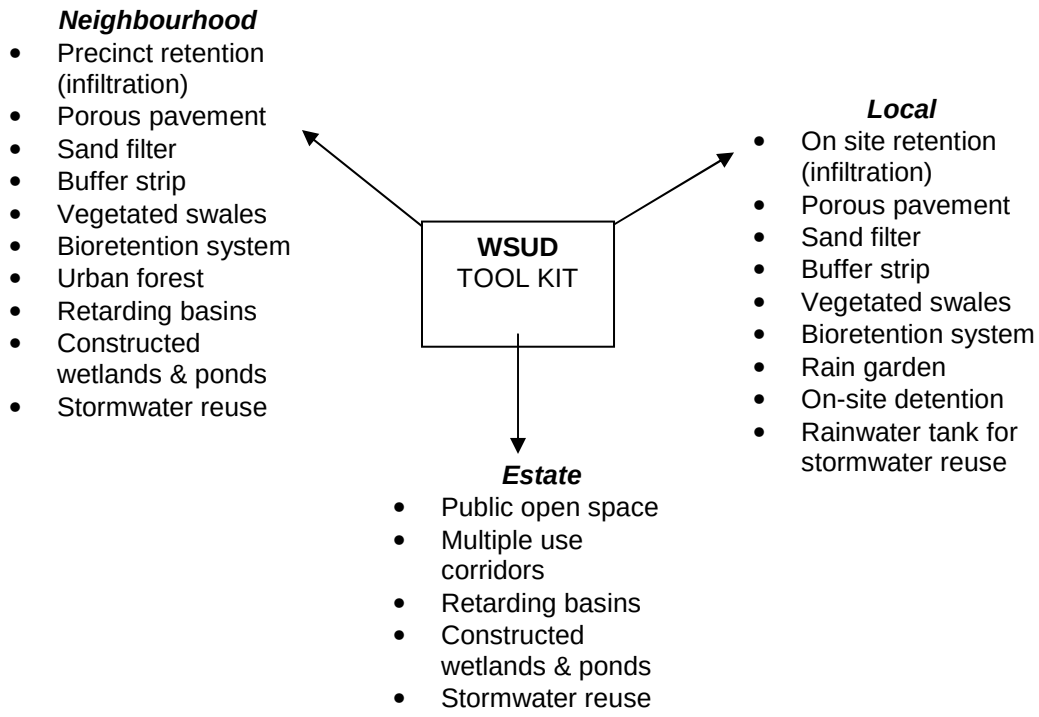
The site falls within a number of catchment areas that drain to the Plenty River. The Scheme addresses the drainage of the land.

The Scheme provides for a 1200mm diameter pipe running south from Bassetts Road. A grass swale parallel to this drain would convey overland flood flows. Litter and sediment traps precede an open channel to a proposed retarding basin in the gully at the boundary prior to discharge to the Plenty River.

Litter and sediment traps are required to service the smaller western catchment. Scheme pipes provide for drainage of the eastern catchment towards proposed retarding basins on the Clements property.

Under the existing drainage scheme there is no requirement to treat stormwater pollutants beyond primary treatment for this sub-catchment. Extra treatment is provided in the proposed wetlands east of the site, as a "trade-off" for the untreated sub catchment, in order to achieve overall water quality parameters to the Plenty River.

However the development may consider other opportunities to utilise Water Sensitive Urban Design elements within the site. These should be considered as a "tool-box" of options available at the source, within the streetscape, or at a neighbourhood and estate scale. A description of the "tool-kit" is provided in the diagram over the page:



13.5 Electricity

TXU is the relevant electricity supply authority in this area. TXU has advised that supply would be available from existing overhead lines in Bridge Inn Road.

13.6 Gas Supply & Telecommunications

Origin Energy is the gas supply authority and advise that there are no gas assets in the area. However the Authority will soon be extending supply along Plenty Road to proposed development at Mernda South, the Mernda Township and along Bridge Inn Road to Cookes Road to supply the mushroom farm. Origin Energy therefore believes that it will be able to supply gas to the site.

Telecommunications infrastructure would be provided to the development as per normal servicing arrangements.

The Whittlesea City Council's Telecommunications Conduit Policy requires that developers install spare conduits and associated pits in road reserves, to provide for the extension of optical fibre cabling by others at some future date.

14 Development Contribution Assessment

The objective of the Mernda Strategy Plan relevant to infrastructure levies is:

> ***"To put in place an equitable funding framework that will ensure the timely provision of infrastructure that is essential to the establishment of a sustainable community."***

Development Contributions for this Development Plan area will be based on the Schedules included in the Mernda Strategy Plan.

In regard to the development of 690 Bridge Inn Road, Australand Holdings would like the option of undertaking works in kind subject to the value of such works approximately equating to levies due at any point in time.

15 Development Staging

The development of the Estate is expected to commence mid 2005.

In regard to each individual land parcel, staging of development will occur as follows:

690 Bridge Inn Road
The development will commence close to Bridge Inn Road, to the immediate west of the common boundary with Ivanhoe Grammar School, and progressively proceed in a southerly direction.

730 Bridge Inn Road
The development of this portion of the Development Plan area is not likely to commence until access become available.

760 Bridge Inn Road
This portion is likely to commence development in 2005, from Bridge Inn Road and move south. Timing is subject to acceptable financial arrangements in regard to sewerage infrastructure.

As the development proceeds, it will be necessary for the developer(s) to have flexibility to change the development staging to meet market demands.

Attachment 1: Native Tree Data

Note: The land contained within the SUZ5 zone (IGS land) is not affected by a D.P.O. Therefore this Development Plan as it relates to this land is indicative only and subject to further work.

Legend

- Standard lots
- Terrace lots
- Integrated housing site
- Open space
- Development potential impacted due to interface issues with Plenty Park
- Existing trees proposed for retention
- Existing trees proposed for removal
- Convenience store
- **P** Pocket Parks
- Contours
- Final stormwater treatment mechanism to be resolved with Melbourne Water Corporation
- View line
- Arterial road
- Collector road
- Shared pathway
- On road bicycle lane
- Paths - Mernda Strategy Plan
- Paths - other
- Major entry points & links
- Signallised intersection treatment
- Active interface
- Key connections
- Gate / school access entries & exits as numbered from 1-6:
  - ① Left turn entry and right turn entry
  - ② Left turn exit only
  - ③ Vehicular entry and exit, (includes buses)
  - ④ Vehicular exit, only during school drop off and pick-up (no buses) Other times to service playing fields only.
  - ⑤ Vehicular access to service playing fields and school maintenance
  - ⑥ Locked gate (school maintenance access only)
- High security fence (timber paling or similar)
- Low open fence (post & rail / wire etc)
- Approximate Proposed Alignment of Main Drain (detailed location to be resolved between I.G.S. and Australand with the relevant service authorities)
- Visually Sensitive Design
- Environmentally Sensitive Design

Note: The IGS masterplan was prepared by Smith and Tracy Architects.

Tree Removal and Retention Plan for Net Gain Purposes

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NATIVE TREE DATA - BRIDGE INN ROAD, MERNDA

NOTE: Trees designated for removal are highlighted, including those trees that are too small to need replacement or outside the property boundary.

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
400	E. camaldulensis	125	20x17	Moderate lean to south. Has 3 substantial low branches. Fair condition. One-sided to south due to loss of branch on north side. Deadwood and crown reduction to 90% height. **Outside property boundary.**	Ind	**6 indiv.**	Retain
401	E. camaldulensis	110	16x18	Strong lean to south. Stressed tree sparse canopy. Deadwood and selective weight reduction. **Outside property boundary.**	Ind	**4**	Retain
402	E. camaldulensis	140	20x17	Moderate lean to south. Crown somewhat sparse, but an attractive well formed sparse, but an attractive well formed tree. Deadwood and some weight reductino to 80% height. Consider retention as group with 403,400 and 401. **Outside property boundary.**	Ind	**8 indiv.**	Retain
403	E. camaldulensis	130	18x15	Mild lean to south. Several large scars following shed branches. Some decay at base. Deadwood removal and crown reductino to 75% height. **Outside property boundary.**	Ind	**7**	Retain
404	E. camaldulensis	115	22x16	Rather upright tree in quite good condition, has shed major stem on south side and branch near base. Deadwood and some selective weight reduction.	Ind	**16**	Remove
406	E. camaldulensis	100	18x20	Moderate lean to south, but in reasonably good condition and quite well formed. Deadwood and crown reduction to 90% of height.	Ind	**8**	Remove
407	E. camaldulensis	145	21x20	At base of dam wall. Some lean to south west. Large tree in fair health. Some decay at base, crown patchy and some dieback. Deadwood and crown reduction to 80% height.	Ind	**6**	Retain
408	E. camaldulensis	150	11x14	Squat tree - main stem has failed. Substantial decay at base of trunk.	Ind	**4**	Retain
409	E. camaldulensis	150	16x15	Moderate lean to south. Large scar on trunk following past branch shedding, trunk is hollow at ground level.	Ind	**5**	Retain
410	E. camaldulensis	100	18x15	Strong lean to west. Sparsely branched and of poor form. Deadwood removal.	Ind	**5**	Retain
411	E. camaldulensis	100	20x16	Slight lean to south. Fair condition. Has shed large lower branches. Some decay near base. Deadwood a little and crown reduction.	Ind	**7**	Retain
412	E. camaldulensis	115	16x22	Appealing, spreading tree in reasonable condition. Crown a little sparse. Deadwood, selective weight reduction only	Ind	**8**	Retain
413	E. camaldulensis	120	16x20	At base of dam wall. Over-mature. Heavy limbed tree with some lean to south. Large scar and decay at base. Requires much dead wooding and weight reduction throughout.	Ind	**5**	Retain
415	E. camaldulensis	55	15x13	Young tree in good condition but located 2/3 up dam wall with numerous exposed roots. Too small.	Ind	**5**	Remove
416	E. camaldulensis	80	14x11	Located halfway up dam wall. Healthy but may shed branches	Ind	**6**	Remove
418	E. camaldulensis	100	13x17	Dead.	Ind	**2**	Remove
420	E. camaldulensis	50	12x12	Good condition.	Ind	**5**	Remove
421	E. camaldulensis	48	13x9	Located a little way up dam wall. Slight lean to south. Good condition.	Ind	**6**	Remove
422	E. camaldulensis	55	15x10	At base of dam wall. Reasonable condition. One branch has snapped in the past. May drop more branches?	Ind	**6**	Remove

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
423	E. camaldulensis	34	11x6	One-sided and moderate lean to south east due to proximity of No.420. At base of dam wall. Good condition.	Ind	**5**	Remove
424	E. camaldulensis	40	7x7	Young tree in good condition.	Ind	**5**	Retain
425	E. camaldulensis	65	14x12	Healthy tree with moderate lean to south located at base of dam wall. Structure fair. Co-dominant stems at 4m .	Ind	**6**	Remove
426	E. camaldulensis	50	15x9	Likely branch dropper. Too small. Trees 428-426 are very young vigorous trees and can be kept as a copse.	Ind	**3**	Remove
427	E. camaldulensis	45	9x9	Close pair with no. 425, and consequently one-sided - moderate lean to north east. At base of dam wall . Structure fair. Too small.	Ind	**5 (indiv.)**	Remove
428	E. camaldulensis	18,18	8x5	Suppressed by adjacent trees, poor structure. Too small.	Ind	**3**	Remove
429, 430	E. camaldulensis	40 each	Height 11 combined spread 10	Close pair of younger trees in good condition located a few metres from existing power lines and at base of dam wall. Too small.	Ind	**6 (pair)**	Remove
435	E. camaldulensis	170			Ind		Remove
436	E. camaldulensis	130			Ind		Retain
437	E. camaldulensis	150			Ind		Retain
438	E. camaldulensis	28		Too small.	Ind		Remove
440	E. camaldulensis	47		Too small.	Ind		Remove
441	E. camaldulensis	15		Too small.	Ind		Remove
442	E. camaldulensis	50		Too small.	Ind		Remove
443	E. camaldulensis	20		Too small.	Ind		Remove
444	E. camaldulensis	25		Too small.	Ind		Remove
445	E. camaldulensis	30		Too small.	Ind		Remove
446	E. camaldulensis	40		Too small.	Ind		Remove
447	E. camaldulensis	45,28,23		Too small.	Ind		Remove
448	E. camaldulensis	15 to 40	Dom.height 12	Copse of younger trees in good condition located from 5 to 15m north of Area A boundary. Too small.	Ind	**7**	Remove
449 - 474 inc. (exc.471)	E. camaldulensis	15 to 40	Dom.height 12	Copse of younger trees in good condition located from 5 to 15m north of Area A boundary. Too small.	Ind	**7**	Retain
471	E. camaldulensis	140	15x12	Advanced decay through trunk but may have wildlife habitat value.	Ind	**5**	Remove
475	E. camaldulensis	65	15x10	Slight lean to south-east and rather one-sided. Partly suppressed by No.486. Good condition. Minor deadwood.	Ind	**5**	Remove
476	E. camaldulensis	80	14x15	Fungal fruiting bodies 1m above base.	Ind	**3**	Remove
477	E. camaldulensis						Retain
478	E. camaldulensis	105	18x17	Mild lean to east. Rather sparse, open crown with some dieback, decay near butt following shed of co-dominant trunk. **Outside property boundary.**	Ind	**4**	Retain
479	E. camaldulensis	120	14x20	Low spreading crown. Reasonable condition. Deadwood and crown reduction to 90% of height. Moderate lean to south. Some trunk tissue death on tension side.	Ind	**6**	Retain
480	E. camaldulensis	125	10x15	Strong lean to west. Has shed several large branches, needs dead wooding and crown reduction to 80% height.	Ind	**7**	Retain

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
481	E. camaldulensis	110	19x15	Comparatively upright tree. Fair condition. Somewhat stressed. Large wound at 9m following shedding of large branch shed in the past. Deadwood and selective crown reduction.	Ind	**7**	Retain
482	E. camaldulensis	110	19x22	Moderate lean to south west. Stressed tree of comparatively modest aesthetic value. Deadwood removal and crown reduction to 80% height.	Ind	**6**	Remove
483	E. camaldulensis	100	19x16	Reasonable condition, form fair. Deadwood apparently extending into trunk on south side. Requires deadwood removal and selective crown reduction.	Ind	**8 (indiv)** **8 (group)**	Retain
484	E. camaldulensis	115	20x20	Slight lean to south. Reasonable condition and form despite some branch shedding. Deadwood and some crown reduction. Consider retention with neighbouring trees(s)	Ind	**8 (indiv)** **8 (group)**	Retain
485	E. camaldulensis	120	20x20	Fair condition and form. Some decay at base and in root. Deadwood and crown reduction to 80% height.	Ind	**6**	Retain
486	E. camaldulensis	150	17x21	Attractive tree in fair health. Mild lean to south. Has shed several branches, sizeable scan on upper main stem. Deadwood and crown reduction to 80% height.	Ind	**9**	Retain
487	E. camaldulensis	130	12x20	Some lean to south. Comparatively low aesthetic value. Decay at base of trunk, has shed large branch in the past.	Ind	**4**	Remove
488	E. camaldulensis	145	18x18	Worthiness reduced by very large dead wood stem constituting part of trunk, and decay extending to roots.	Ind	**3**	Remove
489	E. camaldulensis	160	18x20	Moderate lean to south west. Fair condition, irregular form, some dieback in a few large branches. Deadwood and selective weight reduction tension root.	Ind	**3**	Remove
490	E. camaldulensis	110	10x14	Has shed various larger branches and has substantial decay through main stem.	Ind	**3**	Remove
491	E. camaldulensis				Ind		Retain
492-503	Copse of self-sown River Red Gums to 10m tall. Generally in good condition with long ULEs, except for number 498,499,500,501,492			Too small.	Ind		Remove
504	E. camaldulensis	36	10x7	Young tree in good condition. Too small.	Ind	**5**	Retain
505	E. camaldulensis	45	9x9	Young tree in good condition. Too small.	Ind	**5**	Retain
506	E. camaldulensis	100	17x17	Fair-good - some stress.	Ind	**6**	Retain
507	E. camaldulensis	120	17x21	Good - has lost one major limb.	Ind	**8**	Retain
508	E. camaldulensis	130	17x18	Dead section on trunk below a major tear out wound. OK now.	Ind	**6**	Retain
509	E. camaldulensis	125	20x17	Marked lean to south. Fair condition, some root decay. Deadwood and crown reduce to 90% of height.	Ind	**7**	Retain
510	E. camaldulensis	110	17x20	Slight lean to west. Good form and condition. Deadwood and crown reduce to 80% of height.	Ind	**8-9**	Retain
511	E. camaldulensis	100	10x14	Leans west. Good condition but suppressed.	Ind	**6**	Retain
512	E. camaldulensis	120	18x20	Good condition - rangy. Deadwood and weight reduce to 50% height.	Ind	**8**	Retain

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
513	E. camaldulensis	110			Ind		Remove
514	E. camaldulensis	110			Ind		Remove
515	E. camaldulensis	120			Ind		Remove
516	E. camaldulensis	120			Ind		Retain
517	E. camaldulensis	130			Ind		Retain
518	E. camaldulensis	120			Ind		Remove
519	E. camaldulensis	100			Ind		Retain
520	E. camaldulensis	130	20x20	Good form and structure, high aesthetic value. Crown a little sparse. Deadwood and mild crown reduction.	Ind	**8**	Remove
521	E. camaldulensis	135	20x20	A number of large branches have been shed in the past, leaving dead stubs to trunk decay. Form also affected. Small hollow at base. Crown very healthy. Deadwood and crown reduced in height and spread if retained.	Ind	**5**	Remove
522	E. camaldulensis	120	18x14	Very sparse canopy - in decline.	Ind	**3**	Remove
523	E. camaldulensis	120			Ind		Retain
524	E. camaldulensis	120			Ind		Retain
525	E. camaldulensis	110	22x20	Moderate lean to south. Crown irregular and rather sparse, tree is quite angular. Deadwood and some weight reduction.	Ind	**6**	Remove
526	E. camaldulensis	120			Ind		Retain
527	E. camaldulensis	160	20x15	Substantial crown dieback and advanced decay at base.	Ind	**3**	Remove
528	E. camaldulensis	160	20x20	Stag headed - in advanced decline.	Ind	**3**	Remove
529	E. camaldulensis	120			Ind		Retain
530	E. camaldulensis	120			Ind		Retain
531	E. camaldulensis	120			Ind		Retain
532	E. camaldulensis	130			Ind		Retain
533	E. camaldulensis	100			Ind		Retain
534	E. camaldulensis	170			Ind		Retain
535	E. camaldulensis	110			Ind		Retain
536	E. camaldulensis	110			Ind		Retain
537	E. camaldulensis	120			Ind		Retain
538	E. camaldulensis	120			Ind		Retain
539	E. camaldulensis	120			Ind		Remove
540	E. camaldulensis	160	23x18	Slight lean to south. Heavy branched, over-mature tree of irregular form. Reasonable condition, some scaring and decay at base. Deadwood and crown reduction to 90% height if retained.	Ind	**7**	Remove
558	E. camaldulensis	160	19x15	Very likely to have advanced decay. Possibly could be retained if severely crown reduced.	Ind	**4**	Remove
559	E. camaldulensis	120	18x20	Slight lean to west. Needs deadwood and some slight weight reduction. Consider preserving as group of 3 with 561 and 501.	Indigenous	**7 indiv.** **8-9 group**	Retain
560	E. camaldulensis	110	20x20	Somewhat rangy tree, will benefit from weight reduction going up to 90% of height. Somewhat stressed.	Ind	**6 indiv.**	Retain
561	E. camaldulensis	90	15x16	Crown quite compact. Deadwood and crown reduction to 70% of height.	Ind	**6**	Retain

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
562	E. camaldulensis	165	22x23	Attractive large tree in good condition. Deadwood and crown reduce to 90% of height.	Ind	**9**	Retain
563	E. camaldulensis	90	16x23	Good condition - somewhat rangy. Weight reduct to 90% height.	Ind	**7**	Retain
564	E. camaldulensis	110	17x20	Fair-poor, despite having lost two large sections. Rangy. Weight reduce to 90% height.	Ind	**5**	Remove
565	E. camaldulensis	140	15x15	Fair - dead on east side of lower trunk. Weight reduce high branches and dead wood. **Outside property boundary.**	Ind	**6**	Retain
566	E. camaldulensis	90	14x17	Rangy but healthy - has shed one large section. Weight reduce to 90% height.	Ind	**5**	Retain
568	E. camaldulensis	110	15x22	Rangy tree which has recently shed a large bough. A very large bough had been shed prior to that.	Ind	**4**	Retain
569	E. camaldulensis	120	18x20	Good condition. Deadwood and weight reduce to 70% height.	Ind	**8**	Retain
570	E. camaldulensis	150	16x20	Scar on the lower trunk. Very likely not natural. Another smaller scar at 4m height. This may be associated with tissue starvation as a result of losing a stem above many years ago. Fair good condition. Deadwood.	Ind	**9**	Retain
572	E. camaldulensis	110	17x18	Good condition - leans west. Deadwood.	Ind	**7**	Retain
573	E. camaldulensis	130	15x18	Has lost several big branches. OK for now. **Outside property boundary.**	Ind	**7**	Retain
574 - 596	E. camaldulensis				Ind		Remove
597	E. camaldulensis	160	14x21	Fair-good condition. Needs possum protection. **Outside property boundary.**	Ind	**7**	Retain
604	E.camaldulensis hybrid	17	8x5	Young tree in reasonable health. Too small.	Exotic Native	**5**	Retain
605	E.camaldulensis	100	17x13	Has shed large co-dominant branch. Likely to shed more.	Native	**4**	Retain
606 - 613	E. camaldulensis				Ind		Remove
614	E. camaldulensis	approx 35		Too small	Ind		Retain
615	E. camaldulensis	25,16	to 12	Not of local provenance and will not develop into good trees. Too small.	Native	**4**	Retain
618	E.camaldulensis	58	15x9	Non-indigenous provenance. Has shed half of crown, will shed more. Too small.	Native	**3**	Retain
619	E. camaldulensis	25,16	to 12	Not of local provenance and will not develop into good trees. Too small.	Native	**4**	Retain
622	E.camaldulensis	40	15x7	Large decaying wound at 4m. Lopsided tree. Too small.	Native	**3**	Retain
623	E.camaldulensis	45	13x10	Heavy lean, smothered by ivy. Too small.	Native	**2**	Retain
624	E. camaldulensis	approx 35		Too small.	Ind		Retain
625	E. camaldulensis	approx 35		Too small.	Ind		Retain
626	E.camaldulensis	40	12x9	Poor structure. Too small.	Native	**3**	Retain
628 - 771	E. camaldulensis				Ind		Remove
777, 776, 775, 774, 773, 772, 771	E. camaldulensis 2 4 E. cladocalyx x 2 Angophora costata x 1	To 50	Dom. height 16	Poorly structured trees. Too small.	Native	**3**	Retain
778 - 818	E. camaldulensis				Ind		Remove
806 - 811	E. camaldulensis			Too small.	Ind		Remove
819	E. camaldulensis	approx 35		Too small.	Ind		Retain

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
821	E. camaldulensis	approx 35		Too small.	Ind		Retain
U2	E. camaldulensis	120		**Outside property boundary.**	Ind		Retain
U10	E. camaldulensis	150		**Outside property boundary.**	Ind		Retain
U11	E. camaldulensis	180		**Outside property boundary.**	Ind		Retain
U12	E. camaldulensis	150		**Outside property boundary.**	Ind		Remove
U13	E. camaldulensis	100		**Outside property boundary.**	Ind		Retain
822 (label torn)	E. camaldulensis	150	21x20	Strong lean to east. Large tree with leafy crown, but has decay in base of trunk. Has shed several branches. Deadwood and substantial weight reduction on east side.	Ind	**5**	Remove
823	E. camaldulensis	110	10x16	Tree has fallen to the south west in past and is now growing well from prostrate trunk and a reduced set of roots. Consider retention as a childrens' playground tree. (Height 10m spread to 16m from base to south west spaced north to south 16m)	Ind	**8 - see comments**	Retain
824	E. camaldulensis	135	18x18	Well formed twin stemmed tree. Large scar and decay at base where a co-dominant stem split out years ago. Deadwood and weight reduction.	Ind	**6**	Remove
825	E. camaldulensis	105	21x16	Large heavy branched tree. Has shed several large branches to date. Healthy rigorous dead wooding and crown reduction throughout. Consider reduction.	Ind	**7 indiv.**	Retain
826	E. camaldulensis	95	16x24	Strong lean to west. Has been partly suppressed by tree 825. Two wounds on trunk from shed branches. Very substantial weight reduction is required on the main stem if it is to be retained, but the result may not be good - it is probably not worth retaining.	Ind	**3 indiv.**	Retain
827, 828… 831,832, 833,834	Group of 8 E. camaldulensis	to 95	Dom.height 20m	Attractive group of trees, generally in good condition, and well worthy of retention. Deadwood and selective weight reduction .	Ind	**9**	Retain
829, 830	E. camaldulensis	TO 95	Dom.height 20m	Attractive group of trees, generally in good condition, and well worthy of retention. Deadwood and selective weight reduction . Too small.	Ind	**9**	Retain
U3	E. camaldulensis	135	18x18	Large tree in fair condition. Has shed two large branches on west side with consequent wounds. Requires dead wooding and crown reduction to 90% height.	Ind	**7**	Remove
U4	E. camaldulensis	160	18x29	Well formed tree in good condition. Deadwood and selective weight reduction.	Ind	**9**	Remove
U5	E. camaldulensis	110	18x25	Similar to above.	Ind	**9**	Retain
U6	E. camaldulensis	100	20x17	Rather upright tree in reasonable health. Has shed several large branches leaving substantial wounds on main stems. 3m fissure running down trunk.	Ind	**4**	Retain
U7	E. camaldulensis	65	20x13	Modest lean to south - partly suppressed by No.U6. Fair condition and form only.	Ind	**8**	Retain
U12	E. camaldulensis	85	10x12	Moderate lean to west. Smaller specimen in fair condition.	Ind	**5**	Retain

TREES ON RAPAPORT PROPERTY							
Tree No.	**Species**	**DBH (cm)**	**HxS (m)**	**Comments and Treatments**	**Indig./ Native/ Exotic**	**WOR**	**Retain/ Remove**
R1	E. camaldulensis	1500	23x25	Good condition, some weight reduction necessary.	Ind	**8**	Remove
R2	E. camaldulensis	300-700	20x23	Row of trees in good condition, trees aged 50-70. Some weight reduction is needed, long ULE.	Ind	**9**	Retain
R3	E. camaldulensis	1000	23x25	Good condition, some crown reduction needed.	Ind	**8**	Retain
R4	E. camaldulensis	1000	23x18	Fair to good health, rot/hollow in trunk.	Ind	**7**	Retain
R5	E. camaldulensis	1200	18x18	Fair, rot/hollow in trunk, lopsided lower branch to west.	Ind	**5**	Remove
R6	E. camaldulensis	1200	18x18	Old tree, fair, large canker in trunk, severe crown reduction necessary to make safe.	Ind	**5**	Remove
R7	E. camaldulensis	500	5x20	Long ago fallen-over tree that has survived, though fair condition, dieback, unusual form.	Ind	**3**	Remove
R8	E. camaldulensis	900	18x20	Good, lopsided to south east, minor weight reduction required.	Ind	**8**	Retain
R9	E. camaldulensis	2000	20x28	Good-fair, some dieback, needs dead-wooding and crown reduction, interesting burled trunk.	Ind	**7**	Retain
R10	E. camaldulensis	800	15x15	Good, rot/hollows in trunk.	Ind	**7**	Retain
R11	E. camaldulensis	1000	20x20	Good-fair, weight reduction needed.	Ind	**7**	Retain
R12	E. camaldulensis	1000	20x20	Good, weight reduction required.	Ind	**7**	Retain
R13	E. camaldulensis	700	20x18	Good-fair, structure OK.	Ind	**6-7**	Retain
R14	E. camaldulensis	1400	22x20	Fair to poor, dieback and stressed.	Ind	**4**	Remove
R15	E. camaldulensis	1000	22x20	Good-fair, somewhat lopsided to south west, quite stressed, crown reduction required.	Ind	**4**	Retain
R16	E. camaldulensis	1200	22x20	Fair, some dieback, stressed. Deadwood only.	Ind	**5-6**	Retain
R17	E. camaldulensis	300-800	15x35	14 trees, fair-good, some dieback and stress, some rot in trunks, some weight reduction required.	Ind	**8**	Retain
R18	E. camaldulensis	300-800	20x30	5 trees, good overall, except second from the north which is severely decayed. Some weight reduction required.	Ind	**8**	Retain
R19	E. camaldulensis	1300	20x22	Good condition, some weight reduction required.	Ind	**8-9**	Retain
R20	E. camaldulensis	300-1100	15x22	15 trees, good condition overall, some weight reduction required. Younger trees. Up to 80 years old.	Ind	**9**	Retain
R21	E. camaldulensis	1500	18x23	Very good condition, somewhat lopsided to south south east, some weight reduction needed.	Ind	**9**	Remove
R22	Schinus Molle	600	15x15	Two trees - old but in good health, some rot (in decline). ULE 20	Ind	**6**	Remove
R23	Pinus Radiata	600	12x12	In decline, advanced decay, half gone from wind damage. ULE 0	Ind	**1**	Remove
R24	Pinus Radiata	600	12x15	Beginnings of decline, some dieback, wind damage, crown reduction needed ULE 15	Ind	**5**	Remove
R25	E. camaldulensis	1000	12x20	Good health but rot/hollow in trunk, somewhat lopsided to north, weight reduction required.	Ind	**7**	Remove
R26	E. camaldulensis	1300	23x25	Very old but good, hollows, lopsided to north west, 2 branches reaching almost to ground, some weight reduction.	Ind	**8-9**	Remove

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
R27	E. camaldulensis	1500	20x25	Very old but good, showing some stress, hollows, 2 branches reaching to ground, some weight reduction needed.	Ind	**7-8**	Remove
R28	E. camaldulensis	900	25x20	Dead	Ind	**1**	Remove
R29	E. camaldulensis	1100	20x25	Fair-good, somewhat stressed, some weight reduction and deadwooding necessary.	Ind	**7**	Retain
R30	E. camaldulensis	600	13x11	Comparatively young tree in good condition.	Ind	**6**	Retain
R31	E. camaldulensis	1300	23x25	Very good condition, weight reduction required.	Ind	**9**	Retain
R32	E. camaldulensis	1000	21x20	Fair, mildly stressed but reversible, weight reduction needed, modest lean to south.	Ind	**7**	Retain
R33	E. camaldulensis	1000	20x20	Fair-poor, top heavy, half lost to wind damage, hollows, severe crown reduction required.	Ind	**4**	Retain
R34	E. camaldulensis	1000	18x25	Good, several low branches need weight reduction.	Ind	**8**	Retain
R35	E. camaldulensis	1100	18x20	Fair-poor, in decline, quite a bit of dieback, large canker rot in trunk. In irreversible decline. ULE 10.	Ind	**4**	Retain
R36	E. camaldulensis	500	10x10	Old and rotten but with inhabited hollow, prominent lean to south west. ULE 10	Ind	**4**	Retain
R37	E. camaldulensis	1200	20x20	Rather poor, in decline, canker rot in lower trunk, severe crown reduction necessary for safety purposes. ULE 20	Ind	**4**	Retain
R38	E. camaldulensis	600	20x15	Significant lean to south, fair condition, quite stressed.	Ind	**5**	Retain
R39	E. camaldulensis	1000	15x15	Good health but hollow trunk, and other large hollows.	Ind	**5-7**	Retain
R40	E. camaldulensis	1100	18x22	Good except one large dead branch, hollows, several low branches need reduction.	Ind	**7-8**	Retain
R41	E. camaldulensis	800	23x18	Fair-stressed, hollows, has lost a couple of large branches top-heavy, crown reduction needed. ULE 20	Ind	**(indiv.) 5 (if as group with 42-45, 8)**	Retain
R42	E. camaldulensis	800	23x25	Good-fair, stressed, some dieback, some rot/hollows, has lost several large branches. Moderate lean to south. ULE 20	Ind	**(indiv) 6-7 (but see R41)**	Retain
R43	E. camaldulensis	700	23x22	Good-fair, stressed, some dieback, some rot/hollows, crown reduction. Moderate lean to south. ULE 30.	Ind	**(indiv) 6-7 (but see R41)**	Retain
R44	E. camaldulensis	900	23x25	Good-fair, stressed but reasonable, severe crown reduction, some dieback and deadwooding needed.	Ind	**(indiv) 6-7 (but see R41)**	Retain
R45	E. camaldulensis	900	25x25	Good-fair, stressed/dieback but lots of new growth, has lost several large branches, crown reduction.	Ind	**(indiv) 7 (but see R41)**	Retain
R46	E. camaldulensis	1000	18x15	In decline, rot and hollows, several low branches form the crown, severe weight reduction required on these.	Ind	**4**	Remove
R47	E. camaldulensis	1400	20x25	Good, though has lost a very large branch on the east, now lopsided to south west, some dieback on lower branches, several of which are low to ground, severe weight reduction needed.	Ind	**7**	Retain

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
R48	E. camaldulensis	1000	20x22	Good-fair, has lost several large branches, hollows. Severe weight reduction. Some lean to south west.	Ind	**6**	Retain
R49	E. camaldulensis	900	20x20	Good though has lost several medium sized branches, weight reduction needed	Ind	**7-8**	Retain
R50	E. camaldulensis	900	20x25	Very good, some weight reduction.	Ind	**9**	Remove
R51	E. camaldulensis	1000	20x25	Good, though a little dieback and lopsided to west, hollows, crown reduction necessary.	Ind	**7**	Remove
R52	E. camaldulensis	600	20x20	Good condition.	Ind	**7-8**	Retain
R53	E. camaldulensis	1100	20x25	Good-fair, though some dieback weight reduction.	Ind	**6-7**	Remove
R54	E. camaldulensis	800	20x25	2 trees in good condition, need weight reduction.	Ind	**7**	Retain
R55	E. camaldulensis	1000	20x20	Good-fair, some dieback and rot and hollows, has lost a couple of large branches, crown reduction.	Ind	**6-7**	Retain
R56	E. camaldulensis	900	12x12	Good-fair, dieback, long ago fallen on side, lots of hollows, structure OK though hollow trunk.	Ind	**5**	Remove
R57	E. camaldulensis	900	15x18	Good-fair, though very recently lost several large branches and some of its original height, severe lopping needed. ULE 20	Ind	**6-7**	Retain
R58	E. camaldulensis	1600	22x25	Poor, in decline, very rotten trunk, has lost several large branches, very sparse crown.	Ind	**3**	Retain
R59	E. camaldulensis	300-700	20x10	7 trees, good overall, some crown reduction.	Ind	**8**	Retain
R60	E. camaldulensis	1400	20x25	Good condition, somewhat lopsided to south south east, weight reduce and insert 2 large cables to brace a co-dominant stem.	Ind	**8**	Retain
R61	E. camaldulensis	600	18x10	Good condition, somewhat lopsided to south west, suppressed on east side.	Ind	**7**	Retain
R62	E. camaldulensis	200-400	15x25	Forest , good overall, some weight reduction of exterior trees required. Origin is natural regeneration in low lying flood plain area. Approx. 50 years old.	Ind	**9+**	Retain
R63	E. camaldulensis + 1 E. Melliodora	300-600	15x20	20 trees, good overall, some lopsided, some with hollows, young trees approx. 70-80 yrs, some weight reduction needed.	Ind	**9**	Retain
R64	E. camaldulensis	500	20x20	Good, though some dieback, some weight reduction needed.	Ind	**7**	Retain
R65	E. camaldulensis	800	18x20	Good, though some dieback, has lost a few large branches, severe crown reduction. If retained, best as pair with R66.	Ind	**7**	Retain
R66	E. camaldulensis	500-1000	15x25	4 trees, good overall, though one is older and good-fair, others lopsided, some weight reduction needed. See above.	Ind	**8**	Retain
R67	E. camaldulensis	500-700	22x20	2 trees, good, though a little stressed, larger one has rot in large branch and has dropped 2, weight reduction required.	Ind	**6-7**	Retain
R68	E. camaldulensis	1000	22x25	Good, though some dieback and has lost several large branches, weight reduction needed.	Ind	**8**	Remove
R69	E. camaldulensis	1000	22x25	Good, though some dieback and has lost several large branches, weight reduction required.	Ind	**7**	Remove

Tree No.	Species	DBH (cm)	HxS (m)	Comments and Treatments	Indig./ Native/ Exotic	WOR	Retain/ Remove
R70	E. Melliodora	700	18x20	Good, though rot/hollow in trunk. Crown reduction needed, mildly lopsided to south.	Ind	**7**	Retain
R71	E. camaldulensis	900	16x17	Fair to good health, somewhat stressed, structure OK. Lopsided to north west.	Ind	**7**	Retain
R72	E. camaldulensis	1700	20x20	Interesting very old tree with tripod like base and internal hollow. Fair-good condition, though some dieback, under stress but reversible. Crown reduction needed.	Ind	**7**	Remove
R73	E. camaldulensis	1500	20x20	Good-fair health though in decline, has lost large branches and has lots of hollows and associated rot in trunk. Crown reduction needed.	Ind	**7**	Remove
R74	E. camaldulensis	1300	20x25	Fair, has lost several large branches, hollows. Needs crown reduction.	Ind	**7**	Remove
R75	E. camaldulensis	1200	22x25	Very good, weight reduction needed.	Ind	**9**	Remove
R76	E. camaldulensis	1500	23x25	Poor, almost dead.	Ind	**2**	Remove
R77	E. camaldulensis	1500	23x25	Good-fair health, though has lost half its crown, leaving it leaning to north east, severe crown reduction needed.	Ind	**5**	Remove
R78	E. camaldulensis	800	15x20	Fair-in decline. Dieback but lots of new growth, lopsided to north west. Hollows. Severe weight reduction needed.	Ind	**6**	Remove
R79	E. camaldulensis	1400	25x28	Impressive large tree.	Ind	**9**	Remove
R80	E. camaldulensis	1200	15x13	At side of dam, healthy crown. Largish hollow in trunk. Crown reduce, especially on south side, where lopsided.	Ind	**7**	Retain
R81	E. camaldulensis	1300	17x11	Healthy but has shed several major branches, selective weight reduction, lacks good form.	Ind	**5**	Remove
R82	E. camaldulensis	800	16x18	Very good condition and form.	Ind	**9**	Retain
R83	E. camaldulensis	1200	18x22	Good condition and form, even though lopsided to south. Deadwood and minor weight reduction.	Ind	**8**	Retain

Attachment 2: Design Guidelines for 690 Bridge Inn Road

Coomes Consulting Group Pty Ltd ABN 14874 072 735
24 Albert Road PO Box 305 South Melbourne Victoria 3205 Australia
T 61 3 9993 7888 **F** 61 3 9993 7999
consult@coomes.com.au coomes.com.au

coomes consulting

Knowledge Creativity Performance
Engineering Surveying Planning Urban Design Landscape Architecture
Sustainability and Environment Agribusiness Project Management

Urban Design Guidelines for Integrated Housing

690 - 760 Bridge Inn Road

March 2005

Coomes Consulting Group Pty Ltd ABN 14874 072 735
24 Albert Road PO Box 305 South Melbourne Victoria 3205 Australia
T 61 3 9993 7888 F 61 3 9993 7999
consult@coomes.com.au coomes.com.au

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1 Urban Design Parameters

A number of integrated housing sites have been proposed as part of this Development Plan.

Integrated housing is a design approach to urban form that responds to the specific requirements of a site which may pose a challenge to traditional individual lot layout; an area of land dotted with stands of large River Red Gums, for example.

To ensure that this housing form is integrated within the surrounding urban fabric, design parameters have been established to address a number of issues. These guidelines aim to ensure development that is sensitive to the site and environment, and to provide high quality amenity for future residents and their neighbours.

1.1 Development Densities

- Typically, housing densities in integrated sites are higher than the surrounding residential neighbourhood.
- Medium density targets will be achieved subject to site opportunities and constraints, and will preserve environmental assets.

1.2 Building Setbacks from Existing Vegetation

- Large red gums have been noted for retention in the integrated housing site.
- Buildings are to be constructed no closer to a radius of 1.0 metre from the canopy of the existing redgums.
- Consideration is to be given to the maturity of individual trees and the design layout is to be reviewed with an arborist to ensure that over time, trees will not grow over houses
- Development will be designed to maintain the canopy links within groups of redgums.

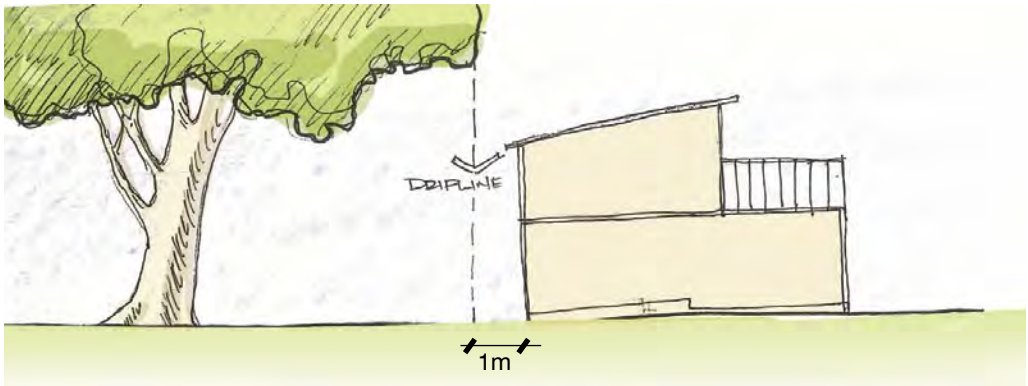


Figure 1: Building Setback from Existing Vegetation

1.3 View Lines

A number of the integrated housing sites have frontage to the Plenty River open space corridor and onto local parks.

- Buildings along the active interfaces should be designed to create internal view lines to adjoining open space areas. Where side or rear fence lines are adjacent to open space , houses should be double storey, with windows facing public open space.
- Where significant specimens or groups of redgums occur on integrated housing sites, establish open space corridors to the Plenty River corridor that will ensure visual connectivity into and out of the sites.

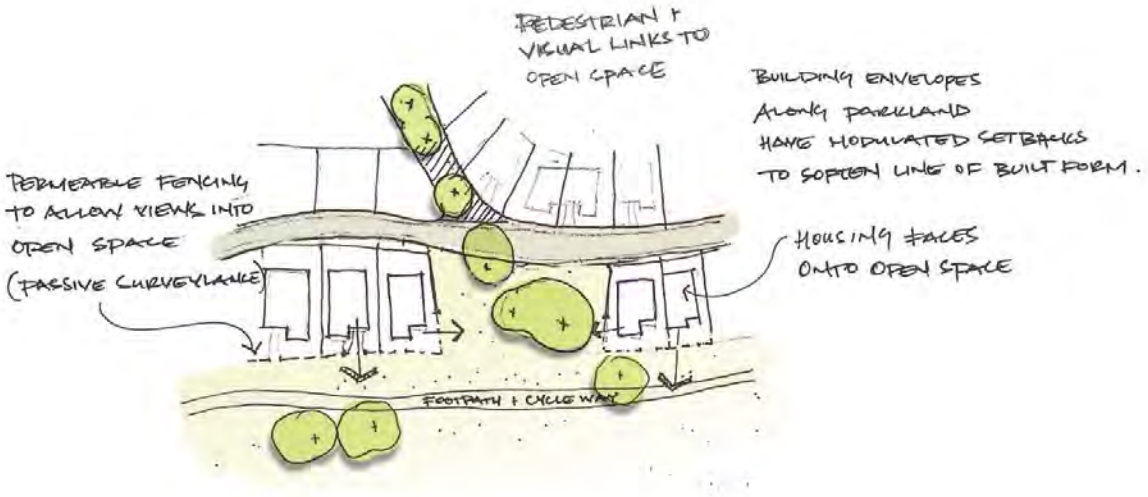
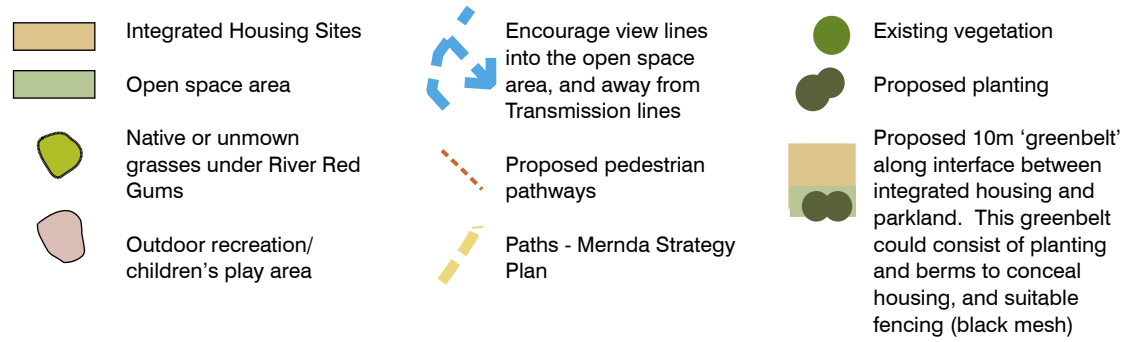


Figure 2: Typical Interface Between Integrated Housing and Open Space

Where side or rear fences are adjacent to open space - second storey windows should allow views over open space to maximise passive surveillance. 'Enclosing' the parks with built form increases the sense of community ownership, and allows the safe enjoyment of public space.
(Refer to attached plans for fence locations)

Figure 3: Relationship Between Open Space, Fences and Housing Forms



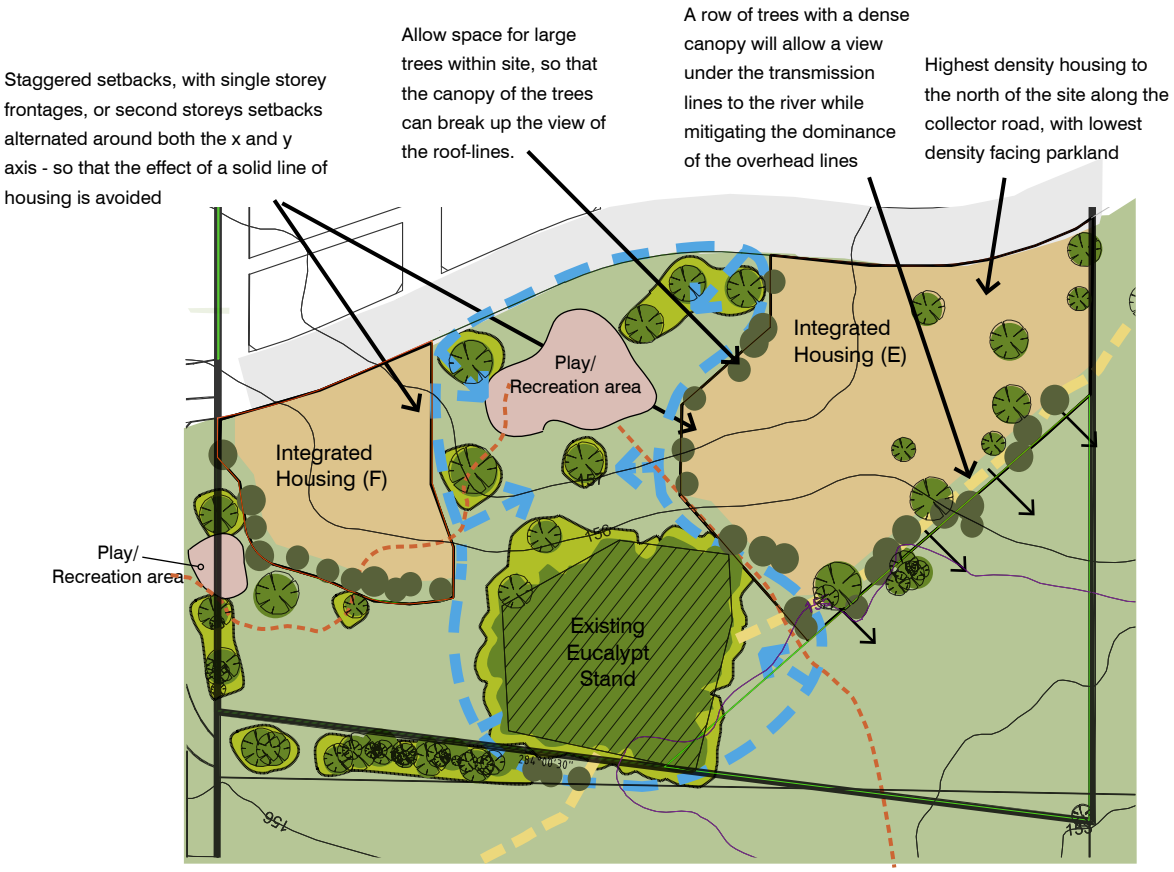


Figure 4: Interface Between Integrated Housing Sites E & F and Open Space

1.4 Interface Treatments

- Houses located to designated active interfaces are to front the surrounding open space areas (refer to attached plans for housing orientation).
- Fence treatments to the front of individual houses are to be transparent so as to reinforce an active interface.
- Pool type fences, or similar unobtrusive treatments, with muted neutral colours (black, dark green) are recommended along the Plenty River corridor.
- Integrated housing and regular lots which face onto local parks should have fencing which allows clear views into front yards, and glimpses of rear yards, and also presents a visually pleasing address to the park. (Refer to images of fence types below and attached plans for location plans)
- Internal interfaces are to consider a strong and active presentation. Modulated setbacks of garages, fences and walls with appropriate landscape treatments will avoid large expanses of internal blank facades.
- The rear access lanes of houses which face onto open space require special consideration. These spaces should be well used by residents. The design of laneways; including fencing, planting, lighting and housing form should to encourage pedestrian use, and allow for passive surveillance (refer to figure 3).
- Interface treatments shall consider visual and accessible permeability with the surrounding neighbourhood.

1. Fence Type A: Suitable for park frontages. A low wooden picket fence, 900mm ht or less, allows clear views into front yards whilst the uniform fence line provides a visually pleasing address to open space area.

2 Fence Type B: Where a higher fence is required along front fence areas, the low wooden picket fence may be replaced with a higher wooden picket fence, which still allows clear views into front yards.

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1.5 Access and Parking Requirements

- Internal roads and pathways are to contribute to the community as public places, and as such, shall permit clear and legible accessibility to and through the sites.
- Create streets and open spaces that invite public access.
- Internal roads and lanes are to contribute positively to the local amenity through appropriate landscape treatments that reinforce the character of the surrounding residential areas.
- Garage setbacks shall be a minimum of 5 metres to provide off street car parks (other than the garage) for each dwelling.
- Car parking is to be provided on the sites to cater for visitors. Numbers of visitor car parks will be subject to housing densities, and will consider streetscape character.

1. Provide clear pedestrian pathways which contribute to public space of the community

2. Five meter garage setbacks allow for additional off street parking.

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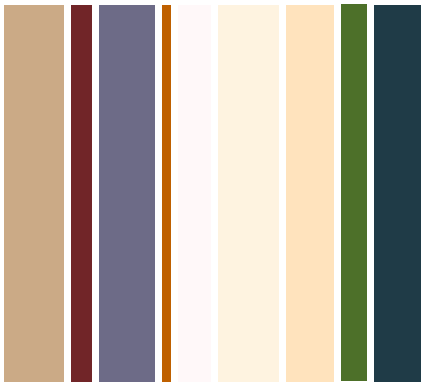
1.6 Building Design & Diversity Objectives

- A variety of house sizes (2 bdrm, 3 bdrm and 4 bedrm) are to be provided to cater for culturally and demographically diverse households.
- A variety of housing styles (detached, semi-detached and terrace) are to be provided.
- Modulate and attenuate façade treatments and built form to reduce overall bulk and mass.
- Use materials and colours that are reflective of the existing landscape character.

1. Use a palette of materials and colours which reflect the landscape character and create an harmonious visual affect.

2&3. Provide a range of housing types to provide for community that is diverse in terms of age, culture and income.



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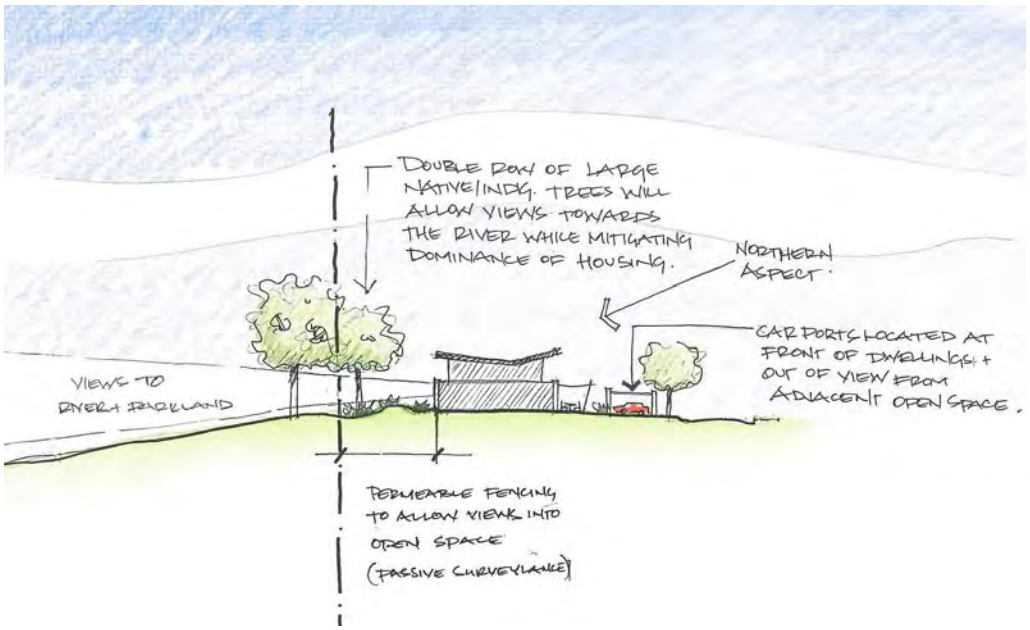

Figure 5: Typical Section of Interface Between Integrated Housing and Open Space

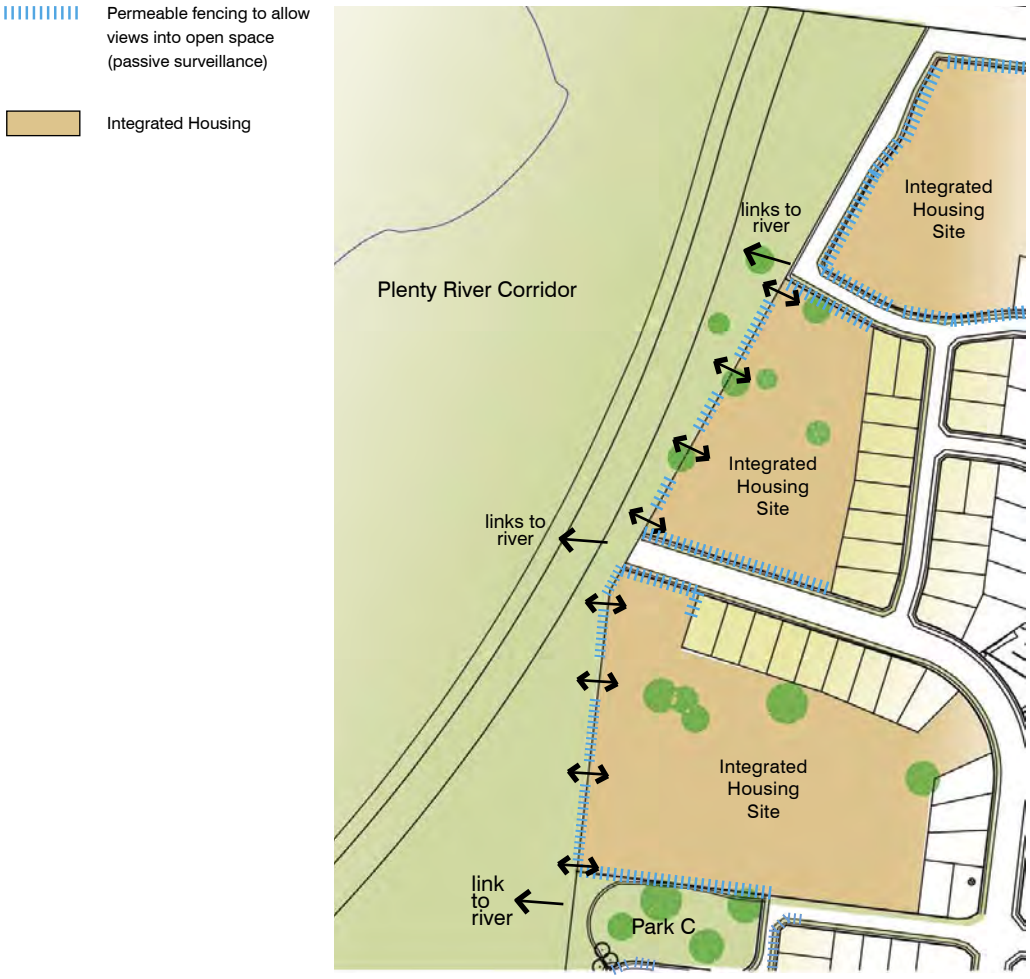

Figure 6: Interface of Housing and Plenty River Corridor