Tract

Draft Development Plan
Gordons Road, South Morang

Prepared by Tract Consultants Pty Ltd

On behalf of Campaspe Esplanade Estate Ltd

June 2004

GORDONS ROAD EAST DEVELOPMENT PLAN.

Development Plan approved by the City of Whittlesea on1 June 2004, in accordance with Clause 43.04 Schedule 6 of the Whittlesea Planning Scheme.

8 July 2004 ----------
Signature of the Responsible Authority

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Contents

1	**Introduction**	3
2	**Strategic Framework**	4
3	**Site Analysis**	8
4	**The Plan**	17
5	**Archaeological / Heritage**	21
6	**Open Space and Recreation**	21
7	**Transport and Traffic**	23
8	**Physical Infrastructure**	24
9	**Development Contributions**	24
10	**Site Staging**	25

Figure 1 – Locality Plan
Figure 2 – Regional Context
Figure 3 – South Morang Local Structure Plan
Figure 4 – Strategic Framework for Residential Areas
Figure 5 – Aerial Photograph
Figure 6 – Zones and Overlays
Figure 7 – General Site Analysis Plan
Figure 8 – Site Photos
Figure 9 – Victorian Trees considered to be of poor structure or low aesthetic value
Figure 10 – Victorian Trees considered to be of sound structure or high aesthetic value
Figure 11 – All Trees with structure / aesthetic consideration and rank
Figure 12 – Victorian Trees with structure / aesthetic consideration and rank
Figure 13 – Development Plan
Figure 14– Road Cross Sections

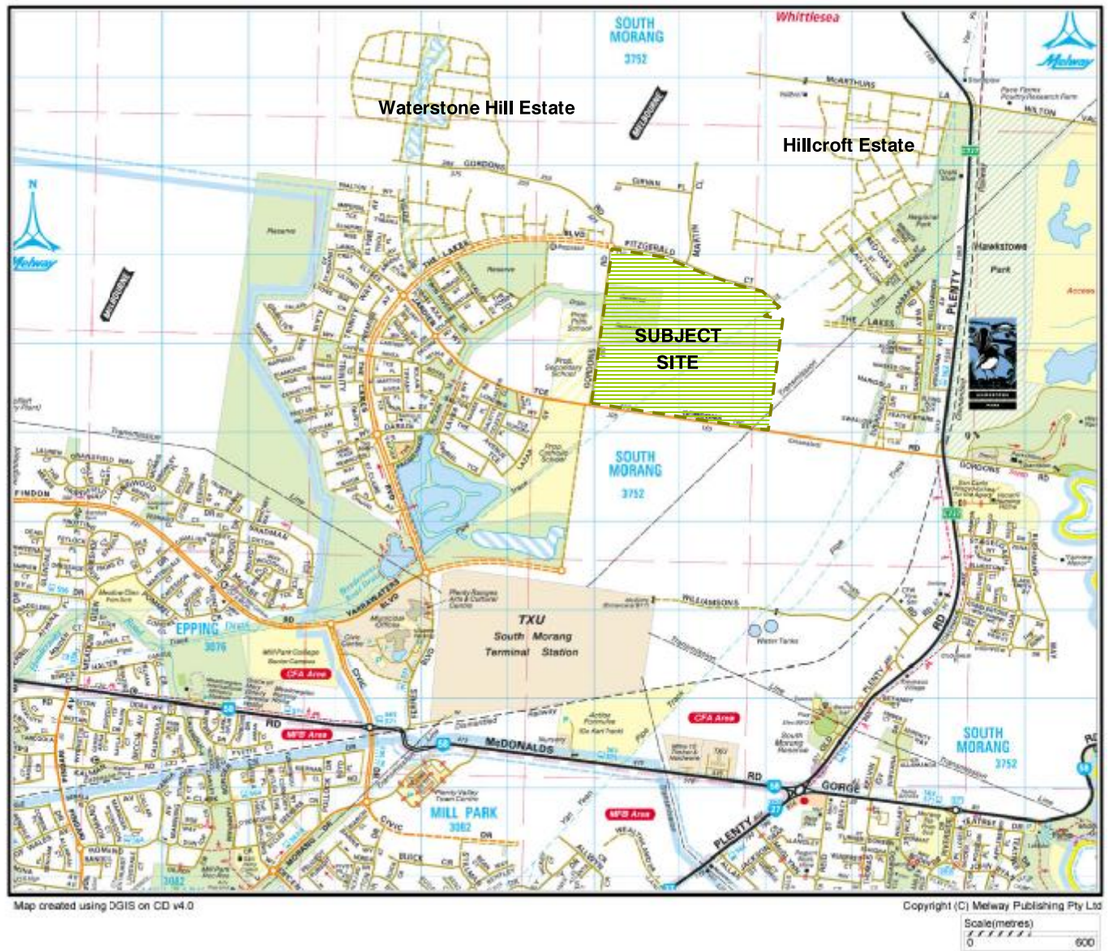


Figure 1 – Locality Plan

1 Introduction

1.1 Overview

This development plan provides for the integrated development of 16 land holdings (the development area) located between Gordons Road and Fitzgerald Court, South Morang. The development area comprises approximately 53ha and is zoned for urban residential purposes (refer to **Figure 1** – Locality Plan)

Prior to considering subdivision or development applications for these purposes, a Development Plan prepared to the requirements of schedule 6 of the Whittlesea Planning Scheme must be approved.

This plan seeks to resolve these requirements with consideration to the areas fragmented ownership pattern, topographical and vegetative features, as well as two major public purpose easements.

1.2 Development Plan Purpose

The primary purpose of this Development Plan is to implement the requirements of schedule 6 of the Development Plan Overlay in the Whittlesea Planning Scheme. In doing so, the plan will also give effect to the principles established in the wider South Morang Local Structure plan which was prepared as a result of the Plenty Growth Area Plan.

This Development Plan will ensure the coordination and integration of development elements by providing an indicative transport network to collector road level, the location of public spaces and networks as well as a rationale for design outcomes.

In particular this Development Plan demonstrates compliance with clause 43.04 through:

- Consistency with the South Morang Local Structure Plan.
- A local road, pedestrian and bicycle network, including links to adjoining land and networks and provision for access to proposed public transport routes.
- Conceptual design of the proposed subdivision including proposed landscape treatments.
- Location and layout of proposed non-residential uses, including activity centres and open space.
- Relevant topographical and landscape details, including identification of significant environmental and cultural features and measures to preserve and enhance these features.
- Opportunities for a diverse range of allotment sizes and dwelling types.

This plan is a proposed outline for the future development in this area. It does not seek to specifically design the future subdivision pattern of each land holding, nor does it obligate land owners to develop their parcels any further than they are currently developed. It does however show a development outline to assist with the coordinated development of the fragmented land holding pattern that would accord with Council requirements.

Development Plan Content

This report is prepared in conjunction with the attached Development Plan map.

To enable consideration of the plan, this report includes discussion of key elements, drawing from the development area's strategic planning framework and provides for the coordinated urban design of this area with regard to it's various intrinsic and imposed features.

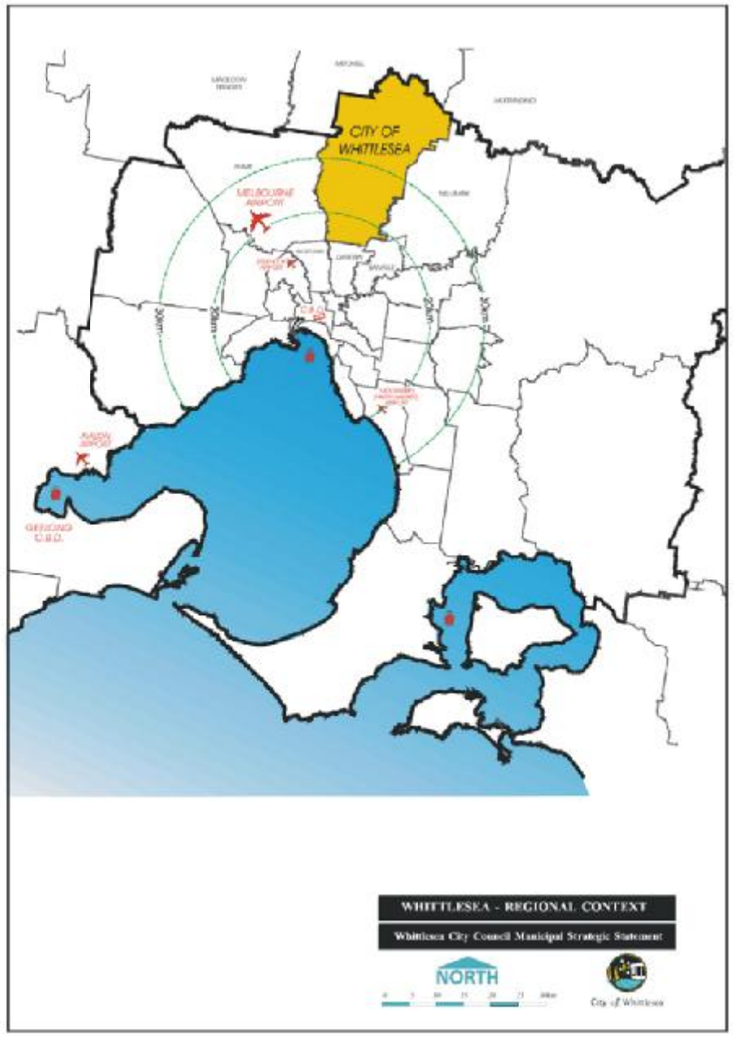


Figure 2 – Regional Context Plan

2 Strategic Framework

2.1 Regional context

The development area is located within the City of Whittlesea. The municipality is located approximately 20km to the north of Melbourne and is recognised as being on the fringe of the developed metropolitan area.

The City adjoins the Shire of Nillumbik to the east, the City of Hume to the west, the Cities of Banyule and Darebin to the South and the Shires of Murrundindi, and Mitchell to the north (refer to **Figure 2** – Regional Context Plan).

Whittlesea is characterised by its rapid population and urban development growth rates and its Municipal Strategic Statement (MSS) reflects Councils enthusiasm in accommodating appropriate development in considered locations throughout the municipality. The MSS builds upon the broad principles of development initially introduced to the area by Ministers Direction 7, The Plenty Valley Strategic Plan.

2.2 Ministers Direction 7 - Plenty Valley Strategic Plan

Responding to Melbourne's sprawling development pattern of the 1970's and 1980's, "growth corridors" were established in an attempt by the Victorian Government to encourage outward metropolitan growth in areas considered both economically and spatially rational.

It did so by providing a very broad outline of key transportation and land use relationships and advanced the concept of planning for long term residential and employment growth in the City of Whittlesea.

Following its introduction, a Local Structure Plan for the South Morang Area (housing approximately 20,000 to 25,000 persons) and the new format Whittlesea Planning Scheme have further developed these broad principles.

2.3 Metropolitan Strategy

The land is located within the Urban Growth Boundary and is accordingly identified for development in the Metropolitan Strategy. The framework seeks a residential yield of approximately 15 lots per Ha, though given the site constraints and vegetation, a development yield of approximately 13 dwellings per Ha is more likely. Medium Density Housing will however be encouraged throughout the Development area.

2.4 Net Gain

New planting within the development will occur with particular reference to the Net Gain outcomes required in the *Victoria's Native Vegetation Management - A Framework for Action*. The aims of Net Gain include:

1. A reduction in losses in the extent of existing native vegetation,

2. A reduction in losses in the quality of existing native vegetation due to threatening processes, and

3. The achievement of gains in extent and quality of native vegetation through its rehabilitation and revegetation with indigenous species for biodiversity conservation and land and water resource outcomes.

The Framework itself includes directions for the assessment of vegetation removal / management as proposed in planning applications. Appropriate management of native vegetation on the site will occur through the assessment of individual planning applications for subdivision.

All subdivision applications must show regard for the three step Net Gain approach:

1. Investigate options to avoid clearing
2. Evaluating options for minimisation of clearing
3. Mitigation of any essential clearing through suitable offset measures to achieve Net Gain.

The Net Gain vegetation plan will be required to compensate for loss of vegetation which will be achieved primarily through replanting key areas on site so as to achieve increased biodiversity conservation, land protection and the provision of attractive public spaces.

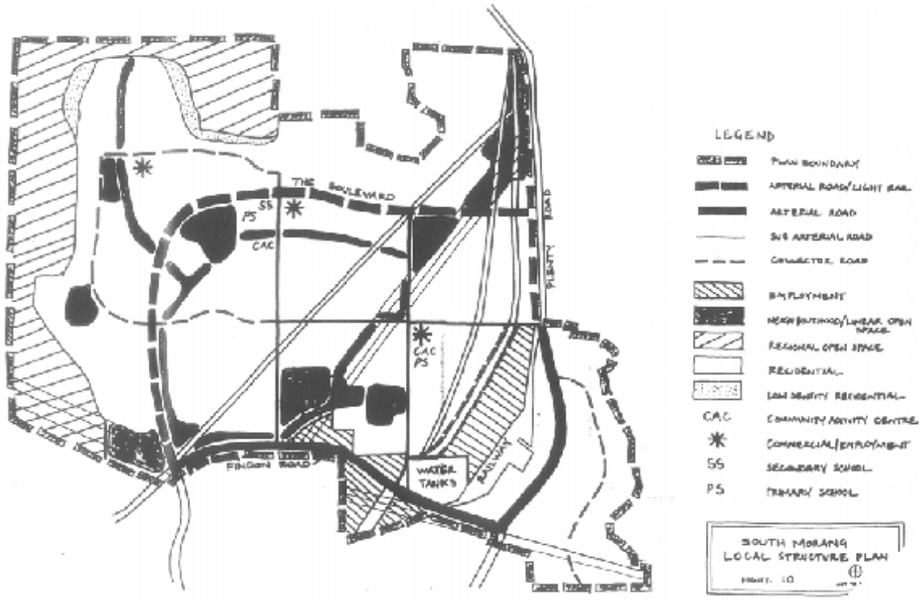


Figure 3 – South Morang Local Structure Plan

2.5 South Morang Local Structure Plan

The SMLSP was prepared as a more detailed concept within the much broader Plenty Valley Strategic Plan.

In this capacity the SMLSP provides a framework for the levy of developer contributions and sets finer principles to residential development, local employment opportunities, the provision of major roads and public transport services, recreation and open space networks, urban design principles, and the likely staging of development for these purposes.

Of the two planning units identified in the SMLSP, the development area is located within the western planning unit. This unit is generally bound by Plenty Road east, Findon Road south, and the Quarry Hills to the north (refer to **Figure 3 –** South Morang Local Structure Plan).

The SMLSP specifically seeks to:

- Balance social, economic, environmental and community interests.
- Facilitate the creation of an interesting and diverse urban environment.
- Conserve, enhance and manage areas and features of environmental and heritage significance.
- Accommodate future development at a rate related to demand and the ability to service the area.
- Facilitate the creation of a sense of community identity and provide opportunities for the physical and social fulfilment of future residents.
- Provide a flexible structure that can readily adapt to changes in people's lifestyle and aspirations.
- Ensure that development is energy efficient in terms of subdivision/ housing design and transportation.
- Provide a framework for the coordinated and timely provision of infrastructure.
- Provide a structure which allows equitable accessibility of all residents to public facilities, services and spaces.

The Western Precinct recognises:

- the future arterial of the Boulevard north (providing additional land area within this reserve to accommodate a light rail service).
- the upgrade of Gordons Road to sub arterial standard.
- the provision of an east-west sub arterial road through the development area.
- The provision and future construction of a North South collector road abutting the development area.
- That development needs to achieve a range of densities and lot sizes with an average gross density of 15 lots per hectare.
- The further use of the electric transmission reserves to provide linear links between main open space areas with the provision of bike paths and walking tracks.

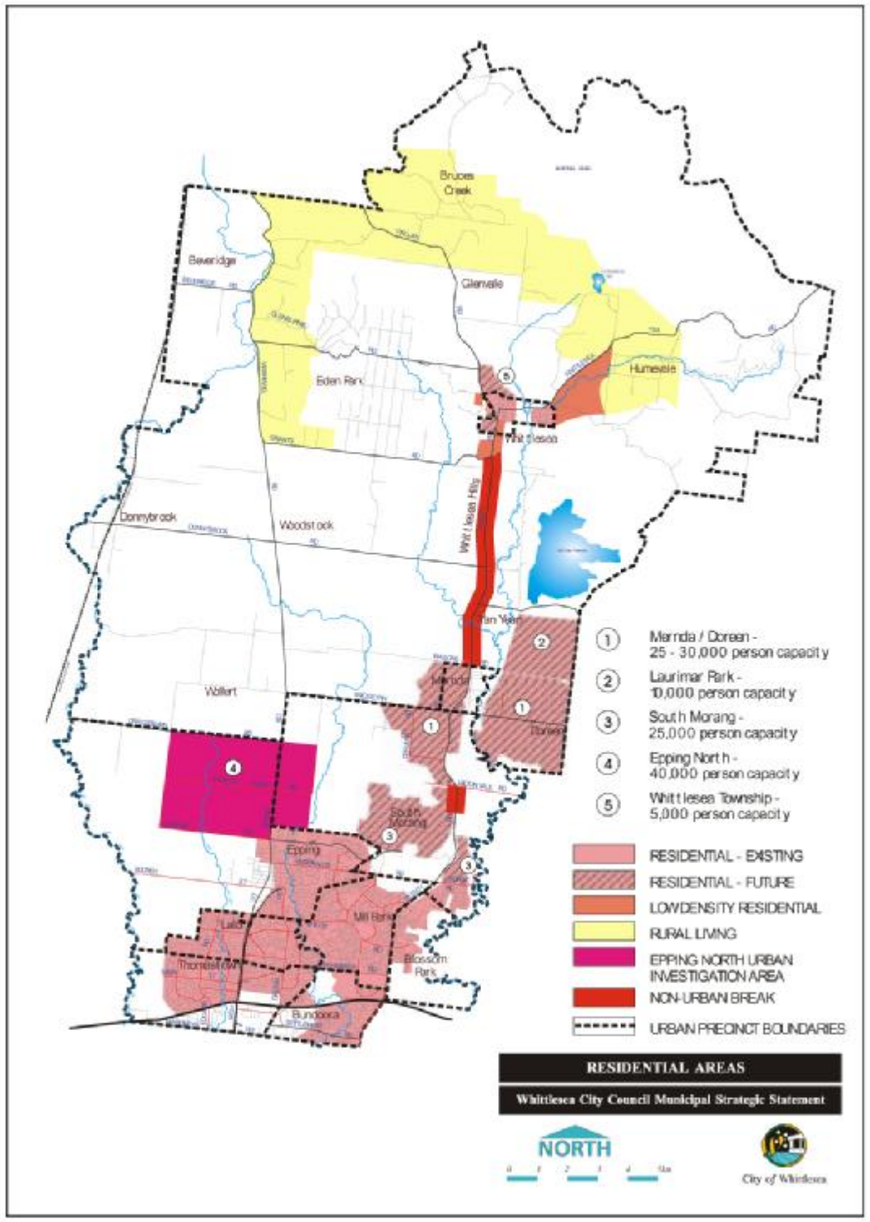


Figure 4 – Strategic Farmework for Residential Areas

2.6 Municipal Strategic Statement

The Whittlesea MSS is a thematic document that seeks to provide both planning direction for use and development, as well as explain the pressures the City faces in considering further development proposals (refer to **Figure 4** – Strategic Farmework for Residential Areas).

Of the twelve key land use objectives, those considered pertinent to the development area include:

Residential Growth Areas
To plan for a diverse series of residential communities that have a unique identity and sense of place, cater to all segments of the housing market and respect and incorporate local environmental and cultural features.

Managing Urban Growth
To effectively manage urban growth in a manner that maximises beneficial relationships between compatible land uses and which avoids inappropriate incursions into non-urban or environmentally sensitive areas.

Housing Provision
To promote the establishment of increased diversity and quality in housing provision to meet the needs of existing and future residents of the City of Whittlesea in a manner which contributes positively to local character and sense of place.

Transport and Accessibility
To plan for comprehensive (multi-nodal) transportation networks which increase the level of accessibility and choice in travel mode within and beyond the City of Whittlesea.

Infrastructure Provision
To actively pursue resolution of provision of key strategic items of physical infrastructure for un-serviced growth areas and plan for and identify means to fund the establishment and maintenance of social and physical infrastructure to meet the needs of existing and future residents in a timely and efficient manner.

Environmental Assets
To identify, permanently preserve and promote opportunities for the enhancement of local environmental assets which are vital to the maintenance of ecological processes.

Image and Appearance
To progressively upgrade the image and appearance of the City of Whittlesea focussing on retention of local environmental features, landscape qualities and urban and landscape design improvements.

2.7 Local Planning Policy Framework

– 22.01 Open Space Policy recognises the importance of open spaces in providing recreation, conservation, and social interactive functions. While not limited to, the policy seeks open spaces that:

> Preserve areas of flora/fauna significance, waterways, flood plains.

> Balance the communities needs in local and regional linear open space linkages

> Provide further balance between local, district and regional open space

> Encourage a diverse range of recreational opportunities for different age groups.

> Provision of safe and comfortable environments and increasing the level of passive surveillance through these areas.

> The provision of open space along waterways with development fronting not backing on to open space.

> The need to ensure that all areas reserved for open space is on unencumbered land.

– 22.04 Subdivision Design Policy was prepared as a result of Councils concern that subdivision plans were being prepared without regard to Councils broader principles of development. In particular it seeks to:

> Achieve appropriate site responsive subdivision design for the creation of new undeveloped allotments for residential development.

> Define and evenly apply municipal planning objectives for subdivision design.

> Create a sense of place and community focus through subdivision design.

> Promote subdivision that ensures integration, lot size diversity, efficient open space provision, movement, and appropriate streetscape design.

> Define the need for and requirements for site analysis procedures (must satisfy the requirements of, Subdivision Design – Requirements and Site Analysis Procedures Guideline).

– 22.06 Display Home Policy seeks to achieve well designed quality display home and display home centres that are suitably located and which do not detrimentally impact upon the amenity of the surrounding area.

– 22.10 River Red Gum Policy requires that the development of urban and rural areas take into account the presence, retention, enhancement and long term viability of River Red Gums in urban areas. The policy seeks:

> Generally the majority of River Red Gums proposed for retention to be sited in public open space reserves or road reserves.

> Any planning proposal for development on land which contains one or more remnant River Red Gum tree should be accompanied by a comprehensive site analysis plan

> Where feasible, areas of significant River Red Gum regeneration should be protected in any development proposal.

> Trees identified for retention should be appropriately protected during the construction phase and thereafter their health regularly monitored.

> Any tree nominated on a development plan or plan of subdivision for protection should be located within an appropriate tree protection zone.

> Any permit for subdivision that so recognises such trees for protection, should include a requirement that the protected tree, protection envelope, development envelope and any conditions related thereto be nominated on the relevant title.

– 22.11 Development Contributions Plan Policy applies to new residential subdivisions in the municipality. Building upon Councils direction for new communities and economic investment, the policy ensures the provision of basic infrastructure in a timely fashion to meet the needs generated by new development.

The development area is located within the western planning unit of the South Morang Local Structure Plan and the policy allows for adjustments indexed annually as at 30 June by the Melbourne CPI.

2.8 Summary

This Development Plan recognises the broader planning frameworks established with the Plenty Valley Strategic Plan, the South Morang Local Structure Plan and other relevant local policies identified within the Whittlesea Planning Scheme. It provides for the coordinated development of fragmented land holdings within this part of the Local Structure Plan

Figure 5 – Aerial Photograph

3 Site Analysis

3.1 Site Description

3.1.1 Details

The site has a gross area of approximately 53ha that is held in 16 separate titles. It is generally rectangular in shape though the northern boundary is slightly irregular as a result of the alignment of Fitzgerald Court. It is bounded to the south and west by Gordons Road and east by a title boundary. Each allotment has direct access to either Gordons Road or Fitzgerald Court.

The site is located between the new urban residential developments of Mill Park Lakes - west, and the Hillcroft Estate - east. Further residential development is also anticipated south of the development area (refer to **Figure 5 –** Aerial Photograph).

3.1.2 Site Analysis

Pattern

The development area has been subdivided and developed for rural residential purposes. As such, a number of detached private dwellings are located throughout the development area. The sixteen (16) lots vary in land areas of between 0.37ha and 11.3ha (refer to **Figure 6 –** Site Analysis Plan).

Aside from this fragmented ownership pattern, a full development of this area is further constrained by two major infrastructure easements. A water mains pipe track centrally dissects the site and an electricity transmission line cuts the south east corner.

Topography and Land Form

Topographic conditions also render a significant portion of the site subject to inundation. This is a result of run off from the northern Quarry Hills and the discharge of waters both within and from areas to the east of the development area toward the MillPark Lakes Estate.

The development area generally falls south west to Gordons Road and to the water pipe track easement. This is a continuation of the valley area south of the surrounding Quarry Hills.

Flora

Brett Lane and Associates prepared a summary investigation of the development area to guide the initial planning for the land. Further to this investigation, R&T Tree Services have inspected all but three properties (240 and 260 Gordons Road and 85 Fitzgerald Court) to evaluate in more depth the existing tree species current health, form and landscape values. It is anticipated that the remaining lots as identified above will require similar investigation prior to subdivision.

The Brett Lane and Associates report found that, prior to its current development for rural residential purposes, the land was subject to agricultural use and had as such been sown with pasture grasses for the grazing of domestic stock. This previous activity and land use has significantly altered the composition of ground cover and rendered the likelihood of any rare or threatened species unlikely.

The area does however contain a number of eucalypt and other trees, including a smaller number of River Red Gums that once formed part of a larger area of Plains Grassy Woodland north of Melbourne. While most of the trees on the subject land were found to be planted, non-indigenous and non-native species of eucalypts; the River Red Gums themselves provide an opportunity rather than a constraint to development. The retention and integration of these trees into the development of this area is recommended in the report.

Accordingly, the R&T Tree Services investigation provided further analysis to enable the future retention of those trees considered to be of good structure or of high aesthetic value. Proposals to use, develop or subdivide land should respond to these trees and retain them where possible. It is likely that any permit request resulting in tree removal will be referred to the Department of Sustainability and Environment for comment.

The removal of planted vegetation generally does not require a net gain replanting strategy. Future applicants are however advised that tree retention and landscape concepts (including future concepts) will be encouraged as part of the permit application.

Taxonomical Investigation
Respected taxonomist – Kevin Rule investigated the development area in 2003 (please refer to Appendix I) and provides the following findings: -

- That Eucalyptus camaldulenis (River Red Gum) is the only indigenous species occurring on site;
- The first conservation priority should be protection of the ancient river red gums;
- Secondly, the conservation of the remnant Woodland on the north side of the estate should be entertained;
- Some exotic species may have aesthetic or ecological (bird attraction) values;
- Retention of species that are native to Victoria and not indigenous to the area should be given low priority;
- The lowest priority should be given to the cultivated red gums as these pose potential to hybridise with the indigenous red gums.

Fauna
Within this environment, the report found that the River Red Gums provide habitat for a range of hollow dependent species of birds. The non-indigenous plantations while not providing this habitat, were found to supplement the diet of a large number of nectar feeding birds. Other fauna recorded on site include possums, frogs and it is suspected a number of lizard species.

Given the incremental, but irrevocable changes in the sites floral make up through the introduction of non-indigenous species and plantings; the report found it unlikely that any of the 39 bird species, 8 mammals, 2 reptiles, 1 frog, two fish and a butterfly listed as endangered exist on, or be suited to this site.

Access
Linking east to Plenty Road, Gordons Road (east west section) provides the main access to the development area. Seven (7) titles have direct access to this section of road with one of these sharing dual frontage to the north-south section.

A further six (6) allotments front the north south section of Gordans Road with one enjoying dual access to Fitzgerald Court. Three other allotments also face this Court and an internal collector from Fitzgerald Court has been extended south into the development area by approximately 150m.

Gordons Road is a two lane packed earth carriageway with swale verges. Fitzgerald Court is a two lane constructed road also with swale drains.

Future Application Requirements
Further detailed environmental and archaeological assessments may be required as part of permit applications for subdivision.

Figure 6 - Zone & Overlay Plans

3.1.3 Zoning and Encumbrances

Zone

The development area is zoned Residential 1 which encourages:

- Residential development at a range of densities with a variety of dwellings to meet the housing needs of all households, and;
- Development that is respectful to neighbourhood character.

Any applications for development or subdivision within the development area will need to address the provisions of the R1Z zone.

Overlays

Three Planning Scheme Overlays also affect the subject sites. The Development Plan Overlay Schedule 6 and the Vegetation Protection Overlay Schedule 1 affect the whole site area. A further, Land Subject to Inundation Overlay, affects approximately 30% of the site.

As discussed previously, the purpose of this report is particularly to satisfy the requirements of the Development Plan Overlay Schedule 6 and address the broad level requirements of all zone and overlay controls.

The Vegetation Protection Overlay seeks to protect areas of significant vegetation, maintain and enhance habitat corridors for indigenous fauna, and to recognise areas as locations of special significance, natural beauty, interest and importance. The specific schedule affecting the development area builds on this purpose and places particular significance on River Red Gums, Black Box, White Box and Grey Box, Yellow Box and various native grasses.

It is intended that this will ensure the preservation and maintenance of significant vegetation and the character of the area, maintenance of soil qualities and minimise the impacts of erosion and preserve habitats for fauna. No permit is required to remove, destroy or lop vegetation which is not native vegetation. The City of Whittlesea Planning Scheme recognises native vegetation as including plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses.

While other trees are not native to Victoria, some have been shown to supplement the diet of some local nectar eating birds and their retention for these and other aesthetic purposes may be relevant. Individual developments within the subject area should attempt to incorporate the most significant of these in their specific designs where practicable.

The Land Subject to inundation Overlay is applied to part of the development area which is located within a 1 in 100 year floodplain. Any development applications within this area will require the consent of the floodplain management authority.

It is anticipated that with the drainage authorities consent, a similar LSIO easement to that situated west of the development area could be achieved on site through the provision of remedial works. This would enable greater development opportunities on land parcels that are potentially constrained for development by this overlay.

Encumbrances

As previously stated, a 150m wide power easement traverses the south east corner of the development area. This totals approximately 2.5ha and a number of land use opportunites are presented through the zone and easement provisions.

A water pipe track dissects the site from North East to South West and totals approximately 2.1ha.

3.2 Views

The site enjoys immediate, intermediate and distant view lines.

Immediate Views

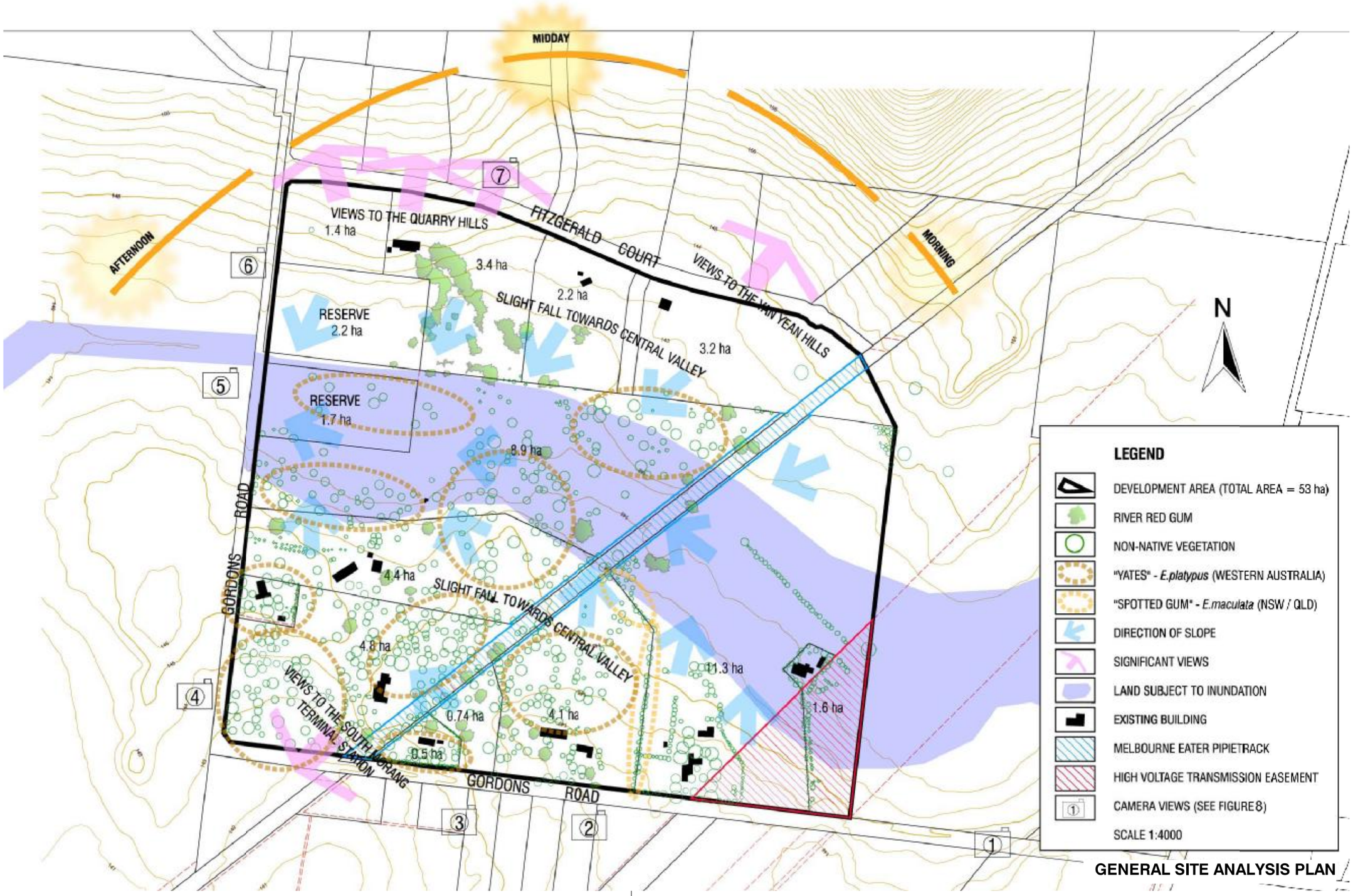
The site has some views of low value south west toward the South Morang Terminal Station. These views, except from the water mains pipe track (which will continue uninterrupted south west), will be altered as a result of anticipated urban development immediately south of the development area.

Intermediate

The Quarry Hills provide the most dominant views in the area. These surround the development area's viewscape north and north west. The lower slopes of these hills will alter over time as they become developed for urban residential purposes. The hills themselves are zoned for Environmental Rural purposes and these will not be developed for urban purposes.

Distant

The development area also has some distant views toward the Yan Yean Hills north east.



GENERAL SITE ANALYSIS PLAN

Figure 7

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Figure 8 – Site Photos

LEGEND

NATIVE TO VICTORIA

Long-leaved Box	(*Euclayptus nortonii*)
Manna Gum	(*Euclayptus viminalis*)
River Red Gum	(*Euclayptus camaldulensis*)
Yellow Gum	(*Eucalyptus Leucoxylon*)
Black Wattle	(*Acacia mearnsii*)
Swamp Paperbark	(*Melaleuca ericifolia*)

N.B.: NOT ALL TREES WERE IDENTIFIED TO SPECIES LEVEL

(Species and structure/aesthetic consideration derived from R & T Tree Services Pty Ltd. Ref No.: 12784 & 13078)

Victorian Trees considered to be of poor structure or low aesthetic value

GORDON'S ROAD, SOUTH MORANG

PROJECT NUMBER	DRAWING NUMBER		REVISION
301200	PA 04		03
DATE	DRAWN	CHECKED	APPROVED
OCT 02	MR	JS	NW

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Tract

Figure 9 – Victorian Trees considered to be of poor structure or low aesthetic value

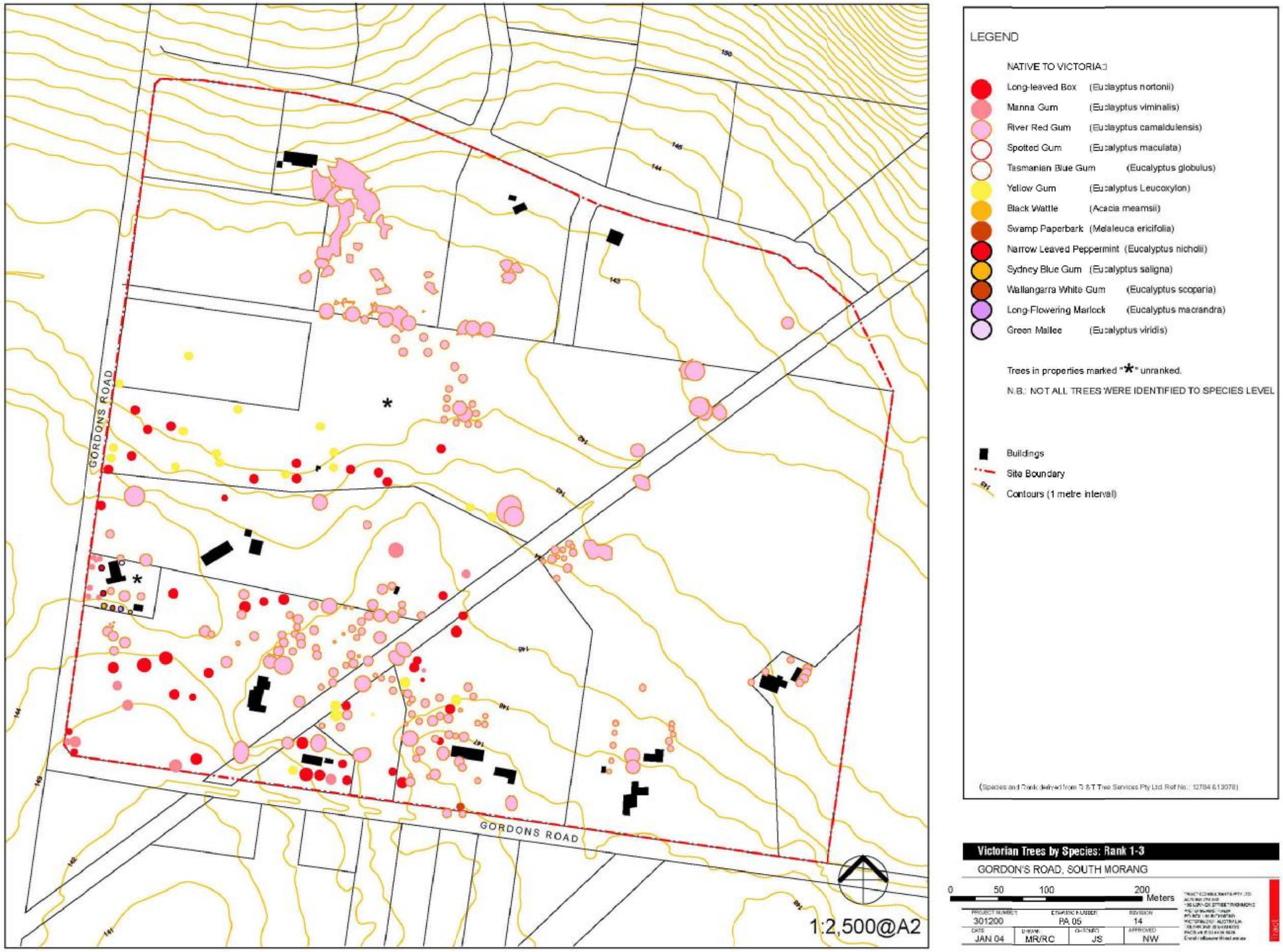


Figure 10 – Victorian Trees considered to be of sound structure or high aesthetic value

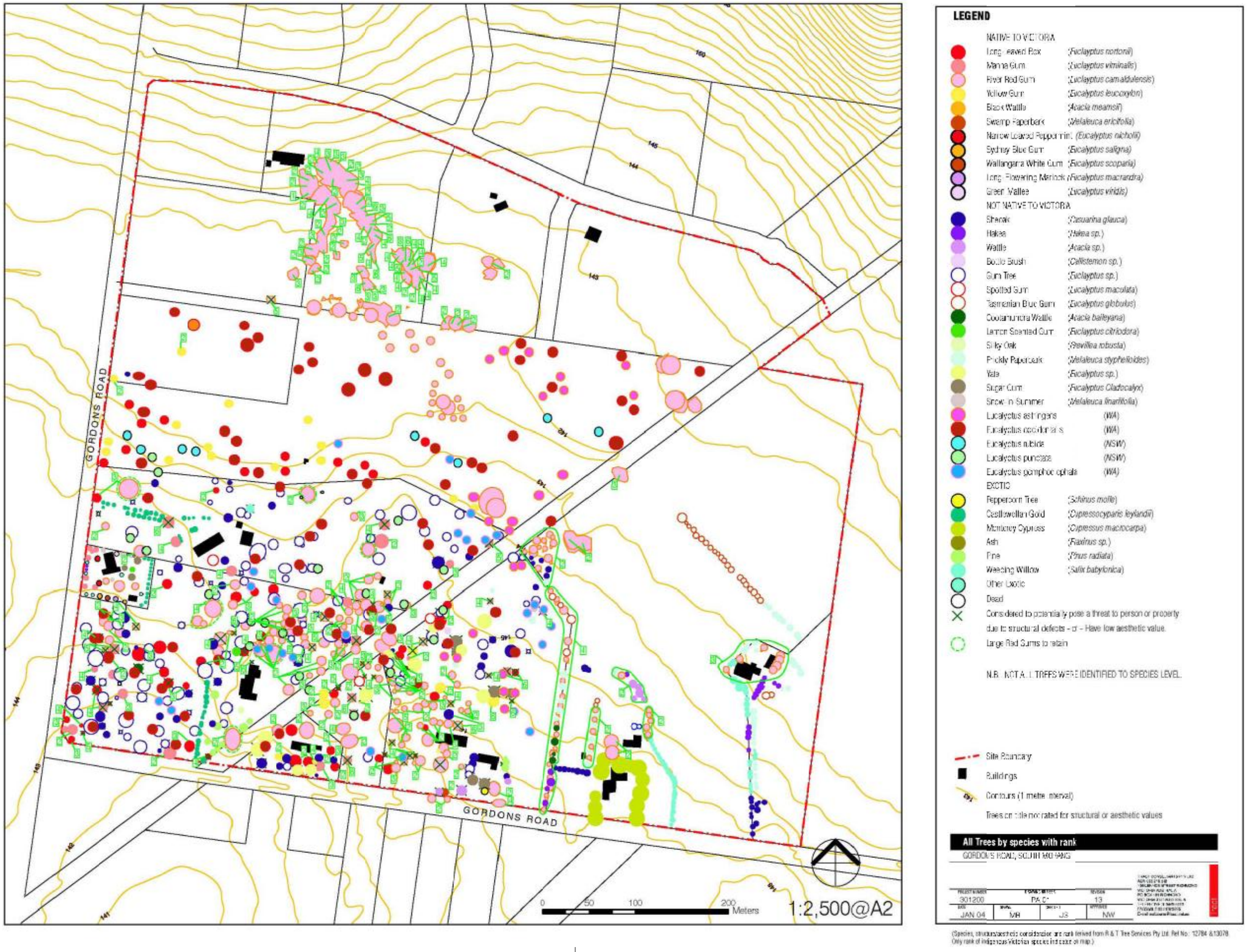


Figure 11 – All Trees with structure / aesthetic consideration and rank

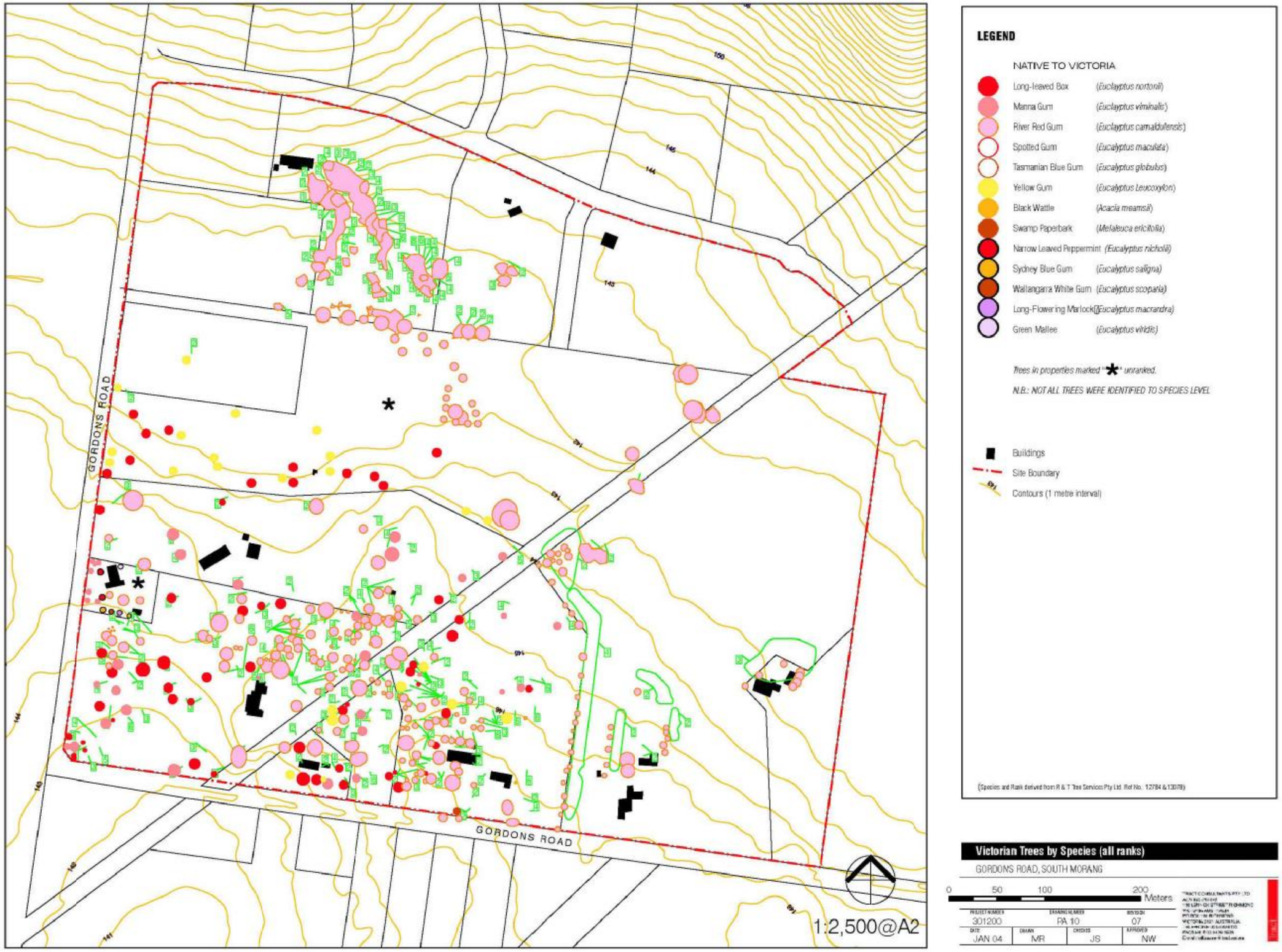


Figure 12 – Victorian Trees with structure / aesthetic consideration and rank

4 The Plan

4.1 Vision

To achieve internal cohesion between land parcels and an integration of the development area with surrounding land areas and provide for the long term protection of significant native vegetation within a high quality urban development.

The Development Plan will provide a basis for considering subdivision applications that seek to achieve sustainable and attractive residential developments.

4.2 Principal Elements

It is anticipated that individual land owners may wish to pursue a development pattern and implement a subdivision design unique to their land parcel. Sufficient flexibility remains in the plan for this inventiveness, though the layout of the plan does provide internal cohesion and external integration (refer to **Figure 13 –** Development Plan).

Specifically, the development plan provides:

- A road hierarchy consistent with the South Morang Local Structure including the northern east west arterial of The Boulevard, the upgrade of Gordons Road to sub arterial standard, the provision of a centrally placed east west sub arterial, and a north south collector toward the east of the site. (Please note: the local road network does not represent the entire road network – additional roads and connections will be entertained within the broad framework set by the Overall Development Plan.).
- A permeable internal local and collector road network that responds both to topographical features and title boundaries to enable practical and staged development.
- Extensive linear reserves and bike tracks running both east west and north south (Please note: additional crossings of the pipetrack and drainage reserve may be entertained to the satisfaction of the Responsible Authority).
- An appropriate drainage reserve (to be negotiated with the relevant drainage authority)
- The retention and protection of trees identified to be of high conservation value.

In seeking to preserve as many remnant River Red Gums and other non native vegetation, retain views, and realise extensive passive recreational networks throughout the development area, this estate will retain a unique identity and sense of place within the broader South Morang development area.

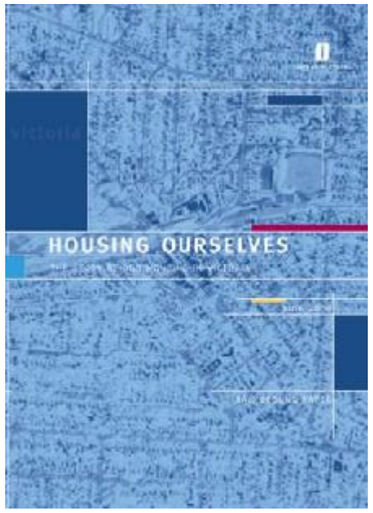
4.3 Land Budget

The development area comprises approximately 53ha of land which is held in sixteen (16) separate titles. Three (3) of these are in public ownership with the remaining thirteen (13) titles being privately held.

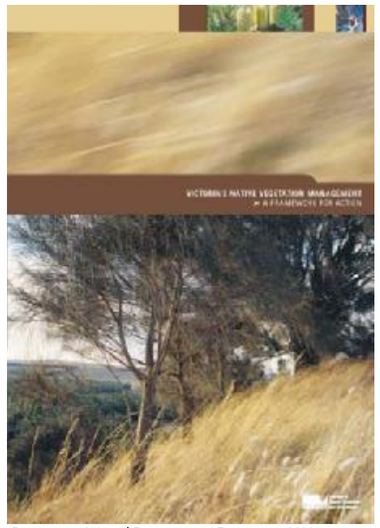
The removal of various easements, and other constraints reduce this to a net developable area of 39.76 ha. This is provided the area subject to inundation is reduced (16.3ha to 4.3ha) to an appropriate drainage alignment as currently approved west of Gordons Road.

Land Budget with anticipated remedial drainage works

Gross Development Area	53ha
Less undevelopable land: Pipe Track Electricity Transmission Easement Land Subject to Inundation Sub-total	 2.1ha 2.5ha 4.3ha 8.9ha
Less Road Widening for Boulevard (Subject to further detailed design)	1.7ha
Proposed parks and tree reserves	2.64ha
Net developable area	39.76ha



(Department of Infrastructure 2000)



(Department of Natural Resources and Environment 2002)

The South Morang Local Structure Plan seeks a lot yield of 15 dwellings per hectare. Given the sites fragmented ownership pattern and significant constraints, a lot yield in this area seems more likely to be between 10 and 12 dwellings per hectare.

Development at this density would result in providing an additional 430-500 dwellings. At an occupation rate of 3.3 persons per dwelling (though falling) which would provide housing for some 1,400 to 1,700 persons.

4.4 Housing

It is a requirement both in the State Planning Policy Framework as well as by Council that new residential developments cater to the increasingly diverse needs of its community. This includes not only the function of these dwellings and neighbourhoods, but also of interaction and visual interest to sharers of the public realm.

It is anticipated that the development area will be subdivided and developed for conventional urban residential purposes. Given its location within the South Morang area, it is reasonable to expect lots of between 400m2 to 1000m2.

It should however be noted that the provision of a light rail public transport service along The Boulevard would encourage a greater residential density with lots sizes being further reduced to include those between 250m2 and 300m2.

Any application for residential subdivision or development will need to comply with the provisions of Rescode and any identified or preferred neighbourhood character introduced by the Local Authority. An established principle in the SMLSP is that houses should front open space areas and roads and this development plan fully supports the development of medium density housing throughout.

4.5 Landscape Design

The landscape design for the development area is driven by the requirements of the South Morang Local Structure Plan with regard to street layout and design as well as the current characteristics of the site.

Implementation of these themes will ensure a continuity and integration of form between this development area and those new communities anticipated around the subject lands.

Applications for urban subdivision and development will be required to submit landscape plans to the satisfaction of the Responsible Authority

Plantings

As detailed in the flora and fauna studies, there are a number of remnant River Red Gums throughout the development area as well as a number of introduced Eucalypts and exotic trees.

New plantings in the development area should try and reintroduce vegetation of indigenous varieties including River Red Gums, Black Box, White Box, Grey Box and Yellow Box Eucalypts.

It is recognised that many of these plantings are not suitable in close proximity to urban density developments as a result of their potential to pose threat to person or property later in their life cycles.

Variations with deciduous exotic species should be considered in these locations. Such trees will provide dwellings with shade in summer and light in winter. Selected species should also provide some interest and variation in vegetative color and form.

4.6 Net Gain

New planting within the development will occur with particular reference to the Net Gain outcomes required in the *Victoria's Native Vegetation Management - A Framework for Action*. As summarised in the abovementioned Framework the basic aims of Net Gain are:

1. *A reduction in losses in the extent of existing native vegetation,*
2. *A reduction in losses in the quality of existing native vegetation due to threatening processes, and*
3. *The achievement of gains in extent and quality of native vegetation through its rehabilitation and revegetation with indigenous species for biodiversity conservation and land and water resource outcomes.*

The Framework itself includes directions for the assessment of vegetation removal / management as proposed in planning applications. Appropriate management of native vegetation on the site should occur through assessment of individual planning applications.

All subdivision applications must show regard for the three step Net Gain approach:

1 Investigate options to avoid clearing
2 Evaluating options for minimisation of clearing
3 Mitigation of any essential clearing through suitable offset measures to achieve Net Gain.

The Net Gain vegetation plan will be required to compensate for loss of vegetation which will be achieved primarily through replanting key areas on site so as to achieve increased biodiversity conservation, land protection and the provision of attractive public spaces.

Works

Road crossings and footpath works will be required to be constructed to Australian Standards and these will need to consider matters of public safety and disabled persons transport permeability as well as general aesthetics and function.

While the detail or works within the Land Subject to Inundation are to be resolved with the drainage authority, subdivision within the development area should adhere to the principles of water sensitive urban design as contained in "Urban Stormwater Best Practice Environmental Guidelines" (The Storm Water Committee, 1999).(Please note the local road network does not represent the enitre road network – additional roads and connections will be entertained within the broad framework set by the Overall Development Plan.).

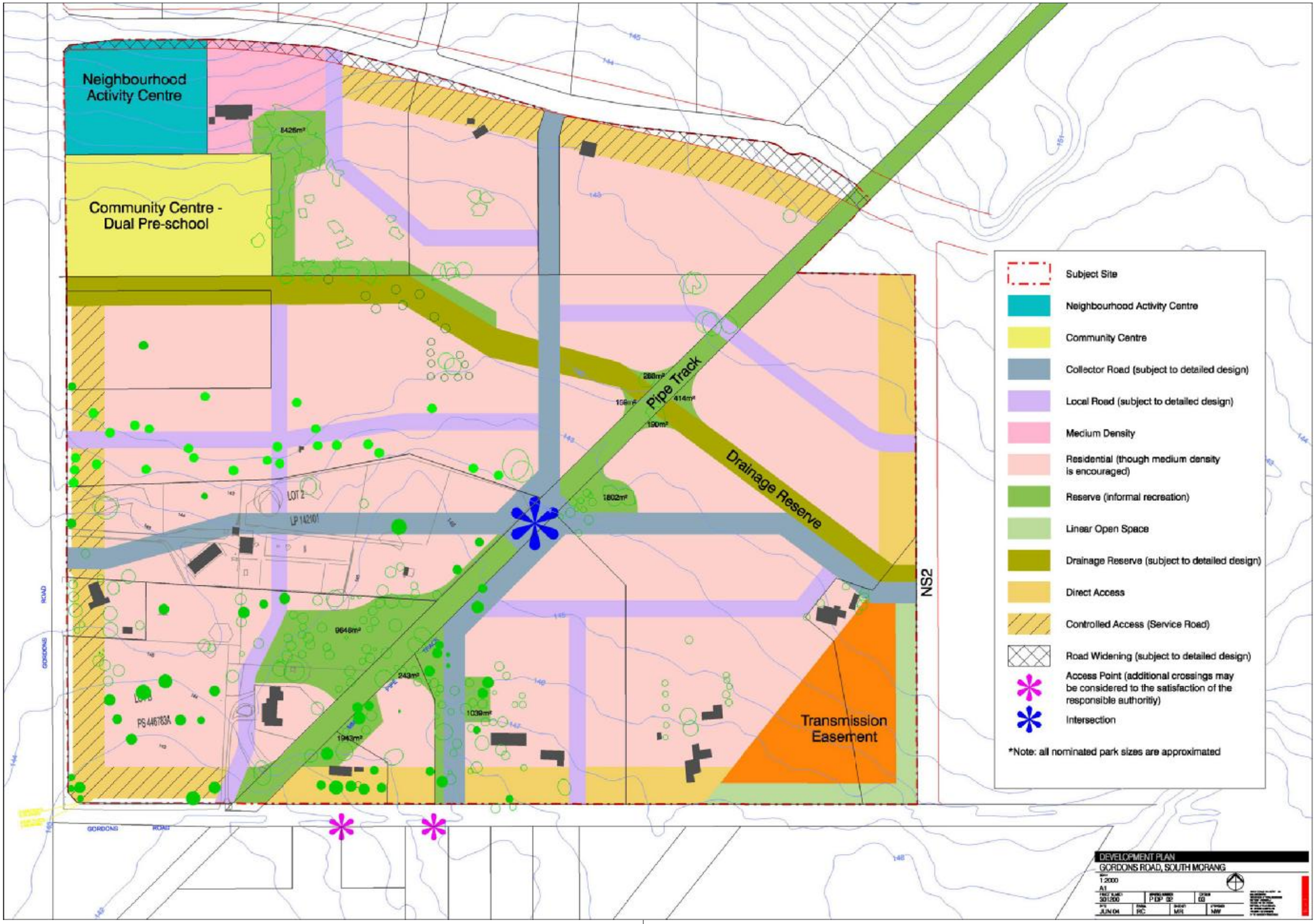


Figure 13 – Development Plan

5 Archaeological / Heritage

5.1 Objective

Both State and local planning frameworks seek to conserve and protect places of cultural value from inappropriate development including:

- Places of Aboriginal cultural heritage significance, including historical and archaeological sites.
- Sites associated with the European discovery, exploration and settlement of Victoria.

A detailed investigation to ascertain the significance of these properties is required for each property. Applications for urban subdivision and development will be required to demonstrate the appropriateness of each proposal with regard to these requirements.

5.2 Aboriginal Archaeological Sites

Applications for subdivision and development may require further more detialed archaeological assessment.

The referral of the application may be provided to AAV to advise whether any land development proposal is likely to impact on Aboriginal heritage values.

If such risk exists, it is likely that AAV will recommend the involvement of a qualified heritage consultant (at cost to the proponent of the development), to assess the situation and advise on appropriate management measures.

It is normal practice for one or more representatives of the relevant local Aboriginal community to participate in such surveys, in order to assist the consultant archaeologist in making a valid assessment of any Aboriginal sites which may be found.

5.3 Non-Aboriginal Historical Sites

The site is unlikely to hold any great significance in the settlement of Victoria.

Nonetheless, an investigation of post contact heritage should be conducted to ensure that any historical artefacts, records or information is recorded and/or stored for preservation.

6 Open Space and Recreation

6.1 Objective

"To provide a framework to undertake planning, provision, development and maintenance of an integrated open space system which meets the wide ranging needs of the community" Open Space Policy, LPPF, 22.01.

"Generally the majority of River Red Gums proposed for retention should be sited in public open space reserves and/or road reserves"

River Red Gum Policy, LPPF, 22.10

In particular, this requires the provision of passive and social interactive areas off road and accessible to the whole development area.

6.2 Open Space Allocation

The provision of open space within the development area is dependant on a number of matters, not least the full development of this area for urban residential purposes.

An important linear link is proposed along the land subject to inundation. The details of which will be finalised through the resolution of the overall drainage requirements for the larger catchment as they inpact on this area. A further 0.1ha park ingrating this linear reserve with the pipe track is also proposed. This is seen to be sufficient in providing a focal point to these reserves.

Apart from this and another linear reserve through the transmission easement, the South Morang Local Structure Plan does not propose any further provisions of open space in this area. Rather, contributions from the development area will be directed to providing higher order parklands throughout the wider South Morang catchment area. It is understood that all but a few land holdings have contributed their 5% open space requirement under the Subdivision Act (1988). Those landowners yet to contribute will be required to do so, or in cash equivalent contribution at the time of further subdivision.

Open Space Budget with indicative provision costs.

Unencumbered land:	
Local Parks/Tree Reserves (2.64ha) @ $120k p/ha @ $120,000 p/ha	$316,800
Playground set	$ 15,000
Sub total	$331,800
Encumbered land:	
Paths of 2.5m width (@ $35 p/lm):	
Pipe Track - 830m	$ 29,000
Drain Reserve - 815m @ $35 p/lm	$ 28,525
Sub total	$ 57,525
Total indicative open space cost	$389,325

6.3 Description of Open Space Areas

Pipe Track

This reserve would continue to provide its primary function of water transfers, though in being consistent with other development areas, a walking trail and bike path would provide a contiguous linear reserve north east and south west. This would interweave with the proposed drainage reserve running east west and a pocket park adjoining these two spaces would provide focus and interface between these trails. Additional road or trail crossings of the pipe track may be entertained in the future.

Drainage Reserve

Remedial works to that land subject to inundation would result in providing a drainage reserve similar to that located west of the development area. This area provides good opportunities to link the other areas of the development area to the pipe reserve. As such, walking trails and bike paths are proposed through this area which would not only feed into the wider networks around the development area (north east and south west), but also east and west.

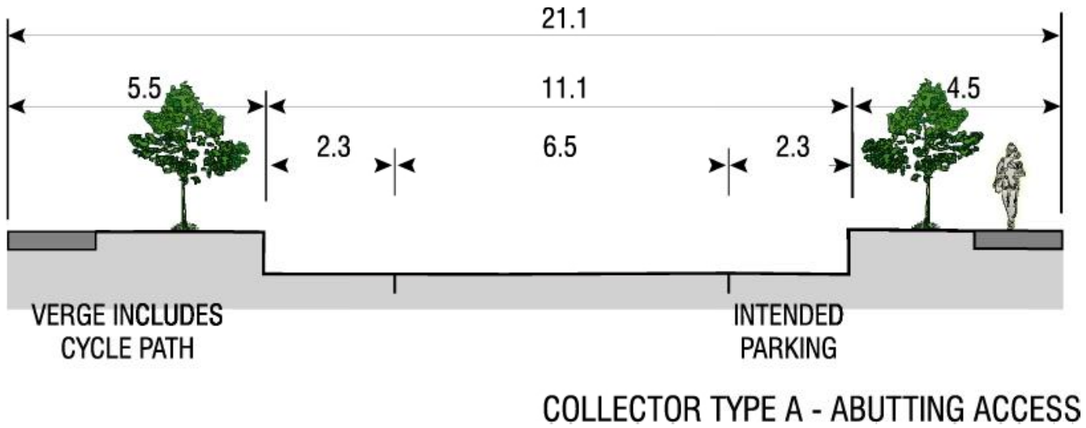
Given the propensity for this area to become inundated, it also presents an opportunity for the revegetation of these lands and particularly the planting of River Red Gums which would thrive on the seasonal water table and soil conditions. Following the earth works required to resolve any conditions by the responsible authority in constructing this drain, inidgenous grasses and understorey could also be re-introduced to this area.

Local Open Space Balance

Where the pipe track and overland drain meet, it will be necessary to reserve 0.1ha to balance the integration of these linear reserves. This land area is sufficient for the provision of a small playground facility which would be accessible off road from almost all areas of the development area. Additional reserves have been nominated to conserve vegetation and to enable offset replantings in the future development of the area. These spaces are of the area propsed to be informal recreation areas.

Electricity Transmission Easement

The land under this overhead easement is required to be generally cleared of trees and vegetative growth to minimise the risk of bush fires and allow the service authority complete access to the transmission lines. As such, only a walking trail and bike path will be provided through this area.as part of the plan, however a number of landuse opportunites maybe further considered for this land in accordance with the zone and easement provisions..



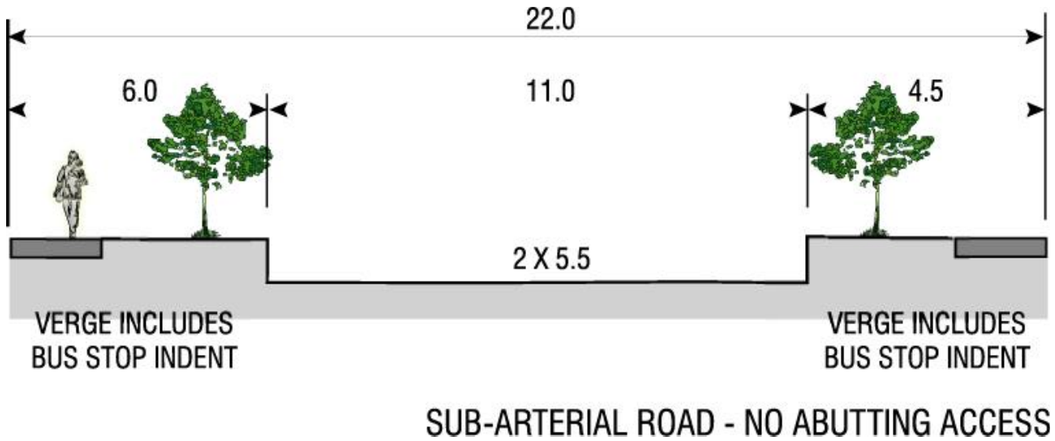


Figure 14 - Road Cross Sections

7 Transport and Traffic

7.1 Objective

"To establish an efficient, interconnected (multi-modal) transportation system which increases the level of accessibility and choice within and beyond the City of Whittlesea". MSS, 21.06.

A great deal of outline planning affects the layout and provision of transport services to the development area. In particular, the South Morang Local Structure Plan seeks a light rail service along the northern arterial of the Boulevard. Similarly it requires the provision of a number of sub-arterial standard road works and new roads within the development area (refer to **Figure 15** – Road Cross Sections).

The proposed transport and road works within the development area have been prepared in recognition of these networks and the Development Plan seeks to ensure that all areas of this development area have convenient access to these networks. It should be noted that the local road network identified on the plan does not represent the entire road network and additional roads and connections will be entertained through the broad Development Plan. These are summarised as:

Arterial Road
Fitzgerald Court is recognised as The Boulevard in the SMLSP. Its extension, widening and connection to other development areas will provide a light rail public transport corridor, and when fully constructed, 2 lanes of vehicular movement in each direction. It will have a total width of 38m and provide the major east-west transport funtion of the western precinct of South Morang. This will affect approximately 1.7ha of the development area.(subject to detailed design).

The development plan reflects Councils preferred alignment of this major road and it is intended that this reserve provide a future arterial road network based on the development of a '1 mile grid' pattern, thus utilising the existing base network.

Sub-Arterial Roads
Both the east west and north south sections of Gordons Road will need upgrading to sub-arterial standards. Generally these will require widths of 22m and provide important access to and from the development area. Both these sections of roads will be extended from the development area south and east respectively.

Other Collector Roads
The development plan recommends the location of other collector roads to provide permeability for transportation throughout the development area. These are seen to also provide interconnection to the wider transport networks within the SMLSP.

The proposed location of these roads is recommended both from this functional perspective as well as from a practical development stand point. Collector Roads generally collect traffic volumes from local streets and carry higher volumes of traffic than local residential roads. Safety and amenity is to be maintained by restricting both volumes and speeds.

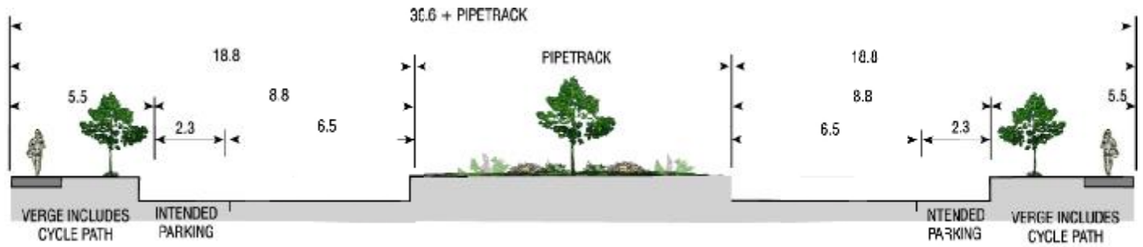
North South 2
The SMLSP recommends that a north south 2 collector road be provided on a shared title boundary which extends north from Gordons Road under the Electrictiy Transmission easement. Its internalisation into the Development Plan area reflects the reality that it would be more likely to be built as works in kind if a developer can make use of its provision.

Local Streets
The proposed collector road network lends itself to a number of internal local road networks. These have not been specified in this Development Plan as individual developers will seek varied themes and subdivision designs. However an outline of indicative local streets is provided to ensure coordination of all parcels is considered.

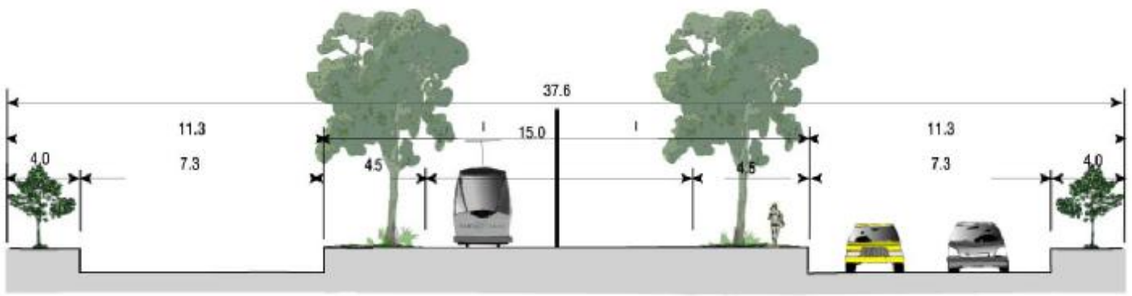
The Local Street Network must be designed to provide sufficient width of carriageway and verge to allow them to perform their designated functions within the wider road network. Indicative cross sections are attached for design reference.

Access
The SMLSP requires that all arterial and sub-arterial standard roads must not have direct access to residential areas. Service Roads or side frontage can only address these streetscapes.

The final alignment of roads and the drainage reserve nominated on the plan will be subject to detail design at the planning permit stage.



COLLECTOR TYPE B - PIPETRACK WITH ABUTTING ACCESS



BOULEVARD

Figure 14 (continued) - Road Cross Sections

8 Physical Infrastructure

8.1 Storm Water

Melbourne Water is the drainage catchment authority in this area. As such, detailed designs are required to be resolved at the design stage for the land subject to inundation.

The control of water quality and quantity will be the responsibility of individual developers. Permanent sediment and litter traps will required at all inlets to a waterway (open drain).

The future subdivision of this area will be to a high quality urban standard, which will entail the undergrounding of storm water with run off coefficients of 1 in 5 year ARI. The balance of the 1 in 100 year flows can be conveyed using roads and reserves as overland flow paths.

8.2 Sewer

The development area is located within the Yarra Valley Water Local Sewerage Catchment area. It is anticipated that the servicing requirements of this area can be accommodated as surrounding areas similarly develop for urban development purposes.

As these develop, extensions of branch mains into the development area can be negotiated with the relevant authority.

8.3 Water Supply

The site is dissected by a water mains pipe. It is anticipated that new development will be able to negotiate with Yarra Valley Water a branching to this supply service.

8.4 Power, Gas, Telecommunications

These services can be readily upgraded and provided as the development proceeds.

9 Development Contributions

9.1 Policy Framework

The South Morang Local Structure Plan investigated the future infrastructure needs of the wider SMLSP area. Located within the Western precinct, the Development Plan is required to contribute to the provision of these services at the time of their subdivision.

The policy allows for this to be an up front contribution, a trickle contribution based on the threshold of development (ie lot release of subdivision stages), or as works in kind. Given the fragmented ownership pattern within this area, it is anticipated that this contribution will mostly be of cash rather than works in kind.

9.2 Required Levy Rate

The SMLSP requires the contribution of $42,566 per ha of developable land area. Prepared in 1995, this is figure is subject to adjustments of Melbourne CPI as at 30 June each year end.

With a net developable area of 39.76ha, this is approximately $1,692,424 for the total development area. With an estimated cost of $389,325 to provide linear paths and a small play ground, a further $1,303,099 will be directed to the arterial road, open space networks and community facilities identified in the South Morang Local Structure Plan.

Each land holder will need to calculate and provide an amount proportionate to their land holding. This will be required at the time of subdivision.

9.3 Required Open Space Contribution

Under the Subdivision Act (1988), 5% of land area is required to be set aside or negotiated for the purposes of open space. The SMLSP refines this contribution to 8% of land area with unencumbered land being 5% and encumbered land being 3%. This requirement relates to gross development area rather than net developable area.

The SMLSP does not recognise any open space provisions within the development area. As such, those couple of lots yet to contribute an area or cash equivellence to Council, will be required to do so at subdivision stage.

10 Site Staging

Commencement and development of this area is likely to occur on three fronts.

Considering the surrounding development pattern, it is anticipated that urban standard infrastructures will be readily available to the development areas south east corner, the east, and to the north.

As such, it is anticipated that commencement and development of this area is likely to occur on three fronts.

DRAFT FOR COMMENT – 7TH NOVEMBER 2001

GORDON'S ROAD, MERNDA DEVELOPMENT PLAN

FLORA AND FAUNA ASSESSMENT

Tract Consultants Pty Ltd

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November 2001

Report No. 2001.41C(1.0)

CONTENTS

1.0 INTRODUCTION 1

2.0 FLORA AND FAUNA OF THE SUBJECT LAND 3

2.1 Flora 3

2.2 Fauna 3

3.0 CONSERVATION SIGNIFICANCE 6

3.1 Assessing conservation significance 6

3.2 Conservation Significance of the Subject Land 8

4.0 IMPACTS AND MITIGATION MEASURES 9

5.0 CONCLUSIONS 12

6.0 REFERENCES 13

Appendix A: Flora List

Appendix B: Fauna List

1.0 INTRODUCTION

Tract Consultants Pty Ltd, on behalf of Campaspe Esplanade Estate Pty Ltd, is preparing a Development Plan for the 50 ha parcel of land bounded to the south and west by Gordon's Road and to the north by Fitzgerald Court, approximately 25 km north of Melbourne. The land is covered by a vegetation protection overlay in the City of Whittlesea Planning Scheme.

The property comprises approximately 50 hectares in a number of allotments of varying size and varying levels of rural-residential development. Much of the subject land has been subject to previous agricultural development and been sown with pasture grasses for grazing of domestic stock. Most stock have since been removed from the land. The property includes many eucalypt and other trees, including a small number of mature River Red Gums (*Eucalyptus camaldulensis*) that once formed part of a larger area of Plains Grassy Woodland north of Melbourne. Most of the trees on the subject land are, in fact, planted non-indigenous species of eucalypts.

Brett Lane & Associates Pty Ltd has been retained to undertake a flora and fauna assessment of the property and to advise on potential development impacts and mitigation measures.

The assessment of environmental attributes of the subject land included the following tasks:

- Determining the location and extent of remnant indigenous vegetation and fauna habitat, in particular mature, semi-mature and young eucalypt associations;
- An assessment of the current condition of these remnants, including compilation of plant and fauna lists for the site based on existing information (eg. Flora Information System, Atlas of Victorian Wildlife, North-east Councils Sites of Significance Study);
- Mapping of the extent of these remnants;
- An assessment and mapping of the comparative significance of different parts of the site, at local, regional, state and national scales, if relevant, based on accepted criteria;
- Formulation of guidelines for the design and construction of residential development that minimise impacts on any identified nature conservation values;
- Preparation of documentation addressing the information requirements of the "vegetation protection overlay" in the Whittlesea Planning Scheme; and
- Preparation of a report (including maps) documenting the results of the foregoing tasks.

This report presents the results of the assessment.

Section 2 provides a description of the flora and fauna of the site, including vegetation, plant species, habitats and fauna populations.
Section 3 evaluates the conservation significance of the property.
Section 4 assesses the potential impacts of the proposal on flora and fauna and recommends mitigation measures.
Section 5 presents conclusions from the investigation.

2.0 FLORA AND FAUNA OF THE SUBJECT LAND

2.1 Flora

The vegetation of the property was assessed during a field survey on 2nd October 2001. The survey involved documenting the Broad Vegetation Types (BVT's) that occurred on the property. The assessment of BVT's involved referring to the Draft Regional Vegetation Plan (PPWCALPB 2000).

A list of dominant plant species in the main vegetation layers was compiled during the field survey. The assessment is considered adequate to identify the main potential impacts of the proposed subdivision and to formulate appropriate mitigation measures.

The native vegetation of the property has been extensively altered as a consequence of early agricultural development, including the sowing of pasture species, and more recently the development of more intensive land use associated with rural-residential allotment subdivision. Significantly, in the past 30 years or so, much of the property has been planted with non-indigenous eucalypts.

Although inspection of the aerial photographs of the land suggests a mixed-age stand of River Red Gums (*Eucalyptus camaldulensis*), in fact there are a comparatively limited number of these trees on the subject land. Most trees that appear on the aerial photographs are the non-indigenous eucalypts and other natives.

The original vegetation type on the subject land would have been characterised by a sparse cover of River Red Gums and, in its original (Pre-European) condition, by a herb-rich ground layer. As the property has been sown with exotic pasture grasses, little remains of the original ground cover.

Appendix A lists the plant species recorded during the field survey. Some 81 percent of the 36 species recorded are introduced. This shows that the property is dominated by exotic species and that native vegetation is in very poor condition. All but the occasional River Red Gum has been removed due to past agricultural use. There is no evidence of recent regeneration of River Red Gums as grazing by domestic stock has prevented this from occurring, although there has been extensive planting of non-indigenous eucalypts in the last 30 years.

The ground cover is dominated by pasture species. Consequently, it is highly unlikely that the property supports any rare or threatened plant species.

2.2 Fauna

The fauna habitats and populations of the property are described below.

2.2.1 Fauna habitats

A number of fauna habitats are evident in the area. These are described below.

- **Open Pasture** comprises planted exotic pasture species in cleared areas lacking native vegetation. This habitat is the most widespread habitat on the property and it supports a small number of common farmland fauna species characteristic of central Victoria.

- **Open Woodland** occurs in small patches on the property and comprises mature River Red Gums. The River Red Gums are mature specimens with well-developed hollows that provide shelter for bats, some possums and breeding birds (eg. parrots and cockatoos, tree martins, pardalotes).

2.2.2 Fauna Populations

A list of fauna for the property has been compiled. The list is based on records for the Epping – Yan Yean – Hurstbridge region in the Atlas of Victorian Wildlife (Department of Natural Resources and Environment), combined with knowledge of preferences of fauna species for the habitats present on the property.

A brief field survey was undertaken on 2nd October 2001 to confirm the presence of some species and to determine the condition of fauna habitat and its relationship to habitats in the surrounding landscape.

Although the survey was brief, the combination of habitat assessment, knowledge of species' habitat preferences and review of the Atlas of Victorian Wildlife has provided a good indication of the fauna likely to be present.

Appendix B lists the fauna recorded or likely to occur on the site. The list comprises 98 species, including 14 mammals (6 of which are introduced and 6 of which are bats), 82 birds (8 of which are introduced), five reptiles and six frogs.

The **mammals** of the property are likely to include the Common Brushtail Possum, evidence for which was found in the form of scats below some trees. Hollow trees in largely cleared rural landscapes are known to support a comparatively high number of bat species (Bennett et al. 1998). The Black Rat and House Mouse are likely to be present. Other pest mammal species for which

evidence was found were the Fox and the European Rabbit. It is likely that Feral Cats also occur in the area.

The **birds** of the area are characteristic of farmland in southern Victoria. The River Red Gums provide breeding habitat for a number of hollow-dependent species. Some of the planted non-indigenous eucalypts were in flower at the time of the field inspection and these supported large numbers of the nectar-feeding Musk Lorikeet and smaller number of Purple-crowned Lorikeets.

Reptiles of the area are likely to represent a depauperate assemblage compared with more intact habitats in the region. Searches under fallen timber around trees failed to find any reptiles.

The dams on the property provide habitat for **frogs** and two species were found during the survey: Common Froglet and Eastern Banjo Frog. Other common species are also likely to occur (see Appendix B).

2.2.3 Threatened species

Records from the Atlas of Victorian Wildlife (NRE, 28/9/01) list rare or threatened species that occur in the Epping – Yan Yean – Hurstbridge region (see Appendix D). These include 39 bird species, 8 mammals, 2 reptiles, 1 frog, two fish and a butterfly. None of these species occurs on the property, as habitat is unsuitable.

3.0 CONSERVATION SIGNIFICANCE

3.1 Assessing conservation significance

Conservation significance is assessed at a range of scales, including global, international, national, state, regional and local. Criteria used for determining the conservation significance of flora and fauna at national to local scales are presented below for botanical and zoological conservation significance.

3.1.1 Botanical Significance

National botanical significance applies to an area when it supports one or more of the following attributes:

- a population of at least one nationally threatened plant species listed by Briggs and Leigh (1996) or plant species listed on the schedules to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

- A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State botanical significance applies to an area when it supports one or more of the following attributes:

- A population of at least one plant species threatened in Victoria, as listed by Gullan et al. (1990), NRE (2000a) or more recently in the unpublished records of the Flora Information System (NRE), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.

- An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional botanical significance applies to an area that supports one or more of the following attributes:

- Supports a population of one or more regionally depleted species defined in a valid regional assessment of biodiversity (eg. Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents).

- An ecological vegetation class that is considered endangered or vulnerable in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case the area is of **High Regional** significance.

- An ecological vegetation class that is considered depleted in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case it is of **Regional** significance.

Local botanical significance applies to all remnant native vegetation that does not meet the above criteria. In much of Victoria, native vegetation has been so depleted by past clearing and disturbance that all remaining vegetation must be considered to be of at least local conservation significance.

3.1.2 Zoological Significance

National zoological significance applies to an area that supports one or more of the attributes described below.

- A population of one or more species listed as nationally threatened by Maxwell et al. (1996), Lee (1995), Duncan et al. (1999), Garnett and Crowley (2000), Cogger et al (1995), Tyler (1997) or Wager and Jackson (1993), or listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

- A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State zoological significance applies to an area when it supports one or more of the following attributes:

- A population of at least one fauna species threatened in Victoria, as listed by NRE (2000b), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.

- An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional zoological significance applies to an area that supports one or more of the attributes described below.

- A population of a species considered depleted in a particular bioregion (*sensu* Conn 1993) based on an authoritative regional analysis, such as the Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents.

As it is not always possible to confirm the presence of some fauna species, due to seasonal or behavioural difficulties in detection, the foregoing significance levels can be qualified by the work "**potential**" where habitat attributes are considered suitable for a species of a particular level of conservation significance.

3.2 Conservation Significance of the subject land

3.2.1 Flora

Mapping has been undertaken of the broad vegetation types of the Port Phillip and Western Port region by the regional Catchment and Land Protection Board (PP&WCALP 2000). This indicates that the area that includes the property was once extensive Plains Grassy Woodland. This vegetation type is characterised by scattered to moderate density tree cover, few shrubs and a herb-rich ground cover dominated by native grasses.

An analysis of the regional status of this vegetation type (PP&WCALP 2000) has revealed that it is among the most depleted vegetation types in the region and indeed in the state. Less than 10% of the original area of this vegetation type remains in the region. Statewide, this vegetation type is also very depleted. It is also a vegetation type that is not well represented in reserves, either in the state or in the region. It is identified as a very high priority for retention in the regional native vegetation plan.

The property supports highly degraded patches of Plains Grassy Woodland which lack any indigenous ground cover or understorey. The degraded nature of this vegetation detracts considerably from its significance. The Plains Grassy Woodland mapped in the Regional Vegetation Plan does not include the area, probably reflecting the degraded nature and sparse tree cover of the area. For this reason, the patches of River Red Gums are not considered to be of more than local botanical significance.

3.2.2 Fauna

The fauna of the property is considered to be of local zoological significance, particularly for some hollow-nesting birds and hollow-using bats. The habitats on the property are degraded and support a depauperate assemblage of native birds.

4.0 IMPACTS AND MITIGATION MEASURES

This section presents information on the potential impacts of the proposed residential development of the land on the flora and fauna of the property and its surrounds.

Residential development is likely to result in the removal of most of the River Red Gums on the subject land.

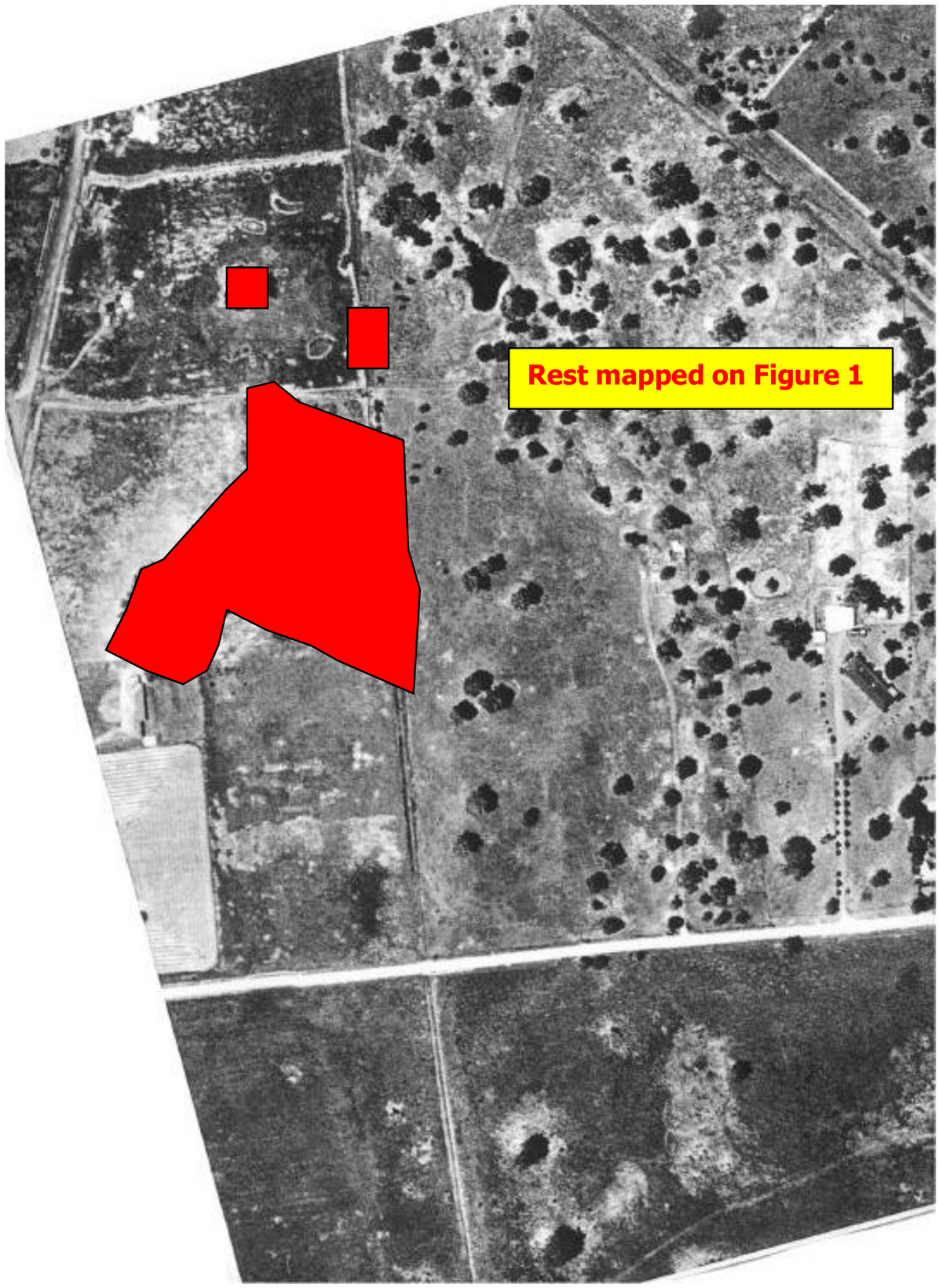
The property supports flora and fauna of local significance. The loss of the habitats concerned will not result in any significant loss of flora or fauna populations at a regional scale.

To reduce the local loss of hollow trees, consideration should be given to retaining as many of the River Red Gums as possible. Figures 1 and 2 show the location of these trees. This will provide continued local habitat for some hollow-nesting birds and daytime shelter for bats. Where possible, trees should be retained in clumps to provide maximum canopy cover for local bird populations.

The removal of any River Red Gums would require a planning permit under the provisions of the Vegetation Protection Overlay (VPO1) in the City of Whittlesea Planning Scheme.

Figure 1: Aerial photograph highlighting location of indigenous trees (River Red Gums) on the subject land at Gordon's Road, Mernda .

Figure 2: **Aerial photograph highlighting location of indigenous trees (River Red Gums) on the subject land at Gordon's Road, Mernda .**



5.0 CONCLUSIONS

Based on the investigation reported here, the conclusions below can be made about the environmental characteristics and potential development impacts at the subject land.

- The land comprises mostly cleared pasture used for grazing, with a mostly non-indigenous sparse eucalypt tree cover that is unlikely to support any rare or threatened species of flora or fauna.

- Flora of the subject land is highly degraded with only a small number of remnant mature River Red Gums present and no native ground cover or understorey. There have been extensive plantings of non-indigenous eucalypts in the land over approximately the last 30 years.

- Fauna of the subject land is depauperate and dominated by species adapted to disturbed agricultural landscapes in southern Victoria.

- The advent of residential development will not result in any significant loss of regional vegetation, flora or fauna populations.

- There may be scope for retaining some River Red Gum specimens, which would contribute to providing continued habitat for local populations of hollow-nesting birds and daytime resting places for bats.

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APPENDIX A

FLORA LIST

APPENDIX A: LIST OF PLANT SPECIES RECORDED FROM THE GORDON'S ROAD, MERNDA PROPERTIES

(* = introduced or non-indigenous species)

Scientific Name	Common Name
* *Acacia baileyana*	Cootamundra Wattle
* *Anthoxanthum odoratum*	Sweet Vernal Grass
* *Arctotheca calendula*	Cape Weed
* *Avena fatua*	Oat Grass
Carex sp.	Sedge
* *Crataegus* sp.	Hawthorn
* *Cynara carduculus*	Artichoke Thistle
* *Cynodon dactylon*	Couch Grass
* *Cyrsium vulgare*	Scotch Thistle
* *Echium plantageneum*	Patterson's Curse
Eleocharis acutus	Spike Rush
Eucalyptus camaldulensis	River Red Gum
Geranium solanderi	Austral Cranes Bill
* *Holchus lanatus*	Yorkshire Fog
* *Hordeum leporinum*	Barley Grass
* *Hypochoeris radicata*	Cat's Ear
Isolepis cernua	Grassy Club-rush
Juncus sp.	Rush
* *Lemna* sp.	Duckweed
* *Medicago polymorpha*	Burr Medic
* *M. sativa*	Lucerne
Myriophylum sp.	Water Milfoil
* *Phalaris aquatica*	Canary Grass
* *Plantago coronopus*	Bucks-horn Plantain
* *P. lanceolata*	Ribwort
* *Poa annua*	Annual Meadow Grass
* *Romulea rosea* var. *australis*	Onion Grass
* *Rosa rubiginosa*	Sweet Briar
* *Rubus fruticosus*	Blackberry
* *Rumex crispus*	Common Dock
* *Silibum marianum*	Variegated Thistle
* *Sonchus oleraceus*	Milk Thistle
* *Trifolium pratense*	Red Clover
* *T. repens*	White Clover
* *T. subterraneum*	Subterranean Clover
* *Ulex europaeus*	Gorse

APPENDIX B

FAUNA SPECIES LIST

APPENDIX B: LIST OF FAUNA THAT OCCURS OR IS LIKELY TO OCCUR ON THE GORDON ROAD, MERNDA.

Key to Status*:

M = Listed Migratory species under the *Environment Protection and Biodiversity Conservation Act 1999*
* = Introduced species

Common Name	Scientific Name	Status*	Record
MAMMALS			
Common Brushtail Possum	*Trichosurus vulpecula*		L
White-striped Freetail Bat	*Tadarida australis*		L
Lesser Long-eared Bat	*Nuctophilus geoffroyii*		L
Gould's Wattled Bat	*Chalinolobus gouldii*		L
Chocolate Wattled Bat	*C. morio*		L
Little Forest Bat	*Vespadalus vulturnus*		L
Large Forest Bat	*V. darlingtoni*		L
*Black Rat	*Rattus rattus*	*	L
*House Mouse	*Mus musculus*	*	L
*European Rabbit	*Oryctolagus cuniculus*	*	C
*Brown Hare	*Lepus capensis*	*	L
*Red Fox	*Canis vulpes*	*	C
*Feral cat	*Felis cattus*	*	L
BIRDS			
*Spotted Turtledove	*Streptopelia chinensis*		L
*Rock Dove			
Masked Lapwing	*Vanellus miles*		L
White Ibis	*Threskiornis molucca*		L
Straw-necked Ibis	*T. spinicollis*		L
Yellow-billed Spoonbill	*Platalea regia*		L
White-faced Heron	*Egretta novaehollandiae*		C
White-necked Heron	*Ardea pacifica*		L
Australian Wood Duck	*Chenonetta jubata*	**M**	C
Pacific Black Duck	*Anas supeciliosus*	**M**	L
Grey Teal	*A. gracilis*	**M**	L
Brown Goshawk	*Accipiter fasciatus*	**M**	L
Whistling Kite	*Haliastur sphenurus*	**M**	L
Black-shouldered Kite	*Elanus axillaris*	**M**	L
Australian Hobby	*Falco longipennis*	**M**	L

Common Name	Scientific Name	Status*	Record
Peregrine Falcon	*Falco pereginus*	**M**	L
Brown Falcon	*F. berigora*	**M**	C
Nankeen Kestrel	*F. cenchroides*	**M**	L
Sulphur-crested Cockatoo	*Cactua galerita*		L
Little Corella	*C. sanguinea*		C
Long-billed Corella	*C. tenuirostris*		L
Galah	*C. roseicapilla*		L
Rainbow Lorikeet	*Trichoglossus haemtodus*		L
Musk Lorikeet	*Glossopsitta concinna*		C
Purple-crowned Lorikeet	*G. porphyrocephala*		C
Crimson Rosella	*Platycercus elegans*		L
Eastern Rosella	*P. eximius*		C
Red-rumped Parrot	*Psephotus haematonotus*		C
Tawny Frogmouth	*Podargus strigoides*		L
Laughing Kookaburra	*Dacelo novaeguineae*		L
White-throated Needletail	*Hirundapus caudacutus*	**M**	L
Pallid Cuckoo	*Cuculus pallidus*		C
Horsefield's Bronze-Cuckoo	*Chrysococcyx basalis*		L
Welcome Swallow	*Hirundo neoxena*		L
Tree Martin	*H. nigricans*		L
Fairy Martin	*H. ariel*		L
Grey Fantail	*Rhipidura fuliginosa*		L
Willy Wagtail	*R. leucophrys*		L
Flame Robin	*Petroica phoenicea*		L
Golden Whistler	*Pachycephala pectoralis*		L
Rufous Whistler	*P. rufiventris*		L
Grey Shrike-thrush	*Colluricincla harmonica*		L
Magpie-lark	*Grallina cyanoleuca*		C
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*		L
Yellow-rumped Thornbill	*A. chrysorrhoa*		L
Brown Songlark	*Cincloramphus cruralis*		L
Golden-headed Cisticola	*Cisticola exilis*		C
Superb Fairy-wren	*Malurus cyaneus*		L
Dusky Woodswallow	*A. cyanopterus*		L
Mistletoe Bird	*Dicaeum hirundinaceum*		L
Spotted Pardalote	*Pardalotus punctatus*		L
Striated Pardalote	*P. striatus*		L
Silvereye	*Zosterops lateralis*		L
Noisy Miner	*Manorina melanocephala*		C
Brown-headed Honeyeater	*Melithreptus brevirostris*		L

Common Name	Scientific Name	Status*	Record
Yellow-faced Honeyeater	*Lichenostomus chrysops*		L
White-plumed Honeyeater	*L. penicillatus*		L
New Holland Honeyeater	*Philidonyris novaehollandiae*		L
Little Wattlebird	*Anthochaera chrysoptera*		L
Red Wattlebird	*A. carunculata*		L
Richard's Pipit	*Anthus novaeseelandiae*		L
Red-browed Finch	*Neochmia temporalis*		L
Pied Currawong	*Strepera graculina*		L
Grey Butcherbird	*Cracticus torquatus*		L
Australian Magpie	*Gymnorhina tibicen*		C
Australian Raven	*Corvus coronoides*		C
Little Raven	*C. mellori*		L
*Common Blackbird	*Turdus merula*		C
*Skylark	*Alauda arvensis*		L
*House Sparrow	*Passer domesticus*		L
*European Goldfinch	*Carduelis carduelis*		L
*Common Mynah	*Acridotheres tristis*		L
*Common Starling	*Sturnus vulgaris*		C
REPTILES			
Garden Skink	*Lampropholis guichenoti*		L
Common Blue-tongued Lizard	*Tiliqua scincoides*		L
Tiger Snake	*Notechis scutatus*		L
Red-bellied Black Snake	*Pseudechis porphyriacus*		L
Eastern Brown Snake	*Pseudonaja textilis*		L
FROGS			
Southern Bullfrog	*Limnodynastes dumerilii*		C
Spotted Marsh Frog	*L. tasmaniensis*		L
Southern Toadlet	*Pseudophryne semimarmorata*		L
Common Froglet	*C. signifera*		C
Southern Brown Tree-Frog	*Litoria ewingii*		L
Peron's Tree Frog	*L. peronii*		L

GORDONS ROAD EUCALYPYTS
(OBSERVATIONS DURING INITIAL SURVEYS)
By Kevin Rule

MY BACKGROUND IN *Eucalyptus* TAXONOMY:
PUBLISHED TAXA: 15 new eucalypts for Victoria and South Australia between 1989 and 2001.

CURRENT TAXONOMIC WORK:
(a) Submitted for publication: 8 new Victorian endemic eucalypts (a white mallee, 2 mountain grey gums, 3 mallee-boxes, an ironbark and a red box) and notes on the occurrence of a mallee not previously recorded in Victoria (a form of square-fruited mallee).
(b) In preparation: 5 new Victorian eucalypts (a swamp gum, a manna gum, a mallee-box, a brown stringybark and a peppermint) and a change of status for a South Australian taxon).
(c) In preparation: Two new shiny leaf peppermints for Victoria.
(d) Current investigations: papers are intended when reviews of several Victorian complexes are completed (red gums, swamp gums, scentbarks, manna gums, mountain white gums/candlebarks, long leaf boxes, mealy stringybarks, mallee-boxes, grey boxes, bull mallees, white mallees, yellow gums, snow gums, peppermints, brown stringybarks and messmates). In total it is anticipated that these revisions will result in the erection of more than 40 new eucalypts for Victoria.

HISTORY OF THE GORDONS ROAD ESTATE: After examining the site and speaking with some of the current occupants of the relevant properties it is apparent that most of the exotic eucalypts growing at the site were planted approximately 25 years ago at a time just prior to the selling of hobby farm lots. Obviously these plantations were done to fill in the areas not occupied by the indigenous river red gums (*E. camaldulensis*). Whether these gaps were created by previous clearing or were natural is impossible to determine. Similarly it is impossible to know whether the plantations were created to satisfy a need for conservation or to serve some agricultural benefit. At this time some conservation practices largely focussed on planting Australian native plants, particularly eucalypts. One company in Western Australia and two in New South Wales were the main suppliers of eucalyptus seeds for many of these enterprises. The practice of the protection and regeneration of indigenous flora was still in its infancy.

OBSERVATIONS: A part of my brief has been to check the identities of the eucalypts growing on the estate, in particular to identify a number of eucalypts which previous scrutinies had found troublesome.

1. *E. camaldulensis* (River red Gum). This was the only indigenous species occurring on the site. Specimens observed included a full range of habits including ancient, extremely large trees dispersed sporadically across the area, relatively mature younger trees, slender, immature trees and saplings and seedlings of various sizes. There are two separate, relatively extensive stands of red gums, a pure one located in the northern part of the estate and a second in the southern section which coexists with various exotic species eucalypts. The northern stand is a good representation of the red gum woodlands that are typical of the area as it contains a good range of habits and ages. Grazing has inhibited regeneration in the southern stand. There are also

several occurrences of individuals and small groups of trees in other parts of the estate whilst large sections are dominated totally by mixes of exotic species. I observed no cases interbreeding between *E. camadulensis* and any of the exotic species.

In the east-central part of the estate there is a linear plantation consisting of specimens of *E. camaldulensis* and *E. globulus* (Tasmanian Blue Gum). The red gums at the northern extremity of the plantation are not in good condition and appear considerably younger than the blue gums. Many still exhibit pre-adult foliage and have hardly progressed beyond the sapling stage. The pre-adult foliage exhibited in comparable specimens of the indigenous form is broadly lanceolate whereas the foliage of these is linear-lanceolate or narrowly lanceolate. This feature strongly suggests that they are not derived from seedlots collected from the area. Their origins, however, are impossible to determine. Specimens at the southern extremity of this plantation are larger and apparently in better health. I suspect they are of the same seedlot as the others within this plantation. A small triangle of specimens which abuts the southern extremity of this plantation appears to be derived from two mature neighbouring trees and is a good example of natural regeneration.

Field observations suggest that two exotic eucalypts, *E. punctata* and *E. gomphocephala*, have been misidentified as *E. camaldulensis.* Features of these are discussed below.

2. *EXOTIC EUCALYPTS*:

E. nortonii: This species is well represented within the plantations of the exotic eucalypts. The bulk of the plants appear relatively uniform in morphology, particularly buds and fruits, but some show subtle differences in habit, leaf colour and size and the amount of wax on the buds. I cannot accept that these are typical *E. nortonii,* which is copiously pruinose and grey-leaved. They exhibit features somewhat intermediate between that species and *E. goniocalyx*. A few individuals in the south-eastern corner of the estate may be hybrids. My recent work on the long leaf box complex within Victoria leads me to believe that the form on the estate is not derived from this state. In fact, I have not encountered any population or form similar to it in Victoria. I believe there is a strong possibility that it has its origins in New South Wales, most likely on the northern tablelands where others have identified additional undescribed forms within the complex.

E. rubida: Trees identified as *E. viminalis* appear to be a form *E. rubida.* These are also well represented in the plantations. Normally the two are inseparable but, fortunately, most of the plants on the estate exhibited sufficient coppice growth to enable easy identification. Pre-adult leaves of *E. rubida* are roundish and glaucous whereas those of *E. viminalis* are lanceolate and green. At any other time of the year identication may have proved extremely difficult. Some of the specimens have glossy foliage unlike any I have in Victoria and it is possible they have originated in the high country of south-eastern New South Wales where such forms occur. The possibility that some these are hybrids should not be overlooked. Once again, it is not possible to fully determine the origins these candlebarks.

E. leucoxylon: Two forms of the species occur within the plantations on the estate. On the eastern boundary and in the south-eastern corner are about 6 specimens of subsp. *megalocarpa,* a form which occurs naturally in coastal areas of Lower south-east SA and in a small population in the Lower Glenelg N P in Victoria. This form's features include relatively broad, thick adult leaves and large fruits. It is highly unlikely that the seedlot was collected from within Victoria. Narrow-leaved specimens with a

slender habit and large fruits occur in much greater numbers throughout the estate. These represent an unnamed subspecies often referred to as "dwarf" that was originally collected from a few restricted natural populations in the Murray Bridge area. Sometimes the name var. "rosea" has been applied to red-flowered specimens of this form, as it has to other red-flowered forms of other subspecies of the species. It is also important to note that seed for ornamental forms of the species has been traditionally collected from cultivated plants in both Victoria and South Australia.

E. globulus: There are two linear plantations containing this species. The specimens of both are clean-barked and extremely erect in habit. Generally Victorian forms of the species are umbrageous, low-branching trees and carry slabs of old bark on the lower trunk. Whilst it is possible they have been grown from Victorian seedlots it is more likely that the seed was collected from eastern Tasmania.

E. punctata: There are several individuals of this species occurring to the north of the two western-most houses along the southern part of Gordons Road. The species belongs to a small group of eucalypts referred to as eastern grey gums and is distinguished by its discolorous adult leaves and smooth bark. However, it is superficially like the red gums in bark and habit. It occurs naturally along the central coast of NSW.

E. gomphocephala: Sometimes referred to as Tuart, this species from WA is plentiful among the plantations within the estate. Its bark and habit resemble those of *E. nortonii* but its adult leaves are considerably more glossy which makes it readily separable from that species. Its other features include buds with a broad, hemispherical operculum, striking yellow flowers and relatively large conical fruits, all of which are very distinctive. However, in general appearance these may be mistaken for immature trees of *E. camaldulensis,* particularly in the absence of buds and fruits.

E. occidentalis: This is the most common of the exotic species. It is Western Australian and features a tallish habit, a substantial stocking of greyish, rough, compact bark and glossy relatively broad adult leaves.

E. astringens: Also from WA this species is closely related to the previous species but differs by its smooth bark. It is well represented in the central part of the estate.

E. maculata (syn. *Corymbia maculata*): A few specimens were observed growing near the easement close to the previous species.

E. citriodora (syn. *C. citriodora*): A single specimen was observed growing in the vicinity of the previous two species.

E. cladacalyx: A few individuals are located adjacent to houses on the estate.

FURTHER NOTES: The first conservation priority should be protection of the ancient river red gums. Secondly, the conservation of the remnant woodland on the northern side of the estate should also be given serious consideration. Some exotic species may have aesthetic or ecological (bird attraction) values. Retention of species that are native to Victoria and not indigenous to the area should be given low priority as there is no guarantee that their seedlots originated in Victoria. Even if the seedlots were collected from within Victoria it is highly questionable that they have any ecological or genetic value. Lowest priority should be given to the cultivated red gums. Not only is it possible that their origins are not from this region but they have the potential to hybridise with the indigenous red gums.

GORDONS ROAD DEVELOPMENT: FURTHER SURVEY NOTES: (7/12/2003)
Enclosed is a map of an inventory of the plants of the unsurveyed property on the western side of the development:

The property contains one very ancient river red gum which appears to be in good health and which dominates a large lawn on the southern part of the property. As well, there are two other red gums which are at best semi-mature. Of the of eucalypts, which might be regarded as Victorian, there are six immature specimens of *E. viminalis* (manna gum), all of which are in poor health, a healthy, robust semi-mature tree of *E. botryoides* (mahogany) and a healthy specimen of *E. viridis* (green mallee-box). Of the exotic eucalypts there are tree relatively mature trees of *E. cladacalyx* (sugar gum), two of *E. nicholii* (peppermint gum) and one of *E. citriodora* (lemon-scented gum).

Along the western boundary of the property is a mix of shrubs including Hakeas and various exotic ornamentals. Along the southern boundary is a mix of exotic ornamentals and exotic eucalypts, all of which are only recently planted. A border *Cyperus* sp. has been recently planted in close, hedge-like formation along the eastern boundary. The northern boundary contains a mix of immature paperbarks and exotics. Other ornamental exotics and herbaceous occur in garden beds around the house.