D23-380149

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# Arboricultural Report

## Development Impact Assessment

**Site address:** Mulgrave Private Hospital
Blanton Dr, Mulgrave VIC 3170
**Date of assessments:** 18 Oct 2022, 25 Oct 2022
**Date of issue:** 30 Nov 2023
**Version:** 2

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Graduate Certificate in Arboriculture
Diploma of Horticulture (Arboriculture)

# Contents

# 1 INTRODUCTION

## 1.1 SCOPE OF REPORT

This report has been prepared to accompany a planning permit application for the construction of a new multi-level carpark at the subject site. The purpose of this report is to provide a detailed assessment of trees in proximity to the works and to outline the potential impacts proposed development will have on these trees.

Tree assessment data including tree species, health and structural condition, location, dimensions, age class, useful life expectancy (ULE), origin, retention value, tree protection zones (TPZ) and structural root zones (SRZ) was collected for each tree and is presented in section 2-table 1.

## 1.2 ASSESSMENT METHODOLOGIES AND LIMITATIONS

This report has been prepared in accordance with AS4970-2009 *Protection of Trees on Development Sites.*

Tree assessment was conducted visually from ground level employing Visual Tree Assessment (VTA) principals described by Mattheck and Breloer (1994) and is limited to parts of the tree which are easily viewed from within the subject site and street frontage. No assessment has been made of soil characteristics or below ground tree parts unless otherwise stated. Tree health and structure have been assessed to record the condition of the trees and inform useful life expectancy (ULE) and retention value ratings only. The scope of this report does not include any tree risk assessment. The content provided within this report relates to information and observations available at the time of inspection only. The tree assessments provided report are valid for 12 months. All plans supplied by the client or third-party are assumed to be correct and accurate. Melbourne Arborist Reports will not be responsible for errors resulting from supplied plans.

Diameter at Breast Height (DBH) = 1.4m above ground level, methods shown in appendix A of AS4970-2009 were used for low branching, multi-stemmed and leaning trees.
Diameter Above Base (DAB) = above root flare on main stem. A diameter tape was used for DBH and DAB measurements, tree heights and canopy spreads are estimates only unless otherwise stated. DBH and DAB measurements of third-party trees or trees with inaccessible stems may have been estimated due to access restrictions. Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) have been calculated using the formulas provided in section 3 of AS4970-2009.

Descriptors were used to define tree health, tree structure, ULE, age class, origin and tree retention value. Descriptors are in the appendix section at the rear of the report and should be referred to for definitions of ratings assigned to trees within this report. All photos were taken by the author unless otherwise stated.

## 1.3 PLANNING INFORMATION

Responsible Authority: Monash City Council
Planning Zones: Neighbourhood Residential Zone – Schedule 4
Planning Overlays: None affecting this land
(State Government of Victoria DELWP 2022A)

# 2 FINDINGS

## 2.1 TREE ASSESSMENT DATA

*Table 1 Tree assessment data. Descriptors supplied in the appendix section of this report should be referred to as part of the assessment provided in table 1.*

| Tree No | Botanical Name Common Name | Origin | DBH cm | DAB m | TPZ Radius m | SRZ Radius m | Height m | Spread Dia. m | Health | Structure | ULE | Age class | Retention value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Corymbia maculata* Spotted Gum | Vic Native | 59 | 0.68 | 7.1 | 2.8 | 15 | 10 | Good | Fair | 15-30yrs | Mature | Moderate |
| 2 | *Casuarina cunninghamiana* River She-oak | Native | 12 | 0.18 | 2.0 | 1.6 | 7 | 3 | Fair | Fair | 15-30yrs | Semi-mature | Low |
| 3 | *Casuarina cunninghamiana* River She-oak | Native | 24 | 0.30 | 2.9 | 2.0 | 9 | 5 | Good | Very poor | <5yrs | Mature | Low |
| 4 | *Allocasuarina verticillata* Drooping She-oak | Vic Native | 29 | 0.33 | 3.5 | 2.1 | 6 | 6 | Good | Fair | 5-15yrs | Mature | Low |
| 5 | *Corymbia maculata* Spotted Gum | Vic Native | 17 | 0.21 | 2.0 | 1.7 | 11 | 4 | Good | Fair | 30+yrs | Semi-mature | Low |
| 6 | *Allocasuarina verticillata* Drooping She-oak | Vic Native | 26 | 0.33 | 3.1 | 2.1 | 7 | 6 | Good | Fair | 5-15yrs | Mature | Low |
| 7 | *Corymbia maculata* Spotted Gum | Vic Native | 22 | 0.27 | 2.6 | 1.9 | 14 | 4 | Good | Fair | 30+yrs | Semi-mature | Low |
| 8 | *Corymbia maculata* Spotted Gum | Vic Native | 22 | 0.27 | 2.6 | 1.9 | 14 | 4 | Good | Fair | 30+yrs | Semi-mature | Low |
| 9 | *Corymbia maculata* Spotted Gum | Vic Native | 17 | 0.22 | 2.0 | 1.8 | 11 | 4 | Good | Fair | 30+yrs | Semi-mature | Low |
| 10 | *Corymbia maculata* Spotted Gum | Vic Native | 19 | 0.24 | 2.3 | 1.8 | 12 | 4 | Good | Fair | 30+yrs | Semi-mature | Low |
| 11 | *Melaleuca styphelioides* Prickly Paperbark | Vic Native | 73 | 0.73 | 8.8 | 2.9 | 8 | 6 | Good | Fair | 15-30yrs | Mature | Moderate |
| 12 | *Corymbia maculata* Spotted Gum | Vic Native | 24 | 0.30 | 2.9 | 2.0 | 11 | 4 | Good | Fair | 5-15yrs | Semi-mature | Low |
| 13 | *Eucalyptus scoparia* Wallangarra White Gum | Native | 35 | 0.41 | 4.2 | 2.3 | 12 | 7 | Good | Fair | 15-30yrs | Mature | Moderate |
| 14 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.30 | 3.6 | 2.0 | 4 | 4 | Fair | Fair | 5-15yrs | Mature | Low |
| 15 | *Corymbia maculata* Spotted Gum | Vic Native | 77 | 0.77 | 9.2 | 3.0 | 12 | 11 | Good | Fair | 30+yrs | Mature | High |
| 16 | *Eucalyptus scoparia* Wallangarra White Gum | Native | 10 | 0.15 | 2.0 | 1.5 | 5 | 2 | Fair | Fair | N/A | Semi-mature | Low |

| Tree No | Botanical Name Common Name | Origin | DBH cm | DAB m | TPZ Radius m | SRZ Radius m | Height m | Spread Dia. m | Health | Structure | ULE | Age class | Retention value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | *Eucalyptus scoparia* Wallangarra White Gum | Native | 20 | 0.26 | 2.4 | 1.9 | 8 | 4 | Good | Fair | 15-30yrs | Semi-mature | Low |
| 18 | *Eucalyptus scoparia* Wallangarra White Gum | Native | 30 | 0.38 | 3.6 | 2.2 | 8 | 4.5 | Good | Fair | 15-30yrs | Mature | Third party |
| 19 | *Corymbia maculata* Spotted Gum | Vic Native | 17 | 0.17 | 2.0 | 1.6 | 8 | 2 | Good | Fair | 30+yrs | Juvenile | Low |
| 20 | *Corymbia maculata* Spotted Gum | Vic Native | 13 | 0.17 | 2.0 | 1.6 | 6 | 2 | Good | Fair | 30+yrs | Juvenile | Low |
| 21 | *Corymbia maculata* Spotted Gum | Vic Native | 13 | 0.17 | 2.0 | 1.6 | 8 | 2 | Good | Fair | 30+yrs | Juvenile | Low |
| 22 | *Eucalyptus saligna* Sydney Blue Gum | Native | 42 | 0.5 | 5.0 | 2.5 | 16 | 8 | Good | Fair | 15-30yrs | Mature | Third party |
| 23 | *Pinus radiata* Monterey Pine | Exotic | 40 | 0.45 | 4.8 | 2.4 | 14 | 10 | Good | Good | 15-30yrs | Semi-mature | Low |
| 24 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 25 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 26 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 27 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 28 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 29 | *Melaleuca styphelioides* Prickly Paperbark | Native | 30 | 0.38 | 3.6 | 2.2 | 4.5 | 4 | Good | Fair | 15-30yrs | Mature | Third party |
| 30 | *Eucalyptus* sp. Gum | Vic Native | 0 | 0.15 | 2.0 | 1.5 | 2 | 2 | Fair | Poor | <5yrs | Juvenile | Third party |
| 31 | *Eucalyptus sideroxylon* Red Ironbark | Vic Native | 33 | 0.42 | 4.0 | 2.3 | 9 | 6 | Good | Fair | 15-30yrs | Mature | Moderate |

## 2.2 EXISTING SITE PLAN

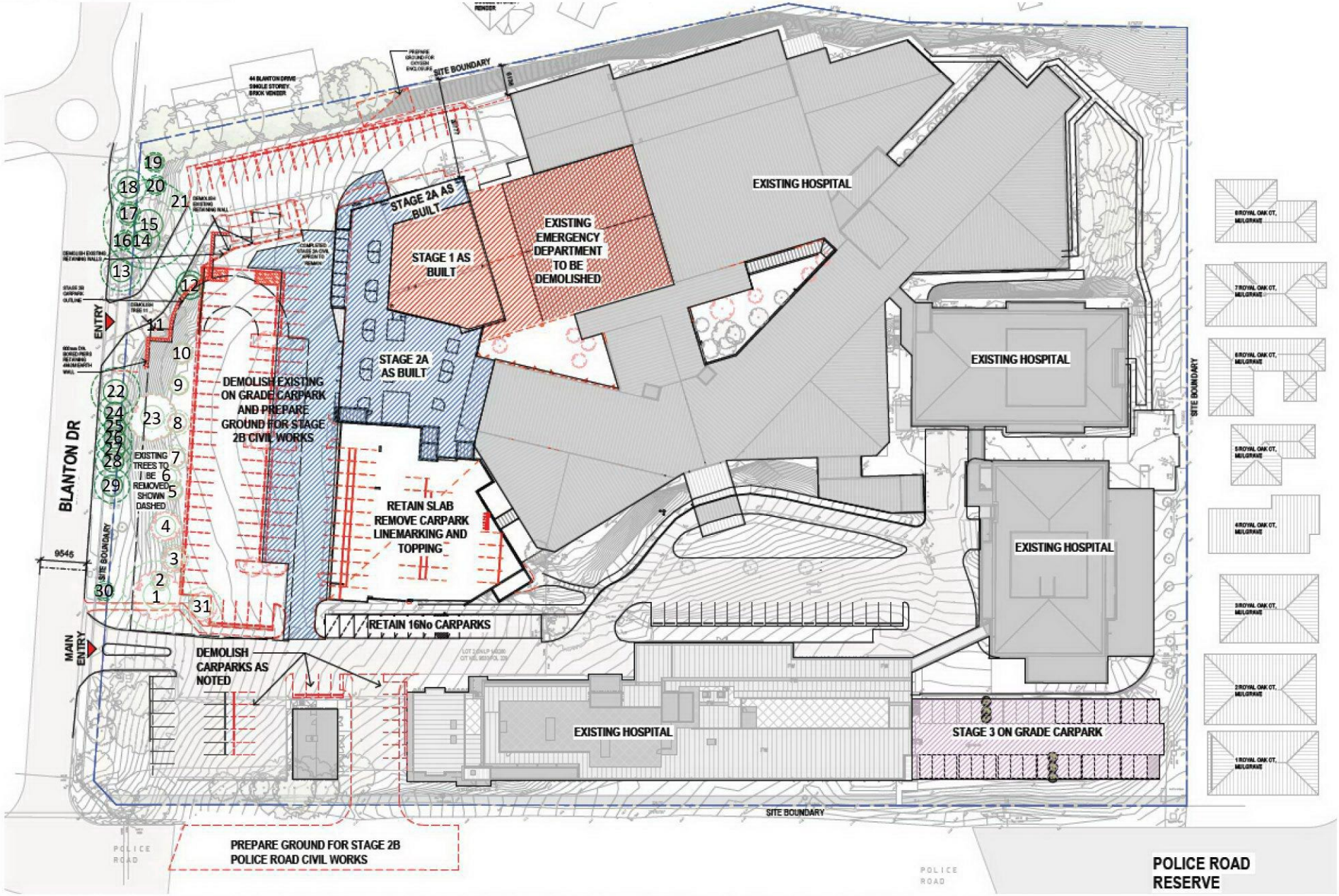


*Figure 1 Existing site plan prepared by HSPC 28/09/2023 Project No. 9-22-0005. Rev G. TPS2B_010 shows location of trees included in report scope, existing conditions and proposed demolition*

## 2.3 PROPOSED SITE PLAN

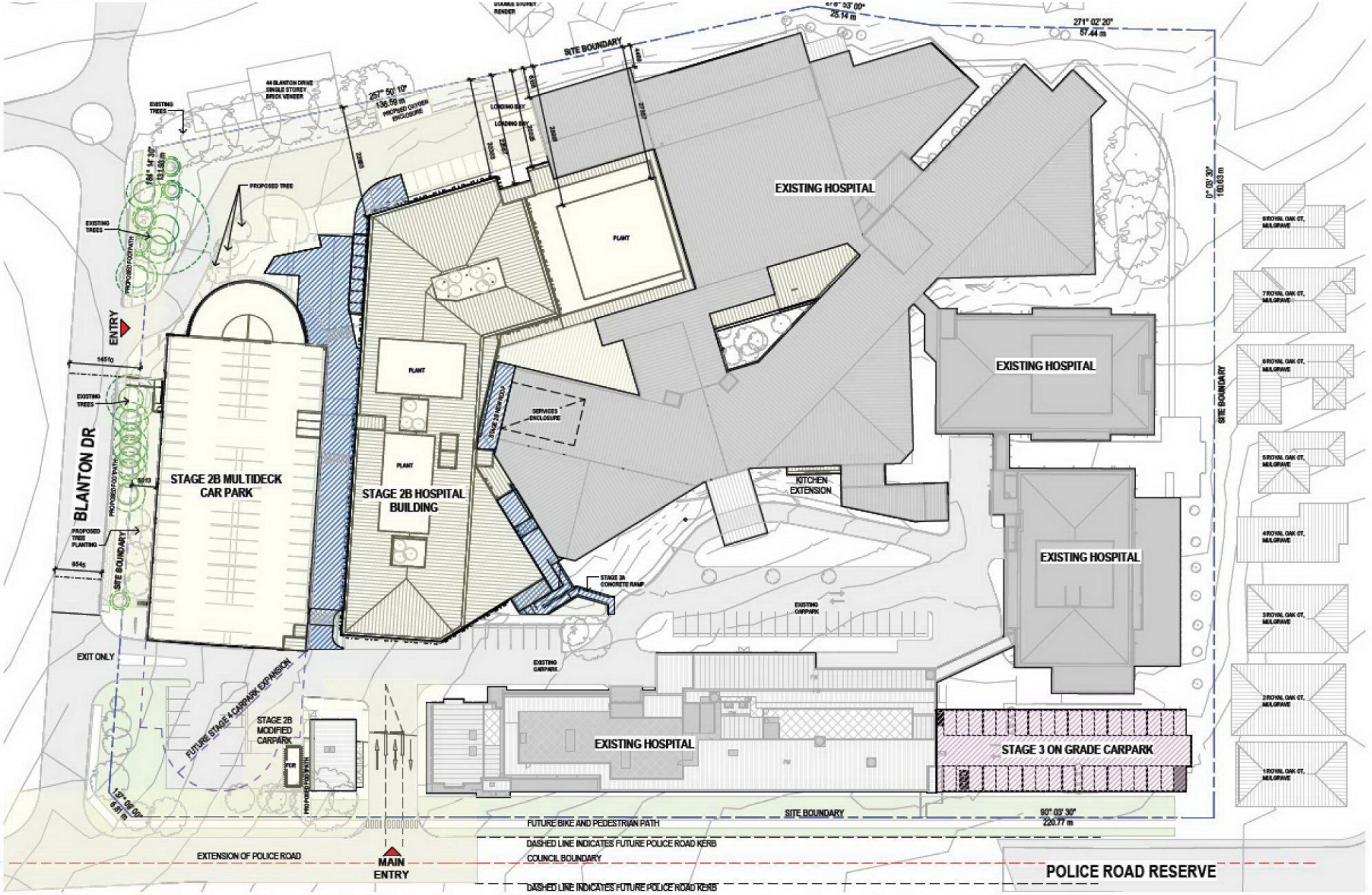


*Figure 2 Proposed site plan prepared by HSPC 28/09/2023 Project No. 9-22-0005. Rev R. TPS2B_020 shows proposed carpark in relation to subject trees*

# 3 DISCUSSION

## 3.1 THE TREES

Trees included in this report were generally of low significance, having been planted for urban amenity. Species found were common amenity trees in the local area and represented average examples of the species.

## 3.2 CLAUSE 52.17

Clause 52.17 *native vegetation* of the Monash Planning Scheme relates to the protection of native vegetation on sites greater than 4000m² (State Government of Victoria DELWP 2022B). The Planning Scheme glossary defines native vegetation as - p*lants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses* (Victoria Planning Authority 2022). Table 7 of Clause 52.17 provides a list of exemptions. Notable exemptions include vegetation that was planted (unless publicly funded for the purpose of land protection or enhancing biodiversity) and naturally occurring regrowth vegetation that is less than 10 years old, on land that was previously lawfully cleared. (State Government of Victoria DELWP 2022B).

All Victoria native trees included in this report show signs of having been planted and are therefore considered exempt from protection under Clause 52.17.

## 3.3 TREE PROTECTION ZONES

Each tree is allocated a tree protection zone (TPZ) and structural root zone (SRZ) calculated using formulas provided in AS4970-2009 *Protection of Trees on Development Sites*. These zones are used to gain an understanding of the impact to trees by development activities. Minor encroachments up to 10% of the total TPZ area are generally considered acceptable. Encroachments that exceed 10% of the TPZ or enter the SRZ are considered major and must either be justified by the project arborist, reduced to an acceptable level, or allow for the tree to be removed.

## 3.4 TREES REQUIRING REMOVAL UNDER PROPOSAL

Proposed development plans shown in Figure 2 will require the removal of 14 trees onsite including:

- 12 low retention value trees (2-12, 21, 23)
- 2 moderate retention value trees (1, 31)
- 0 high retention value trees
- 0 third party trees
- 0 trees protected under planning overlays
- 0 trees protected under local law

## 3.5 TREES MARKED FOR RETENTION

Proposed plans allow for the successful retention of all third-party trees (13, 16, 17, 18, 22, 24-30) and site trees 14, 15, 19 and 20 with no works resulting in major (>10%) TPZ encroachments.

# 4 CONCLUSION AND RECOMMENDATIONS

In general, trees onsite proposed to be removed were assessed as low retention value and were found to be commonly planted amenity trees.

Proposed plans to construct a new multi-level carpark at the subject site as shown in Figures 1 and 2 will require the removal of 14 trees onsite. The removal of site trees is recommended to place no constraints on the development design.

No trees onsite included in this report were found to be protected under the Monash planning scheme.

Proposed plans aim to retain 17 trees in proximity to the works with no major TPZ encroachments planned.

Retained trees must be protected during all stages of development in accordance with AS4970-2009 *Protection of Trees on Development Sites* and to the satisfaction of the Responsible Authority.

The following site-specific tree protection requirements are recommended:

A. An AQF level 5 or higher arborist must be engaged as the Project Arborist for the duration of site works.
B. Tree protection zones (TPZ) must be established within the site and nature strip around each retained tree prior to any works commencing. 1.8m high temporary chain mesh fencing held in position with concrete pads must be used to exclude works from within a TPZ. TPZ fence locations must be defined by referring to TPZ dimensions provided in this report, modified only to allow for site access and construction works approved within those zones.
C. Signage in accordance with AS1319 stating the words 'Tree Protection Zone-No Access' must be affixed to TPZ fencing and remain visible from within the development site.
D. Areas of exposed soil within a TPZ radius that cannot be fenced off due to essential site access requirements must be covered by geotextile fabric, 100mm of mulch and be topped by wooden rumble boards or plastic tracker mats.
E. Soil excavation within a TPZ must be supervised and documented by the Project Arborist. Excavation encroachments must be limited to those shown on endorsed plans. Any modification or additional excavation inside a TPZ must first be approved by the Responsible Authority.
F. Underground utilities and services must be routed outside of TPZs or be installed using manual excavation, non-destructive digging (NDD) or directional boring at a depth greater than 1.0m. Boring pits must be positioned outside of TPZs.
G. Roots damaged during site works must be pruned back to undamaged wood using clean sharp tools. Root pruning must be conducted and documented by the project arborist and be in accordance with AS4373-2007 *Pruning of Amenity Trees*.
H. Pruning of roots greater than 50mm in diameter must first be approved by the Responsible Authority.
I. Material storage, waste disposal and site amenities must be located outside of TPZs.
J. Any essential canopy pruning must be completed in accordance with AS4373-2007 *Pruning of Amenity Trees* and any other relevant law, policy or guidelines enforced by local authority.
K. The project arborist must supply final documentation that all tree protection measures were implemented, comment on the post development health of the trees and make any further recommendations as required.

# 5 REFERENCES AND APPENDICES

## 5.1 APPENDIX 1 SUPPORTIVE PHOTOGRAPHS

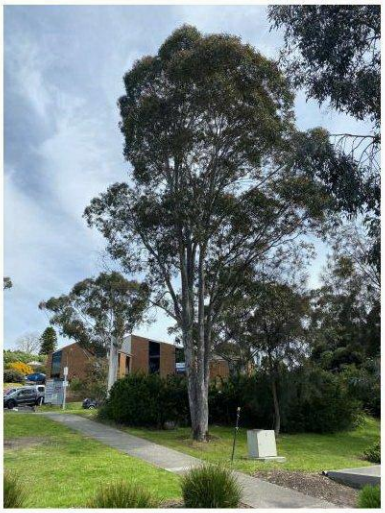

*Figure 3 Tree 1*

*Figure 4 Tree 2*

*Figure 5 Tree 3*

*Figure 6 Tree 4*

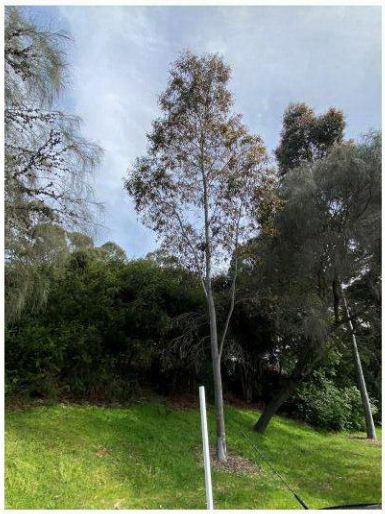

*Figure 7 Tree 5*

*Figure 8 Tree 6*

*Figure 9 Tree 7*

*Figure 10 Tree 8*

*Figure 11 Tree 9*

*Figure 12 Tree 10*

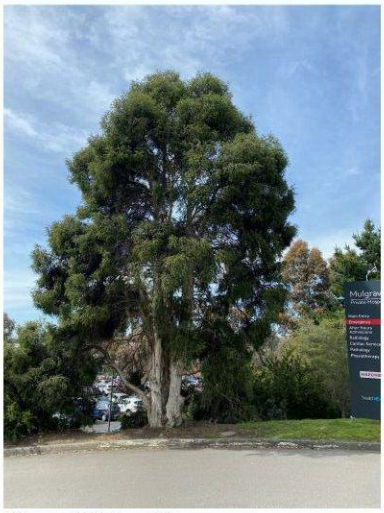

*Figure 13 Tree 11*

*Figure 14 Tree 12*

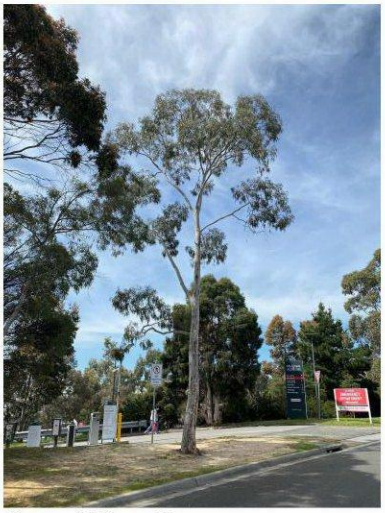

*Figure 15 Tree 13*

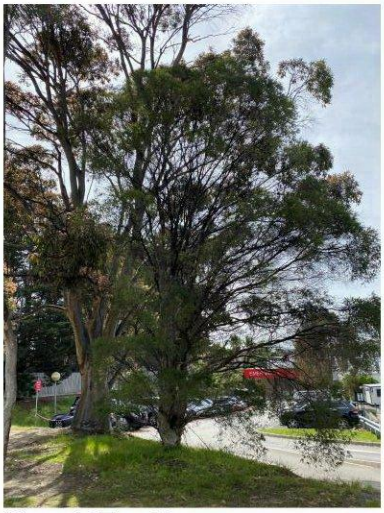

*Figure 16 Tree 14*

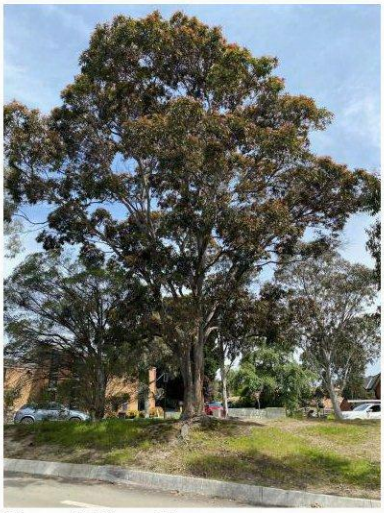

*Figure 17 Tree 15*

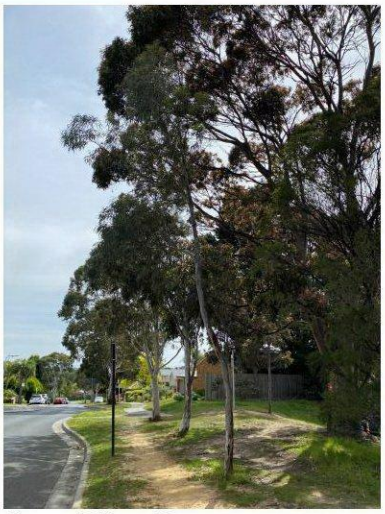

*Figure 18 Tree 16*

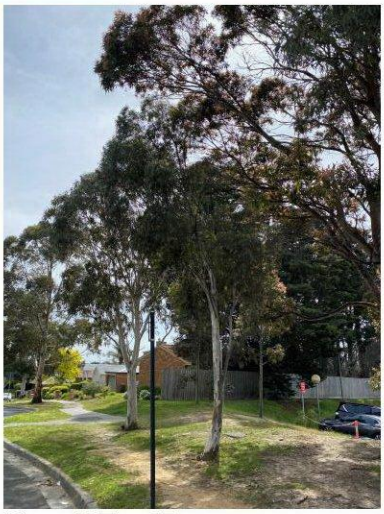

*Figure 19 Tree 17*

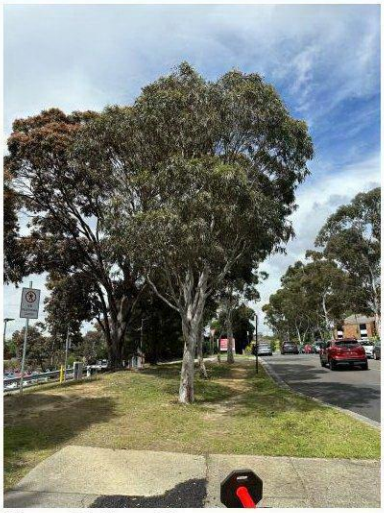

*Figure 20 Tree 18*

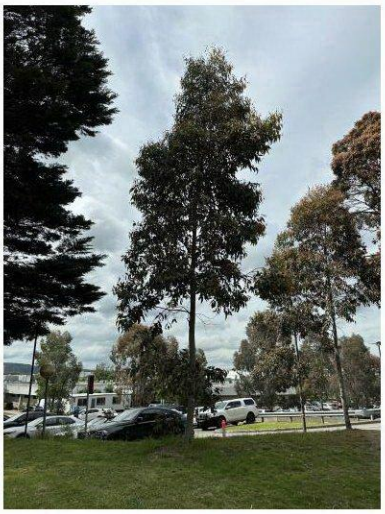

*Figure 21 Tree 19*

*Figure 22 Tree 20*

*Figure 23 Tree 21*

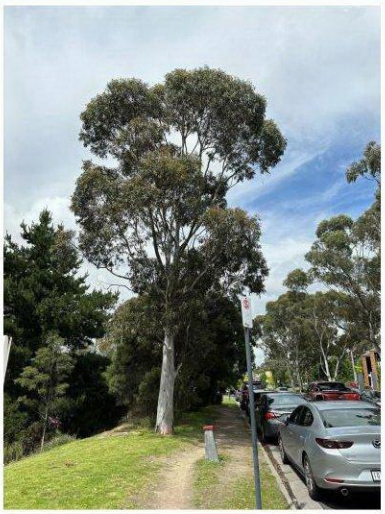

*Figure 24 Tree 22*

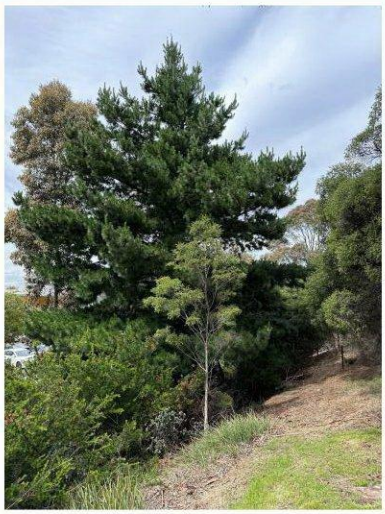

*Figure 25 Tree 23*

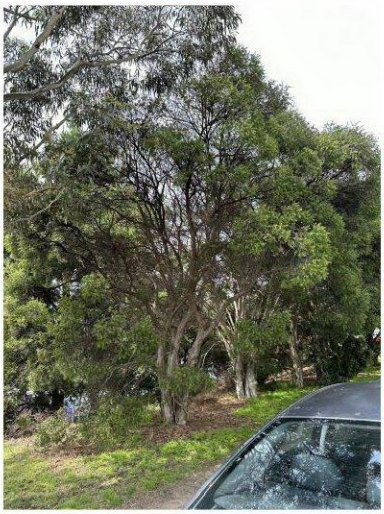

*Figure 26 Tree 24*

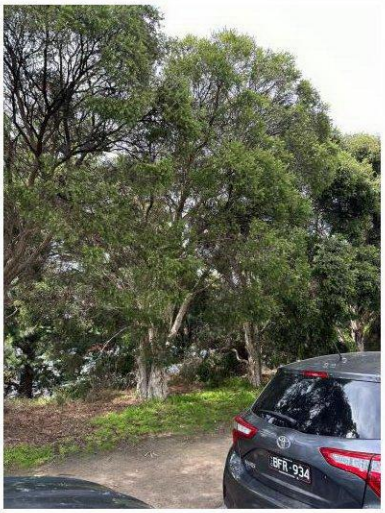

*Figure 27 Tree 25*

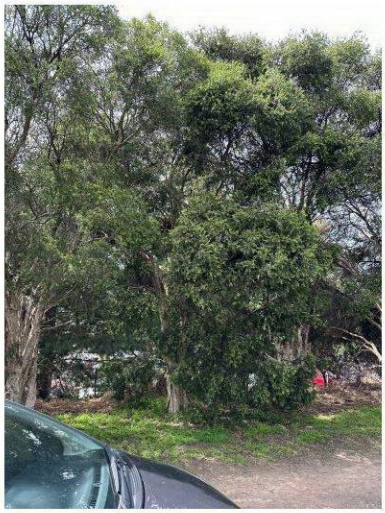

*Figure 28 Tree 26*

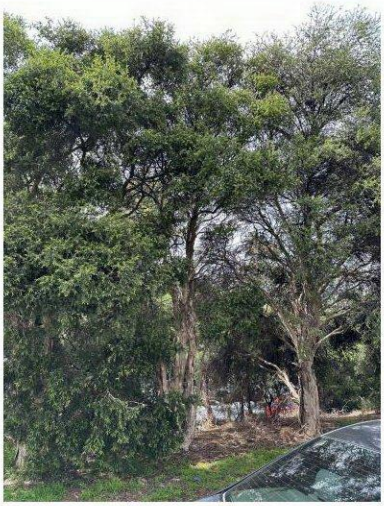

*Figure 29 Tree 27 and 28*

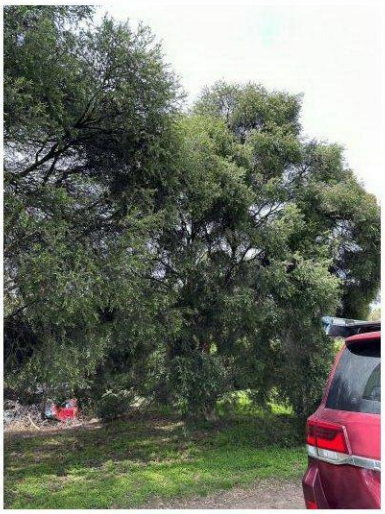

*Figure 30 Tree 29*

*Figure 31 Tree 30*

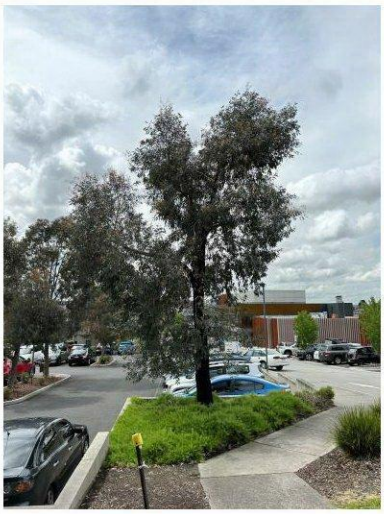

*Figure 32 Tree 31*

*Figure 33 Example of minor insignificant vegetation*

## 5.2 APPENDIX 2 DATA DESCRIPTORS, DEFINITIONS AND CRITERIA

### Origin

**Indigenous** – Known to occur naturally in the local area of the subject site.

**Vic native** – Species that occur naturally in Victoria (may include the subject site location).

**Native** – Species that occur naturally in other states of Australia, but not Victoria.

**Exotic** – Species that do not occur naturally in Australia.

### Health ratings

**Dead** – Tree is completely dead, non-functional crown (no green leaves), stem cambium completely dead, no evidence of root suckers or sprouts.

**Poor** – Tree is presenting large quantities of crown dieback and/or major crown thinning. Persistent infections of pathogens, insect borers, fungal cankers and root disease may be present. Irreversible condition, any treatments may only be temporary to achieve hazard reduction prior to tree removal.

**Fair** – Tree is presenting symptoms of stress that may be due to seasonal biotic or abiotic conditions e.g. water stress or seasonal defoliators. The symptoms may include tip dieback, crown thinning, defoliation, leaf discoloration, reduced leaf and/or internode length. The condition may be reversible.

**Good** – Tree is generally free of pest and disease symptoms; any biotic or abiotic stress is not present over more than 10% of the tree parts concerned. Internode length may be variable but generally consistent in length for the last two annual increments.

**Excellent** – Tree is completely free from evidence of pest or disease organisms. Tree is exhibiting no signs of abiotic stress such as tip dieback or loss of foliage. Growth is of typical colouration, size and quantity for that species at that location. Internode length is consistent or increasing in length from previous two increments. The tree crown appears complete and balanced.

### Structure ratings

**Very poor** – Tree has pronounced structural weakness that may be due to poor growth development, advanced fungal decay, multiple previous failures within crown, and/or mechanical damage. Tree is presenting symptoms of instability and possible imminent structural failure of major structural component(s).

**Poor** – Tree has structural weakness that may be due to poor growth development, fungal decay, mechanical damage, including past pruning or a combination of these, but is not at this time presenting signs of imminent structural failure of major structural components.

**Fair** – Tree has some structural weakness but failure of which is not a major structural component and does not present any signs of potential imminent failure. Fungal degradation was not observed in any structurally significant component.

**Good** – Tree does not appear to have any obvious, notable structural defects, signs of structural distress or indicators of fungal decay.

## Age classifications

**Juvenile** – Young trees that are yet to reach one third of their expected size, generally less than 10 years old.
**Reformed** – Trees which have previously been cut to a stump and allowed to regrow.
**Semi-mature** – Trees which have reached approximately half of their expected size and are less than one third of the way through their expected lifespan; species and location considered.
**Mature** – Trees which have reached two thirds of their expected size or more and are approximately two thirds or more of the way through their expected lifespan; species and location considered.
**Senescent** – Trees which have over matured within the surrounding landscape and present in a state of irreversible health and/or structural decline.
**Dead** – Trees with a non-functional crown (no green leaves), stem cambium completely dead, no evidence of root suckers or sprouts.

## Retention value

**Low retention value** – Trees that offer little opportunity of contributing to the future site for reasons of health or structural condition, low horticultural value of the species, inaptness in relation to unacceptable growth habit, noxious or invasive weed species or a combination of these characteristics. Juvenile and semi-mature trees which could be readily replaced may also be placed in this category.

Low retention value trees should be considered for removal prior to development works proceeding. Trees of low retention value should place no restraints on proposed designs.

**Moderate retention value** – Trees offering some beneficial attributes that may enhance the site or local environment in relation to botanical, historical or local significance, but may be limited to some degree by their current health condition, structural condition, species traits or ULE.

Moderate retention value trees should be considered for retention where possible within the development design, but not necessarily to the detriment of the design. Arboricultural works or alternate construction techniques within practical limits may be utilized to allow construction to proceed with the retention of moderate retention value tree/s.

**High retention value** – Trees with potential to positively contribute to the future site or local environment due to their botanical, historical or local significance in combination with good characteristics of health and structure, ULE of >30 yrs. Significant remnant specimens may also be placed in this category regardless of health and structure.

High retention value trees should be considered for retention and be incorporated into the design layout. All avenues of tree protection and alternative construction techniques that will allow for tree retention should be investigated.

**Third-party** – Trees located within adjoining properties or Council owned land adjacent to the subject site. Third-party trees must be protected from major physical injury, or where appropriate permission may be sought to alter or replace the tree(s).

Useful Life Expectancy – ULE

(Adapted from Barrell 2001)

**30+ years/long:** *Trees that appear to be retainable in the current landscape for more than 30 years.*

1. Structurally sound trees located in positions that can accommodate future growth.
2. Minimally defective trees that could be made suitable for retention in the long term by remedial arboricultural practices and maintenance.
3. Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

**15-30 years/Medium:** *Trees that appear to be retainable in the current landscape for 15 to 30 years.*

1. Trees that may only live between 15 and 30 years.
2. Trees that may live for more than 30 years but would be removed to allow for new plantings.
3. Trees that may live for more than 30 years but would be removed during the course of normal management for safety or nuisance reasons.
4. Minimally defective trees that can be made suitable for retention in the medium term by remedial arboricultural practices and maintenance.

**5-15 years/Short:** *Trees that appear to be retainable in the current landscape for 5 to 15 years.*

1. Trees that may only live for 5 to 15 years.
2. Trees that may live for more than 15 years but would be removed to allow for new plantings.
3. Trees that may live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons.
4. Defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.

**<5 years/Remove:** *Trees requiring immediate removal or trees that should be removed within 5 years.*

1. Dead trees.
2. Declining trees through disease or inhospitable conditions.
3. Dangerous trees through instability or recent loss of adjacent trees.
4. Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor structure.
5. Damaged trees that are considered unsafe to retain.
6. Trees that are listed as noxious weeds at the subject site location.
7. Trees conflicting with structures, underground utilities or hard surfaces that cannot easily be remedied through engineering solutions.

**N/A:** *Small, young or regularly pruned trees of low retention value.*

1. Trees that can be reliably moved or replaced.
2. Small trees less than 5m in height.
3. Young trees less than 15 years old but over 5m in height.
4. Trees intended for regular pruning to artificially control growth.

## 5.3 REFERENCES

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