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Arborist Report

21 Laurel Grove North Blackburn, 3130

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Client	Effie Yuan
Client Address	Level 15, 333 Collins Street, Melbourne VIC 3000
Site Address	21 laurel Grove North, Blackburn, 3130
Document Type	Arborist report – Tree assessment & recommendations.
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1. Contents

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2. Introduction

I was originally contacted by Ms. Effie Yuan of Mushan Property and Construction group in regard to providing an Arborist report for this site. A preliminary arborist report was prepared and I have subsequently been asked by Lun Cang to survey the trees in adjoining properties that may be potentially affected by any proposed development at this address. I have been asked to carry out a site assessment of trees on the site and adjoining the site and provide a preliminary arborist report for these trees. As part of my report I have assessed the health and condition of all of these trees, as well as considering the likely impact of the proposed extension on their health. I have included recommendations with this report on how potential damage to the surrounding trees from the proposed works can be minimized.

The site is within the local government area of Whitehorse, it is within a Neighbourhood Residential Zone (NRZ1), the site is covered by a significant landscape overlay (SLO1), and this states that a permit is required to remove, destroy or lop a tree. This does not apply to:

- A tree having a single trunk circumference of 0.5 metre or less at a height of one metre above ground level.

This report was amended to include an arboricultural impact assessment following the finalization of the proposed plans for the site. The report has been amended further to include additional trees located in Neighbouring properties

This report is a preliminary arboricultural report and an arboricultural impact assessment, AS4970-2009: Protection of trees on development sites states that "*tree protection is most effective when considered at the earliest stage of development planning. The process will require reports at different stages. The most crucial reports are the Preliminary Arboricultural Report and the Arboricultural Impact Assessment. The preliminary report is not intended to be the comprehensive tree protection report. This information is to be used by planners, architects and designers, in conjunction with any planning controls and other legislation, to develop the design layout in such a way that trees selected for retention are provided with enough space*" *(AS4970-2009).*

The preliminary arborist report is intended to provide detailed advice on the nature of trees on the site, this includes basic tree information (name, species, health, condition, structure, size, age class, safe useful life expectancy, trunk diameter at breast height and ground level, tree protection zone and structural root zone) as well as significance and suitability for retention (rated as low, moderate and high). Evaluating a tree's suitability for retention is a critical part of the preliminary arborist report and should occur early in the planning process. An assessment of suitability for retention considers tree health, structure, size, environmental and habitat value, landscape value (aesthetic and streetscape value) age and longevity, and species factors, it also

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considers potential constraints on retaining trees and the potential design modifications required to accommodate a tree on the site.

A site visit and on-site assessment was carried out on 30th May 2015 and also on the 11th November 2015, and assessed the health, condition and safety of the trees in question. A further site visit was carried out on 18th August following a request from Council's arborist to include an additional ten trees located in neighbouring properties with this report. Recommendations are outlined in section 5 of this report. A detailed list of the surveyed trees is provided in Appendix 2 of this report. A site plan is included which identifies and shows the location of the trees concerned, however it should be noted that this plan is intended as a guide only and is not drawn to scale. I have also attached photographs of the trees.

3. Methodology

The trees were assessed using the standard Visual Tree Assessment technique (VTA). The trees were assessed from the ground for the purpose of this report. VTA is an internationally recognised practice in the visual assessment of trees as formulated by Mattheck & Breloer (1994).

A Yama 20m diameter tape was used to obtain the Diameter at breast height (DBH) at 1.4 metres above ground level. The height was measured using a Suunto clinometer, the spread of the tree's canopy was paced out.

The ULE rating system has been used as a guide to assist in determining the Safe Useful Life Expectancy of the tree surveyed. Refer to Appendix 1.

Reference was made to the City of Whitehorse's Planning Scheme at Victoria's Planning Scheme's online (www.dse.vic.gov.au/planningschemes) and the Victorian government online Property Reports at: www.land.vic.gov.au.

4. Discussion

The site is a large sized block which is located in a medium density residential area. The site is level and has a westerly orientation. The site is heavily vegetated and contains a number of mostly medium to large sized trees. These are a mixture of introduced, Australian native, indigenous and environmental weed species. The trees vary significantly in their health and condition. The majority of trees on site are in average to good health and condition. There are a number of trees that are in poor health and have poor trunk and branch structure. The site has been over-planted with too many large growing, canopy trees this is resulting in many trees developing misshapen and poorly formed canopies as a result of overshadowing, competition and suppression from adjacent trees. Removal of trees that have poor health and/or trunk and branch structure will assist with reducing some of the over-planting on site, there

will need to be further trees removed in order to allow for the development of the remaining canopy trees on site. These trees should not be replaced with similarly sized replacement species, consideration could be given to replacing them with either smaller growing trees, or with understory species.

Tree group 1 (TG1) and 2 (TG2) are both located outside this property and contain a mixture of species, the trees/shrubs vary significantly in their health and condition as well as size and maturity. These are council managed trees, some of these trees/shrubs are in poor health and condition some are also obstructing access to the site from Laurel grove. I am recommending contacting Council to request that the trees/shrubs be inspected so that any required maintenance and/or tree removal can be scheduled. There is one tree/shrub in TG2 that will be directly affected by the proposed new crossover. The tree/shrub concerned is a small Wattle (*Acacia sp.*) that has poor trunk and branch structure, I am recommending that this could be removed and replaced to allow for the proposed new crossover.

Tree numbers 1-23 are all located at the front of the property. Tree numbers 2, 3, 4, 5, 6, 8, 11, 12, 17, 20 and 21 all have low retention value due to their small size, poor health and/or trunk and branch structure or that they are an environmental weed. Tree numbers 9, 13, 14, 18, 19, 22 and 23 all have low to moderate retention value, this is also due to their small size, poor health and/or trunk and branch structure.

Tree numbers 4, 13, 14, 17 and 22 are to be removed and replaced as part of the proposed development, whilst tree numbers 1, 2, 3, 5, 6, 8, 9, 11, 12, 18, 19, 20, 21 and 23 are to be retained and incorporated into the proposed development. Tree numbers 1, 7, 10, 15 and 16 have moderate retention value, these trees will also be retained and incorporated into the proposed development.

Tree numbers 1, 2, 3, 5, 6, 7, 8, 9, 10 and 11 will all be directly affected by the proposed development as the proposed new driveway will intrude into their tree protection zone (TPZ) and in the case of trees 2, 3, 5, 6, 7, 8, 9 and 11 into their structural root zone (SRZ) as well. This is a major intrusion (>10%) and I am recommending that specific (see below) and basic tree protection measures are implemented for these trees. Tree number 11 is proposed to be retained however I am recommending that this tree is removed and replaced as it has low retention value and by removing this tree it will allow for the proposed driveway to be moved further from trees 1, 2, 3, 5, 6, 7, 8 and 9.

Tree numbers 12, 15, 16, 18, 19, 20, 21 and 23 will be retained and incorporated into the proposed development, with the exception of tree numbers 15 and 20 these trees will not be directly affected by the proposed development as the proposal will not intrude into their TPZ. Provided that basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development. Tree numbers 15 and 20 will be directly affected by the proposed development as the proposal will intrude into the TPZ of these trees, this is a minor intrusion (≤10%) and provided that basic tree protection measures are implemented

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there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 24-51 are all located at the rear of the property. Tree numbers 24, 28, 29, 30, 32, 33, 36, 37, 39, 40, 41, 43, 48, 49 and 50 all have low retention value due to their small size, poor health and/or trunk and branch structure or that they are an environmental weed. Tree numbers 26, 31 and 44 all have low to moderate retention value, this is due to their average to poor health and/or trunk and branch structure.

Tree numbers 24, 28, 31, 32, 33, 35, 36, 37, 38, 39, 40 and 41 are all proposed to be removed and replaced as part of the proposed development, with the exception of tree number 38 these trees all have low to moderate retention value. Tree number 38 has moderate retention value, however its removal will be more than offset by the retention of numerous other mature, canopy trees on the site. I am recommending that these trees are removed and replaced to allow for the proposed development.

Tree numbers 25, 27, 34, 35, 38, 42, 45, 46, 47 and 51 have moderate to high retention value, with the exception of tree number 38 these trees will be retained and incorporated into the proposed development. With the exception of tree numbers 25 and 27 these trees will not be directly affected by the proposed development as the proposal will not intrude into their TPZ. Provided that basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development. Tree numbers 25 and 27 will be directly affected by the proposed development as the proposal will intrude into the TPZ of these trees, this is a minor intrusion (≤10%) and provided that basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62 and 63 are all located in neighbouring properties. With the exception of tree numbers 52, 58, 62, 63, 64 and 65 these trees will not be directly affected by the proposed development. Provided that basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 52, 58, 62 and 64 will be directly affected by the proposed development, this is a minor intrusion (>10%) and provided that basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 63 and 65 will also be directly affected by the proposed development, this is a major intrusion and I am recommending that both specific and basic tree protection measures are implemented in regards to these trees. Provided that these tree protection measures can be implemented there should be no adverse impacts on the health of these trees from the proposed development.

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5. Recommendations

This is a large site, which is heavily vegetated with many large growing, canopy species. This has resulted in over-crowing on the site and led the development of trees with poorly developed and at times misshapen canopies. I am recommending that tree numbers 4, 11, 13, 14, 17, 22, 24, 28, 31, 32, 33, 35, 36, 37, 38, 39, 40 and 41 are removed and replaced with suitable replacement species (see Appendix 3 – Assessment of trees for individual recommendations). Replacement trees should not be similarly sized, canopy trees as the trees to be retained on site are sufficient canopy trees for the site, they should be smaller growing species and in some cases understory species could be used.

Tree numbers 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 15, 16, 18, 19, 20, 21, 23, 25, 27, 34, 35, 42, 45, 46, 47 and 51 are to be retained and incorporated into the proposed development, with the exception of tree numbers 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 15, 20, 25 and 27 these trees will not be directly affected by the proposed development. Provided that basic tree protection measures (see below) are implemented there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 1, 2, 3, 5, 6, 7, 8, 9, 10, 15, 20, 25 and 27 will be directly affected by the proposed development, with the exception of tree numbers 1, 2, 3, 5, 6, 7, 8 and 9 this is a minor intrusion (≤10%) and provided that basic tree protection measures (see below) are implemented there should be no adverse impacts on the health of these trees from the proposed development.

The intrusion into the TPZ of tree numbers 1, 2, 3, 5, 6, 7, 8 and 9 is major (>10%) and I am recommending that the following specific tree protection measures will need to be implemented in regard to these trees:

- The vehicle access will need to be constructed over the tree's root system with **no** excavation within the TPZ of this tree (see diagram below).
- The vehicle access way is to be constructed with a flexible, permeable base and using pavers (see diagram below).
- Within the tree's TPZ a layer of washed sand and/or a geotextile material is to be laid first directly over the tree's root zone; the layer of crushed rock is to be laid over this.
- Only the crushed rock is to be compacted, there is to be no compaction of the existing soil with the TPZ of this tree.
- The driveway base (i.e. sand and/or geotextile and crushed rock) is to be laid over the tree's TPZ prior to any construction work commencing on site.

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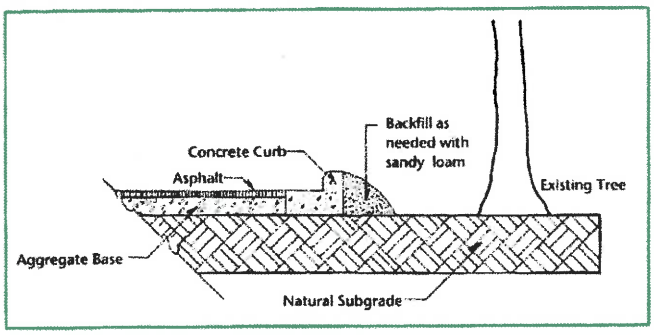

Cross-section of a 'no-dig' type of pavement places the pavement section atop natural grade thereby minimising root disturbance and soil compaction. Extra reinforcement in the pavement and the use of a geotextile under the base material may be needed to increase the stability of the pavement.

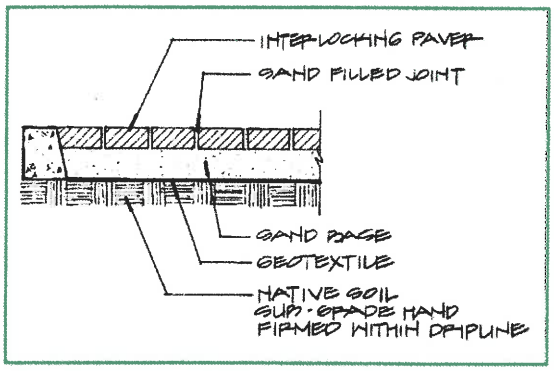

FIGURE 8.4 Brick or interlocking pavers on sand often are recommended as pervious paving. Use of geotextile under the sand and hand-firmed subgrade can minimize root impacts.

Tree numbers 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64 and 65 are all located in adjoining properties. With the exception of tree numbers 52, 58, 62, 63, 64 and 65 these trees will not be directly affected by the proposed development at this address, provided that basic tree protection measures (see below) are implemented there should be no adverse impact on the health of these trees from the proposed development. Tree numbers 52, 58, 62, 63, 64 and 65 will be directly affected by the proposed development as the proposed driveway will intrude into their TPZ's. With the exception of tree numbers 63 and 65 this is a minor intrusion (>10%) and provided that basic tree protection measures (see below) are implemented there should be no adverse impacts on the health of these trees from the proposed development.

Tree numbers 63 and 65 will also be directly affected by the proposed new driveway, this is a major intrusion and I am recommending that both specific (see above) and basic tree protection measures (see below) are implemented in regards to these trees. Provided that these tree protection measures can be implemented there should be no adverse impacts on the health of these trees from the proposed development.

The remaining trees included in this report are the street trees (TG1 and TG2) located in Laurel Street, with the exception of one tree/shrub these tree groups will not be directly affected by the proposal. Provided that the proposal is amended and that specific and basic tree protection measures are implemented there should be no adverse impacts on the health of these trees from the proposed development. I am recommending that the small Wattle tree which is part of TG1 and is directly affected by the proposed new crossover is removed and replaced to allow for the proposed crossover.

In addition to the specified tree protection measures I am also recommending that a tree management plan (TMP) be developed for this site due to the large number of trees that are to be retained on site. The TMP should be prepared by a suitably qualified and experienced consultant arborist (AQF level 5).

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The TMP should address the following:

1. A tree protection plan to scale is to be submitted along with the tree management plan that is to show:
    a. All tree protection zones and structural root zones;
    b. Fencing of tree protection areas and areas where ground protection systems will be used;
2. The type of footings within the tree protection zone;
3. All services to be located within the tree protection zone and how such services will be constructed;
4. Plans are to be notated specifying what actions are required within the tree protection zone.
5. Details of how the root system of any tree to be retained will be managed. This must detail any initial non-destructive trenching and pruning of any roots required to be undertaken by the project arborist.
6. Details for arranging site inspection by with Council's Arborist, who is to be present to supervise any root excavation within the tree protection zones in relation to Tree numbers 4, 9, 10, 17 and 24.
7. Supervision timetable and certification of tree management activities required by the Project Arborist to the satisfaction of the responsible authority.
8. Any remedial pruning works that are required to be performed on the trees on site. The pruning comments must reference Australian Standards 4373:2007, Pruning of Amenity Trees and accompanied

6. Tree Protection Measures

The following basic tree protection measures will need to be implemented prior to any work commencing on site and remain in place for the duration of the work

1. Before commencing work on site the contractor is required to meet with the consultant arborist to review all work procedures, access routes, storage areas and tree protection measures.
2. Temporary protective fencing to a minimum height of 1.8m must be erected along the perimeter of the TPZ (or modified TPZ) for any trees that are to be retained on the site. Prior to any machinery or materials being brought on site and before any works including demolition commences.
3. Once erected protective fencing must not be removed or altered without approval from the project arborist.
4. Protective fencing needs to be in accordance with AS 4687. Signs identifying the TPZ should be placed around the protective fencing.
5. Construction vehicles and storage areas must remain outside fenced areas

at all times.

6. In the event that tree roots are encountered or damaged during construction they need to be cut cleanly to sound tissue with sharp secateurs or a pruning saw.
7. Surplus construction materials (e.g. soil, cement, base rock etc.) are not to be stored or allowed to remain inside the trees' TPZ.
8. Additional tree pruning required during construction must be carried out by an appropriately qualified contractor and in accordance with Australian Standards 4373: 2007, Pruning of Amenity Trees and not by construction personnel.
9. All underground services including drainage and irrigation must be routed outside of trees' TPZs, if this is not possible excavation is to be carried out by tunneling or boring beneath the tree protection zone.
10. Trees retained on site are to be regularly watered (minimum weekly) during periods of dry conditions within the tree protection zone.
11. If trees are damaged during construction it should be evaluated as soon as possible by the project arborist so that appropriate treatments can be applied.
12. Erosion control such as silt fencing, debris basins and water diversion methods shall be installed to prevent siltation and/or erosion within the tree protection zone.
13. If temporary access roads must pass over the root areas (TPZ) of trees to be retained a road bed of 150mm of mulch or crushed rock shall be created to prevent soil compaction within the tree's root area. The road bed material shall be maintained to a depth of 150mm throughout construction.
14. Once construction is completed all foreign (non-organic) debris needs to be removed from within the tree protection zone.

Specific Tree Protection Requirements

Demolition and site clearing

Site clearing has the potential to cause significant damage to any trees to be retained on site or trees that are located in adjoining properties through disturbance to the soil, changes in soil gradients, soil compaction and physical destruction of tree roots from excavation and scraping.

Tree protection measures (see below) need to be implement prior to any site clearing and demolition works commencing. Where site clearing intrudes into the TPZ of trees to be retained and/or trees in neighbouring properties care must be taken to prevent any unnecessary damage to trees and tree roots.

Once demolition and site clearing work has been completed temporary protective fencing will need to be installed on site around the modified TPZ of this tree.

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Specific Tree Protection Requirements – Landscaping works

Landscaping works (installation of paving, rainwater tanks, storage areas, fencing, irrigation systems, planting etc.) will intrude into the TPZ of these trees. There is to be no excavation within the TPZ of these trees for any of the planned landscaping works, all construction (i.e. installation of paving, rainwater tanks, irrigation systems, storage areas etc.) are to be above the natural soil level i.e. above grade.

7. Suggested Replacement Species

Possible replacement tree species could include (selection and placement of trees will need to take into consideration the eventual size of the trees when mature):

- Blackwood (*Acacia melanoxylon*)
- Apple Myrtle (*Angophora costata 'Little Gumball'*)
- Black Sheoak (*Allocasuarina littoralis*)
- Burgan (*Kunzea sp.*)
- Silver leaf Banksia (*Banksia marginata*)
- Dwarf Apple Myrtle (*Angophora costata 'Little Gumball'*)
- Dwarf Yellow Bloodwood (*Corymbia eximia nana*)
- Silver Birch (*Betula pendula*)

Replacement trees should be sourced from a reputable nursery with care taken to ensure that they are in good health, free of structural defects and pests and diseases. They should be advanced grown specimens that are a minimum 1.5 metres in height. When planting advanced grown trees it is important that they are planted correctly, staked to provide additional support and provided with adequate aftercare to ensure that they become established (the plant supplier should be able to help with planting and establishment guidelines).

Please do not hesitate to call 0425 879 811 if you have any questions regarding the contents or recommendations provided in this report.

Sincerely

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Disclaimer

All trees have been assessed based on the information and facts of the site and as presented by the client or relevant parties at the time of inspection. No responsibility can be taken for incorrect or misleading information provided by the client or other parties.

The nominated tree/s are assessed for biological requirements and hazard potential with reasonable care. The trees are assessed from the ground and by visual means only unless otherwise stated. All tree protection and tree preservation measures are designed to minimise the damage to the tree/s or to reduce the hazard potential of the tree/s. Trees are inherently dangerous, therefore will always have a hazard potential.

Trees fail in ways that are not predictable or fully understood. There is no guarantee expressed or implied that failure or deficiencies may not arise of the subject trees in the future. No responsibility is accepted for damage to property or injury/death caused by the nominated tree/s.

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Appendix 1 – Tree Assessment Criteria

1. Height describes the height of the tree in metres from ground level.

2. Trunk diameter (DBH) is calculated from the measured trunk circumference at 1.4m above ground level or at an alternative location if required (in accordance with AS 4970-2009).

3. Canopy spread describes the crown spread across the widest point.

4. Estimated age class is the tree's relative age to its species and is expressed as - Young (the first one third of the estimated life expectancy), Semi Mature (the second third of the estimated life expectancy), or Mature (the last third of the estimated life expectancy).

5. Safe useful life expectancy (SULE) – see appendix 2.

6. Tree protection zone (TPZ) is the principal means of protecting trees on a development site. The TPZ is a combination of the root area and the crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. The radius of the TPZ is calculated for each tree by multiplying its DBH x 12, the TPZ radius is measured from the centre of the stem at ground level. A TPZ should not be less than 2m nor greater than 15m (except where crown protection is required).

7. Structural root zone (SRZ) is the area required for tree stability. A larger area is required to maintain tree health.

8. Retention value is adapted from BS5837:2005 – Cascade chart for tree quality assessment. The retention value is applied to the tree in the context of the proposed land use.

High retention value

High ranked trees would meet one or more of the following criteria:

- Trees in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
- Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).
- Trees of particular visual importance (e.g. avenues or other arboricultural features assessed as groups).

- Trees of significant historical, commemorative or other value (e.g. veteran trees).

Moderate retention value

- Moderate ranked trees would meet one or more of the following criteria:
- Trees in such a condition as to make a significant contribution (a minimum of 20 years is suggested).
- Trees that might be included in the high category, but may be downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).
- Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality.

Low retention value

- Trees currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm.
- Low category trees will usually not be retained where they would impose a significant constraint on development. However, young trees with a stem diameter of less than 150 mm could be considered for relocation.

Remove/None

- Trees ranked for removal/no retention value would meet one or more of the following criteria:
- Trees in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.
- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).
- Trees that have a serious hazard potential (this may consider the context of any proposed development).
- Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.
- Trees that are environmental weeds.

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Appendix 2 - U.L.E Categories

Long U.L.E- the tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:

Structurally sound trees located in positions that can accommodate future growth.
Trees which could be made suitable for long term retention by remedial care.
Trees of special significance, which would warrant extraordinary efforts to secure their long term retention.

Medium U.L.E- the tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:

Trees which may only live from 15-40 years.
Trees that may live for more than 40 years, but may be removed for safety or nuisance reasons.
Trees which may live for more than 40 years, but would be removed to prevent interference with more suitable individuals or to provide space for new plantings.
Trees which could be made suitable for retention in the medium term with remedial care.

Short U.L.E- trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable degree of risk, assuming reasonable maintenance:

Trees which may only live from 5 to 15 years.
Trees that may live for more than 15 years, but may be removed for safety or nuisance reasons.
Trees which may live for more than 15 years, but would be removed to prevent interference with more suitable individuals or to provide space for new plantings.
Trees which require substantial remediation and are only suitable for retention in the short term.

Removal- Tree which should be removed within the next 5 years.

Dead, dying suppressed or declining trees
Dangerous trees through instability or recent loss of adjacent trees.
Dangerous trees because of structural defects including cavities, decay included bark, wounds or poor form.
Damaged trees that are clearly not safe to retain.

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Trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new plantings.
Trees which are damaging or may cause damage to existing structures within the next 5 years.
Trees that will become dangerous after the removal of other trees for the reasons given in (A) to (F).
Trees in categories (A) to (G) that have a high wild life habitat value and with appropriate treatment could be retained subject to regular review.

Small, young or regularly pruned- Trees that can be reliably moved or replaced.

Small trees less than 5m in height.
Young trees less than 15 years old but over 5m in height.
Formal hedges and trees intended for regular pruning to artificially control growth

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Appendix 3 – Tree Species

Tree Number	Common Name	Species	Height	Trunk Diameter DBH	Canopy Spread	Estimated age class	U.L.E.	Tree Protection Zone (TPZ)	Structural root zone (SRZ)	Retention Value	Observations and comments
TG1	Various	*Various*	8m	27cm	4-6m	Mature	Short-Medium	3.24 metres	2.05 metres	Moderate	Street trees, no intrusion from proposed development implement basic tree protection measures.
TG2	Various	*Various*	4-8m	27cm	2-6m	Mature	Short-Medium	3.24 metres	1.97 metres	Moderate	Street trees, with exception of 1 tree/shrub (see discussion) no intrusion from proposed development implement basic tree protection measures.
1	Spotted Gum	*Corymbia maculata*	14m	26cm	6m	Mature	Medium	3.12 metres	2.18 metres	Moderate	Retain tree, major intrusion (30%) from proposed development, implement specific and basic tree protection measures.
2	Prickly leaf Paperbark	*Melaleuca stypheloides*	14m	41cm	8m	Mature	Short	4.92 metres	2.34 metres	Low	Retain tree, major intrusion (44%) from proposed development, implement specific and basic tree protection measures.
3	Narrow leaf Paperbark	*Melaleuca linariifolia*	8m	17cm	6m	Mature	Short	2.04 metres	1.72 metres	Low	Retain tree, major intrusion (35%) from proposed development, implement specific and basic tree protection measures.
4	Yellow Box	*Eucalyptus meliodora*	16m	34cm	4m	Mature	Short	4.08 metres	2.2 metres	Low	Tree has poor health & trunk and branch structure, remove and replace.

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5	Cedar Wattle	*Acacia elata*	10m	22cm	8m	Mature	Short	2.64 metres	1.94 metres	Low	Retain tree, major intrusion (38%) from proposed development, implement specific and basic tree protection measures.
6	Narrow leaf Paperbark	*Melaleuca linariifolia*	5m	17cm	4m	Mature	Medium	2.04 metres	1.68 metres	Low	Retain tree, major intrusion (35%) from proposed development, implement specific and basic tree protection measures.
7	Spotted Gum	*Corymbia maculata*	18m	34cm	6m	Mature	Medium	4.08 metres	2.34 metres	Moderate	Retain tree, major intrusion (29%) from proposed development, implement specific and basic tree protection measures.
8	Forest Sheoak	*Allocasuarina torulosa*	9m	14cm	4m	Semi-mature	Medium	2 metres	1.61 metres	Low	Retain tree, major intrusion (28%) from proposed development, implement specific and basic tree protection measures.
9	Spotted Gum	*Corymbia maculata*	17m	26cm	6m	Mature	Medium	3.12 metres	2.2 metres	Low	Retain tree, major intrusion (30%), implement specific and basic tree protection measures.
10	Spotted Gum	*Corymbia maculata*	17m	26cm	6m	Mature	Medium	3.12 metres	2.2 metres	Moderate	Retain tree, minor intrusion (6%) from proposed development, implement basic tree protection measures.
11	Ovens Wattle	*Acacia pravissima*	8m	17cm	4m	Semi-mature	Medium	2.04 metres	1.61 metres	Low	Tree has low retention value and could be removed and replaced.
12	Sweet Pittosporum	*Pittosporum undulatum*	8m	15cm	4m	Mature	Medium	2 metres	1.57 metres	Low	Environmental weed remove and replace.

13	Yellow Box	*Eucalyptus meliodora*	17m	24cm	6m	Mature	Medium	2.88 metres	2.1 metres	Low to moderate	Tree has poorly developed canopy due to suppression, remove and replace.
14	Red Ironbark	*Eucalyptus sideroxylon*	18m	26cm	6m	Mature	Medium	3.12 metres	2.08 metres	Low to moderate	Tree has poorly developed canopy due to suppression, remove and replace.
15	Lemon Scented Gum	*Corymbia citriodora*	18m	33cm	8m	Mature	Medium	3.96 metres	2.18 metres	Moderate	Retain tree, minor intrusion (2%) from proposed development, implement basic tree protection measures.
16	Sydney Blue Gum	*Eucalyptus saligna*	24m	58cm	14m	Mature	Medium	6.96 metres	3.06 metres	Moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
17	Lemon scented Tea Tree	*Leptospernum patersonii*	5m	13cm	4m	Mature	Medium	2.04 metres	1.57 metres	Low	Tree has low retention value and could be removed and replaced.
18	Blueberry Ash	*Elaeocarpus reticulatus*	7m	15cm	4m	Mature	Medium	2.04 metres	1.57 metres	Low	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
19	Lemon Scented Gum	*Corymbia citriodora*	12m	25cm	5m	Mature	Medium	3 metres	2.3 metres	Low to moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
20	Forest Sheoak	*Allocasuarina torulosa*	13m	35cm	6m	Mature	Remove	4.2 metres	2.49 metres	Low	Retain tree, minor intrusion (6%) from proposed development, implement basic tree protection measures.
21	Forest Sheoak	*Allocasuarina torulosa*	10m	20cm	4m	Mature	Medium	2.4 metres	1.88 metres	Low	Retain tree, no intrusion from proposed development, implement basic tree protection measures.

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22	European Beech	*Fagus sylvatica*	8m	37cm	10m	Mature	Short	4.44 metres	2.23 metres	Low to moderate	Tree has average health & trunk and branch structure, remove and replace.
23	Spotted Gum	*Corymbia maculata*	14m	19cm	6m	Mature	Medium	2.28 metres	1.79 metres	Low to moderate	Tree is to be removed and replaced as part of the proposed development.
24	Sweet Pittosporum	*Pittosporum undulatum*	14m	18cm	6m	Mature	Medium	2.16 metres	2.1 metres	Low	Environmental weed remove and replace.
25	Yellow Box	*Eucalyptus meliodora*	18m	37cm	6m	Mature	Medium	4.44 metres	2.3 metres	Moderate	Retain tree, minor intrusion (8.5%) from proposed development, implement basic tree protection measures.
26	Red Box	*Eucalyptus polyanthemos*	15m	23cm	4m	Mature	Medium	2.76 metres	2.08 metres	Low to moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
27	Red Box	*Eucalyptus polyanthemos*	24m	59cm	10m	Mature	Medium	9.72 metres	3.03 metres	Moderate	Retain tree, minor intrusion (9.1%) from proposed development, implement basic tree protection measures. **This tree has cable bracing and requires ongoing aerial inspections & maintenance.**
28	Swamp Gum	*Eucalyptus ovata*	27m	58cm	9m	Mature	Short	7.44 metres	2.71 metres	Low	Tree has poor trunk and branch structure, remove and replace.
29	Yellow Box	*Eucalyptus meliodora*	11m	17cm	4m	Mature	Short	2.04 metres	1.72 metres	Low	Tree is to be removed and replaced as part of the proposed development.
30	Sugar Gum	*Eucalyptus cladocalyx*	27m	34cm	4m	Mature	Short	4.08 metres	2.28 metres	Low	Tree has poor trunk and branch structure, remove and replace.

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31	Queensland Frangipani	*Hymenosporum flavum*	8m	10cm	4m	Semi-mature	Medium	2 metres	1.5 metres	Low to Moderate	Remove and replace.
32	Red Ironbark	*Eucalyptus sideroxylon*	14m	27cm	6m	Mature	Remove	3.24 metres	2.1 metres	Low	Tree is dead, remove and replace.
33	Lemon Scented Gum	*Corymbia citriodora*	14m	27cm	6m	Mature	Remove	3.24 metres	2.1 metres	Low	Tree is in poor health, remove and replace.
34	Spotted Gum	*Corymbia maculata*	20m	34cm	12m	Mature	Medium	4.08 metres	2.34 metres	Moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
35	Himalayan Cedar	*Cedrus deodara*	24m	43cm	10m	Mature	Medium	5.16 metres	2.55 metres	High	Remove and replace to allow for proposed development.
36	Swamp Gum	*Eucalyptus ovata*	24m	29cm	4m	Mature	Remove	3.48 metres	2.57 metres	Low	Tree has poor health and trunk and branch structure, remove and replace.
37	Purple leaf Cherry	*Prunus cerasifera 'Nigra'*	4m	Could not measure	4m	Mature	Short	2 metres	1.5 metres	Low	Tree has low retention value and could be removed and replaced.
38	Spotted Gum	*Corymbia maculata*	27m	44cm	8m	Mature	Medium	5.28 metres	2.55 metres	Moderate	Remove and replace to allow for proposed development.
39	Lemon Scented Gum	*Corymbia citriodora*	16m	15cm	2m	Semi-mature	Medium	2 metres	1.61 metres	Low	Tree has poorly developed canopy due to suppression, remove and replace.
40	Yellow Box	*Eucalyptus meliodora*	14m	23cm	6m	Mature	Medium	2.76 metres	1.85 metres	Low	Tree has poor trunk and branch structure, remove and replace.
41	Purple leaf Cherry	*Prunus cerasifera 'Nigra'*	4m	Could not measure	6m	Mature	Remove	2 metres	2.05 metres	Low	Tree is dead, remove and replace.
42	Apple Myrtle	*Angophora costata*	14m	27cm	8m	Mature	Long	3.24 metres	2.1 metres	Moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.

43	Long leaved Box	*Eucalyptus goniocalyx*	16m	33cm	9m	Mature	Short	3.96 metres	2.2 metres	Low	Tree is to be removed and replaced as part of the proposed development.
44	Yellow Box	*Eucalyptus meliodora*	26m	44cm	8m	Mature	Short	5.28 metres	2.55 metres	Low to moderate	Tree is to be removed and replaced as part of the proposed development.
45	Red Oak	*Quercus rubra*	14m	30cm	10m	Mature	Long	3,6 metres	2.3 metres	Moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
46	Yellow Box	*Eucalyptus meliodora*	28m	71cm	18m	Mature	Medium	8.52 metres	3.03 metres	High	Retain tree, minor intrusion (>1%) from proposed development, implement basic tree protection measures.
47	Prickly leaf Paperbark	*Melaleuca stypheloides*	14m	35cm	8m	Mature	Medium	4.2 metres	2.34 metres	Moderate	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
48	Sweet Pittosporum	*Pittosporum undulatum*	12m	35cm	8m	Mature	Medium	4.2 metres	2.2 metres	Low	Environmental weed remove and replace.
49	Sweet Pittosporum	*Pittosporum undulatum*	12m	35cm	8m	Mature	Medium	4.08 metres	2.15 metres	Low	Environmental weed remove and replace.
50	European Beech	*Fagus sylvatica*	6m	Could not measure	6m	Mature	Medium	2 metres	1.5 metres	Low	Retain tree, no intrusion from proposed development, implement basic tree protection measures.
51	Sydney Blue Gum	*Eucalyptus saligna*	20m	27cm	10m	Mature	Medium	3.24 metres	2.1 metres	Moderate	Retain tree, minor intrusion (>1%) from proposed development, implement basic tree protection measures.

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52	Yellow Box	*Eucalyptus meliodora*	20m	88cm	16m	Mature	Medium	10.56 metres	3.31 metres	High	Neighbouring tree, minor intrusion (3%) from proposed development implement basic tree protection measures.
53	Illawarra Flame Tree	*Brachychiton acerifolius*	14m	26cm	4m	Mature	Medium	3.12 metres	1.97 metres	Moderate	Neighbouring tree, no intrusion from proposed development implement basic tree protection measures.
54	Variegated Pittosporum	*Pittosporum eugenoides*	8m	24cm	6m	Mature	Medium	2.88 metres	1.91 metres	Moderate	Neighbouring tree, no intrusion from proposed development implement basic tree protection measures.
55	Kohuhu	*Pittosporum tenuifolium CV*	8m	18cm	6m	Mature	Medium	2.16 metres	1.75 metres	Moderate	Neighbouring tree, no intrusion from proposed development implement basic tree protection measures.
56	Long leaved Box	*Eucalyptus goniocalyx*	12m	38cm	8m	Mature	Medium	4.56 metres	2.43 metres	Moderate	Neighbouring tree, no intrusion from proposed development, implement basic tree protection measures.
57	Cotoneaster	*Cotoneaster glaucophylla*	4m	Could not measure	8m	Mature	Medium	2 metres	1.5 metres	Low	Neighbouring tree, no intrusion from proposed development, implement basic tree protection measures.
58	Swamp Gum	*Eucalyptus ovata*	12m	24cm	12m	Mature	Short	2.88 metres	1.91 metres	Low	Neighbouring tree, minor intrusion (3%) from proposed development implement basic tree protection measures.
59	Swamp Gum	*Eucalyptus ovata*	10m	14cm	2m	Semi-mature	Medium	2 metres	1.61 metres	Moderate	Neighbouring tree, no intrusion from proposed development, implement basic tree protection measures.

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60	Silver Wattle	*Acacia dealbata*	10m	12cm	6m	Semi-mature	Medium	2 metres	1.53 metres	Moderate	Neighbouring tree, no intrusion from proposed development, implement basic tree protection measures.
61	Silver Wattle	*Acacia dealbata*	16m	27cm	10m	Mature	Remove	3.24 metres	2.05 metres	Low	Neighbouring tree, tree is dead and should be removed and replaced.
62	Swamp Gum	*Eucalyptus ovata*	18m	27cm	8m	Mature	Medium	3.24 metres	2.18 metres	Moderate	Neighbouring tree, minor intrusion (1%) from proposed development implement basic tree protection measures.
63	Sugar Gum	*Eucalyptus cladocalyx*	16m	43cm	10m	Mature	Medium	5.16 metres	2.3 metres	Moderate	Neighbouring tree, major intrusion (15%), implement specific and basic tree protection measures.
64	Himalayan Cedar	*Cedrus deodara*	14m	38cm	10m	Mature	Medium	4.56 metres	2.28 metres	Moderate	Neighbouring tree, minor intrusion (1%) from proposed development implement basic tree protection measures.
65	Sugar Gum	*Eucalyptus cladocalyx*	23m	71cm	12m	Mature	Medium	8.52 metres	3 metres	High	Neighbouring tree, major intrusion (28.5%), implement specific and basic tree protection measures.

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Tree Group 1 & 2

Trees 1, 2, 11, 12, 13 & 14

Tree 10 showing proximity to dwellings

Trees 4, 5, & 6

Tree 20 showing partial failure of trunk union.

Tree 28 showing basal decay.

Trees 23, 24 & 25

Trees 35, 36 & 37

Tree 41

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Tree 27

Trees 30, 33, 34 & 46

Trees 41, 42, 43, 44, & 45

Tree 29 showing poor structure.

Trees 47, 48 & 49

Trees 42 & 45

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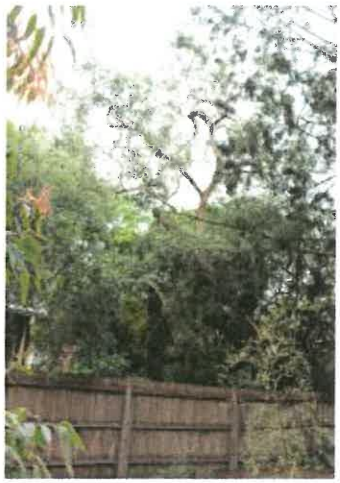
Tree 52


Trees 53 & 54


Tree 56


Trees 58, 59 & 60


Trees 63, 64 & 65

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