

6. Site Map and Tree Location

The following map includes the tree numbers and location from an aerial perspective.



Figure 6.0. Near Maps 2021 - An aerial image showing the approximate location of the trees in red.



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12 April, 2021

Arborist Report

Health & Condition Report

First Church Of Christ, Scientist
256 Stephensons Rd, Mount Waverley

Prepared For

First Church Of Christ, Scientist
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Commissioned By

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Version – 1.0

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Summary of Conclusions/Recommendations:

Below is a dot point summary of the findings of this report. All data used to come to these conclusions is shown in the report below.

- After assessment, Tree Designs has found all 3 trees to be a valuable contribution to the landscape in the area. Each tree has been pruned in the past for canopy clearance and deadwood removal. Evidence of this pruning is very evident. There are several concerns noted in the discussion of the report, however none of which are cause for concern of imminent failure.
- Tree Designs recommends minor canopy clearance back from the building. This pruning is not a high priority. Weight reduction is not needed throughout the canopy and there is no need for asset clearance. The bifurcation in tree 2 is not a concern as there is no evidence of included bark. However, the union should be monitored over time to ensure included bark does not develop.
- Tree Designs recommends the trees are inspected every 2 years or after any major storms to ensure health and safety of the area are maintained.

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1. Introduction

Tree Designs was briefed to inspect and report on a number of trees located at 256 Stephenson Rd, Mount Waverley. This report aims to provide a health and condition report of the 3 trees located on site at the front of the property. The Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) will be listed so planning can be managed accordingly if the trees are to be preserved for future works.

In September 2018, trees 2 and 3 in this report were reported on by Rigoni Tree Solutions. The recommendations detailed in this report recommended an annual inspection of the 2 trees. This report is a follow up of this recommendation.

This report will provide the following key objectives:

- Identify and record the dimensions of the 3 trees situated within the property.
- Provide an assessment of each of the trees with regard to the health and structure and determine if they are classified as significant trees for the area.
- Provide recommendations for managing the trees that have not been designated for removal due to poor health and structural faults.

2. Relevant Planning Overlays

The property is situated within the Monash Shire.

The property is subject to several Planning Overlays. Listed below are the ones that directly affect the removal or pruning of trees.

- **VEGETATION PROTECTION OVERLAY (VPO)**
A permit is required to remove, destroy or lop any vegetation specified in a schedule to this overlay.
- **SCHEDULE 1 TO THE VEGETATION PROTECTION OVERLAY (VPO1)**
A permit is required to remove or destroy any vegetation that:
 - Has a trunk circumference greater than 500mm (160mm diameter) at 1200mm above ground level and is higher than 10 metres.
 - or is higher than 7 metres located on 24 Samada Street, Nottinghill. (former Monash Primary School site)This does not apply to dead vegetation or to the following species:
 - all willow trees
 - radiata or Monterey pines
 - evergreen alders
 - sweet pittosporums
 - desert ashes.

3. Methodology

An inspection of the trees on the property took place on 6/4/2021 from the ground only. An aerial inspection did not take place. The trees were inspected from the ground for potential hazards and defects and a photo of the overall trees were taken along with any identifiable hazards. Photos were also taken of the site.

Data collected for each tree includes the following:

- Botanical Name
- Diameter at Breast Height (DBH)
- Canopy Dimensions (H x W)
- Health
- Structure
- Useful Life Expectancy
- Landscape Contribution
- Retention Value
- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)

The descriptions of each of these can be seen in Appendix 1 of this report.

4. Data Collected

The following table shows all the data collected on the trees. Each individual tree has also had a photo taken and can be seen in Appendix 2 of this report.

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	SRZ (m)	Height (m)	Width (m)	Health	Structure	ULE	Retention Value	Landscape Contribution Rating	Notes/Works required
1	<i>Corymbia maculata</i>	Spotted Gum	27	3.2	1.9	9.0	2.0	Fair	Fair	10-30	Retain	Valuable	Tree is suppressed by adjacent trees 2 & 3. History of previous failure within the canopy. Some minor deadwood.
2	<i>Corymbia maculata</i>	Spotted Gum	58	7.0	2.6	20.0	14.0	Fair	Fair	30+	Retain	Valuable	Large bifcation at approximately 4m above ground. Limbs extending over the roof line of the church building
3	<i>Corymbia maculata</i>	Spotted Gum	74	8.9	2.9	20.0	16.0	Fair	Fair	30+	Retain	Valuable	Good specimen with good trunk flare and only minor signs of pest or disease.

Table 4.0.

5. Observations & Discussion

Each tree has been assessed and the information collected has been expanded upon below.

5.1. Tree 1

Tree Number 1	
Botanical Name	<i>Corymbia maculata</i>
Common Name	Spotted Gum
DBH (cm)	27
Tree Protection Zone (m)	3.2
Structural Root Zone (m)	1.9
Height	9
Width	2
Health	Fair
Structure	Fair
Useful Life Expectancy	10-30
Retention Value	Retain
Landscape Contribution Rating	Valuable
Notes:	Tree is suppressed by adjacent trees 2 & 3. History of previous failure within the canopy. Some minor deadwood.



Figure 5.0. Overall photo of tree 1



Figure 5.1. Past dieback in the upper canopy of tree 1.

Tree Number 1 is a small *Corymbia maculata*. The tree is shorter than the adjacent trees, tree 2 & 3, as it has been suppressed. There is evidence of past dieback in the upper canopy, due to suppression. See figure 5.1. The deadwood has been pruned out which is quite evident and can be seen clearly in multiple locations in the canopy.

The tree is in good health but does have some minor pest problems including lerps and sooty mould. Both are not affecting the health of the tree to a large degree.

The tree has almost no trunk flare and has a small lean of growth away from the other 2 adjacent trees. Although the tree has been suppressed, it is a vital part of the stability of the 3 trees. The tree has grown up in unison with tree 2 and 3. This means canopy protection and root entanglement that can help stabilise the larger trees.

5.2. Tree 2

Tree Number 2	
Botanical Name	<i>Corymbia maculata</i>
Common Name	Spotted Gum
DBH (cm)	58
Tree Protection Zone (m)	7.0
Structural Root Zone (m)	2.6
Height	20
Width	14
Health	Fair
Structure	Fair
Useful Life Expectancy	30+
Retention Value	Retain
Landscape Contribution Rating	Valuable
Notes:	Large bifcation at approximatly 4m above ground. Limbs extending over the roof line of the church building



 An overall photograph of a large, mature Spotted Gum tree (Corymbia maculata) with a dense, dark green canopy. The tree is leaning slightly towards the right. In the background, a dark-colored building with a gabled roof is visible, and a signpost stands in front of it. The sky is overcast.

Figure 5.2. Overall photo of tree 2

Tree Number 2 is a large *Corymbia maculatta*. Once again, this tree also has some minor pest issues including sooty mould and lerps. Both of these are only minor and have not drastically affected the health of the tree. This can be seen in figure 5.3.

There are extended branches over the roof line of the building. The branches are not over extended and do not require pruning for safety. However, they could be reduced for the purpose of reducing leaf litter in the roof gutters. See figure 5.6.

The trunk and canopy of the tree has a slight lean towards the building; however, the tree has grown this way due to the adjacent trees competing for light. This is also shown in figure 5.6.

The subject tree has good trunk flare but is also slightly one sided once again due to competition. See figure 5.4.

There is evidence in the canopy of previous pruning over the building and deadwood removal. There is no major deadwood present and only minor deadwood throughout the canopy.



Figure 5.3. Evidence of lerps on the leaves of all 3 trees. Sample taken from Tree 3.



Figure 5.4. Trunk flare more evident on the one side of the tree in tree2.



Figure 5.5. Bifurcated stem in tree 2. No included bark present and a nice open union.



Figure 5.6. Canopy branches extending over roof of church building in tree 2.

5.3. Tree 3

Tree Number 3	
Botanical Name	<i>Corymbia maculata</i>
Common Name	Spotted Gum
DBH (cm)	74
Tree Protection Zone (m)	8.9
Structural Root Zone (m)	2.9
Height	20
Width	16
Health	Fair
Structure	Fair
Useful Life Expectancy	30+
Retention Value	Retain
Landscape Contribution Rating	Valuable
Notes:	Good specimen with good trunk flare and only minor signs of pest or disease.




Figure 5.7. Overall photo of tree 3.

Tree 3 is another large *Corymbia maculatta*. A valuable tree to the surrounding area in terms of landscape contribution.

The specimen shows some signs of pest and disease, with sooty mould and lerps both present in the canopy. Seen in figure 5.3.

The tree has good trunk flare showing a very stable root base as seen in figure 5.11. More then likely the roots of all 3 trees are intertangled giving great stability.

The tree leans out towards the street and towards the powerlines but has grown in this direction and therefore is not a huge concern. This can be seen in figure 5.9. and figure 5.10.

Figure 5.8. shows an old wound from previous branch removal. Although this a poor pruning cut, the wound has not caused any problems to the health or structural safety of the tree and is beginning to show good signs of compartmentalisation.



Figure 5.8. Old branch removal in tree 3.



Figure 5.9. Canopy of tree 3 over powerlines



Figure 5.10. Tree 3 has grown with a lean over the street

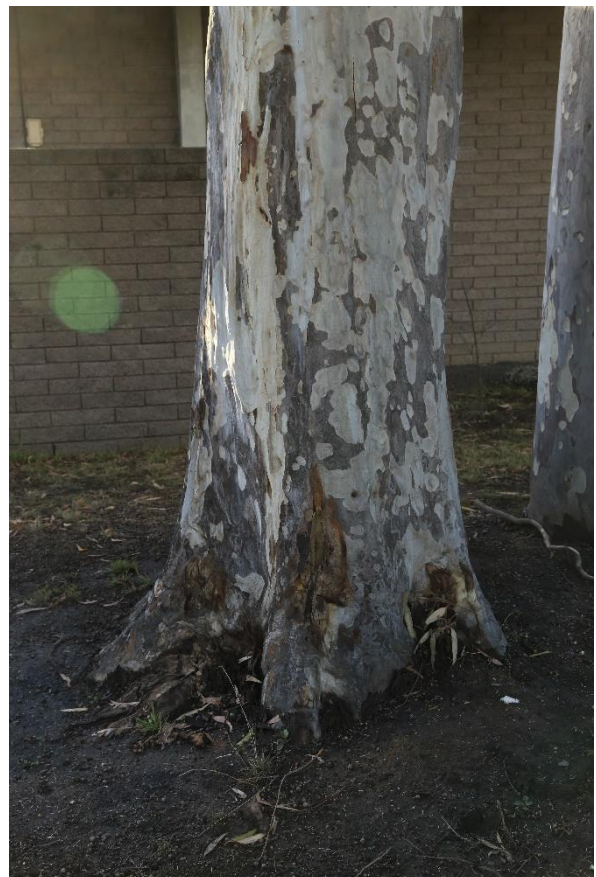


Figure 5.11. Good trunk flare on tree 3.

6. Site Map and Tree Location

The following map includes the tree numbers and location from an arial perspective.

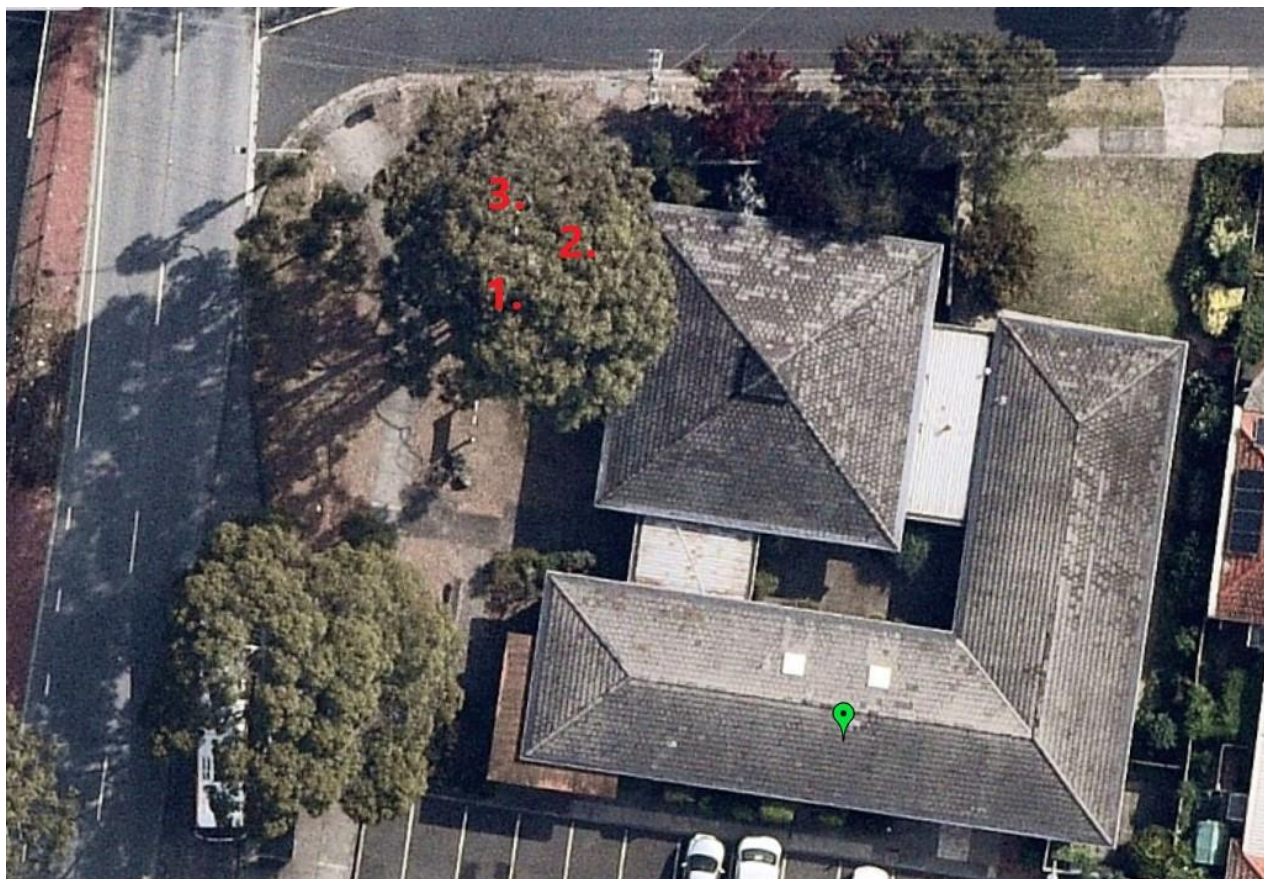


Figure 6.0. Near Maps 2021 - An aerial image showing the approximate location of the trees in red.

7. Conclusions and Recommendations

After assessment, Tree Designs has found all 3 trees to be a valuable contribution to the landscape in the area. Each tree has been pruned in the past for canopy clearance and deadwood removal. Evidence of this pruning is very evident. There are several concerns noted in the discussion of the report, however none of which are cause for concern of imminent failure.

Tree Designs recommends minor canopy clearance back from the building. This pruning is not a high priority. Weight reduction is not needed throughout the canopy and there is no need for asset clearance. The bifurcation in tree 2 is not a concern as there is no evidence of included bark. However, the union should be monitored over time to ensure included bark does not develop.

Tree Designs recommends the trees are inspected every 2 years or after any major storms to ensure health and safety of the area are maintained.

7.1. Further Recommendations:

All work required to achieve the objectives of this report, should be completed by a qualified arborist as to Australian standards AS4373-1996 - Pruning of Amenity Trees

It is also recommended that any future development works are supervised by a qualified arborist and follow Australian standards, AS4970-2009 - Protection of Trees on Development Sites.

8. Arboriculture Terminology

The following arboriculture terminology may have been used in the descriptions:

Adventitious roots – roots that have developed in locations that do not usually produce roots e.g. growing in the union between trunks.

Bifurcation – the forking of a trunk into two roughly equal sized stems. The union between the two stems is often relatively weak.

Bracket Fungi – the fruiting body of a wood decay fungus usually seen as a semi-circular ‘bracket’ on a trunk or branch. The presence of a bracket fungi often indicates extensive decay in the underlying wood.

Branch Collar - A swelling at the base of a branch where it joins the trunk or another branch. Wood that has formed around a branch attachment.

Callus – wood tissue growth in the response to pruning or damage to the cambium layer

Cambium – The cellular layer beneath the bark that gives rise to tree nutrients.

Co-dominant trunks – two roughly equal sized trunks arising from a single trunk when it bifurcates. The union between co-dominant trunks is often weak.

Coppice - Regrowth from a cut tree *stump* or the base of a damaged stem

Crown – The leaves and branches of the tree measured from the lowest branches to the uppermost section of the tree.

Critical Root Zone (CRZ) – is the minimum radial distance from the trunk where extensive root severance can occur without the tree becoming potentially unstable and prone to uprooting.

Decay – The degradation of woody tissue.

Delamination – longitudinal splitting of branches. Branches that delaminate often fail over a period of time.

Dieback – The loss of foliage and life of a limb generally spreading from the tip to the base of the branch.

Epicormic branch/shoot – a branch that has arisen from a dormant (i.e. epicormic) bud in response to severe pruning (lopping), branch failure, tree decline or fire. Epicormic branches can often be poorly attached.

Flange development – the flange-like swelling on either side of a branch or trunk union. It indicates the presence of included bark within the union and hence a relatively weak union.

Fungal fruiting body/ bracket fungi – the fruiting body of a wood decay fungus usually seen as a semi-circular ‘bracket’ on a trunk or branch. The presence of a fungal fruiting body often indicates extensive decay in the underlying wood.

Included bark – bark that is included within the branch or trunk union. Unions with included bark are weaker than those without included bark.

Kino – a dark reddish exudate produced by many corymbias and eucalypts, often in response to injury.

Lopping – indiscriminate pruning of large branches with no regard for the physiological or aesthetic wellbeing of the tree.

Leader – The topmost portion of the tree trunk that is able to grow more than the laterals below. (Matheny and Clark, 1994)

Picus – A measuring tool that detects and electronically measures the amount of decay in it's various stages. The Sonic Tomograph obtains data in a non-invasive or destructive manner, and produces detailed information in a computerised form.

Pollard heads – the distorted, ‘club-like’ branches resulting from the heavy pruning of framework branches followed by regular removal of new shoots back to the original pruning point.

Sap wood – The outer layers of woody tissue that are functional in terms of translocation.

Stub – A branch that has been indiscriminately cut back near the base leaving no foliage present.

Translocation – The conduction of soluble materials from one part of the plant to another.

Tree Protection Zone (TPZ) – the radial distance from the trunk outside which any construction related activity should have no impact on the tree's health and vigour. Construction is excluded from this zone or carefully controlled to minimize damage to the root system.

ULE (Useful Life Expectancy) – an estimate of the time that a tree can be retained as a useful specimen without it becoming unsafe or dying. The ULE is determined from the assessment of the health and vigour and structure of the tree.

Weight reduction – pruning technique used to reduce the length and weight of a branch. It is commonly used to reduce the likelihood of the failure of long extended branches.

Wound-wood formation – wood that has grown around a trunk or branch wound after the wounding has taken place. In some cases wound-wood can completely cover a wound. Structurally it is typically stronger than normal wood.

9. Reference Material

AS 4373, 2007, Australian Standard, Pruning Amenity Trees, 2nd Edition Standards Australia

AS 4970, 2009, Australian Standard, Protection of Trees on Development Sites, Standards Australia

Harris, R.W., Clark, J.R. & Matheny, N.P., 1999, Arboriculture; Integrated management of landscape trees, shrubs, and vines, Prentice Hall, Upper Saddle River, New Jersey. Matheny, N. & Clark, R. C. 1994,

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Costermans, L. 1983, Native Trees and Shrubs of South-Eastern Australia, Reed New Holland, 2003

Nicolle, D 2006, Eucalypts of Victoria and Tasmania, Bloomings Books, 2006

Evaluation of Hazard Trees in Urban Areas, 2nd edition, International Society of Arboriculture, USA.

Appendix 1 – Data Collection Definitions

The following data was collected for each tree, based on the collectors experience and opinion of each of the trees.

1.1. Identification

The tree is identified in the most current Latin botanical name and common name.

1.2. Diameter at Breast Height (DBH)

Diameter at Breast Height – measured at 1.3 metres above ground level. Stated in cm.

Appendix A of AS4970 is used as a standard for determining odd trunk shapes and multiple trunks.

1.3 Canopy Dimensions

The trees approximate canopy width at the largest point and height are stated in meters.

1.4. Tree Attributes

1.4.1. Health: The health of the tree/trees, as seen by a number of clear indicators. This includes the condition of the foliage density, colour and leaf size and signs of any disease or predation. Each tree was given a rating from the following according to the habit of the species and taking in to account its surroundings.

Term	Definition
Good	The tree is exhibiting good or exceptional growth for the species. The foliage colour is normal as in leaf size and density to that of the species. The tree shows abundant healthy foliage and shows few, if any signs of predation or disease.
Fair	The tree is in a reasonable condition. The foliage colour may be slightly lacking in chlorophyll. Some dead wood is present throughout the crown and epicormics may also be present. The tree exhibits just under abundant healthy foliage and shows some signs of predation or disease.
Poor	The tree exhibits a sparse covering of foliage. The tree is not growing to its full potential and extension growth of the laterals may be minimal. The tree may show large areas of deadwood or epicormic growth (stressed growth). The tree shows signs of disease and/or predation.
Dead	The tree is dead, or in a very advanced state of decline of which it cannot recover.

1.4.2. Structure: The current form of the tree, taking into account previous failures, damage, or growth patterns due to environment and/or location.

Term	Definition
Good	The tree shows no signs of moderate to major failures or damage to the structural strength of the tree. The tree may have lost a few small branches. There are no signs of decay or dieback. However some small sections of deadwood may be able to be seen. Epicormics are not present on the tree and the tree shows one leader with no co-dominants throughout the tree. There is also no signs of included bark.
Fair	The tree exhibits some signs of moderate failures or damage to the structural strength of the tree. There may be indications of decay or dieback throughout the tree. Epicormic growth may be present throughout the canopy but not in large numbers. The tree may have some signs of co-dominants throughout the tree. There may also be signs of included bark at the branch unions.
Poor	The tree exhibits signs of major previous or current failure to the main branches and/or trunk framework. Decay is largely present throughout the tree and dieback may also be present. There may be signs of epicormic growth throughout the canopy. There may be major wounds in the tree resulting in a reduction in the structure of the tree. The tree may show signs of included bark and may also have co-dominant growth showing.
Failed	The tree has terminal damage and has no adequate framework to support further growth.

1.4.3. Useful Life Expectancy: The number of years that the tree is likely to remain in a condition that does not pose a serious threat or become unsuitable for the area it occupies.

Term	Definition
0 Years	The tree is dead or contains a danger that necessitates its removal.
0-5 Years	The tree is at the end of its life or has disease or damage that cannot be rectified that will lead to its demise in a number of years.
5-10 Years	The tree is mature and approaching senescence or shows early symptoms of a terminal disease or damage or will soon begin to be too large for current area without some form of modification to tree or environment.
10-30 Years	The tree is of a semi mature age and not showing symptoms of a terminal disease or damage or will soon begin to be too large for current area without some form of modification to tree or environment.
30 + Years	The tree not showing any signs of forming problematic growth or disease unless conditions alter.

1.4.4. Landscape Contribution Rating: A descriptive value is assigned to each tree taking into account various factors from the data collected.

Trees may be considered significant if they fit into one or more of the following categories:

- Exceptional example of species
- Outstanding feature in the landscape
- Habitat value
- Erosion control
- Historic value
- Aboriginal cultural value
- Significant Age
- Rare
- Exceptional size
- Economic, improves value

Term	Definition
Exceptional	The tree contains several of the preceding categories and is of exceptional value to the landscape
Outstanding	The tree contains on or more of the preceding categories and is of very high significance to the area
Valuable	The tree contains at least one of the preceding categories. The tree is normally a reasonable specimen without any outstanding features. It normally has a fairly large diameter and good to average health and structure
Moderate	The tree is of moderate value, in a reasonable condition but may only fulfil one factor above. It generally has a medium size trunk diameter and average to poor health and structure.
Low Value	As an individual specimen the tree is not considered to be significant. It may be a small specimen, with poor health and structure and possibly a weed species
Negligible	As an individual specimen the tree is not considered to be significant. It may be a small specimen, with poor health and structure and possibly a weed species. It may also be dead.

1.4.5. Retention Value: The tree/trees are given one of the following values according to the data collected and the opinion of the consultant.

Term	Definition
Retain	The tree is well suited to the site and offers a significant contribution the surrounding environment. The tree is usually in fair to good health and structure. Its ULE should be in the higher category. In some cases it may need to be retained because of historical or cultural significance
Retain if possible	The tree is suited to the site and if practicable the development plans should be altered to accommodate the tree in the site. The tree may be of a young age but have future potential to the site.
Not worth retaining	The tree is not worth retaining. It may be considered a weed species, be of poor structure, dead or declining and nearing the end of its ULE
Third party ownership	The tree is owned by an adjoining property.

1.5 Tree Protection Areas

1.5.1. TPZ – Tree Protection Zone: If appropriate, the Tree Protection Zone (TPZ) has been listed based on the formula, $TPZ=12 \times DBH$. If the tree is to be retained this measurement is the recommended area that is to be undisturbed during building stages so as to protect the health and structure of the tree as much as possible. The measurement is in meters and the area designated is a large circle originating from the centre of the tree with the TPZ value calculated being the radius.

According to AS 4970, 2009, a tree can only have a maximum TPZ of 15m (except where crown protection is required) and a minimum of 2m.

1.5.2. SRZ - Structural Root Zone: The Structural Root Zone (SRZ) is the minimum volume of roots required by the tree to remain stable in the ground. If the SRZ is breached the chances of windthrow are significantly increased, especially if roots are cut on the same side as prevailing winds. Windthrow is an

event where the entire tree fails/falls over. Often, the tree is completely uprooted with devastating results.

Encroachment via excavation or other means into the SRZ is deemed to be major encroachment. The tree's stability following such excavation would be questionable.

The following formula is used to determine the SRZ, where 'D' is the Diameter of the tree and 'R' is the radius. This formula is used from AS4970. The below calculation is not an absolute value, merely a figure that has been drawn from a line of best fit from observations of forest tree failures. As it is observational, cause and effect cannot be established. It is an approximation for most trees in most situations. It may be that the trees can handle more or less than the calculated SRZ and therefore if needed roots may be able to be encroached upon this value given the right care and supervision of a qualified arborist.

$$R_{srz}=(D \times 50)^{0.42} \times 0.64$$

Note: The SRZ for tree with a diameter less than 0.15m is 1.5m.

D is the stem diameter measured immediately above root buttress.

1.6 Tree Location

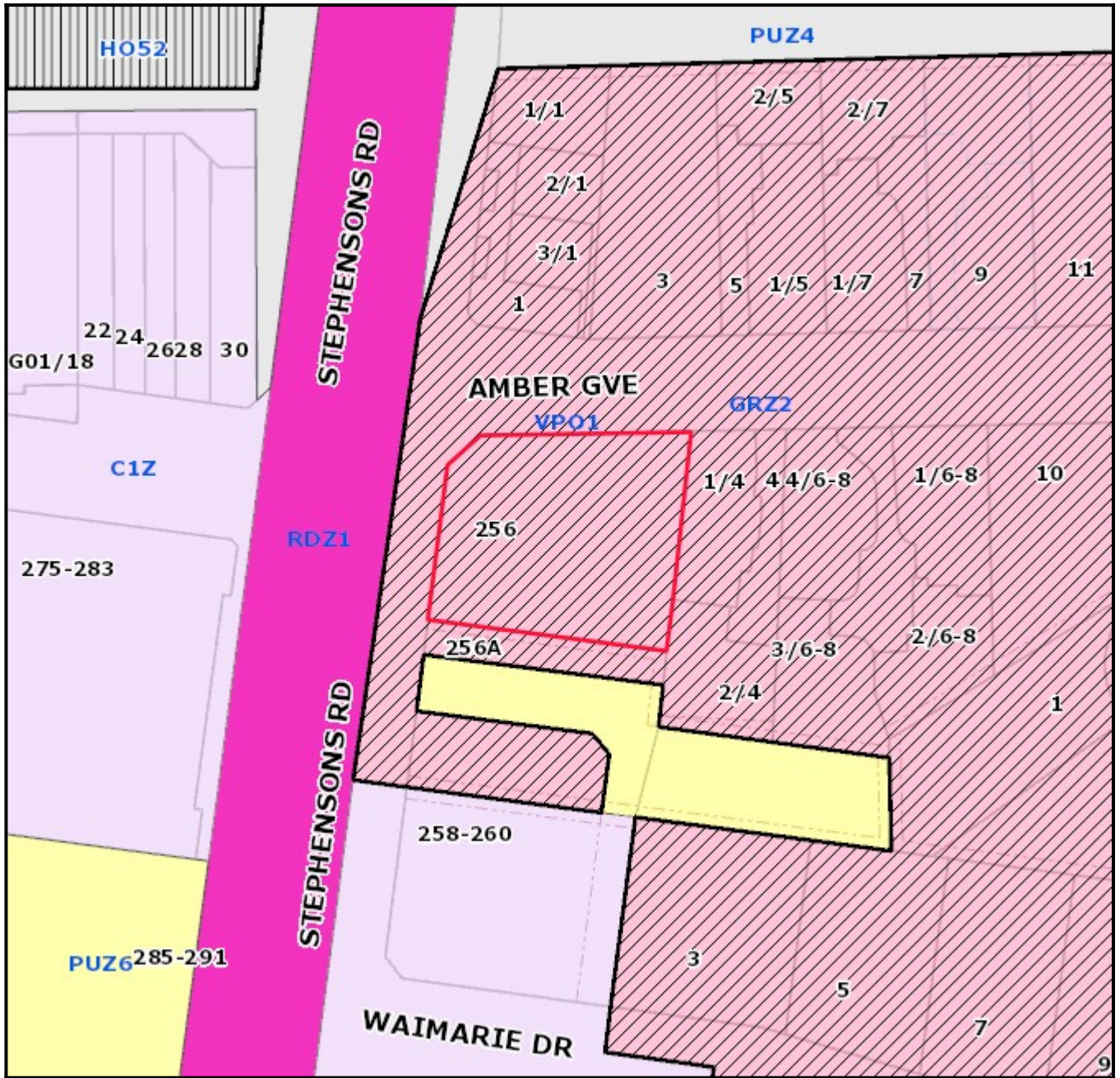
Each tree is allocated a number and then the approximate location is indicated on the aerial map.

Attachment 2: 256 Stephenson's Road, Mount Waverley





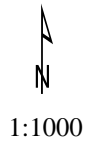
Planning Overlays and Zones



Legend

Planning Zones

Planning Overlays



Address: 256 Stephenson's Road MOUNT WAVERLEY VIC 3149

Area: null sqm

Base data is supplied under Licence from Land Victoria. This map is for general use only and may not be used as proof of ownership, dimensions or any other status. The information must be verified before taking any action which may be affected by a planning scheme requirement. This can be done by visiting the website: <http://services.land.vic.gov.au/landchannel/content/>

The City of Monash endeavours to keep the information current, and welcomes notification of omissions or inaccuracies.