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## ARBORICULTURAL ASSESSMENT & REPORT

# 7-9 Nicholson Court, Clayton

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## Arboricultural Assessment & Report

### 7-9 Nicholson Court, Clayton

### Introduction

Glenn Waters has been engaged to undertake an inspection and report for the subject site, neighbouring property and street trees at 7-9 Nicholson Court, Clayton.

This report is considered to be a 'Preliminary Tree Assessment' report under the Australian Standard AS 4970-2009 *Protection of trees on development sites* and the purpose of this assessment is to provide quantitative and qualitative information on the trees and is the basis for deciding which trees are suitable for retention.

This report will provide comment on the individual site, neighbouring property and street trees in question and provide advice regarding the species, condition and suitability for retention of the existing site trees and also provide advice regarding the future management of the trees.

## Objectives

- To inspect the site and existing trees located within site at 7-9 Nicholson Court, Clayton
  including any nearby neighbouring property or street trees that may be impacted by the
  proposed development of the subject site.
- To collect data on the individual site and neighbouring property trees and provide a tree number plan that corresponds to the report tree data.
- To provide an arboricultural report that provides advice and solutions for the future management of the site, neighbouring property and street trees (as required).

### Method

- Trees or shrubs under 3.0 metres in height were not assessed as they do not meet the criteria for a 'tree' under the Australian Standard AS 4970-2009 Protection of trees on development sites.
- No aerial climbing assessment was done. No samples of tree or site soil were taken and no diagnostic testing was undertaken as part of this assessment.
- The diameter at breast height (DBH) of trees was measured using a diameter tape at 1.4m above ground level in accordance with AS-4970.

- Heights and spreads of canopies were measured using a laser height meter.
- Where direct access to the trees was not possible (eg: neighbouring property trees) DBH, heights and spreads have been estimated.
- Where leaves, buds and fruit of a tree are inaccessible, botanical identification is as accurate as is possible.

### Observations

The site is a residential property located at 7-9 Nicholson Court, Clayton and the site inspection and assessment captured data on seven (7) individual trees including two (2) neighbouring property trees and one (1) street tree.

No subject site tree has been rated as having better than 'Low' arboricultural/retention value and no subject site tree is considered worthy of retention in any development of the subject site.

### Discussion

#### General Tree Retention Discussion:

The Australian Standard AS 4970-2009 Protection of trees on development sites has been used to calculate the TPZ for the neighbouring property and street trees.

The TPZ is calculated based on trunk (stem) diameter (DBH), measured at approximately 1.4 metres up from ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses both the stability and growing requirements of a tree. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level.

With a site such as this, it is important to understand that tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard paved surfaces, roads and buildings may have inhibited the development of a symmetrically radiating root system and this may impact on the size and shape of a TPZ and therefore 'normal' tree protection zone calculations may need to be modified to allow for such anomalies.

Encroachment into the TPZ is permissible under certain circumstances though is dependent on both site conditions and tree characteristics. Minor encroachment, up to 10% of the TPZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the TPZ.

### Discussion regarding the Neighbouring Property & Street Trees:

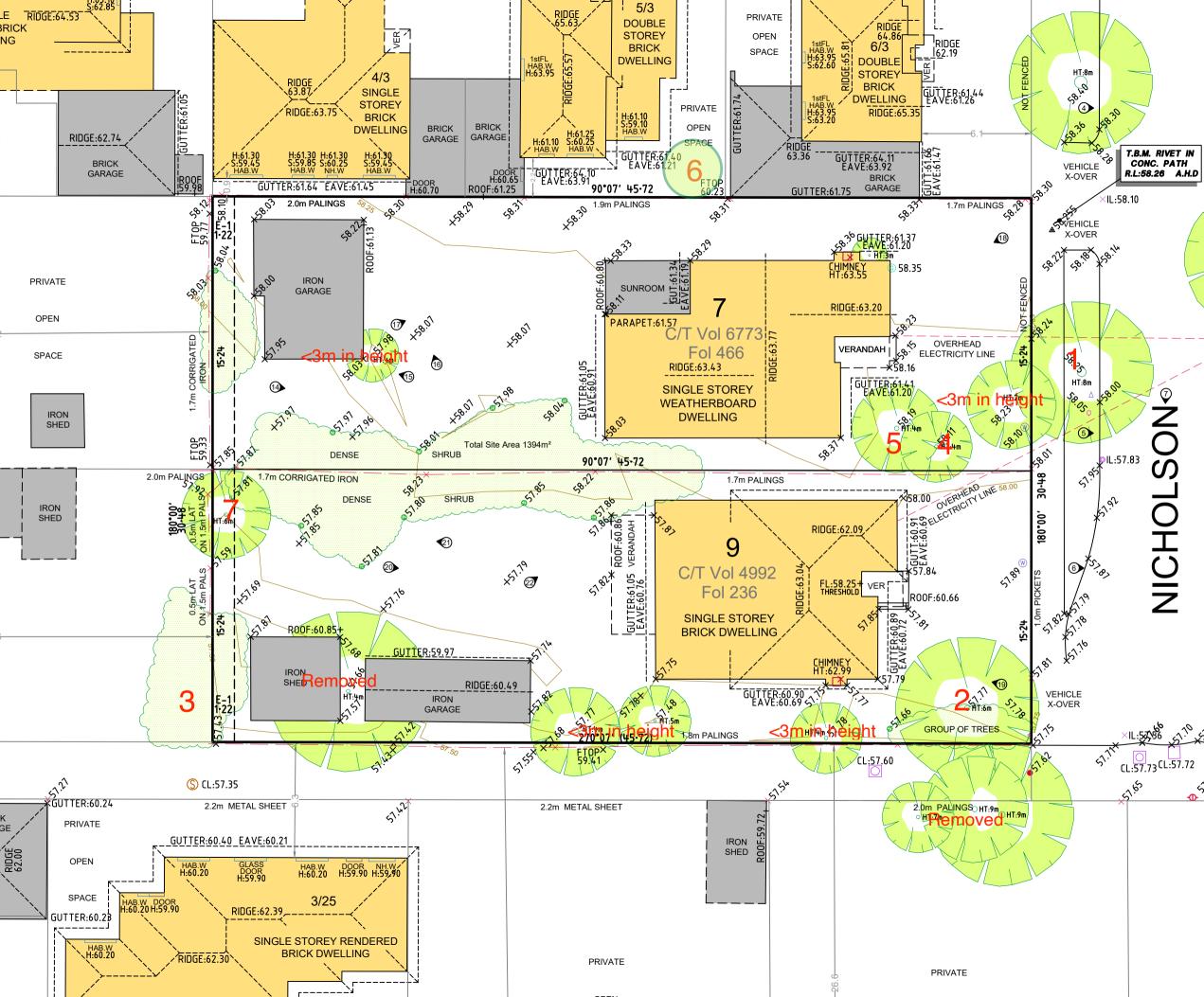
No	Common Name	dbh (cm)	Age	Value	TPZs	SRZs
3	Illawarra Flame Tree	15cm	Young	Low-Moderate	2.0m	1.7m
6	Crepe Myrtle	multi	Semi-mature	Low-Moderate	2.2m	1.8m

Appendix 1 lists the standard tree protection works that should be considered as part of the management of trees to be retained during development and these works should be seen as a minimum standard to apply.

Glenn Waters

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No	Dbh	btd	H x S	Species	Common Name	Age	Health	Structure	Arb Value	TPZ	SRZ	Origin	Comments
	L 50	70	11 x 10	Melaleuca styphelioides	Prickly-leaf Paperbark	Maturing	Fair-Poor	Poor	Moderate	6.0m	2.8m	Aust. Native	street tree
	2 m	30	5 x 8	Camellia sasanqua	Sasanqua Camellia	Mature	Fair-Poor	Poor	None	3.6m	2.0m	Exotic Evergreen	
	15	20	5 x 2	Brachychiton acerifolius	Illawarra Flame Tree	Young	Fair	Fair	Low-Moderate	2.0m	1.7m	Aust. Native	neighbouring property tree
	l m	20	4 x 5	Lagerstroemia indica	Crepe Myrtle	Semi-mature	Very Poor	Poor	None	2.4m	1.7m	Exotic Deciduous	
	m	25	4 x 5	Camellia japonica	Chinese Camellia	Maturing	Fair-Poor	Poor	None	2.2m	1.8m	Exotic Evergreen	
	m	25	5 x 7	Lagerstroemia indica	Crepe Myrtle	Semi-mature	Fair-Poor	Fair-Poor	Low-Moderate	2.2m	1.8m	Exotic Deciduous	neighbouring property tree
	7 12	18	5 x 3	Brachychiton populneus	Kurrajong	Young	Fair-Poor	Fair	Low	2.0m	1.6m	Aust. Native	Covered in climber

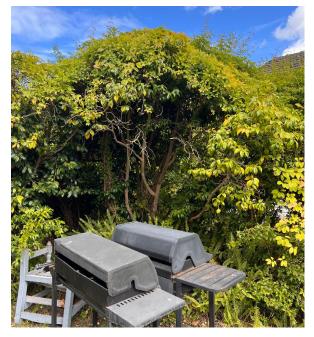




STREET TREE #1



TREE #3



TREE #5



TREE #2



TREE #4



**NEIGHBOURING TREE #6** 



TREE #7

## Appendix 1: Tree Protection During Development

The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the retained trees.

- The Tree Protection Zone (TPZ) is fenced and clearly marked at all times. This fence should deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Australian Standard AS 4687 2007 Temporary fencing and hoardings, specifies appropriate fencing requirements. Existing perimeter fencing can be incorporated into the protective fencing. Shade cloth should be attached to reduce the movement of dust and other particulates into the TPZ. Signs identifying the TPZ are to be placed on the fencing.
- If the area within the TPZ is to be accessed during the construction phase then the area will need ground protection. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area beneath a 100 mm layer of crushed rock below rumble boards.
- Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project.
- The Project Arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.
- There is no immediate requirement for mulching within the TPZ. There is benefit to
  maintaining existing site conditions within the TPZ and is more analogous to proposed
  completion conditions. Monitoring of the trees in-line with prevailing weather conditions will
  indicate if mulching will be required. The same approach is to used in providing supplemental
  irrigation.
- No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.
- Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing
  and refuelling of equipment and vehicles should be carried out away from the root zones. No
  storage of material, equipment or temporary building should take place over the root zone of
  the tree. Nothing whatsoever should be attached to the tree including temporary services
  wires, nails, screws or any other fixing device.
- Any pruning that is required must be carried out by trained and competent arborist who has a
  thorough knowledge of tree physiology and pruning methods and carry out pruning to the
  Australian Standard AS 4373 2007 Pruning of Amenity Trees.
- All excavation within the Tree Protection Zone must be carried out by hand digging or with the use of 'NDD-Excavation' techniques and only when supervised by the Project Arborist. Where the Project Arborist identifies roots to be pruned within the TPZ, they should be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. It is not acceptable for roots within the TPZ to be 'pruned' with machinery such as backhoes or excavators.

## Tree Descriptors - Version 11 (June 2021)

The typical assessment of a tree evaluates the factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen as compared to what could be considered typical for that species growing in its location. The two factors are completely separate and it is possible to have a tree in good health with very poor structure or, conversely, a tree in very poor health with good structure. These two factors are used as a guide to the overall tree condition at the time of inspection.

#### Tree No:

A unique identifier, normally a number and often associated with a plan or map reference and used to identify an individual tree or tree group.

### Species:

Provides botanical name, (genus, species, variety and cultivar) according to accepted international codes of taxonomic classification (where possible).

#### Common Name:

Provide the most well-known non-scientific name by which the tree is generally known.

### DBH (trunk diameter, measured at 1.4m from ground):

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level. Multi-stemmed trees may be measured below the 1.4m or at the tree base. DBH measurements are usually undertaken with foresters diameter tape or builders tape.

It us used to calculate the Tree Protection Zone (TPZ) as outlined in the Australian Standard AS 4970-2009 *Protection of trees on development sites*.

DBH in the tree data followed by an \* are where the dbh has been estimated due to not having access to the tree (usually neighbouring properties).

### **Basal Trunk Diameter:**

This is the trunk diameter measured as the base of the trunk immediately above the root buttress or trunk flare. It us used to calculate the Structural Root Zone (SRZ) as outlined in the Australian Standard AS 4970-2009 *Protection of trees on development sites*.

### H x W (Height x Width or Canopy Spread):

Indicates the height and width of the individual tree; dimensions are expressed in metres. Height is measured with a clinometer/height-meter where possible. Tree heights may be estimated in line with previous clinometer readings in conjunction with author's experience. Crown widths are generally paced (estimated) at the widest axis or averaged.

## Tree Type:

Describes the general geographic origin of the species and its type (e.g. deciduous or evergreen).

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Palm	Woody monocotyledon

### Age:

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted
Semi-mature	Tree rapidly increasing in size and yet to achieve expected size in situation
Maturing	Specimen approaching expected size in situation, with reduced incremental growth
Mature	Specimen at its expected size in its situation
Over-mature	Tree is over-mature and in decline
Dead	Tree is dead

### Health:

Assesses a range of attributes to describe the overall health of the tree.

Category Growth Indicators		Decline symptoms/ Deadwood	Foliage density, colour, size, intact- ness	Pests and/or disease
Good	Above typical	None or minimal	Better than typical	None or minimal
Fair	Fair Typical Typical or e		Typical	Typical, within damage thresholds
Fair to Poor	Below typical	More than typical	Exhibiting deficiencies	Exceeds damage thresholds
Poor Minimal		Considerable amount/ size	Exhibiting severe defi- ciencies	Contributing to decline
Very Poor	Below minimal	Significant amount and size	Significantly below typical	Extreme
Dead N/A		N/A	N/A	N/A

### Structure:

Assesses principal components of tree structure.

Descriptor	Root plate & lower stem	Trunk	Primary branch support	Outer crown and roots	Lean from verti- cal
Good	No damage, disease or decay; obvious basal flare / stable in ground	No damage, disease or decay; well tapered	Well formed, at- tached, spaced and tapered	No damage, disease, decay or structural defect	Low or none
Fair	Minor damage or decay	Minor damage or decay	Typically formed, attached, spaced and tapered	Minor damage, dis- ease or decay; minor branch end-weight or over-extension	Minor / natural
Poor	Moderate damage or decay; minimal basal flare	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previ- ous branch failure evidence	Moderate damage, disease or decay; moderate branch end- weight or over-exten- sion	Moderate
Very Poor	Major damage, disease or decay; fungal fruiting bodies present	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present	Decayed, cavities or has acute branch attach- ments with includ- ed bark; excessive compression flar- ing; failure likely	Major damage, disease or decay; fungal fruiting bodies present; major branch endweight or over-extension	Acute
Hazardous	Excessive damage, disease or decay; unstable / loose in ground; failure probable	Excessive damage, disease or decay; cavities	Decayed, cavities or branch attach- ments with active split; failure immi- nent	Excessive damage, disease or decay; excessive branch end- weight or over-exten- sion	Excessive – root plate failure or stem failure prob- able

The lowest or worst descriptor assigned to the tree in any column is generally the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation.

Trees are assessed and the given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments. The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk.

### Arboricultural / Retention Value Rating:

Relates to the combination of previous tree rating factors, including health, structure and form (arboricultural merit), and also conveys an amenity value. This rating relates to the trees biological, functional and aesthetic characteristics within an urban landscape context.

Category	Description
Significant	Tree of better than high quality and will be an outstanding example of the species due to factors such as age, size, outstanding example, rare in cultivation, etc.  Retention of these trees should be a priority for the site.
High	Tree of high quality in good to fair condition. Generally a prominent arboricultural feature. Tree is capable of tolerating changes in its environment.  These trees have the potential to be a medium to long-term component of the landscape if managed appropriately. Retention of these trees is highly desirable.
Moderate	Tree of moderate quality, in fair or better condition. Generally contributes to the landscape. Tree may have a condition, and or structural problem that will respond to arboricultural treatment. Tree is capable of tolerating changes in its environment. These trees have the potential to be a medium to long-term component of the landscape if managed appropriately. Retention of these trees is generally desirable.
Low-Moderate	Trees with indicators that sit between Low and Moderate
	Tree of low quality and/or little amenity value. Tree in poor health and/or with poor structure. Tree unlikely to respond positively to changes in its environment and does not warrant design modification to preserve it. Tree may be beyond the benefit of practical arboricultural treatments.
Low	Tree is not significant for its size and/or young. These trees are easily replaceable.  Tree (species) is functionally inappropriate to specific location and would be expected to be problematic if retained.
	Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.
None	Tree has a severe structural defect and/or health problem that cannot be sustained with practical arboricultural techniques and the loss of tree would be expected in the short term. Tree whose retention would be impractical after the removal of adjacent trees (includes trees that have developed in close spaced groups and would not be expected to acclimatise to severe alterations to surrounding environment – removal of adjacent shelter trees) Tree has a detrimental effect on the environment, for example, the tree is a woody weed. These trees should be removed on the basis of sound arboricultural management.

### **Useful Life Expectancy**

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs).

ULE Rating	Description
< 1 year	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1 - 5 years	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6 - 10 years	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs.  Over-mature and senescing or early decline symptoms in short-lived species.  Early infrastructure conflicts with potential to increase regardless of management inputs.
10-25 years	Trees displaying normal growth characteristics. Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity.  Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity.
25+ years	Generally juvenile and semi-mature trees exhibiting normal growth characteristics in parks or open space. Could also be maturing, long-lived trees. Tree well suited to the site with negligible potential for infrastructure conflicts.

### Tree Risk Assessment

A primary goal of tree risk assessment is to provide information about the level of risk posed by a tree over a specific time period. This is accomplished in qualitative tree risk assessment by first determining the categories for likelihood and consequences of tree failure. These factors are determined by:

- 1. Evaluating the structural conditions that may lead to failure; the potential loads on the tree; and the trees' adaptations to weaknesses—to determine the likelihood of failure.
- 2. Evaluating the likelihood that a tree or branch could strike people or property or disrupt activities
- 3. Assessing the injury, damage or disruption—to estimate the consequences of failure.

A matrix-based, qualitative approach to tree risk assessment is used define the level of risk. The factors collected during the tree assessment, particularly with regard to the trees structure are used in this determination.

The risk category is then compared to the level of risk that is acceptable to the client, controlling authority, or societal standards. If the risk category defined for the tree risk exceeds the level of acceptable risk, mitigation is recommended.

#### Risk Assessment Matrix

Likelihood of	Likelihood of Failure (Target/Consequence)						
Failure	Unlikely	Somewhat Likely	Likely	Very Likely			
Imminent (Very Poor Structure)	Low	Moderate	High	Extreme			
Probable (Poor Structure)	Low	Moderate	High	High			
Possible (Fair- Poor Structure)	Low	Low	Moderate	Moderate			
Improbable (Fair Structure)	Low	Low	Low	Low			

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