

Arboricultural Impact Assessment

Proposed Alterations & Additions at

41 Pacific Parade, Manly

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2 Summary

This Arboricultural Impact Assessment (AIA) is based on nineteen (19) trees located at 41 Pacific Parade, Manly (subject site). Alterations and additions to the existing dwelling are proposed including new swimming pools and hardstand parking spaces.

This purpose of this report is to describe the likely impacts of the proposed works on the site trees and make recommendations to limit the potential for adverse impacts on trees recommended for retention.

The Retention Values of the subject trees were rated as outlined in the following Table. Refer to the Tree Protection Plan (Attachment C) for tree locations.

	High Retention Value (Tree Number)	Medium Retention Value (Tree Number)	Low Retention Value (Tree Number)
To be Retained	1, 19	4, 5, 6, 16, 17, 18	-
To be Removed	-	3, 7, 8, 10, 11, 12, 13, 14	2, 9, 15

Table A: Retention Values of the Subject Trees.

Each of the two (2) of the High Retention Value trees and six (6) of the Medium Retention Value trees are able to be retained.

Eleven (11) trees are proposed to be removed as part of this project. This includes eight (8) Medium Retention Value trees and three (3) Low Retention Value trees.

There are construction works proposed within the Tree Protection Zones (TPZ) of Trees 1, 4, 6, 16 and 19. Recommendations have been made regarding tree protection measures to limit the potential for impact on retained trees.

3 Introduction

3.1 Background

This Arboricultural Impact Assessment (AIA) was prepared for Castlepeake Architecture in relation to the existing trees and alterations & additions at 41 Pacific Parade, Manly (subject site).

The purpose of this AIA is to assess the likely impacts of the proposed works on the existing site trees and make recommendations regarding construction methods and tree protection measures to limit adverse impacts on trees recommended for retention.

This AIA has been prepared in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites.*

3.2 Subject Site/Proposed Works

The subject site is occupied by a single storey residential dwelling with a front and rear yard.

It is proposed to undertake alterations and additions to the existing dwelling including two new hardstand parking spaces within the front yard and two new swimming pools within the rear yard.

3.3 Subject Trees

All trees within the site have been assessed. The tree population of the site is made up of planted exotics and planted Australian natives.

Refer to the Tree Protection Plan (Attachment C) for tree locations and numbers. A detailed description of the subject trees is included in the Tree Assessment Table (Attachment A).

4 Methodology

4.1 Site Inspection

Site inspection and tree assessment was undertaken on the 9th of February, 2021. The trees were assessed from ground level using a Tree Assessment Table, which is included as Attachment A. The definitions and explanations of terms used are outlined in the Tree Table Definitions page which is included at Attachment B.

The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.

4.2 Exploratory Excavation

Exploratory excavation was undertaken in the area where the proposed driveway cross-over overlaps the Tree Protection Zone of Tree 1. The purpose of this was to determine the number and size and depth of any roots that were growing into the area of proposed excavation. Exploratory excavation was undertaken with care by Alexis Anderson using hand tools to a depth of 200mm. This depth was sufficient to clear the likely depth of a driveway slab. Refer to Figure B below for the trench location.



Figure A: Excerpt from the Proposed Ground Floor Plan (Part 1) showing the location of exploratory trenching.

4.3 Plan Review

The set of plans provided by Castlepeake Architecture (Issue E) were reviewed as part of this assessment.

No detailed landscape Plan or Structural Engineering Detail were available for review as part of this assessment.

4.4 **Tree Protection Zones**

Tree assessments in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites*, require calculation of a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ). The following is a brief explanation of these terms:

Tree Protection Zone -TPZ: This is the area that should be isolated from construction disturbance so that the tree remains viable. Some disturbance within the TPZ may be possible following arboricultural assessment.

<u>Structural Root Zone -SRZ</u>: This is the area or undisturbed soil and roots required to maintain tree stability. Excavation within the SRZ can lead to whole tree failure.

Refer to the Tree Assessment Table (Attachment A) for the Tree Protection Zones of the assessed trees.

4.5 Retention Values

Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

- **HIGH Retention Value**: These trees are worthy of retention and design consideration should be made where possible to allow their retention.
- **MEDIUM Retention Value**: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, stormwater pipes, garden retaining walls, driveway levels).
- **LOW Retention Value**: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men[®] Australia Pty Ltd.

4.6 **Consideration for Tree Retention and Removal**

Where demolition of existing structures, excavation or fill is proposed within the Tree Protection Zone (TPZ), arboricultural assessment and sensitive construction methods will be required. Where works are proposed outside of the TPZ, no sensitive construction methods are required.

Tree removal recommendations have been based on tree Retention Values and construction offsets. Trees may generally be recommended for removal in the following circumstances:

- Trees located within construction footprints.
- Trees with construction proposed within SRZ where root loss cannot be avoided through sensitive design.
- Trees with a TPZ loss of more than 25%, may be recommended for removal providing tree sensitive design cannot be implemented to avoid significant root and canopy loss.
- Trees with low Retention Values may be recommended for removal irrespective of proposed development.

5 Potential Impacts of Proposed Works

Tree	Retention	Reason for Removal
Number	Value	
2	Low	Proposed to be removed as the client's landscape preference. This tree has the potential to damage the stone verandah wall if left to grow to maturity.
3	Medium	Excavation for the car space handstand and retaining wall is proposed within the Structural Root Zone. Major root loss is likely. Approximately 40% of the canopy would require removal to allow space for parked vehicles. The health, stability and landscape amenity of this tree is likely to be compromised by the proposed works.
7	Medium	Excavation for building footings is proposed within the Structural Root Zone. This tree may be destabilised by the proposed works. This species (Kentia Palm) is exempt from protection within the Northern Beaches LGA.
8	Medium	Within the area of excavation for the rear yard lawn level. This species (Jacaranda) is exempt from protection within the Northern Beaches LGA.
9	Low	Poor health and vitality. This tree was almost dead at the time of inspection. It is within the area of excavation for rear yard lawn level. This species (Mango Tree) is exempt from protection within the Northern Beaches LGA.
10	Medium	Within the proposed pool deck location. This species (Jacaranda) is exempt from protection within the Northern Beaches LGA.
11, 12	Medium	Within the area of proposed excavation for landscaping. This species (Kentia Palm) is exempt from protection within the Northern Beaches LGA
13, 14	Medium	Excavation for landscaping is proposed within the Structural Root Zone. Major root loss and tree destabilisation is likely. These species (Small- leaved Fig and Kentia Palm) are exempt from protection within the Northern Beaches LGA.
15	Low	Within the area of proposed swimming pool excavation. This species (Mulberry Tree) is exempt from protection within the Northern Beaches LGA.

5.1 **Trees to be removed**

Tree	Retention	Works proposed within the Tree Protection Zone (TPZ)
Number	Value	
	_	Excavation for the new car space hardstand is proposed within the TPZ.
1	High	Less than 10% of the TPZ area will be affected. Some pruning of woody
		transport roots and fine absorbing roots may be required. No roots were
		encountered during exploratory excavation in the area of the proposed
		driveway cross-over.
		New stairway construction is proposed within the TPZ. It will be possible
4	Medium	to construct this with minimal ground disturbance. No notable impact is
		expected.
		Excavation for building footings is proposed within the TPZ. Some pruning
6	Medium	of fibrous roots may be required. This tree has a reasonable prospect of
		survival and remaining viable in the long-term.
		Excavation for the pool deck level 5.50 is proposed within the TPZ.
16	Medium	Approximately 10-15% of the TPZ area will be affected. Some pruning of
		woody transport roots and fine absorbing roots may be required. Existing
		ground levels will be retained within the Structural Root Zone. This tree is
		likely to tolerate the proposed works and remain viable in the long term.
19	High	Excavation for the swimming pools is proposed within the TPZ. Less than
		10% of the TPZ area will be affected. No notable impact is expected. The
		new boundary fence and dividing fence is proposed within the Structural
		Root Zone. All fences within a 4.0m radius of Tree 19 are to be
		constructed as timber post and rail with isolated post footings.
5, 17, 18	Medium	No works are proposed within the TPZ. No impact is expected.

5.2 **Potential Impacts of Proposal on Retained Trees**

Incidental Impacts: There is the potential for incidental/accidental damage to the trunk, canopy and shallow roots of all retained trees throughout the construction process. Trees are commonly impacted on construction sites in the following ways.

- Stripping of topsoil and removal of organic material form the soil surface.
- Compaction of the topsoil and damage to surface roots through use of heavy machinery and frequent foot traffic.
- Soil contamination through washing out barrows and disposal or spillage of chemical materials.
- Root loss due to unforeseen excavation for plumbing upgrades and landscape construction.
- Bark/trunk and branch injuries from accidental contact with machinery.

These impacts can be easily avoided through communication with building contractors and basic tree protection measures.

5.3 Exploratory Excavation Findings

Exploratory excavation was undertaken along the eastern edge of the proposed driveway cross-over. This was undertaken to a depth of 200mm. No tree roots were encountered within the driveway cross-over alignment.



Photo A: Area of exploratory excavation taken facing north.



Photo B: Area of exploratory excavation taken facing south.

6 Recommendations

6.1 Site Establishment – Prior to Construction

Appointment of a Project Arborist: An Arborist with an AQF Level 5 qualification in Arboriculture and experience in tree protection within construction sites should be engaged prior to the commencement of work on the site. The Project Arborist should be present at the following times:

- Following installation of tree protection fencing and trunk protection.
- During any excavation within the TPZ of retained trees.
- At any time tree protection fencing is required to be altered.
- At project completion to verify tree protection and retention.

Tree Removal: Eleven (11) trees are proposed to be removed as part of the project. Tree removal contractors should be briefed on the need to protect retained trees during tree removal operations. Tree removal works should be undertaken in accordance with the WorkSafe Australia *Guide to Managing Risks of Tree Trimming & Removal Work.*

Tree Protection Fencing (Trees 5, 16, 17, 18, 19): Tree Protection Fencing should be installed prior to any machinery or materials being bought on site and remain in position throughout the entire project. Tree Protection Fencing should be erected in the areas defined in the Tree Protection Plan (Attachment C). Tree Protection Fencing should consist of 1.8 metre high chainlink panels on moveable concrete pads. Tree Protection Fencing should be clamped at each panel junction.

Tree Protection Fencing should not be moved at any time without consultation with the Project Arborist. An example of adequate tree protection fencing is detailed below.



Figure B: Example of adequate tree protection fencing

<u>Trunk Protection</u> (Trees 1, 4 and 6): Trunk protection is recommended for Trees 1, 4 and 6 as an alternative to fencing due to the limited available space. Detail of adequate trunk protection is detailed below.



Figure C: Example of adequate trunk protection.

6.2 During Construction

<u>Stairway Construction</u> (Tree 4): Excavation for the stair footing adjacent to Tree 4 must be undertaken with care using hand tools. Any tree roots encountered must be cleanly cut using sharp secateurs or a hand saw. This process must be undertaken under guidance of the Project Arborist.

Excavation for Building Footings (Tree 6): Excavation for building footings within a 2.0m radius of Tree 6 must be undertaken with care using hand tools. Any tree roots encountered must be cleanly cut using sharp secateurs or a hand saw. This process must be undertaken under guidance of the Project Arborist.

Excavation for Swimming Pool and Deck Level (Tree 16 and 19): Excavation for the swimming pools and deck level 5.50 must be undertaken under Project Arborist guidance. The areas where this is recommended is detailed on the Tree Protection Plan (Attachment C). The area between Tree 16 and the pool deck retaining wall must be retained as existing with no topsoil scraping or levelling.

<u>Rear Yard Fence</u> (Tree 19): The rear boundary fence and lot dividing fence within a 4.0m radius of Tree 19 must be constructed on isolated post footings. All post footings within this radius must be excavated with care using hand tools. Footing positions must be adjusted as necessary to avoid tree roots greater than 40mm diameter.

Tree Protection Zones: Refer to the Tree Assessment Table (Attachment A) for the spread of TPZ's of trees nominated for retention. The following should be prohibited within the Tree Protection Zones:

- Stripping of topsoil or organic surface material outside of building/landscape footprints.
- Storage of material, vehicles and machinery.
- Disposal of solid, liquid or chemical waste.
- Any excavation, fill or other construction activity other than that discussed in this report.

If the existing groundcover is stripped within a Tree Protection Zone, it should be replaced with leaf and woodchip mulch to a depth of 80-100mm.

6.3 **Post Construction Tree Care**

At the completion of the project, the retained trees should be inspected by the Project Arborist. Depending on the health and vitality of retained trees, the Project Arborist may prescribe some remedial tree care. This may include installation of temporary or permanent irrigation, application of soil conditioners, compost application, fertiliser application and installation of mulch.

7 Statement of Impartiality

- This report prepared by Bluegum Tree Care & Consultancy (BTCC) reflects the impartial and expert opinion of Alexis Anderson.
- BTCC is acting independently of and not as the advocate for the owners of the subject trees.
- BTCC does not undertake tree pruning and removal works and will not have any involvement with pruning or removing trees which are the subject of this report.

8 Limitations

- The findings of this report are based upon and limited to visual examination of trees from ground level without any climbing, internal testing and limited exploratory excavation.
- The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.
- This report reflects the health and structure of trees at the time of inspection. Bluegum cannot guarantee that a tree will be healthy and safe under all circumstances or for a specified period of time. There is no guarantee that problems or defects with assessed trees, will not arise in the future. Liability will not be accepted for damage to person or property as a result of failure of assessed trees.

Tree No.	Common Name/ Genus Species	Trunk Diameter (cm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Works proposed within the TPZ	Proposed Action.
1	Camphor Laurel, Cinnamomum camphora	93	17	8	м	F	G	11.6	3.2	Medium (10-30 yrs)	2	High	Street tree. Crown thinning and dead branches.	Excavation for the new car space hardstand is proposed within the TPZ. Less than 10% of the TPZ area will be affected.	Retain.
2	Sweet Pittosporum, Pittosporum undulatum	14	6	3	EM	G	G	2.0	1.5	Medium (10-30 yrs)	4	Low	Self sown native. This tree has the potential to lift the verandah stone wall if left to grow to maturity.	Nil.	Remove.
3	Frangipani, Plumeria acutifolia	33 at base	6	4	м	G	G	4.0	2.1	Long (30+ yrs)	3	Medium		Excavation for the car space handstand and retaining wall is proposed within the Structural Root Zone. Approximately 40% of the canopy would require removal to allow space for parked vehicles.	Remove.
4	Tree Fern, Cyathea australis	10, 10	6	1.5	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium		New stairway construction is proposed within the TPZ. It will be possible to construct this with minimal ground disturbance. No notable impact is expected.	Retain.
5	Weeping Bottlebrush, Callistemon viminalis	15	7	3	м	G	G	2.0	1.5	Long (30+ yrs)	3	Medium	Neighbours tree.	No works are proposed within the TPZ. No imapct is expected.	Retain.
6	Kentia Palm, Howea forsteriana	17	8	2	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Excavation for building footings is proposed within the TPZ. This tree has reasonable prospect of survival and remaining viable in the long term.	Retain.
7	Kentia Palm, Howea forsteriana	13	9	2	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Excavation for building footings is proposed within the Structural Root Zone. This tree may be destabilised.	Remove.
8	Jacaranda, Jacaranda mimosifolia	47	14	7	м	G	G	5.6	2.5	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Within the area of excavation for the rear yard lawn level.	Remove.
9	Mango Tree, Mangifera indica	34	4	0	м	Ρ	Ρ	4.1	2.1	Short (0-10 yrs)	5	Low	Lopped at 4m height. Was almost dead at the time of inspection. This species is exempt from protection within the Northern Beaches LGA.	Within the area of excavation for the rear yard lawn level.	Remove.
10	Jacaranda, Jacaranda mimosifolia	37	13	6	м	G	G	4.5	2.2	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Within the proposed pool deck location.	Remove.
11	Kentia Palm, Howea forsteriana	11	7	3	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Within are of proposed excavation for landscaping.	Remove.
12	Kentia Palm, Howea forsteriana	13	12	2	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Within are of proposed excavation for landscaping.	Remove.
13	Smalled-leaved Fig, Ficus obliqua	15, 15, 15	8	4	м	G	G	4.0	2.2	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Excavation for landscaping is proposed within the Structural Root Zone.	Remove.
14	Kentia Palm, Howea forsteriana	10	12	2	м	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	Excavation for landscaping is proposed within the Structural Root Zone.	Remove.

February, 2021	
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Tree No.	Common Name/ Genus Species	Trunk Diameter (cm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Works proposed within the TPZ	Proposed Action.
15	Mulberry Tree, Morus nigra	27	6	4	м	G	G	3.2	2.0	Long (30+ yrs)	4	Low	This species is exempt from protection within the Northern Beaches LGA.	Within the area of proposed swimming pool excavation.	Remove.
16	Jacaranda, Jacaranda mimosifolia	30, 25, 20, 20	14	5	М	G	G	5.8	2.5	Long (30+ yrs)	3	Medium	Located on the neighbouring property. This species is exempt from protection within the Northern Beaches LGA.	Excavation for the pool deck level 5.50 is proposed within the TPZ. Approximately 10-15% of the TPZ area will be affected. Existing levels will be retained within the Structural Root Zone.	Retain.
17	Blackbean Tree, Castanospermum australe	18	11	3	м	G	G	2.2	1.7	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	No works are proposed within the TPZ. No imapct is expected.	Retain.
18	Blackbean Tree, Castanospermum australe	20	11	3	м	G	G	2.4	1.7	Long (30+ yrs)	3	Medium	This species is exempt from protection within the Northern Beaches LGA.	No works are proposed within the TPZ. No imapct is expected.	Retain.
19	Sydney Red Gum, Angophora costata	33	12	4	м	G	G	4.0	2.2	Long (30+ yrs)	2	High		Excavation for the swimming pools is proposed within the TPZ. Less than 10% of the TPZ area will be affected.	Retain.

Attachment B: TREE ASSESSMENT DEFINITIONS

<u>**Height**</u>. Tree height is estimated from ground level. This assessment is made independently of data plotted on survey plan. These measurements have not been confirmed with clinometer or other surveying instrument.

Trunk Diameter. Trunk diameter is measured at 1.4 metres above ground level. A diameter tape is used which calculates the diameter from a measurement of the circumfrence. DBH is primarily used for the calculation of the TPZ and SRZ.

If a tree has more than 4 trunks, the diameter of the four largest trunks is recorded. For irregular trunk formations the DBH is calculated as outlined in Appendix A of AS4970-2009 -*Protection of Trees on Development Sites*.

<u>Canopy Spread Radius</u>. Average canopy spread radius is estimated from the centre of trunk to the outer edge of canopy. Refer to Comments column for detail of heavily skewed canopy spread.

<u>Age Class</u> - This is an estimation of the tree's current age class based on size, growth habit, local environmental conditions and comparison with surrounding trees.

- Immature (IM): This is a juvenile specimen that is likely to have germinated within the previous 5 years.
- Early Mature (EM): This is a tree that is established within its growing environment, though has not reached an age of reproductive maturity or the natural growth habit of a mature individual.
- Mature (M): This is a tree has reached both reproductive maturity and a physical form and shape typical for the species. Trees can have a Mature Age Class for the majority of their life span.
- Late-Mature (LM): There trees show early signs of senescence with symptoms such as reduced canopy density and an accumulation of dead branches.
- **Over-mature (OM)**: These trees show symptoms of irreversible decline such as canopy dieback with dead branches concentrated in the upper canopy.

<u>Health/Vitality</u> - Good (G), Fair (F) or Poor (P). This is primarily based on the extent of vigorous new foliage growth at branch tips and the colour, size and density of foliage generally. The percentage of live branches to dead branches is considered. The location of any dead branches is also considered. The presence of any pest or disease is considered as part of this assessment. Health can vary with climatic conditions.

<u>Structural Condition</u> - Good (G), Fair (F) or Poor (P). This is an assessment of tree structure and stability. Root anchorage, trunk lean, structural defects, canopy skew and any hazardous features are considered. Dead branches can be considered as part of Structural Condition if they are of a size and location that could cause injury or property damage.

Tree Protection Zone (TPZ). This is a radial distance of (12X) the DBH measured from centre of trunk. TPZ is rounded to the nearest 0.1 metre. A TPZ should not be less than 2m or greater than 15m. The TPZ for palms and other monocots should not be less than 1m outside of the crown projection. Existing constraints to root spread can vary the TPZ. For a tree to remain viable, construction activity should be excluded or undertaken with care within the TPZ. Disturbance within up to 10% of the TPZ area is considered to be a minor encroachment. Disturbance to more than 10% of the TPZ area is considered a major encroachment. Major encroachment into the TPZ is possible depending on the type of disturbance, and species tolerance to disturbance. Exploratory excavation may be required to quantify the presence of roots at the alignment of proposed ground disturbance.

This is based upon the Australian Standard AS 4970, 2009, Protection of trees on development sites and the Matheney & Clarke "Guidelines for adequate tree preservation zones for healthy, structurally stable trees".

<u>Structural Root Zone (SRZ).</u> This is a radial distance based on the following formula- SRZ =(D x 50) $^{0.42}$ x 0.64 (for trees less than 150mm Diameter, a minimum SRZ of 1.5 metres). SRZ measurements are rounded to the nearest 0.1m.

The Structural Root Zone is the area of soil and roots required to maintain tree stability. Excavation within the SRZ can result in whole tree failure. Fully elevated construction is possible within SRZ with specific rootzone assessment. Existing constraints to root spread can vary the SRZ. This method of determining SRZ is outlined at Section **3.3.5** of Australian Standard AS 4970, 2009, *Protection of trees on development sites.*

Estimated Remaining Life Expectancy: This gives a length of time that the Arborist believes a particular tree can be retained from the time of assessment with an acceptable level of risk based on the information available at the time of the inspection. This system of rating does not take into consideration the likely impacts of any proposed development. Ratings are **Long** (retainable for 30 years or more with an acceptable level of risk), **Medium** (retainable for 10-30 years), **Short** (retainable for 0-10 years) and **Removal** (tree requiring removal due to risk/hazard or absolute unsuitability).

Landscape & Environmental Significance*. This is an assessment of the impact of the tree on the surrounding landscape amenity and natural environment. Rarity, habitat value, physical prominence, historical and cultural significance of the tree are considered in this rating system. The Landscape & Environmental Value ratings used in this report are:

1. Very High Value: This is an outstanding specimen that holds irreplaceable environmental, landscape or cultural value.

2. High Value: An excellent specimen that holds environmental, landscape or cultural value that is present in other site trees or that could be replaced.

3. Moderate Value: Can be a good to fair specimen with environmental, landscape or cultural value that is common within other trees in the locality.

4. Low Value: Removal would not result in any loss of site amenity or environmental value. Can include undesirable or weed species or trees growing in unsuitable locations.

5. Very Low Value : Dead or hazardous with no other environmental or cultural value. Could also include weed species. These trees should be removed or pruned in a way to make safe irrespective of any development.

*Note: The concept of using a five (5) point scale to assess tree significance was derived from the Tree Wise Men® Australia Pty Ltd ©Significance Rating Scale.

<u>Retention Value</u>*. Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

					Estimate	ed Life Expectanc	y
				Long	Medium	Short	Removal
<u>s</u>	En	La	Very High (1)				
gnifi	viron	ndso	High (2)	Н	IGH	MEDIUM	
cance	Iment	cape 8	Medium (3)	MED	NUM		1
	<u>a</u>	Xo	Low (4)			LOW	
			Very Low (5)				

HIGH Retention Value: These trees are worthy of retention and major design consideration should be made where feasible to allow this.

MEDIUM Retention Value: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, garden retaining walls, driveway levels).

LOW Retention Value: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

*Note: The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.



adequate site access during construction. Refer to the report for detail of adequate fencing and trunk protection type.

istered Architects				Scales	Job No.	Drawing No.	Revision	
- Reg No. 7130 g No. 9854	Kelly Wils	son - Reg N	No. 11312	1:100@A3		DA02	E	
								_

ominated Regi ark Oxenham artin Hall - Re



Tree Protection Fencing	
Trunk Protection	0