

## ARBORICULTURAL IMPACT ASSESSMENT (AIA) REPORT

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Prepared For: Bonnie McDonald  
Site Address: 110 Woorarra Ave North Narrabeen  
Inspection Date: 27 May 2022  
Report Date: 30 May 2022



*Photo 1: The front of property.*

Prepared by Margot Blues  
Diploma (Arboriculture) AQF 5  
0414991122



## 1 Executive Summary

- 1.1.1 Margot Blues Consulting Arborist has been engaged by Jo Willmore of Jo Willmore Designs on behalf of the owner to inspect and report on trees located in close proximity to construction for development application purposes.
- 1.1.2 Northern Beaches Council (DA2022/0422 Landscape Referral Response dated 7/4/2022) has requested an Arboricultural Impact Assessment Report (AIA) in order to proceed with the application.
- 1.1.3 A total of 5 trees were assessed being:-  
T1: *Auranticarpa rhombifolia*  
T2 & T3 *Jacaranda mimosifolia*  
T4 & T5 *Syzygium spp.*
- 1.1.4 Alterations and additions proposed in close proximity to trees include extension of the existing driveway; construction of a new fence (stone across the front and light weight modular fence along the north western side boundary) and new timber stairs towards the north western side boundary and additions to the rear of the dwelling.

In reviewing the supplied architectural plans and AS4970-2009 guidelines, the following recommendations have been determined:-

Trees to be retained:

High Retention	Moderate Retention	Low Retention	Exempt Species
	T1, T2* & T3*		

Table 1: Trees retainable.

- 1.1.5 T1: The new Stone wall along the driveway perimeter shall have its footings incorporated into the driveway extension. This will eliminate additional trenching within the SRZ which is anticipated to occur due to the isolated piers and footings supporting the driveway. If this cannot occur, then tree removal is recommended.

Trees to be removed:

High Retention	Moderate Retention	Low Retention	Exempt Species
			T4 & T5

Table 2: Trees not-retainable.



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## 2 Introduction

### 2.1 Background

- 2.1.1 This report has been commissioned for development application purposes. Alterations and additions are proposed with major works to occur to the rear of the dwelling. Moderate to slight changes for the front and north western side boundary are proposed.
- 2.1.2 The report's aim was to:
- Conduct a visual assessment of the trees protected in accordance with Northern Beaches Council Tree
  - Determine the construction impact to trees in close proximity to the development as per the Australian Standard AS4970:2009 *Protection of trees on development sites*.
  - Categorise the trees into retention priority (High/Medium/Low Retention value).
- 2.1.3 Information supplied and relied upon for the preparation of this report include:
- Architectural suite of plans by Jo Willmore Designs Dated January 2022 Amendment "A" June 2022.
  - NSW Planning Portal property report
  - Survey by CMS Surveyors dated 16/6/2021
  - Published directives Northern Beaches Council – Tree Management policy.
- 2.1.4 The use of these documents is acknowledged.



### 3 Methodology

- 3.1.1 Site attendance occurred on 27 May 2022. Trees were assessed using the Visual Tree Assessment (VTA) methodology derived by Mattheck and Breloer (1994) encompassing the biological and mechanical characteristics as presented.
- Biological assessment included leaves (volume and colour); the presence of pests and diseases, canopy dieback, deadwood and epicormic growth.
  - Tree mechanics included assessment of structural stability, previous pruning and any damage/disturbance which may have occurred.
- 3.1.2 No destructive or aerial investigations occurred.
- 3.1.3 Tree height and canopy width were estimated.
- 3.1.4 Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) have been calculated as per AS4970-2009 *Protection of trees on development sites*. Measurements were achieved with the aid of a builder's tape measure, diameter tape, and *Leica® Distometer™* (Laser) and scaled drawings.
- 3.1.5 Appendix 1: Tree Data
- 3.1.6 Appendix 2: Tree location; construction impact.
- 3.1.7 Appendix 3: Photographs.
- 3.1.8 Appendix 4: Significance Rating.
- 3.1.9 This report is considered limited to what could reasonably be seen from ground level and expresses no commentary on changes which may have, or will, impact the trees or their environment outside the scope of works. The visual assessment of neighbouring tree T2, was limited to what could be seen over the fence.
- 3.1.10 Tree retention values have been assessed based on the IACA *Significance of a Tree, Assessment Rating System (STARS)* methodology.

### 3.2 Assumption made

T1: Given the reduction in levels between the existing driveway and the paved pathway adjacent to this tree, an assumption is made that the driveway extension will be constructed above existing grade and supported by isolated piers.

The proposed stone wall across the front of the property will require a continuous footing. This footing to be incorporated with the driveway extension if possible otherwise will require tree sensitive methods of construction to preserve roots.

The new modular fence shown along the north western side boundary to be constructed of light weight material supported by isolated footings and posts.

The proposed timber stairs and landings will be supported by isolated footings.



## 4 Results

### 4.1 Desktop Research

4.1.1 Research from the NSW Planning portal identified the following information for the property:

- Zoning: C4– Environmental Living
- Local provisions: Geotechnical Hazard H1
- Biodiversity identified.

4.1.2 In accordance with published directives by Northern Beaches Council– A Protected Tree is:

- Having a height of 5 metres or more,
- Not listed on the *Exempt tree species list* or listed as a weed species under the *Biosecurity Act 2015*.

### 4.2 The Site

4.2.1 The site sloped downward from front boundary to rear (south to north). The current stairs along the north western boundary are irregular

4.2.2 Currently a multi storeyed dwelling occupies the front of site.

### 4.3 The Trees

All assessed trees were within close proximity to the construction. All appeared in good health and condition. Three mature trees were located close to the north western boundary. The survey shows T1 straddling the boundary with T2 & T3 shown located within neighbouring property.

At the time of inspection the fourth tree shown on the survey and architectural plan being north of T3 did not exist. It is understood removal had occurred under a previous tree removal permit.

Trees T2 and T3, both Jacaranda mimosifolia Jacaranda are exempt listed, and T4 and T5 both Lilli Pilli had not attained a height of 5 metres.



## 4.4 Construction impact to each tree

### 4.4.1 The development impact upon each tree based on the proposal:

Tree ID	Species	Comment	Recommendation
T1	<i>Auranticarpa Rhombifolia</i> Diamond- leaf Pittosporum	<p><b>Location: Front garden western boundary</b></p> <p><b>Construction impact:</b> High as per AS4970-2009.</p> <p>Construction within TPZ/SRZ being isolated piers. Concrete driveway will minimally cause a "Rain shadow" as the area is already hard paved.</p> <p>No pruning should be required.</p> <p>The proposed two front stone privacy walls' footings (driveway and in front of dwelling to be incorporated with the proposed concrete driveway extension where possible. The driveway extension is assumed to be suspended above existing grade.</p> <p>If not, discontinuous footing will be required where tree roots 3cm or greater are encountered. A minimum gap of 75mm around the root is required.</p> <p>The side boundary privacy screen to be light weight and supported on isolated piers and footings.</p>	<p><b>Retention Value:</b> <b>Moderate</b></p> <p><b>Retain</b> Trunk armouring protection required.</p> <p>Tree sensitive methods of construction required. i.e. hand dug footing which will be flexible in positioning to avoid encountered tree roots 3cm or greater in diameter.</p> <p>Driveway: New stone wall on driveway perimeter to be incorporated with driveway extension.</p> <p><b>IF NOT, THEN TREE REMOVAL IS RECOMMENDED.</b></p>
T2*	<i>Jacaranda mimosifolia</i> (Jacaranda)	<p>Neighbouring tree – Plan DA-03A.</p> <p>Construction impact – Low – Timber stairs to be constructed mainly above ground.</p> <p>The horizontal landings are shown at grade and to be constructed from timber.</p> <p>The side boundary privacy screen to be light weight and supported by isolated piers and footings.</p> <p>No pruning is anticipated. Replacement new trees not to injure tree roots on planting</p>	<p><b>Retention Value:</b> Low – Tree exempt listed</p> <p><b>Retain</b></p> <p><b>Hand dig stair footings.</b> Footing positioning to be flexible in location preserving tree roots 3cm or greater in diameter.</p> <p>Recommend small tree sizes.</p>





T3*	<i>Jacaranda mimosifolia</i> (Jacaranda)	<p>Neighbouring tree – Plan DA-03A.</p> <p>Construction impact – Low – Timber stairs to be constructed above ground.</p> <p>The horizontal landings are shown at grade and to be constructed from timber.</p> <p>The side boundary privacy screen to be light weight and supported on isolated piers and footings.</p> <p>No pruning should be required. Replacement screening trees not to injure roots on planting.</p>	<p><b><u>Retention Value:</u></b> Low – Tree exempt listed.</p> <p><b>Retain</b></p> <p><b>Hand dig stair footings.</b> Footing positioning to be flexible in location preserving tree roots 3cm or greater in diameter.</p>
T4 & T5	<i>Syzygium spp</i> Lilli Pilli	<p>Construction Impact – High – DA-02A &amp; DA-03A.</p> <p>Trees are exempt as they have not attained a height of 5 metres. These trees should not pose a constraint upon the development.</p> <p>Extensive pruning will be required based on the proposed plan.</p>	<p><b><u>Retention Value:</u></b></p> <p><b>Remove</b></p>

Table 3: Construction impact to each tree based on the proposed. \*Denotes trees outside the property boundary.





## 5 Conclusion & Recommendation

T1: The driveway extension, new front walls and modular fencing occur within both the SRZ and TPZ of the tree. Tree sensitive methods of constructions are required as per AS 4970-2009 *Protection of trees on development sites* - specifically section 3.3.4.

Driveway: given the existing land height differences, an assumption is made the driveway extension will be suspended above grade and supported by isolated piers. Much of the TPZ/SRZ already is covered by hard surface. Depending upon the final engineered design of driveway and proposed walls, water ingress points could be provided for to reduce/alleviate the “rain shadow” effect created by the extended covering. Should the extended driveway “tie in” with the existing (at the front of property’s line of easement to neighbouring property DA-01A) will marginally reduce the garden area (deep soil).

Stone wall: The proposed front stone wall to be located along the south western easement line shall have its footings incorporated into the driveway extension. This will eliminate additional trenching within the SRZ which is anticipated to occur due to the isolated piers and footings associated with the driveway. If this cannot occur, then tree removal is recommended.

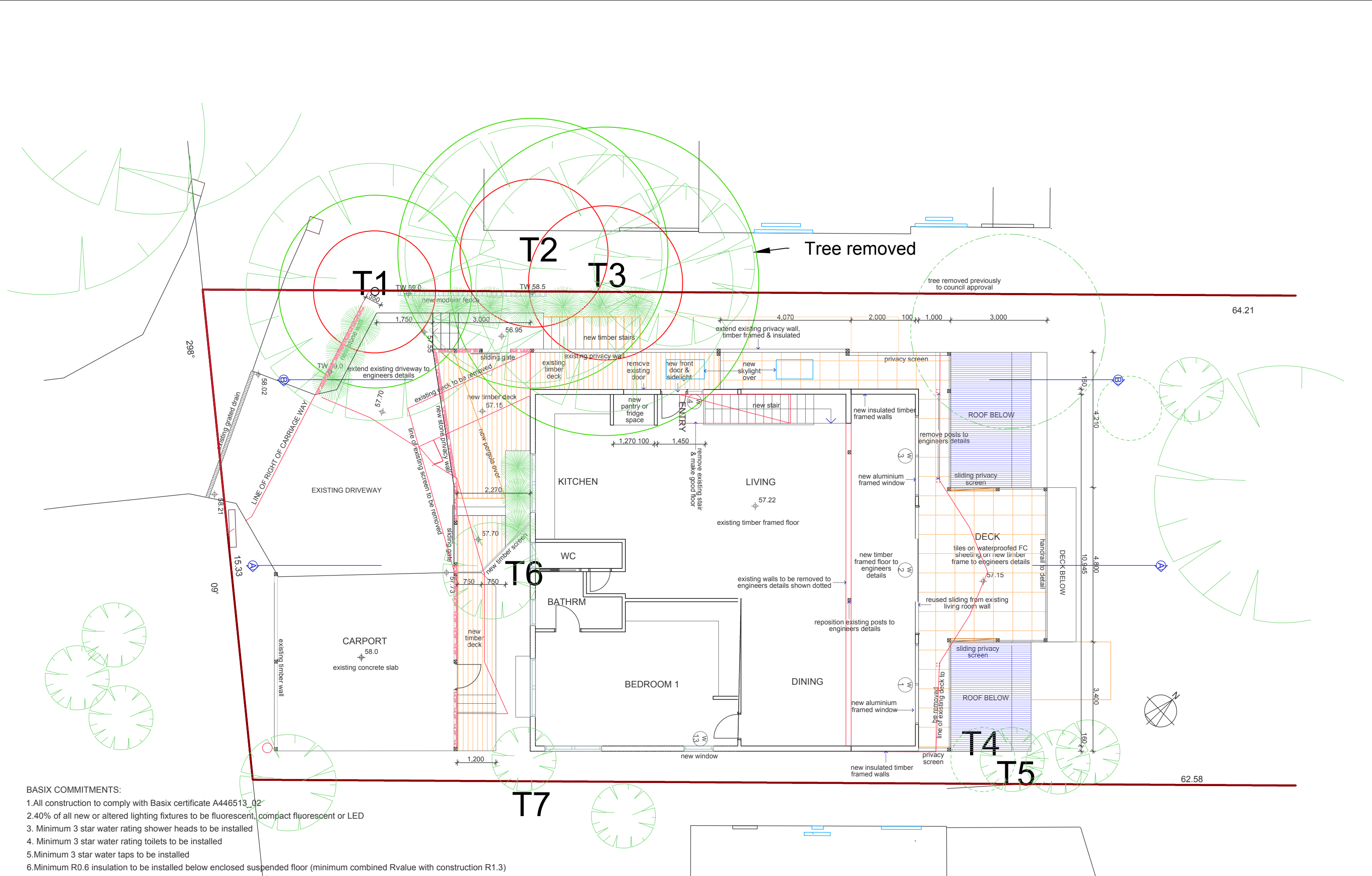
T2 & T3 – Both mature Jacaranda trees and located within neighbouring property No 112 Woorarra Avenue. These trees are exempt listed as per directives of Northern Beaches Council. The modular boundary fence is to extend from T1 and ending approximately in line with the front of the dwelling. This fence is in very close proximity to the trunks of both trees.

It is anticipated structural roots will be present within this area therefore it is recommended isolated piers and footing, flexible in positioning, be considered rather than continuous strip footings.

T4 & T5: Both Lilli Pilli trees are exempt as they have not attained a height of 5 metres. A permit for pruning or removal is not required in this instance.

Based on the proposal no construction impact will occur to any other remaining site trees.

Appendix 1: Tree Data Summary - 110 Woorarra Ave North Narrabeen - Assessed 27/5/2022																	
Tree ID	Species	Height (m)	Canopy dims n/s in metres	DBH (cm)	DGL (cm)	Foliage condition	Maturity	Trunk type	Trunk lean	Canopy Balanced	Past Pruning	Stability	Vigour	Canopy deadwood	Notes - at the time of inspection	TPZ (M) Radius	SRZ (M) Radius
T1	<i>Auranticarpa rhombifolia</i> Diamond leaf Pittosporum	8	4	25	27	Excellent	Mature	Single upright		Balanced	To 3 metres	Appears stable	Good	<5%	Tree located at front of property and appears to straddle the property boundary with o 112 Woorarra Avenue. Tree appeared in excellent health and condition. Some dense foliage around trunk base limiting the visual assessment.	3.0	1.9
T2^	<i>Jacaranda mimosifolia</i> Jacaranda	10	8	35	40	Excellent	Mature	Single upright		All to the west	Foliage east	Appears stable	Good	<5%	Despite pruning to the east for building clearance purposes. This mature tree appeared in good health and condition. Some bark located on the upper main branch surfaces appeared insect damaged. Otherwise no further comment warranted.	4.2	2.3
T3	<i>Jacaranda mimosifolia</i> Jacaranda	10	7	40	45	Excellent	Mature	Single upright		All to the west	Foliage east	Appears stable	Good	<5%	A co-dominant branch east of trunk has historically been removed due to conflict with the building 110 Woorarra Ave. No further comment required.	4.8	2.4
T4	<i>Acmena spp possibly Acmena smithii</i> 'sublime;	<4	2	10	12	Very Good	Mature	Single upright		Balanced		Appears stable	Good	<5%	4 x trees planted as a hedge have not attained a height of 5 metres.,	1.2	1.4
T5	<i>Acmena spp possibly Acmena smithii</i> 'sublime;	<4	2	10	12	Very Good	Mature	Single upright		Balanced		Appears stable	Good	<5%	As above	1.2	1.4
T6	<i>Dracena sp</i>	<4	2	10	12	Very Good	Mature	multi		Balanced		Appears stable	Good	<5%	Exempt	1.2	1.4
T7	<i>Camellia japonica</i>	<4	2	10	12	Good	Mature	Single upright		Balanced		Appears stable	Good	<5%	Exempt	1.2	1.4
	Exempt trees - 5m in height or exempt listed .																
	^ Denotes tree located outside property boundary		DBH - Diameter at Breast height 1.4m above ground		DGL - Stem diameter measured above root flare.				Significance Value High Moderate Low								



- BASIX COMMITMENTS:**
- 1.All construction to comply with Basix certificate A446513\_02
  - 2.40% of all new or altered lighting fixtures to be fluorescent, compact fluorescent or LED
  - 3. Minimum 3 star water rating shower heads to be installed
  - 4. Minimum 3 star water rating toilets to be installed
  - 5.Minimum 3 star water taps to be installed
  - 6.Minimum R0.6 insulation to be installed below enclosed suspended floor (minimum combined Rvalue with construction R1.3)



Margot Blues Consulting Arborist  
Title: Tree Identification  
DATE: 6/6/2022  
Project: App 2 110 Woorarra Ave Nth Narrabeen.dwg  
Scale: Relative to supplied documents

**Key:**  
 Tree Protection Zone (TPZ)  
 Sructural Root Zone (SRZ)





## Appendix 3 – Photographs



*Photo 2: Trees T1, T2 & T3 along north western side boundary.*



*Photo 3: Height difference at edge of driveway and side path.*





Photo 5: Trees T2 & T3 - neighbouring Jacaranda



Photo 4: Existing hard stand beneath Trees T1, T2 & T3. T3 in distance.



Photo 6: T4 & T5 (Arrow).

# IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

## **Tree Significance - Assessment Criteria**



### **1. High Significance in landscape**

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

### **2. Medium Significance in landscape**

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

### **3. Low Significance in landscape**

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

#### **Environmental Pest / Noxious Weed Species**

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

#### **Hazardous/Irreversible Decline**

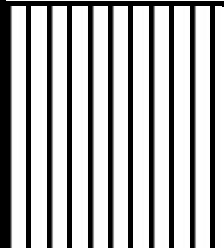
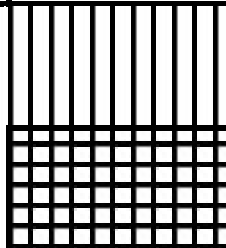
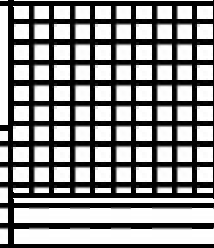
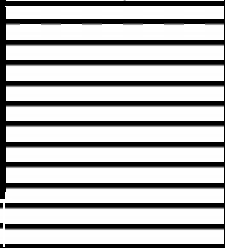
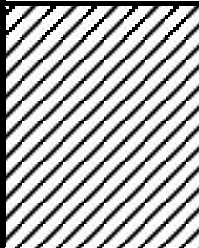
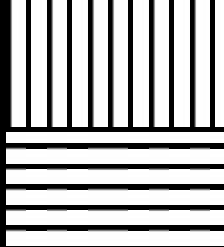
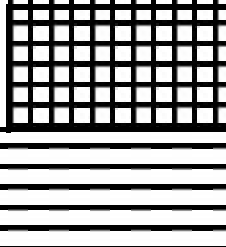
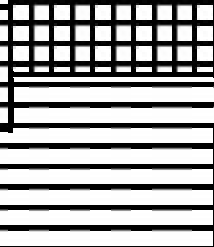
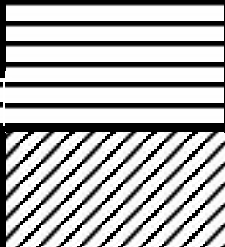
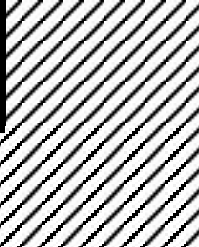
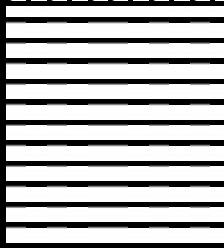
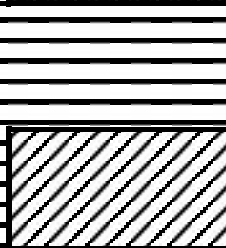
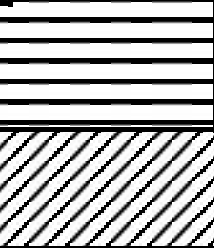
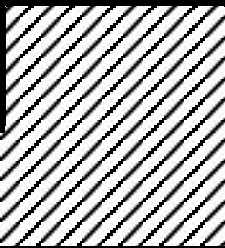
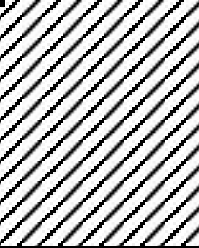
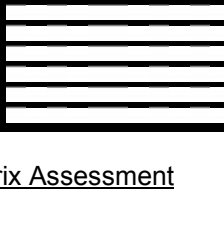
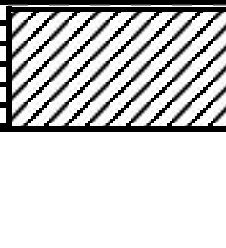
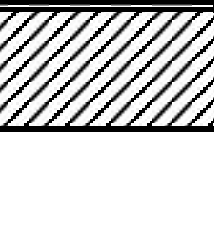
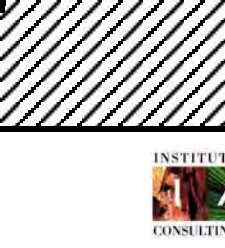

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

**The tree is to have a minimum of three (3) criteria in a category to be classified in that group.**


Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

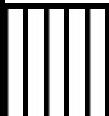
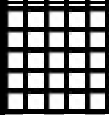
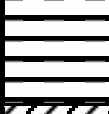



**Table 1.0 Tree Retention Value - Priority Matrix.**

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					

Legend for Matrix Assessment



	<b>Priority for Retention (High)</b> - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.
	<b>Consider for Retention (Medium)</b> - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	<b>Consider for Removal (Low)</b> - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	<b>Priority for Removal</b> - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

#### USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, [www.iaca.org.au](http://www.iaca.org.au)

#### REFERENCES

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# Appendix A

The following example shows the IACA **Significance of a Tree, Assessment Rating System (STARS)** used in an Arboricultural report.

## Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System (STARS)©* (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good form and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

## Significance Scale

- 1 – High  
2 – Medium  
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

## Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System (STARS)©* (IACA, 2010), Appendix B.

## Retention Value

- High** – Priority for Retention  
**Medium** – Consider for Retention  
**Low** – Consider for Removal  
**Remove** - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

\* Trees located within the neighbouring property and should be retained and protected.