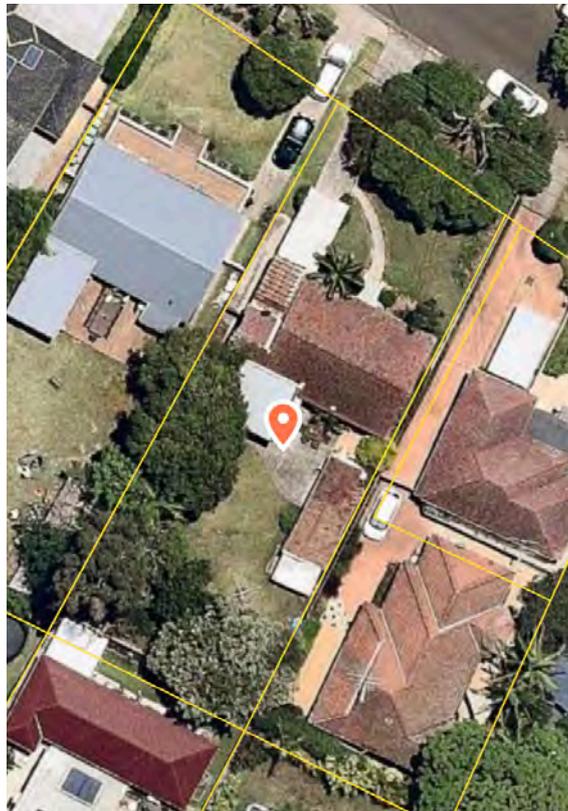


## ARBORICULTURAL IMPACT ASSESSMENT (AIA) REPORT

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Prepared For: Mr L Boghossian  
Site Address: 11 Ferguson Street Forestville  
Inspection Dates: 19<sup>th</sup> February, 2020



*Figure 1: The site (Google Street view)*

Prepared by: Margot Blues  
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## 1 Executive Summary

- 1.1.1 Margot Blues Consulting Arborist has been engaged by Architect Shady Chahine on behalf of the owner Mr Leo Boghossian inspect and report on trees within the property for Development Application purposes. Proposed is a new two storey dwelling inground pool and secondary dwelling. The existing dwelling is to be removed.
- 1.1.2 A total of nine (9) protected trees inclusive of one street tree have been assessed to determine their suitability for retention based on species, health and structural status and construction impact.
- 1.1.3 This report has been prepared in accordance with the Australian Standard AS4970-2009 *Protection of Trees on Development Sites*.
- 1.1.4 No trees were within neighbouring properties.
- 1.1.5 Trees to be retained:

High Retention	Moderate Retention	Low Retention	Exempt Species
ST1			

Table 1: Trees retainable in line with the proposal.

- 1.1.6 Trees to be Removed:

High Retention	Moderate Retention	Low Retention	Exempt Species
	T1, T8	T2, T3, T4 & T6	T5 & T7

Table 2: Tree which require removal based on Exemption, low significance, removed irrespective of the development and those which are significantly impacted by the proposal.

- 1.1.7 Protective fencing installation around the Street Tree ST1 Brush Box during construction inclusive of demolition is recommended.



## **1 Table of Contents**

<b>1 EXECUTIVE SUMMARY</b>	<b>11</b>
<b>2 INTRODUCTION</b>	<b>2</b>
2.1 BACKGROUND	2
<b>3 METHODOLOGY</b>	<b>3</b>
<b>4 RESULTS</b>	<b>4</b>
4.1 DESKTOP RESEARCH	4
4.2 THE SITE	4
4.3 THE DEVELOPMENT: NEW DWELLING	4
4.4 THE TREES	4
<b>5 RESULTS</b>	<b>5</b>
5.1 CONSTRUCTION IMPACT TO EACH TREE	5
<b>6 CONCLUSION</b>	<b>8</b>
<b>7 RECOMMENDATION:</b>	<b>8</b>
<b>APPENDIX 1 – TREE DATA SUMMARY</b>	<b>7</b>
<b>APPENDIX 2 - TREE IDENTIFICATION AND INCURSION POTENTIALS</b>	<b>8</b>
<b>APPENDIX 3 – PHOTOGRAPHS</b>	<b>9</b>
<b>APPENDIX 4 – IACA STARS (RETENTION VALUE MATRIX)</b>	<b>11</b>



## 2 Introduction

### 2.1 Background

- 2.1.1 Margot Blues Consulting Arborist has been engaged by Architect Mr Shady Chahine (Planning/Design/Architecture) on behalf of the owner for development application purposes. Proposed is a new build consisting of a two storey dwelling, secondary dwelling and inground pool. The current structures are to be demolished.
- 2.1.2 Information supplied and relied upon for the preparation of this report include:
- Architectural suite of plans by Planning/Design/Architecture Issue A dated 23/08.17.
  - Survey dated 6/11/19 produced by Peak Surveying Services.
  - NSW Planning Portal property report; Downloaded 24<sup>th</sup> February, 2020.
- 2.1.3 The use of these documents is acknowledged with thanks.
- 2.1.4 The report's aim was to:
- Conduct a visual assessment of trees protected in accordance with Northern Beaches Council directives.
  - Determine the construction impact to trees as per the Australian Standard AS4970:2009 *Protection of trees on development sites*.
  - Categorise the trees into retention priority (High/Medium/Low Retention value).
- 2.1.5 Construction works were currently being undertaken within neighbouring property No 15 Ferguson resulting in significant damage, excavation and trenching with the TPZ and SRZ to trees located within No 11 Ferguson Street.



### 3 Methodology

- 3.1.1 Trees were inspected using the Visual Tree Assessment (VTA) methodology derived by Mattheck and Breloer (1994) consisting of both the biological and mechanical characteristics being:-
- 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, aerial or root investigations occurred.
- 3.1.3 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 using a builder's tape measure, diameter tape, and *Leica® Distometer™* (Laser)..
- 3.1.4 Appendix 2 - Tree identification and incursion potentials displays tree numbering for identification purposes (read in conjunction with Appendix 1 – Tree Data Summary); The TPZ is represented by the green outer circle; The SRZ by the inner blue circle. Both TPZ and SRZ have been plotted on the supplied plans. Trees proposed for removal are highlighted by a red dashed circle.
- 3.1.5 Tree retention values have been assessed based on the IACA *Significance of a Tree, Assessment Rating System (STARS)* methodology – Referenced Appendix 4 – IACA STARS (Retention value matrix).
- 3.1.6 This report is considered limited to what could reasonably be seen from ground level and expresses nil no commentary on changes which may have, or will, impact the trees or their environment outside the scope of works.
- 3.1.7 Where indicated, photos have been supplied by other.



## 4 Results

### 4.1 Desktop research

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

- Zoning: R2 – Low Density Residential
- Heritage: Not applicable.

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

- Having a height of 5 metres, and
- Not listed on Council's *Exempt tree species list* or within *The Biosecurity Act 2015*.

### 4.2 The Site

4.2.1 The land parcel was relatively flat (slope <5<sup>1</sup>) and contained a single storey dwelling and a detached building in the rear garden. The property generally typified domestic blocks for that area.

4.2.2 Neighbouring property No 15 Ferguson Street was undertaking major earthworks within the rear garden and adjacent to trees. Photographs supplied indicate extensive damage had occurred to these tree and were considered structurally compromised.

### 4.3 The Development: New Dwelling

4.3.1 Proposed is a two storey residential dwelling; inground pool and secondary dwelling within the rear garden. Site disturbances during construction will be significant and affect the majority of the block. The current buildings are to be demolished.

### 4.4 The Trees

4.4.1 Inclusive of one street tree, 9 trees have been assessed for the purpose of this report. Generally, the majority of trees were Australian Natives and mature. Trees positioned close to the common boundary fence with No 15 were considered structurally compromised within that property due to recent excavation (land level lowering) and trenching within the TPZ/SRZ of these trees. These trees were T3, T4, T5 (dead), and T6.

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<sup>1</sup> Referenced from the NSW Planning Portal – Property Report.



## 5 Results

### 5.1 Construction Impact to each tree

In the assessment of tree impact both to root zones and canopies the following criteria has been evaluated:

- Existing Relative Levels (RL)
- Tree Protection Zones (TPZ)
- Structural Root Zones (SRZ)
- Canopy spread and height above ground
- Building offset distances to trees and associated ground works
- Tree species, retention value and the likely development impact on those trees

The following table is to be read in conjunction with Appendix 1, 2, 3 & 4.

Tree ID	Species	Comment	Recommendation
ST1	<i>Lophostemon confertus</i> Brush Box	<b>Street Tree:</b> Mature good health and vigour.  Construction impact: Driveway widening coming closer to the trunk. Incursion 8% considered 'Minor' as per AS4970-2009.	<u>Retention Value:</u> High  <b>Retain</b> Protective fencing installed
T1	<i>Callistemon viminalis</i> Weeping bottle brush	Mature tree in good health and vigour  <b><u>Construction Impact: "High"</u></b> Proposed driveway widening cuts through trunk and considered "Major" as per AS4970-2009  Tree is not retainable under supplied plan.	<b><u>Retention Value:</u></b> Medium  <b>Remove</b>
T2	<i>Dracena sp</i>	Mature tree in fair health and considered a "low" valued tree.  <b><u>Construction Impact: "High"</u></b> Construction of main dwelling occurs within TPZ/SRZ.  Tree is not retainable under supplied plan and should not place a constraint upon the development.	<b><u>Retention Value:</u></b> Low  <b>Remove</b>



T3	<i>Syzygium paniculatum</i> <i>Lilli Pilli</i>	<p>Mature tree with compromised stability due to earthworks with neighbouring property No 15 Ferguson Street.</p> <p><b>Construction Impact: “High”</b> 30% of TPZ inclusive of SRZ involvement.</p> <p>Tree is located towards the rear of the main building. Excavation requirements approximate a minimum of 50cm to achieve the FFL. Incursion into the TPZ 30%.</p> <p>This tree has already lost a significant root volume 50% due current construction works @ No 15. Excavation works have extended to the fenceline.</p> <p>Retention not possible.</p> <p>Irrespective of the design this tree should be removed.</p>	<p><b><u>Retention value</u></b> Low</p> <p><b>Remove</b></p> <p>This tree is structurally compromised before works begin.</p>
T4	<i>Jacaranda mimosifolia</i>	<p>Mature tree in fair health and condition.</p> <p><b>Construction impact: “High”</b> 40% of TPZ Inclusive of SRZ.</p> <p>This tree has already lost a significant root volume within No 15 Ferguson St due to current construction works extending to the fenceline.</p> <p>The tree has a long main surface root running across the rear yard of No 11 which requires removal.</p> <p>Retention not possible.</p> <p>Irrespective of the design this tree should be removed.</p>	<p><b><u>Retention value</u></b> Low</p> <p><b>Remove</b></p> <p>This tree is structurally compromised before works begin.</p>
T5	<i>Dead</i>		<b>Remove</b>



T6	<i>Melaleuca quinquenervia</i> Broad leaf paperbark	<p>Mature tree in fair health and vigour</p> <p><b>Construction impact: "High"</b> 40% of TPZ inclusive of SRZ. This tree has already lost significant root volume due current construction works on neighbouring property.</p> <p>Under the proposal this tree is not retainable.</p> <p>Irrespective of the design this tree should be removed.</p>	<p><b><u>Retention value</u></b> Low</p> <p><b>Remove</b></p> <p>This tree is structurally compromised before works begin.</p>
T7	<i>Cinnamomum camphor</i> Camphor laurel	<p>Environmental weed. Tree structurally very poor.</p> <p><b>Construction impact: High</b></p> <p>Under the proposal this tree is not retainable.</p> <p>Irrespective of the design this tree should be removed.</p>	<p><b><u>Retention value</u></b> Low</p> <p><b>Remove</b></p>
T8	<i>Melaleuca bracteata</i>	<p>Mature tree in fair to good health.</p> <p><b>Construction impact: "High"</b> 50% of TPZ inclusive of SRZ.</p> <p>Approximately 50% of TPZ falls beneath the proposed secondary dwelling. Excavation is required for FFL</p> <p>Tree is not retainable.</p>	<p><b><u>Retention value</u></b> Moderate</p> <p>Remove</p>

Table 3: Construction impact to trees.



## 6 Conclusion

- 6.1.1 A total of nine (9) trees were assessed as part of the scope of works. These trees were predominantly in good health at the time of assessment as evidenced by the leaf volumes.
- 6.1.2 Trees along the common boundary with No 15 Ferguson Street have been severely compromised structurally due to the bulk excavation and trenching within both the SRZ and TPZ of these three trees (T3, T4, & T6. Tree T5 is dead and has been for some time). Irrespective of the proposed development within No 11 Ferguson Street, these trees require removal due to instability.
- 6.1.3 The proposed development occupies a larger footprint/envelope that the current resulting in limited retention of site trees. With the exception of the street tree, no tree is retainable onsite.

## 7 Recommendation:

Based on the supplied plans and tree health, it is recommended: -

- 7.1.1 The following tree is to be retained:

High Retention	Moderate Retention	Low Retention	Exempt Species
ST1			

Table 4: Trees that are retainable. All trees are located within neighbouring properties.

- 7.1.2 The following trees are not retainable based on the proposal.

High Retention	Moderate Retention	Low Retention	Exempt Species
	T1, T8	T2, T3, T4 & T6	T5 & T7

Table 5: Tree which require removal based on Exemption, low significance, removed irrespective of the development and those which are significantly impacted by the proposal.

- 7.1.3 Protective fencing installation around the Street Tree ST1 Brush Box during construction inclusive of demolition is recommended.

**Appendix 1: Tree Data Summary - 11 Ferguson St Forestville- Assessed 1/2/2020**

Tree ID	Species	Height (m)	Canopy dims n/s in metres	DBH (cm)	DGL (cm)	Foliage condition	Maturity	Trunk type	Canopy Balanced	Past Pruning	Stability	Vigour	Significance value	Notes	TPZ (M) Radius	SRZ (M) Radius
ST1^	<i>Lophostemon confertus</i> Brush Box	8	16	60	60	Good	Mature	Single upright	Somewhat balanced	Upper canopy for power lines	Appears stable	Good	High	Street tree that appears to be in good health. It has been heavily pruned for power line clearances. A power pole is positioned very close to the trunk. This tree has a wide canopy	7.2	2.7
T1	<i>Callistemon viminalis</i> Weeping Bottlebrush	7	8	24	30	Good	Mature	Single to 45cm bias lean to west	Majority to west due to ST1 influence	power line	Appears stable	Good	Moderate	This is a small tree located at the front boundary. No further commentary required.	2.9	2.0
T2	<i>Dracena sp</i>	7	3	22	35	Good	Mature	Multi upright	Balanced	Nil seen	Appears stable	Good	Low	Typical form for species.	2.6	2.1
T3	<i>Syzygium paniculatum</i> Magenta Lilli Pilli	14	7S 3N	50	60	Good	Mature	Single	Balanced	Canopy to north	Stability suspect	Good	Low	Tree located very close to northern boundary side fence. Currently development works occurring in yard with trenching and a large reduction in soil level height up to the fence. The stability of the tree has severely been compromised.	6.0	2.7
T4	<i>Jacaranda mimosifolia</i> Jacaranda	8	12	35	55	Fair	Mature	Multi x 3	Asymmetric al	Canopy to north	Stability suspect	Fair	Low	Tree located very close to northern boundary side fence. Currently development works occurring in yard with trenching and a large reduction in soil level height up to the fence. The stability of the tree has severely been compromised. There is a large surface root spanning half the rear yard which will require removal.	4.2	2.6
T5	Dead												Exempt			
T6	<i>Melaleuca quinquenervia</i> Broad leaf Paperbark	20	12	75	90	Good	Mature	Single to 5m then x 4	Narrow symmetrical	Nil evident	Stability suspect	Fair	Low	Tree located very close to northern boundary side fence. Currently development works occurring in yard with trenching and a large reduction in soil level height up to the fence. The stability of the tree has severely been compromised.	9.0	3.2
T7	<i>Cinnamomum camphora</i> C amphora laurel	5	7			Poor							Exempt	Exempt listed	0.0	0.0
T8	<i>Melaleuca bracteata</i> Black Tea Tree	10	11	50	55	Good	Mature	Multi	Slight bias to S/E	Rear neighbour	Appears stable	Good	Moderate	Tree located along the rear boundary and appeared to be in good health and condition. No further commentary required.	6.0	2.6
<b>NOTES</b>																
	<i>Tx^</i> 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			



## Appendix 3 – Photographs



Photo 11: T1 Bottle brush



Photo 2: T2 Dracena sp at front of house.



Photo 5: Trenching within No 15 and relative distance off base of trees within No 11 Ferguson. T3 in foreground



Photo 4: T6 showing extensive damage to base of trunk and first order roots. Photo supplied by client



Photo 6: Trenching offset distance and extent.



Photo 3: T8 Melaleuca



## Appendix 4 – IACA STARS (Retention value matrix)

### 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.

*Figure 2: Root mapped area being in alignment with existing rear facade. Yellow line indicates roots and rear of house.*

#### 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.

## 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

Australia ICOMOS Inc. 1999, The Burra Charter - The Australian ICOMOS Charter for Places of Cultural Significance, International Council of Monuments and Sites, [www.icomos.org/australia](http://www.icomos.org/australia)  
 Draper BD and Richards PA 2009, Dictionary for Managing Trees in Urban Environments, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.  
 Footprint Green Pty Ltd 2001, Footprint Green Tree Significance & Retention Value Matrix, Avalon, NSW Australia, [www.footprintgreen.com.au](http://www.footprintgreen.com.au)

## Tree Priority Retention Matrix

The retention model following visually describes the process used in determining retention values of the seven trees. Three retention classifications are clearly defined, they being, High; moderate and Low retention values. (Table 1).

Estimated Life Expectancy (SULE)	Landscape Significance Rating						
	Significant	Very High	High	Moderate	Low	Very Low	Insignificant
Long (> 40 years)	High retention values						
Medium (15 -40 Years)		Moderate					
Short (5-15 years)		Low Ret . Value					
Less than 5 years		Very Low Retention Value					
Dead or Hazardous							

Source: (Moreton, A., 2006).