



## **“GROWING MY WAY”**

### **Tree Consultants**

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

PO Box 35, Newport Beach NSW 2106

Phone: 0412-221-962

E-mail: [kyleahill@optusnet.com.au](mailto:kyleahill@optusnet.com.au)

ABN 97 965 355 20

8 March 2023

RAMA Architects Pty Ltd  
Attention: Thomas Martin  
6 / 20 Avalon Parade  
AVALON BEACH NSW 2107

### **NEW ‘*Amending Development Application*’ Submission**

The author of this document confirms as the appointed project arborist for the *DA2020/1393 & Mod 2022/0610* (determined 21/05/2020 & 28/02/2022) to have reviewed the new information provided by RAMA Architects Pty Ltd for the soon to be lodged “*New Amending Development Application Submission*” for “*Demolition works & construction of a new dwelling, pool house/studio and garage*”.

As briefed by Thomas Martin of RAMA Architects Pty Ltd, the only difference relative to ‘*Tree Management*’ to the as named determinations is that Tree #4 as per all previous GMW documents is confirmed to have been removed (in compliance with the as named DA determination).

On this basis, the GMW practice does not see the need for any update to our original DA submission statement/documentation of October 2020.

Needless to say, but considered as being worthy of acknowledgement, is that any new DA determination relative to the previously confirmed as being compliant installed TPZ strategy (GMW) documentation will be required to be updated as part of the new issue of ‘*Construction Certificate*’ process.

Should anyone with any questions require additional information please contact Kyle A Hill by either email ([klyeahill@optusnet.com.au](mailto:klyeahill@optusnet.com.au)) or phone (61 412 221 962) during normal Monday thru Friday business hours.

Yours faithfully,

[Kyle A Hill, AQF level 5 Diploma in Horticulture/Arboriculture, (TAFE NSW) & AQF level 8 Post Graduate Certificate in Arboriculture, (University of Melbourne), Member of Arboriculture Australia, (#1884), International Society of Arboriculture, (#14117), Victorian Tree Industry Association, (#V10715 2020)]

# **“GROWING MY WAY”**

## **Tree Consultancy**

**Established 1977**

**EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT**

**FULL INSURANCE PROTECTION**

**PO Box 35, Newport Beach NSW 2106**

**Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217**

**E-mail: [kyleahill@optusnet.com.au](mailto:kyleahill@optusnet.com.au)**

**ABN 97 965 355 200**

## ***Construction Impact & Management Statement***

**October 2020**

|                |  |
|----------------|--|
| <b>Site:</b>   | <b>Lot 41 in DP 22361<br/>7 Ruskin Rowe<br/>AVALON BEACH, NSW</b>  |
| <b>Client:</b> | <b>Andrew &amp; Verity Earl<br/>c/ RAMA Architects Pty Ltd<br/>Attention: Thomas Martin<br/>6/20 Avalon Parade<br/>AVALON BEACH, NSW 2107</b>  |
| <b>Author:</b> | <b>Kyle A Hill<br/>Registered (Arb Aus #1884) Practising &amp; Consulting Arborist<br/>Post Graduate Certificate in Arboriculture, Uni of Melb<br/>Diploma of Horticulture-Arboriculture TAFE, Grow SA<br/>Certificate of Horticulture, TAFE<br/>Certificate Advanced Tree Care TAFE<br/>Founder -Growing My Way Tree Services (1977)<br/>Member of International Society of Arboriculture<br/>Member of Arboriculture Australia</b> |

# 1 Summary

Andrew & Verity Earl (property owners) via RAMA Architects Pty Ltd (Thomas Martin) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed *New Residential Dwelling, Including Pool House, Swimming Pool & Associated Landscaping*, for the property known as 7 Ruskin Rowe, Avalon Beach, (from herein the subject site).

Seven (7) individual trees have been identified as being required to be discussed relative to the proposal for New Residential Dwelling, Including Pool House, Swimming Pool & Associated Landscaping. The discussed in detail trees are subject to the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the new SEPP "Vegetation in non-rural Areas, August 2017*.

The discussed tree is are confirmed to be within the subject site & two (2) common boundary properties.

Multiple other trees are located within both the subject site & adjoining common boundary properties but are not discussed as they are well away from & therefore not impacted upon the proposed works supported within this document.

Only one (1) discussed tree is proposed to be replaced.

The proposal is able to satisfy compliance criteria with both the *Australian Standard (AS4970-2009 Protection of trees on development sites)* & the *Australian Standard (AS4373-2007 Pruning of amenity trees)*.

Existing & proposed to be retained motor vehicle & pedestrian access is via Ruskin Rowe.

The sole consent authority is the NBC. The old *Pittwater Council Planning Instrument (Local Environment Plan, 2014)* applies at the time of writing.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *Site Survey by Detailed Surveys, Consulting Surveyors, dated, 19 January 2020;*
- *Plans, Sections & Elevations, by RAMA Architects Pty Ltd, dated, 10 October 2020;*
- *Pittwater Council/NBC "Tree Management Provisions" &*
- *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.*

The aim of this report is:

1. *To confirm individual tree health, vigour & condition considering any impact foreseen by the proposed demolition & redevelopment.*
2. *Confirm the Site-Specific 'Tree Plan of Management' for tree to be retained, protected & managed is AS4970-2009 compliant. Confirm any Site-Specific Pruning is AS4373-2007 compliant*

This document supports (relative to tree management) the proposal for *Alterations/Additions*.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist*) has prepared this report based on "*Visual Tree Assessment*" (VTA). Onsite Data was collected on Saturday, 10 October 2020.

## Table of Contents

|     |   |    |
|-----|---|----|
| 1   | Summary .....                                   | 2  |
| 2   | Introduction .....                              | 4  |
| 3   | Methodology .....                               | 5  |
| 4   | Observations .....                              | 6  |
| 4.1 | The Site .....                                  | 6  |
| 4.2 | The Proposal .....                              | 10 |
| 4.3 | Tree Location & Site Images .....               | 15 |
| 4.4 | The Tree – Summary Table .....                  | 17 |
| 5   | Discussion .....                                | 19 |
| 6   | Conclusions .....                               | 21 |
| 7   | Limitations on the use of this report .....     | 22 |
| 8   | Assumptions .....                               | 22 |
| 9   | Recommended References .....                    | 22 |
| 10  | Selected Bibliography .....                     | 22 |
|     | Appendix A – Glossary .....                     | 23 |
|     | Appendix B – Tree Protection & Management ..... | 25 |

## 2 Introduction

This report contains observations & recommendations intended to assist in the management of the seven (7) trees identified as necessary to be discussed by virtue of their location & proposed works, i.e. *New Residential Dwelling, Including Pool House, Swimming Pool & Associated Landscaping*,

Built form within the subject site is an aggregate driveway, multi-level single dwelling residence, swimming pool, hard & soft landscaping.

This document supports the proposed *New Residential Dwelling, Including Pool House, Swimming Pool & Associated Landscaping*, with respect to tree management issues.

We confirm to be familiar with both the old *Pittwater Council* & now NBC “Tree Management Provisions” plus the new SEPP “Vegetation in non-rural Areas, August 2017”.

The sole consent authority is NBC.

The subject site is within a NBC designated “Heritage Conservation Area” (Area 5). The subject site is confirmed to NOT be a listed “Heritage Item” nor are any of the discussed trees known to be listed on any “Significant Tree Register”. The discussed trees are captured as being subject to the protection provisions within the state legislated ‘NSW Scientific Committee’-final determination, (*Threatened Species Conservation Act*) which identifies & protects the ‘Pittwater spotted gum forest-endangered ecological community listing’ under ‘NSW legislation’. The subject site is confirmed to be within a ‘HP’ (High Priority), “Wildlife Corridor” as defined within the *Pittwater 21 DCP* (see page 8).

Only one (1) protected discussed tree is proposed to be replaced. All others are proposed to be retained, managed & protected prior to & throughout all phases of construction. Other nearby trees are assessed as not being impacted upon in any manner by the as proposed works.

The subject site is zoned “E4”, ‘Environmental Living’.

A Site Specific “Tree Plan of Management” is included within this document.

### 3 Methodology

Assessment of the tree discussed has been from ground level by eye, using *Visual Tree Assessment* \* (VTA) techniques developed by Claus Mattheck. The principles of VTA are explained in his widely-used reference book “*The Body Language of Trees* (1994)”.

Assessment includes:

- Tree’s current condition & likely future health. Species tolerance to root disturbance &/or development
- Likely future hazard potential to persons & property
- Tree’s amenity value, such as significance, screening & habitat.

No root analysis, soil testing, ‘Resistograph’® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

- Appendix A Glossary of Common Arboreal terms
- Appendix B Tree Protection & Management

---

\* **VTA–Visual Tree Assessment**, as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such an inspection is merited. Visual indicators are outlined within *The Body Language of Trees* (Mattheck & Breloer, 1994). VTA is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed.

## 4 Observations

### 4.1 The Site

The report discusses only trees within Lot 41 of DP 22361. The site is 2346.00m<sup>2</sup> by Title in size. The site is linked to one (1) public road & four (4) residential lots. The subject site is Land Zoned “E4” ‘Environmental Living’.



Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool.

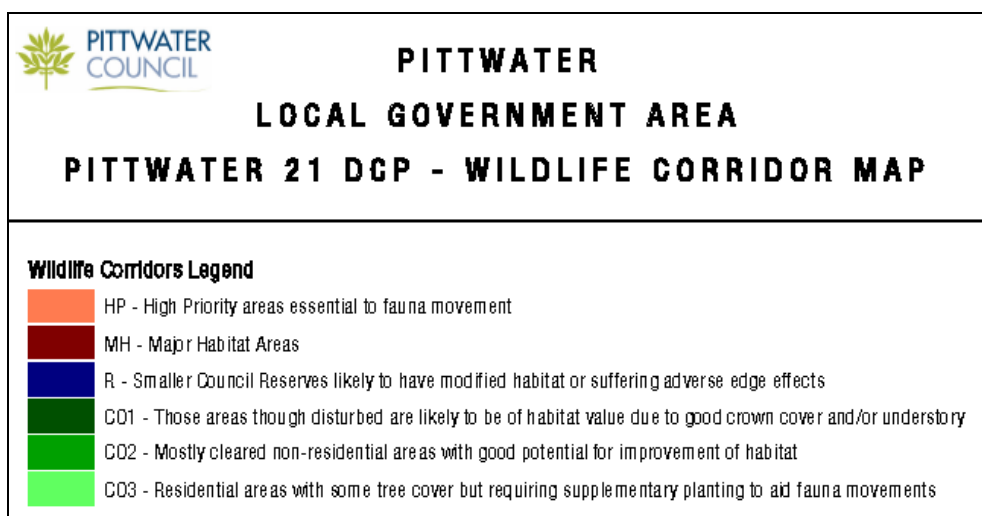
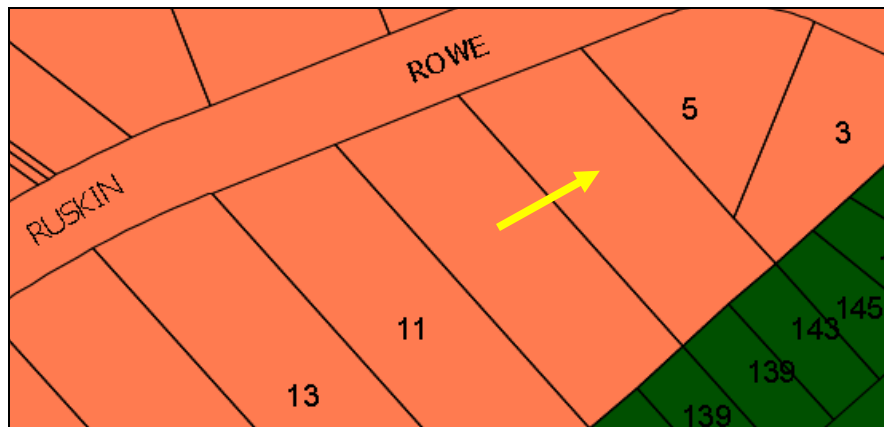


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.



**Pittwater Local Environmental Plan 2014**

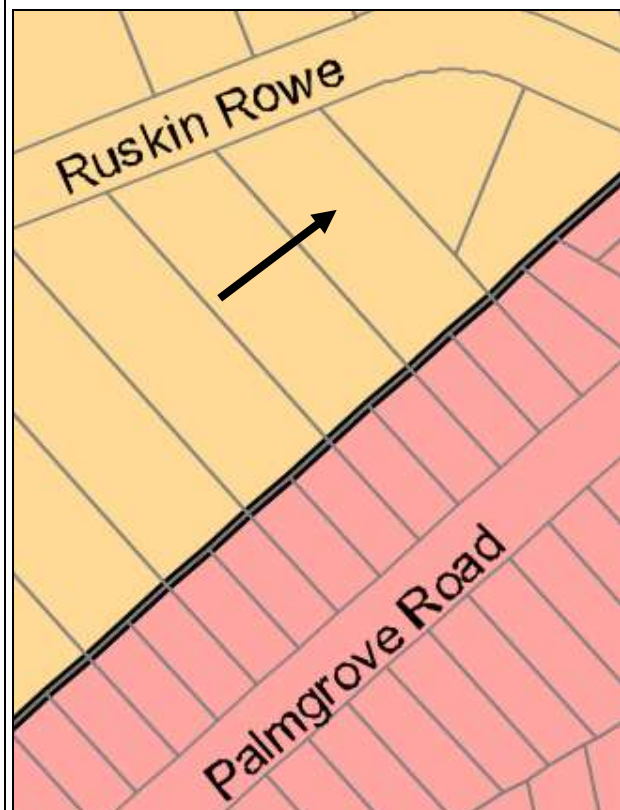
**Land Zoning Map - Sheet LZN\_016**

**Zone**

|     |                                    |
|-----|------------------------------------|
| B1  | Neighbourhood Centre               |
| B2  | Local Centre                       |
| B4  | Mixed Use                          |
| B6  | Enterprise Corridor                |
| B7  | Business Park                      |
| E1  | National Parks and Nature Reserves |
| E2  | Environment Conservation           |
| E3  | Environmental Management           |
| E4  | Environmental Living               |
| IN2 | Light Industrial                   |
| IN4 | Working Waterfront                 |
| R2  | Low Density Residential            |
| R3  | Medium Density Residential         |
| R5  | Large Lot Residential              |
| RE1 | Public Recreation                  |
| RE2 | Private Recreation                 |
| RU2 | Rural Landscape                    |
| SP1 | Special Activities                 |
| SP2 | Infrastructure                     |
| SP3 | Tourist                            |
| W1  | Natural Waterways                  |
| W2  | Recreational Waterways             |

**Cadastre**

Cadastre 7/7/2012  
© Land & Property Information (LPI)



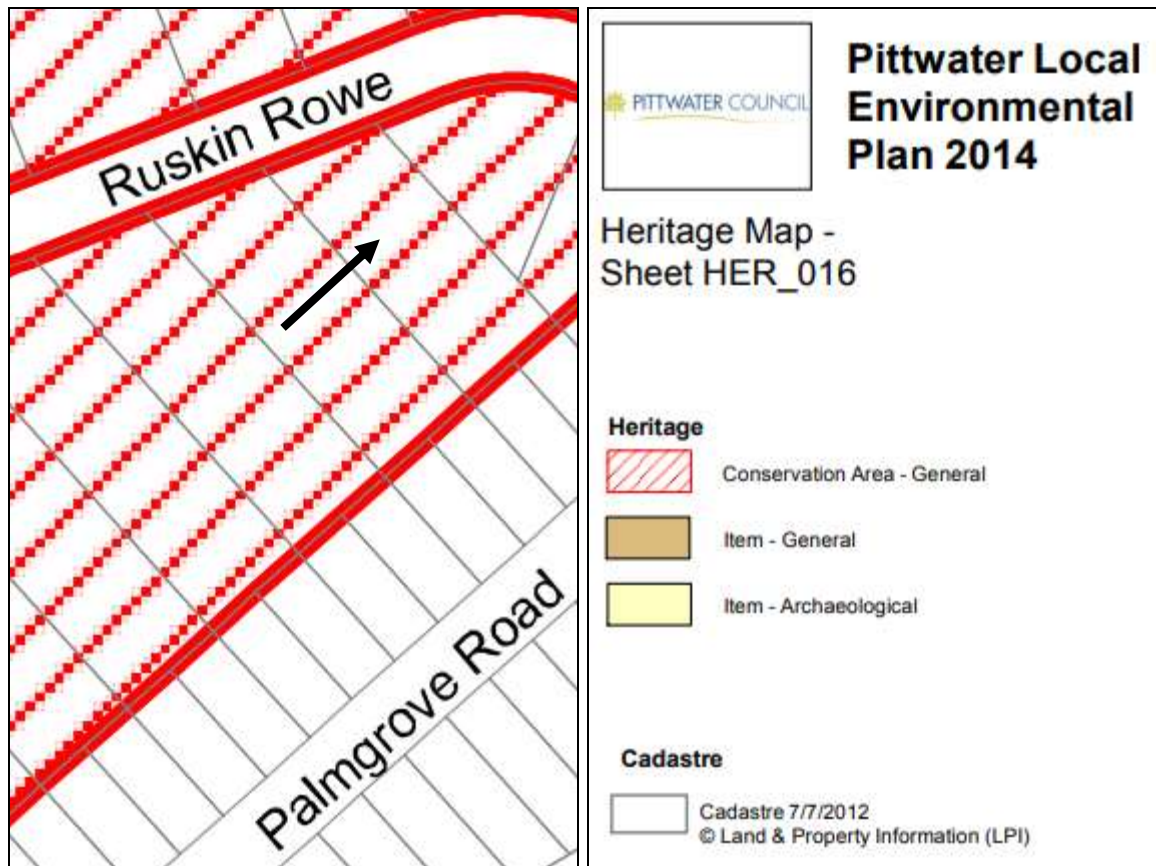


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is confirmed to be within a NBC designated “*Heritage Conservation Area*” (see above). The site is also confirmed to NOT be a listed “*Heritage Item*” nor is it near any listed “*Heritage Item*”. The discussed tree is NOT known to be on any ‘significant tree register’. The subject site & local environs are located within a designated ‘Wildlife Corridor’ HP – “*High priority areas essential to fauna movement*’.



Figure 4: Site Survey

## .2 *The Proposal*

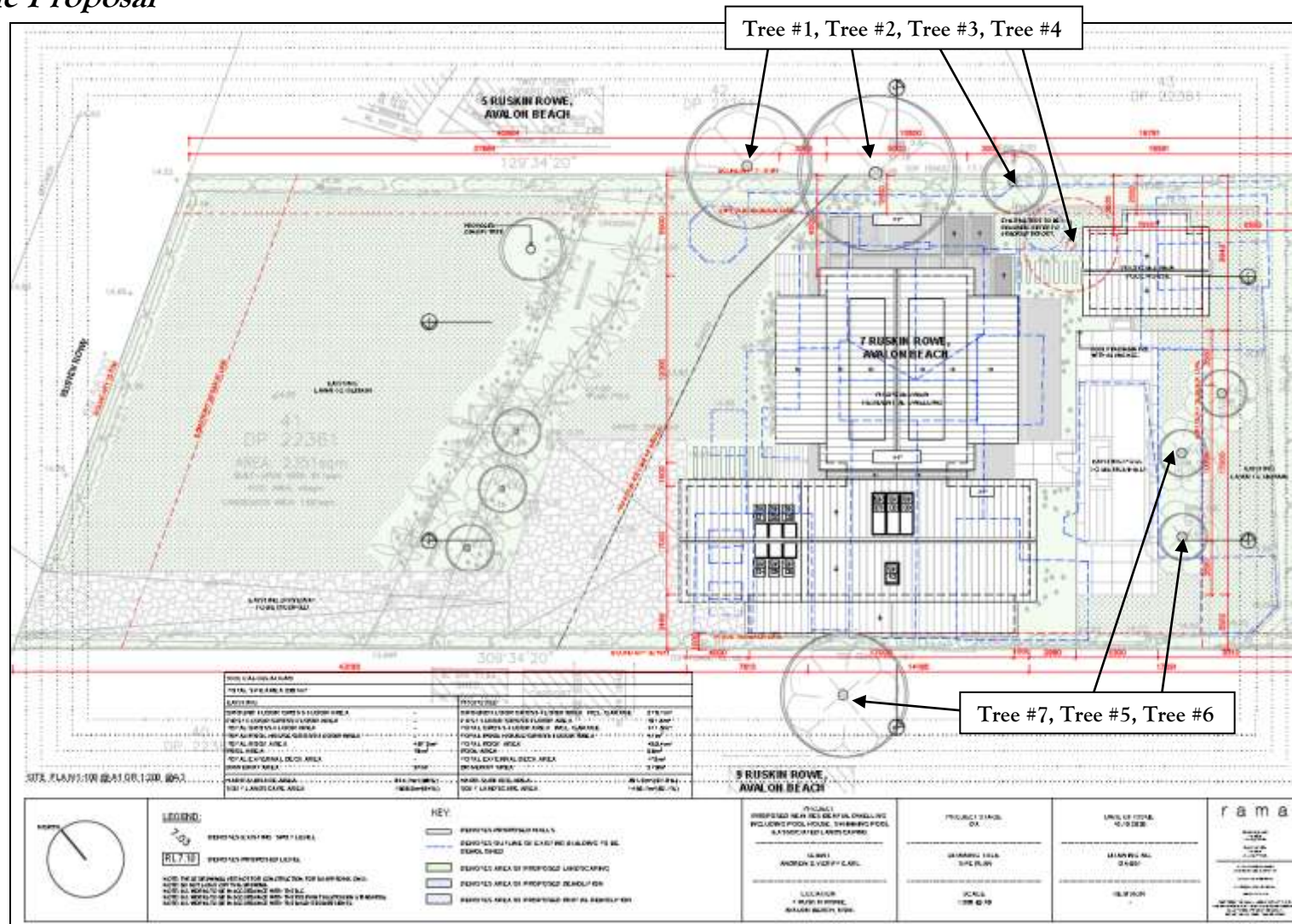
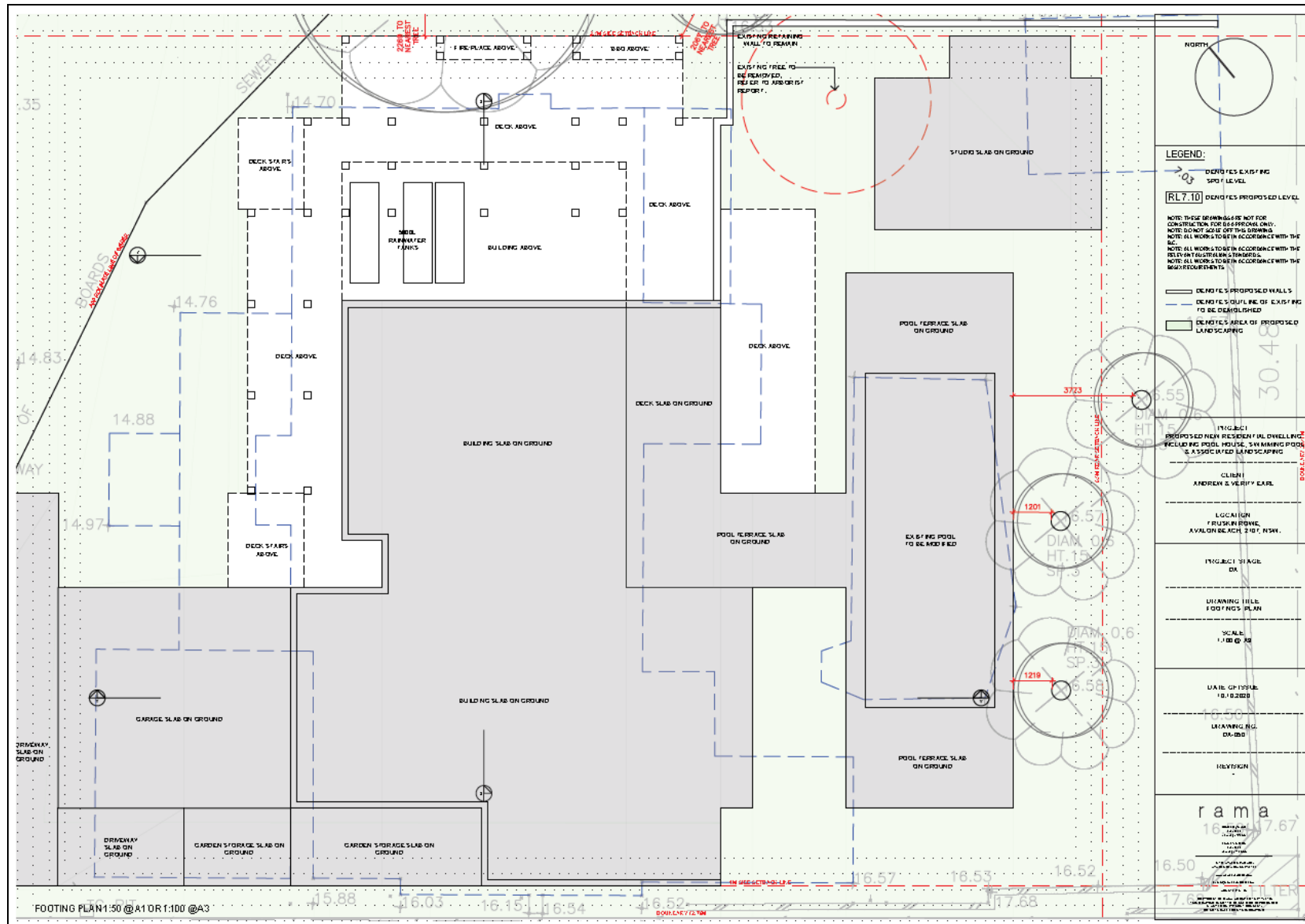
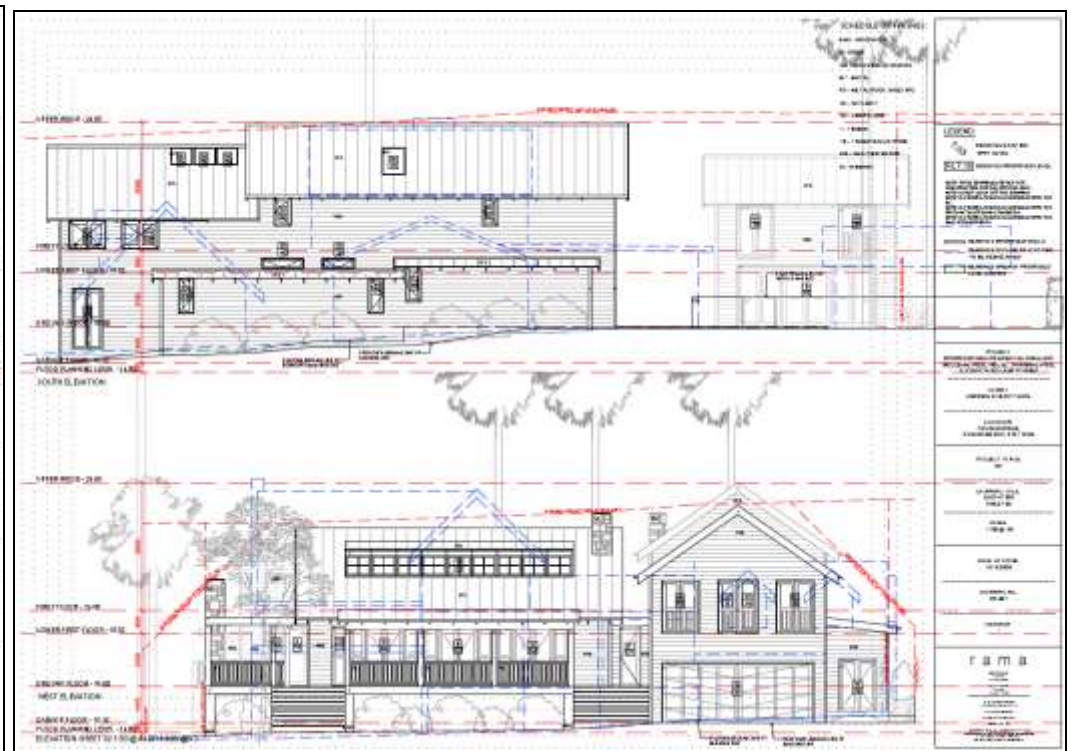
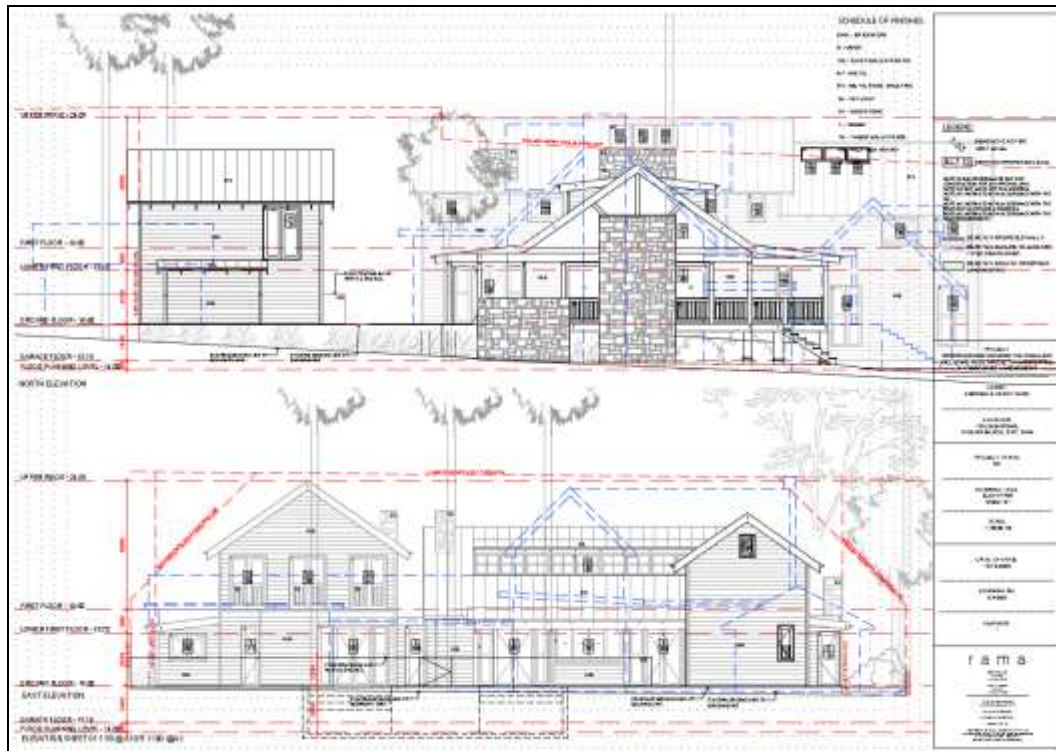


Figure 5: Site Plan showing the proposed works near the tree required to be discussed.











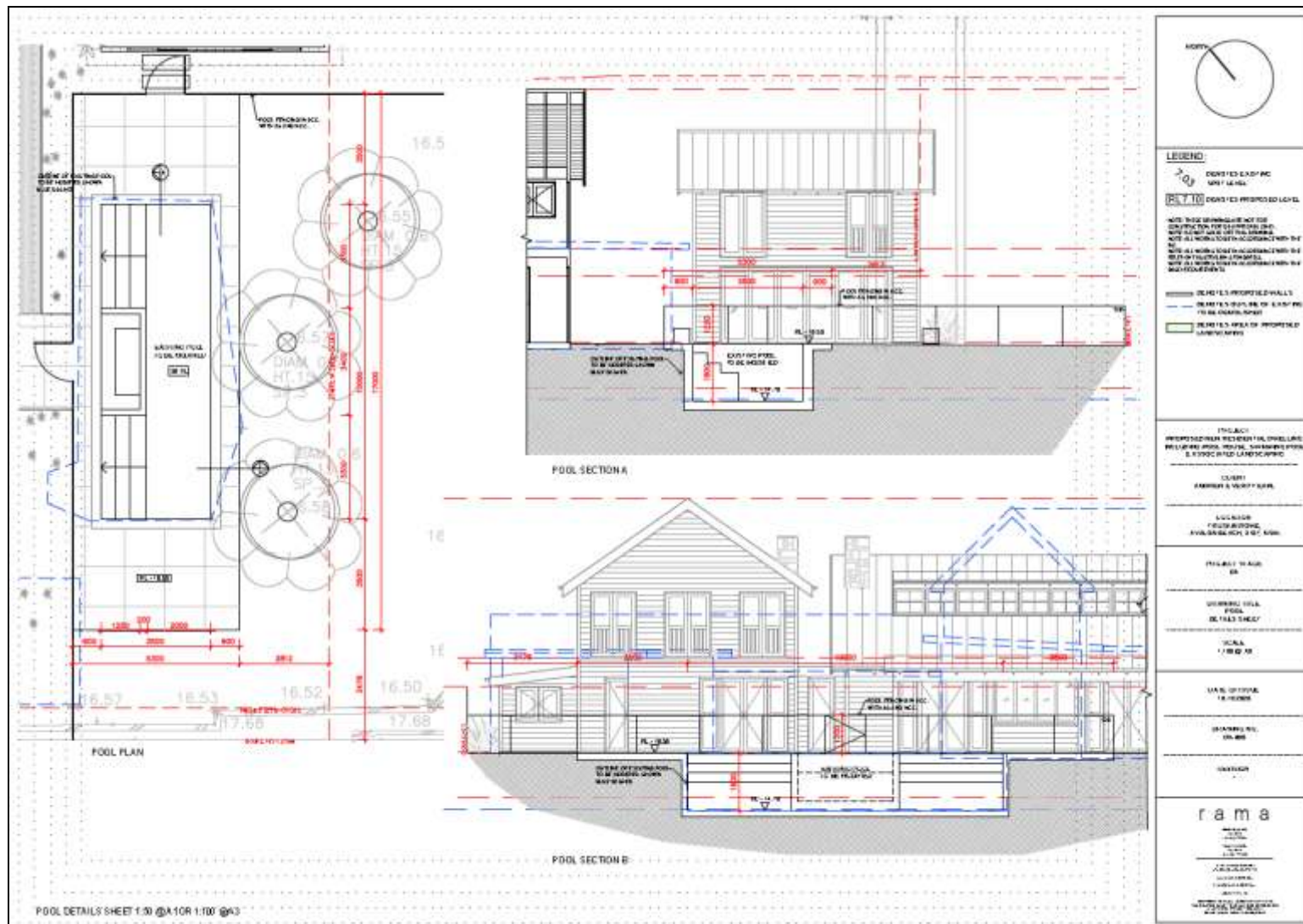


Figure 6: (Above & previous pages) Illustrates the proposed Site Plan (with discussed tree locations plotted), Roof Plan, Elevations, Landscape Concept &Swimming Pool Plan/Elevations.



### 4.3 Tree Location & Site Images







Figure 7; Illustrates tree locations & canopies as viewed from onsite on Saturday, 10 October 2020

#### 4.4 The Tree – Summary Table

Read this table in conjunction with Appendix A–Common Arboreal Terms

Trees Recommended for removal/replacement

Trees Recommended for retention

Exempt species

Trees retainable but of low amenity

|   | Identification   | Height (m) | Crown (m) | DBH (m)             | TPZ (m) | SRZ (m) | Age         | Health/Vigour | Structure | Significance/Retention Values | Comments  |
|---|--|------------|-----------|---------------------|---------|---------|-------------|---------------|-----------|-------------------------------|---|
| 1 | <i>Triadicaca sebifera</i><br>Chinese Tallowood Tree   | <11.00     | <4.50     | 0.35<br>(estimated) | <4.20   | 2.20    | Mature      | Good & Good   | Typical   | Moderate/Moderate             | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan.  |
| 2 | <i>Eucalyptus umbra</i><br>Bastard Mahogany            | <21.00     | <13.50    | 0.72                | 8.64    | 3.14    | Mature      | Good & Good   | Typical   | High/High                     | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan.  |
| 3 | <i>Archontophoenix cunninghamiana</i><br>Bangalow Palm |            |           |                     |         |         |             |               |           |                               | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan.  |
| 4 | <i>Eucalyptus paniculata</i><br>Grey Ironbark          | <18.00     | <13.50    | 0.57                | 6.84    | 2.81    | Over Mature | Poor & Poor   | Atypical  | High/Low                      | Replace:<br>Tree displays advanced 'symptoms of stress' & 'decline'. Canopy is almost totally 'epicormic'. Tree has been previously subjected to significant 'change of environment', hence its poor condition. |
| 5 | <i>Livistona australis</i><br>Cabbage Tree Palm        | <13.00     | <4.50     | 0.35                | 4.20    | N/A     | Mature      | Good & Good   | Typical   | High/High                     | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan.  |

|   | Identification  | Height (m) | Crown (m) | DBH (m) | TPZ (m) | SRZ (m) | Age    | Health/Vigour | Structure | Significance/Retention Values | Comments   |
|---|---|------------|-----------|---------|---------|---------|--------|---------------|-----------|-------------------------------|--|
| 6 | <i>Livistona australis</i><br>Cabbage Tree Palm       | <13.00     | <4.00     | 0.37    | 4.50    | N/A     | Mature | Good & Good   | Typical   | High/High                     | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan. |
| 7 | <i>Melaleuca quinquenervia</i><br>Broadleaf Paperbark | <115.50    | <8.00     | 0.57    | 6.84    | 2.85    | Mature | Good & Good   | Typical   | High/High                     | Retain, Protect & Manage:<br>Tree is considered as easily retained with site specific management plan. |

## 5 Discussion

The *Australian Standard (AS4970–2009 Protection of trees on development sites)* is the guideline required to be addressed relative to best practice 'Tree Management Principles'. See Chapters 3, 4 & 5 of this document. Additionally, compliance criteria with the *Australian Standard (AS4373-2007 Pruning of amenity trees)* is required to be addressed.

Of the seven (7) discussed trees, four (4) trees (Tree #3, Tree #4, Tree #5, Tree #6) are confirmed to be totally located within the subject site, two (2) trees (Tree #1 & Tree #2) are located within the common boundary property, 5 Ruskin Rowe & one (1) tree (Tree #7) is located within the common boundary property, 9 Ruskin Rowe..

Tree #1, Tree #2, Tree #4, Tree #5, Tree #6 & Tree #7 are all NBC 'Tree Management' provisions protected. All are proposed to be retained with the exception of Tree #4 with intensive management. Tree #3, whilst an exempt species is proposed to be retained & as such is discussed in detail relative to its construction phase & ongoing management.

Tree #4 is a NBC Tree Management' provisions protected tree (in fact locally indigenous), but is supported to be replaced on the grounds of declining health & vigour, likely most attributable to previous owners 'change of environment within both its TPZ (Tree Protection Zone) & SRZ (Structural Root Zone) calculated radial distances. Tree #4 is supported to be replaced by at least one (1) same species new tree/s in a more suitable location with the potential of replicating/improving the high level of amenity it previously provided as a healthy/vigorous individual. See below photograph confirming very significant 'branch tip dieback', interpreted to be an indicator or 'live root dysfunction' & nearly 100% 'epicormic shoot' by origin foliage.



Figure 8: Confirms discussed Tree #4 declining health & vigour. Especially note, the number of dead/dying 'branch tips'.



Retention & Significance values for trees proposed to be retained range from Moderate to High.

Any excavation required within any specified to be retained, managed & protected tree must be completed 'manually'. Any 'live woody root' exposed less than fifty millimetres (50mm/0.05m) in diameter may be cleanly pruned without any input from the sites retained Practicing & Consulting Arborist (minimum AQF level 5 'Diploma of Horticulture/Arboriculture' with suitable similar site management experience). Any excavated site (footings/piers/services etc.) within any specified to be retained, managed & protected tree must be documented in writing with supporting photographic evidence collated by either the site/project manager or the sites retained Practicing & Consulting Arborist & provided to the appointed Principle Certifying Authority as part of the legally required paperwork responsibilities.

Should any significant diameter 'live supporting root' (defined as being greater than 50mm/0.05m) be exposed & deemed as not able to be worked around (relative to footing/piers/services etc.) the sites retained Practicing/consulting Arborist must be summonsed to manage & document with supporting photographic evidence the strategy adopted that results in the least disturbance to any such exposed significant diameter 'live supporting root'. Any such strategy 'specified/adopted' can only be completed under the direct supervision/instruction of the sites retained Practicing & Consulting Arborist & provided in writing with supporting photographic evidence to the appointed Principle Certifying Authority as part of the legally required paperwork responsibilities.

### *“Site Specific Tree Plan of Management”*

| TREE # & IDENTIFICATION                        | RETAIN<br>MANAGE<br>PROTECT/<br>REPLACE | MANUAL<br>EXCAVATION<br>(for<br>footings/piers/s<br>ervices) | CANOPY<br>PRUNING | Install TPZ<br>Fencing<br>Install Tree<br>Trunk<br>Guard | Excavation<br>Signoff | CC<br>Signoff | OC<br>Signoff |
|--|---|--|-------------------|--|-----------------------|---------------|---------------|
| 1<br><i>Triadica sebifera</i>                  | Retain                                  | Yes  | No                | Yes<br>No  | Yes                   | Yes           | Yes           |
| 2.<br><i>Eucalyptus umbra</i>                  | Retain                                  | Yes  | No                | Yes<br>No  | Yes                   | Yes           | Yes           |
| 3.<br><i>Archotophoenix<br/>cunninghamiana</i> | Yes                                     | No   | Yes<br>No         | Yes  | Yes                   | Yes           | Yes           |
| 4<br><i>Eucalyptus<br/>paniculata</i>          | Replace                                 | No   | No                | No   | No                    | No            | No            |

| TREE # &<br>IDENTIFICATION              | RETAIN<br>MANAGE<br>PROTECT/<br>REPLACE | MANUAL<br>EXCAVATION<br>(for<br>footings/piers/s<br>ervices) | CANOPY<br>PRUNING | Install TPZ<br>Fencing<br>Install Tree<br>Trunk<br>Guard | Excavation<br>Signoff | CC<br>Signoff | OC<br>Signoff |
|---|---|--|-------------------|--|-----------------------|---------------|---------------|
| 5<br><i>Livistona australis</i>         | Retain                                  | Yes  | No                | Yes<br>No  | Yes                   | Yes           | Yes           |
| 6<br><i>Livistona australis</i>         | Retain                                  | Yes  | No                | Yes<br>No  | Yes                   | Yes           | Yes           |
| 7<br><i>Melaleuca<br/>quinquenervia</i> | Retain                                  | Yes  | No                | No<br>No   | Yes                   | Yes           | Yes           |

## 6 Conclusions

- Relative to the information as presented the GMW consultancy supports the proposed works as presented in documentation reviewed.
- The DA submission is lodged for determination by council officers as per plans referenced considering the specified Site Specific “Tree Plan of Management”.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Kyle A. Hill

[AQF level 5 & AQF level 8 Registered with Arboriculture Australia (Reg #1884)  
Practicing & Consulting Arborist]

## 7 Limitations on the use of this report

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, & directly attached to that submission, report or presentation.

## 8 Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

### Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

## 9 Recommended References

Barrell, J. 1993. 'Preplanning Tree Surveys: Safe Useful Life Expectancy (SULE) is the Natural Progression', Arboricultural Journal 17:1, February 1993, pp.

Barrell, J. 1995, 'Pre-development Tree Assessments', in Trees & Building Sites, Proceedings of n International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois

Dr. G. Watson & Dr. D. Neely, 'Trees & Building Sites', LSA Illinois USA 1995

Dr. N. Matheny & Dr. J.R. Clark, 'Trees & Development', ISA Illinois USA 1998

Phillip J. Craul, 'Urban Soil in Landscape Design', J. Wiley & Sons, New York USA 1992

## 10 Selected Bibliography

Hitchmough, J.D. 1994. 'Urban Landscape Management', Inkata Press, Sydney.

Mattheck, C. & Breloar, H. 1994 'Body Language of Trees', The Stationery Office, London.

AS 4373:2007, 'Pruning of Amenity Trees', Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites', Standards Australia.

BS 5837:2005, 'Guide for Trees in Relation to Construction', Standards Board, UK.



## Appendix A – Glossary

### Glossary of common Arboreal terms

|             |           |   |
|-------------|-----------|---|
| <b>Age:</b> | <b>I</b>  | <i>Immature</i> refers to a refers to a well-established but juvenile tree  |
|             | <b>SM</b> | <i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size                                       |
|             | <b>M</b>  | <i>Mature</i> refers to a full sized tree with some capacity for further growth   |
|             | <b>LM</b> | <i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline     |
|             | <b>OM</b> | <i>Over-mature</i> refers to a tree about to enter decline or already declining   |
|             | <b>LS</b> | <i>Live Stag</i> refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death |

**Hth & Vig** Health & Vigour

**Health** refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Vigour** refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Useful Life Expectancy (ULE)** refers to any individual tree specimen's potential life expectancy (viability) based on VTA assessment, three groups are described,

**Short = Less than Fifteen years**

**Medium = Fifteen – Twenty-five years**

**Long = more than Twenty-five years**

**Significant diameter roots** are defined as those being greater than 0.05m/50mm in diameter.

**Diameter at Breast Height (DBH)** refers to the tree trunk diameter at breast height (1.4 metres above ground level)

**Structural Root Zone (SRZ)** refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula  $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$ .

**Primary Root Zone (PRZ)** refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk. This zone often contains a significant amount of (but by no means all of a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

**Tree Protection Zone (TPZ)** is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

**Stem/bark inclusion** refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

**Decay** refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different affect on both the tree's health & structural integrity.

**Point of Attachment** refers to the point at which a stem/branch etc join.

**Dead wood** refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

**Die back** refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

**One dimensional crown** refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

**Crown Foliage Density of Potential (CFDP)** refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

**Epicormic growth/shoots** refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

**Over Head Powerlines (OHP)** Over head electricity wiring.

**LVOHP** Low Voltage Over head Powerlines

**HVOHP** High Voltage Over head Powerlines

**ABC** Aerial Bundled Cable

## Appendix B – Tree Protection & Management

### Tree Protection & Management Prior to Excavation & During Construction

The installation of Tree Protection Zone (TPZ) fencing is to be carried out prior to commencement of all works. The most suitable fencing material is 1.8m tall chain link mesh with 50mm metal pole supports, see **detail 1: tree protection fencing**.

Trunk protection “Tree Guards” are detailed (below) by generic diagram.

A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by handheld or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering is to be carried out by either an Arborist or is to form part of the Builder's/Contractor's contract, with recommended fortnightly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within the TPZ of any retained tree. Access to personnel, machinery, & storage of fuel, chemicals, cement or site sheds is prohibited

Regular monitoring of protected trees during development works for unforeseen changes or decline, will aid in the success & longevity of the retained trees.

