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Arboriculture Construction Impact & Management Statement

August 2022

Site:

Lot 8 in DP 14630
103 Bynya Road
PALM BEACH, NSW

Client:

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Founder -Growing My Way Tree Services (1977)
Member of International Society of Arboriculture
Member of Arboriculture Australia

1 Summary

Mark Eggers & Leanne Peterson (property owners) via Rachel Hudson (Architect) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed redevelopment of the property known as 103 Bynya Road, Palm Beach, (from herein the subject site).

Three (3) trees are captured by the as proposed new design footprint. Two (2) of the three (3) discussed trees are captured as protected species.

One (1) protected tree is supported to be retained, protected & managed. One (1) protected tree is supported to be replaced. The two (2) protected trees individual trees are required to be discussed in detail relative to the proposed works within the subject site. Both discussed in detail trees are located within the subject site but near the front of subject site Bynya Road road reserve. One (1) discussed tree breaches (both above & below existing ground level) the common boundary with the adjoining property, 101 Bynya Road.

The proposed to be retained, protected & managed trees are protected by the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the SEPP "Vegetation in non-rural Areas, August 2017*. Other, acknowledged but not discussed in detail trees are confirmed to be within the subject site & adjoining common boundary properties.

Trees discussed & assessed as able to be viably retained are required to be protected & managed prior to the commencement of & until completion of the project. They are specified to be isolated/fenced off prior to commencement of any works until completion of the as proposed & this document supported works. 'Live root' management is an additional focus of this document.

Motor vehicle & pedestrian access to the subject site is only via Bynya Road.

The sole consent authority is the NBC. The old *Pittwater Council Planning Instrument (Local Environment Plan, 2014)* plus the *Pittwater 21 Development Control Plan* 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 CMS Surveyors Pty Ltd, Issue A, updated, 22 September 2021;*
- *Plans, Sections & Elevations by Rachel Hudson Architect, Issue A, dated, 18 January 2022;*
- *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 trees health, vigour & condition considering any impact foreseen by the proposed works.*
2. *Confirm the Site-Specific 'Preliminary Tree Plan of Management' for discussed tree to be retained, protected & managed is AS4970-2009 compliant.*
3. *Provide a list of potentially suitable to the subject site new tree species (with plant sourcing & planting specifications).*

This document supports (relative to tree management) the proposal as per the information provided by Rachel Hudson (Architect).

Kyle A Hill (AQF level 5 & AQF level 8 *Practicing/Consulting Arborist*) has prepared this report based on "*Visual Tree Assessment*" (VTA). Data was collected on Saturday, 16 August 2022.

Table of Contents

1	Summary	2
2	Introduction	4
3	Methodology	5
4	Observations	6
4.1	The Site	6
4.2	Tree Locations	10
4.3	The Proposal	13
4.4	The Tree – Summary Table	16
5	Discussion	17
6	Conclusions	19
7	Limitations on the use of this report	20
8	Assumptions	20
9	Recommended References	20
10	Selected Bibliography	20
	Appendix A – Glossary	21
	Appendix B – Site Survey	23
	Appendix C – Tree Protection & Management	24

2 Introduction

This report contains observations & recommendations intended to assist in the management of the three (3) individual trees.

Tree #1 is proposed to be retained, protected & managed. Tree #3 is supported to be replaced. Tree #2 is an exempt from protection species & as such is presumed to be removed/replaced relative to the as proposed works.

Proposed works relative to tree management is solely linked to the as proposed new driveway crossover, driveway & garage.

The as interpreted proposed new driveway crossover does not require any excavation. The as proposed new driveway linking the crossover to the proposed middle ground floor of new dwelling is suspended. With respect to tree 'live root' management there is no predictable impact to the Tree #1 relative to its Useful Life Expectancy (from herein ULE) as no ground level disturbance (other than demolition of existing carport) is proposed. Some canopy pruning may be required, this will be discussed later.

This document supports the proposed new driveway crossover, driveway & garage with implementation of Site Specific "Preliminary Plan of Tree Management" specifications partially developed (able to be completed post issue of DA 'Conditions of Consent').

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

The sole consent authority is *NBC*.

The subject site is zoned "C4", 'Environmental Living'.

The subject site is NOT within a *NBC* designated "Heritage Conservation Area". 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". No trees discussed 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 NOT be within any classified "Wildlife Corridor" as defined within the *Pittwater 21 DCP*.

Of the required by size or species trees discussed one (1) considered as able to be viably retained without any compromise to its individual ULE. The second captured by protection provisions tree is assessed as being, at best an individual of poor quality (form & condition) & as such could easily be supported to be replaced regardless of any development proposal.

A Site Specific "Preliminary Tree Plan of Management" is included within this document.

3 Methodology

Assessment of the trees 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 Site Survey
- Appendix C 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.

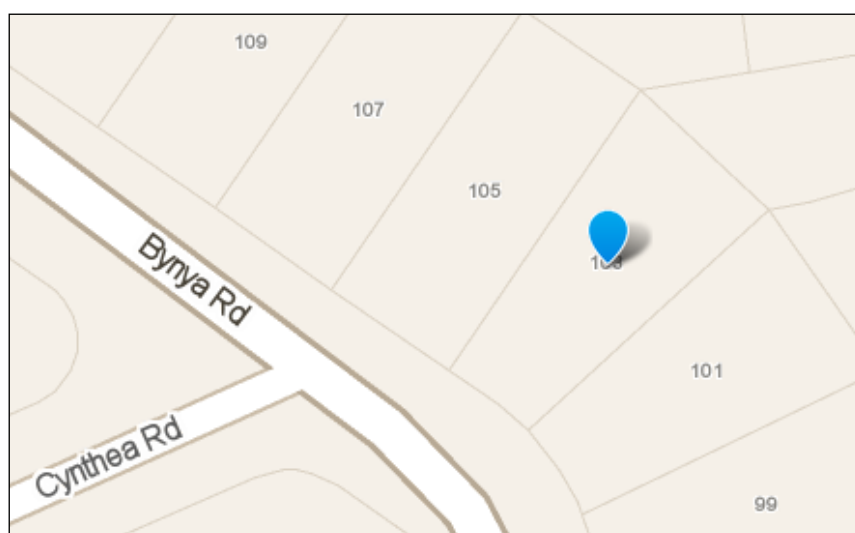
4 Observations

4.1 The Site

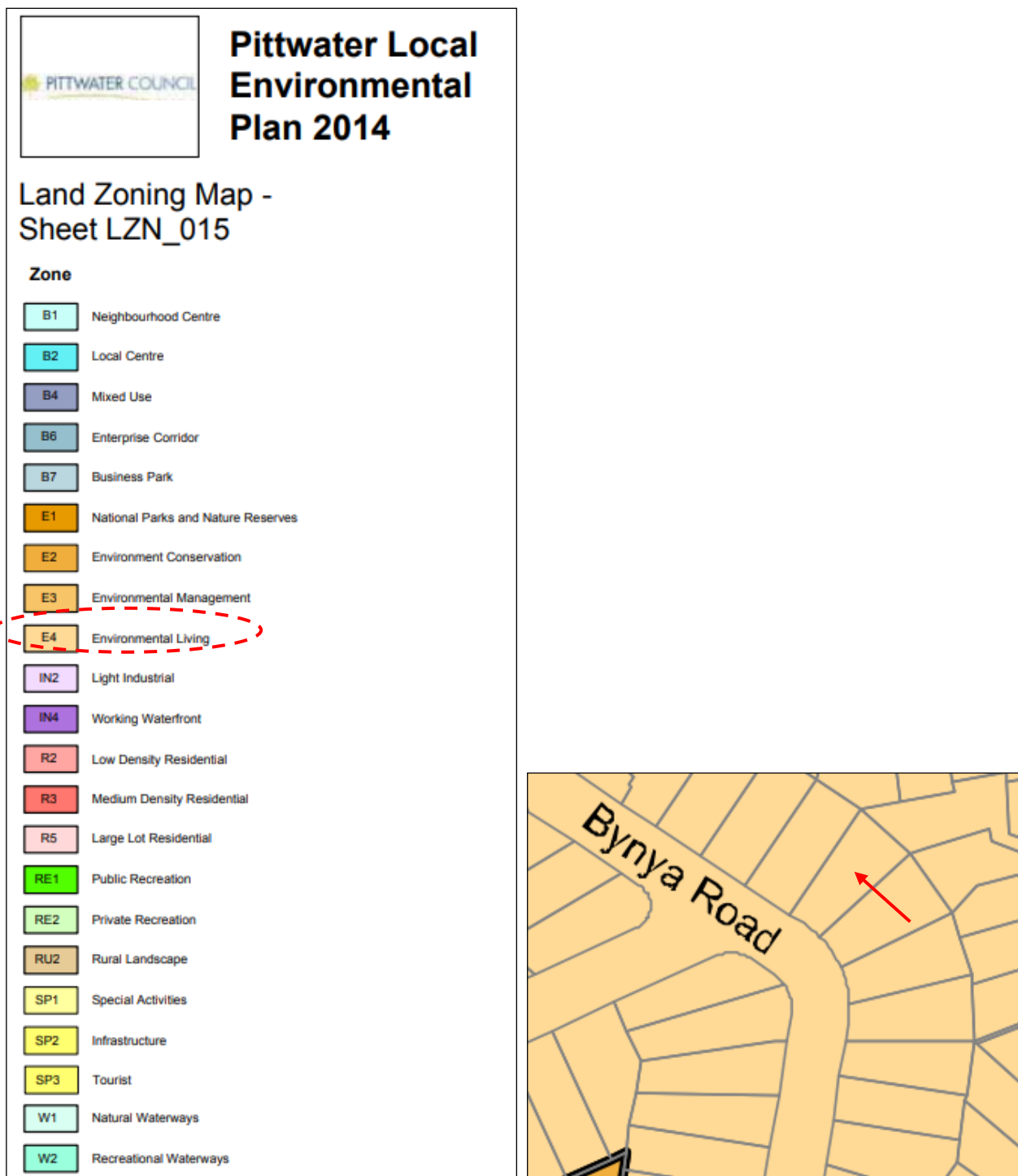
The report discusses only trees within the subject site. The subject site is known as Lot 8 in DP 14630 or 103 Bynya Road, Palm Beach. The site is 749.60m² in size by site survey. The site is linked to one (1) public road & three (3) common boundary developed lots.



Figure 1: Aerial photograph with lot boundaries courtesy of NBC & Whereis website tools.



The subject site is Land Zoned “C4” ‘Environmental Living’.



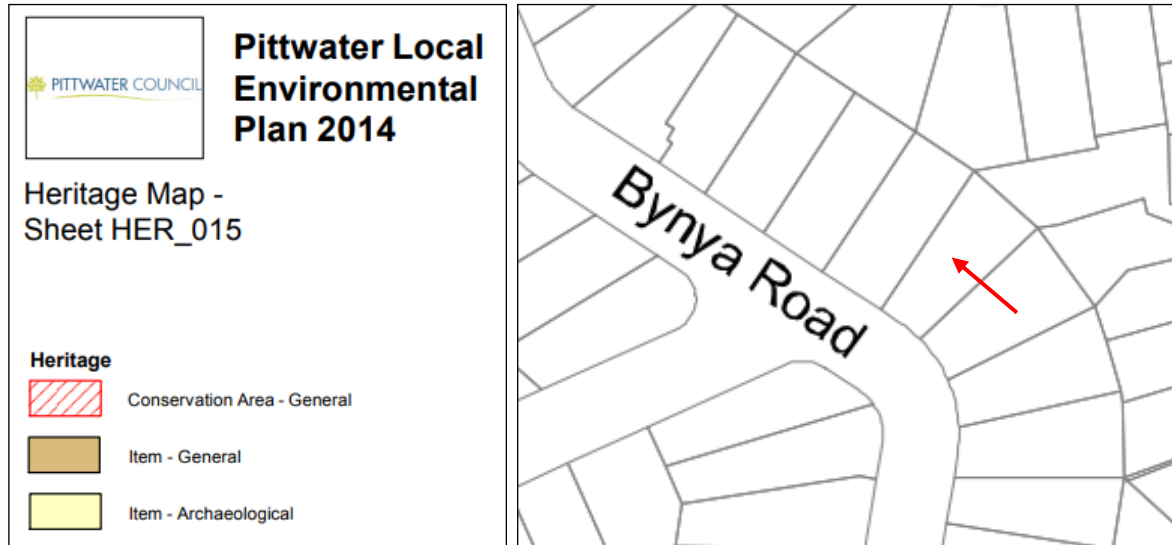
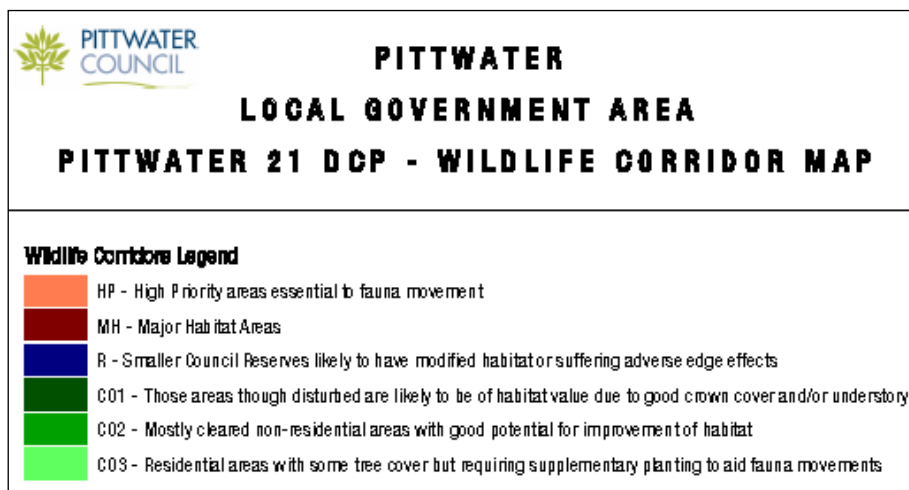
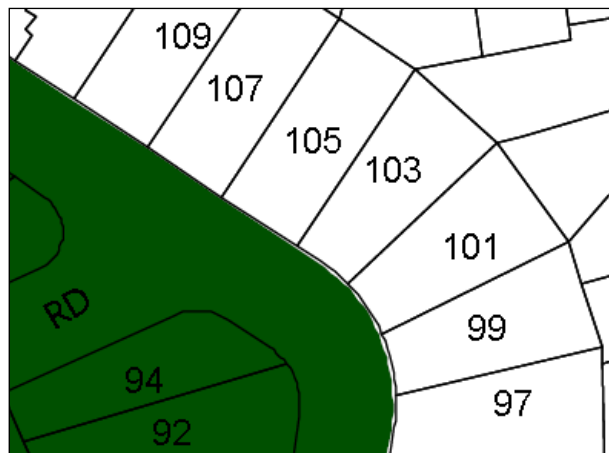


Figure 2: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a NBC designated “Heritage Conservation Area” (see above). The site is also confirmed to NOT be a listed “Heritage Item” nor is it adjacent to or opposite any listed “Heritage Item”. The discussed trees are NOT known to be on any ‘significant tree register’. The subject site & local environs are confirmed to NOT be located within a designated ‘Wildlife Corridor’.



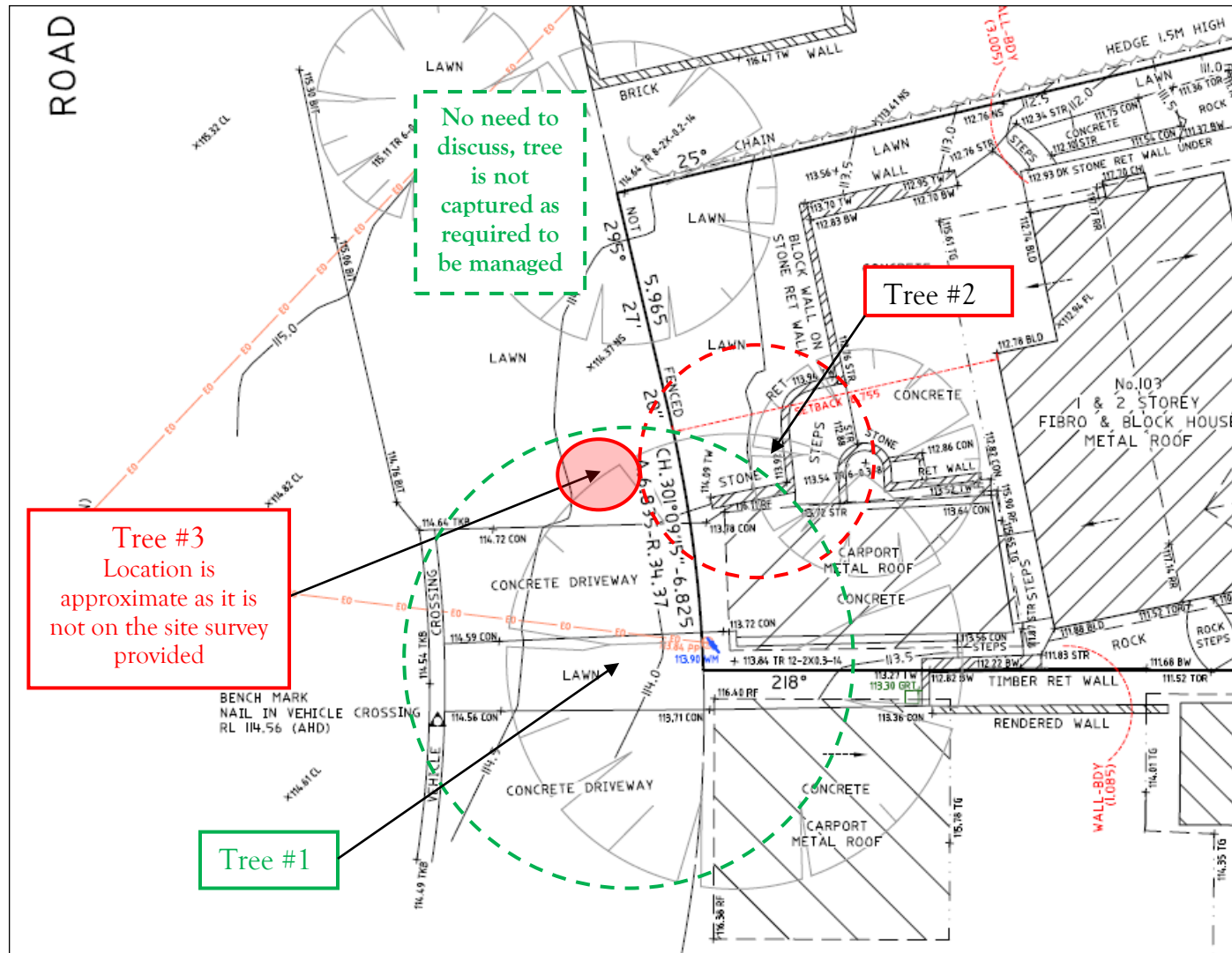


Figure 3: Portion of Site Survey with discussed Tree Locations.

4.2 *Tree Locations*



Figure 4: Left confirms the location of Tree #1, right confirms the location of Tree #2.



Figure 5: Confirms the location & character of Tree #1.

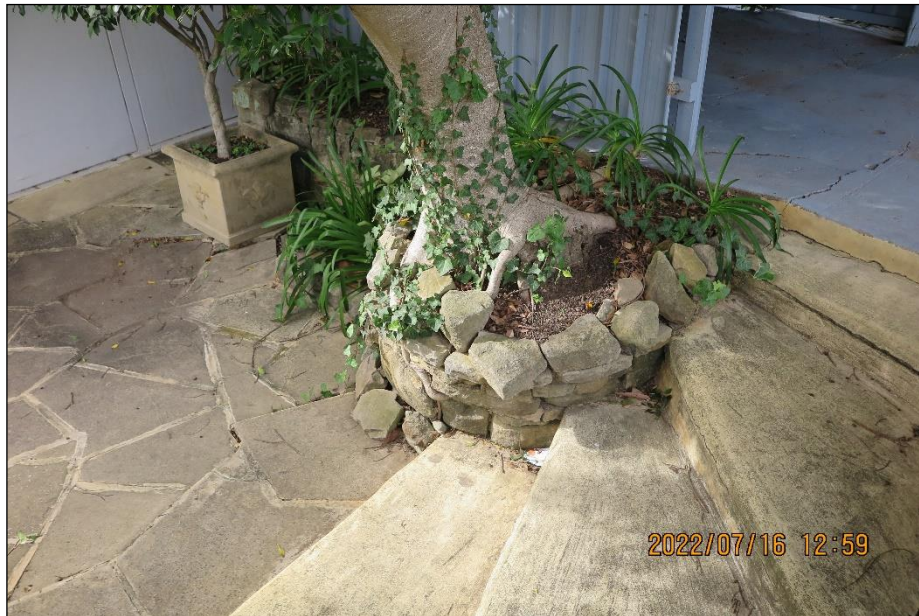
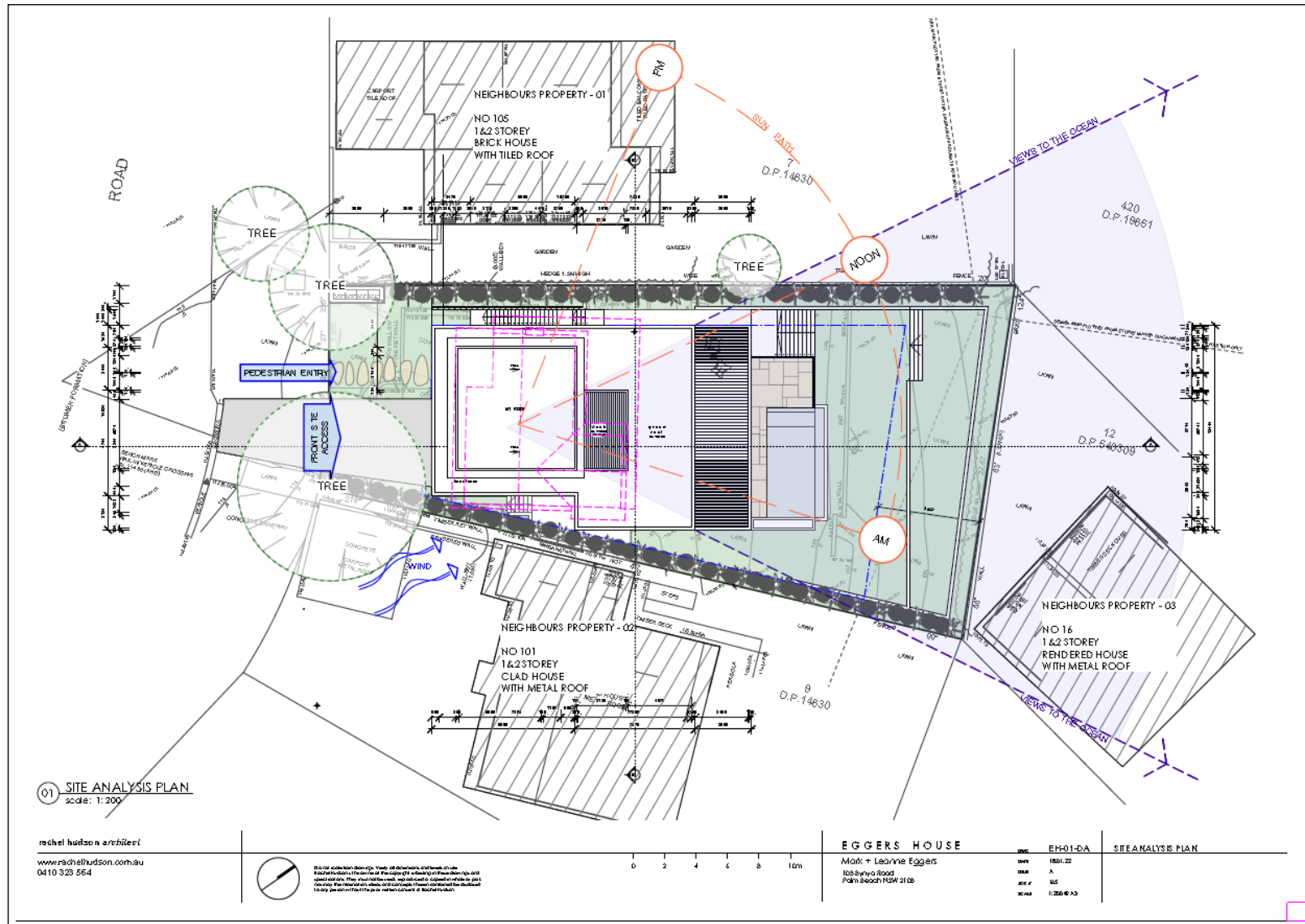
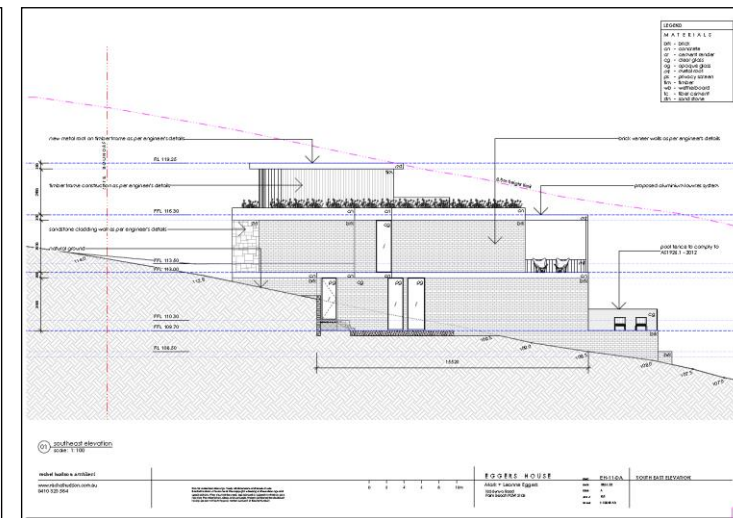
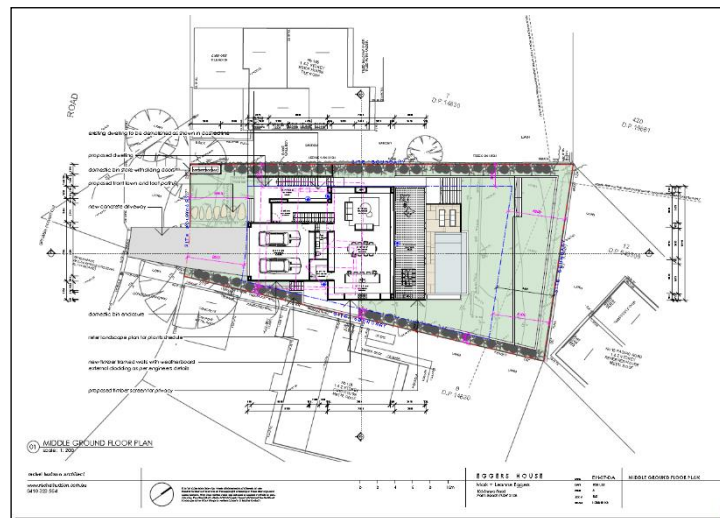
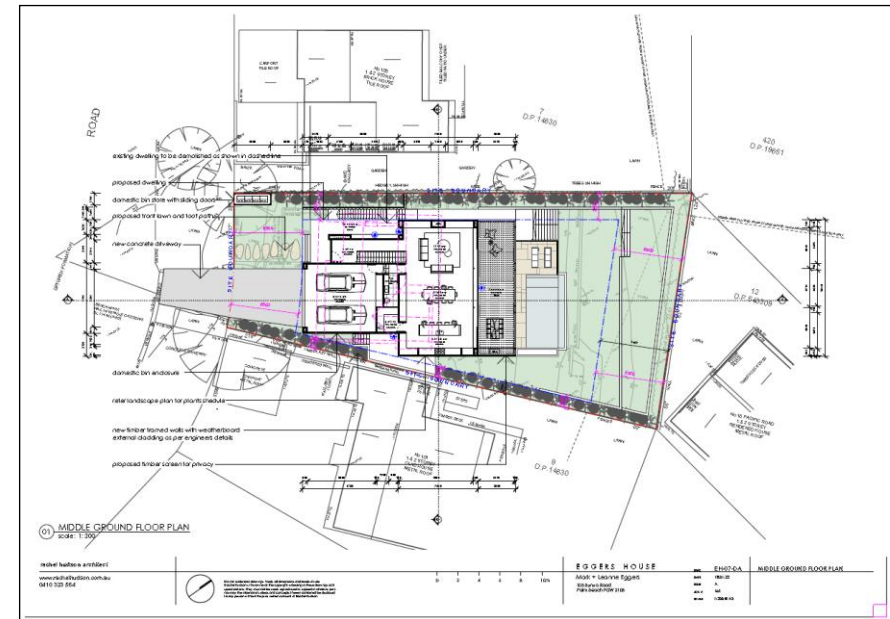
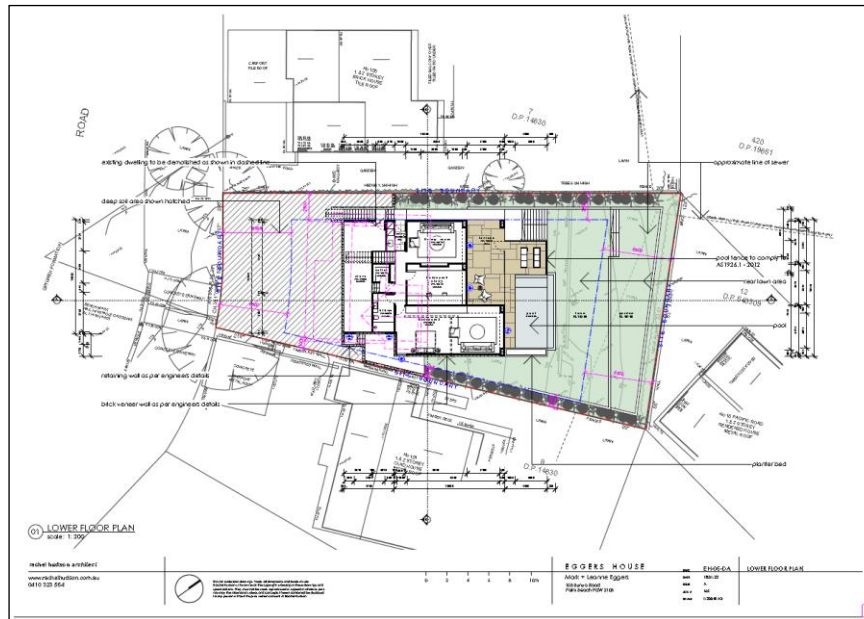


Figure 6: Above confirms the location of Tree #2. Below confirms the location of Tree #3.



4.3 The Proposal





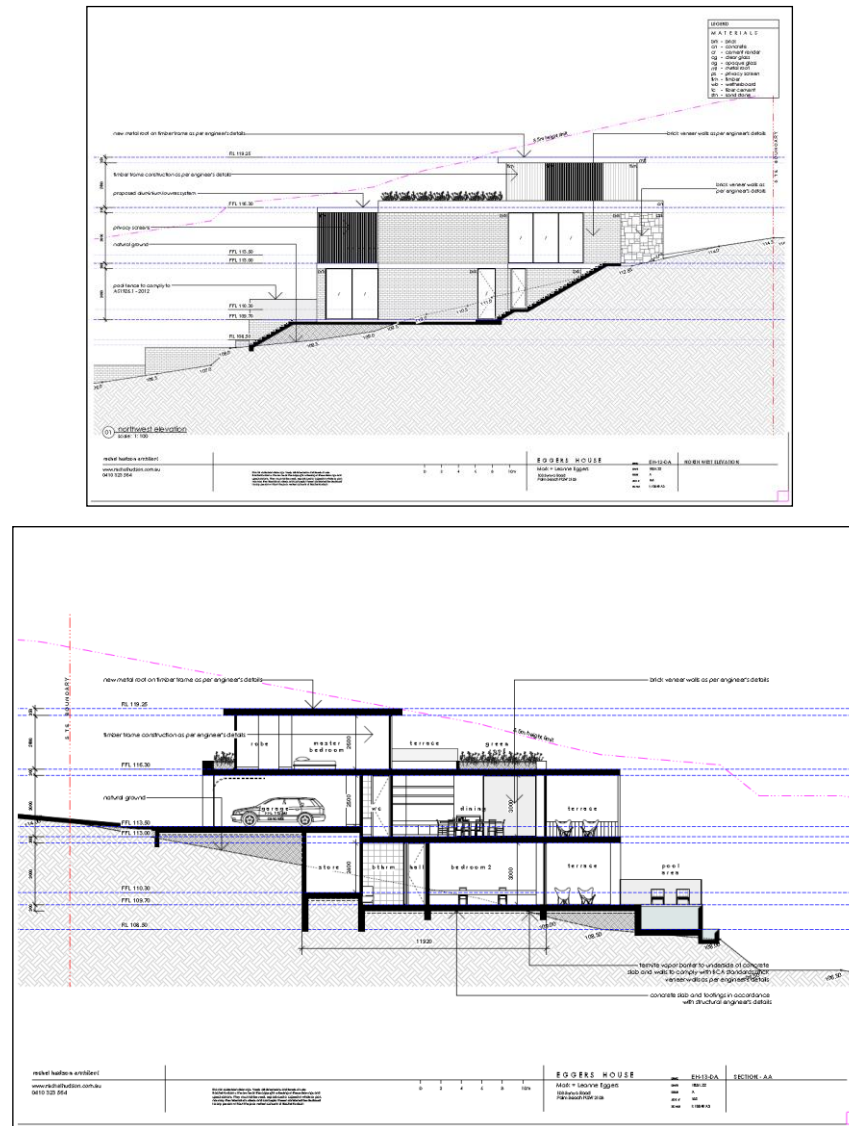


Figure 7: Pages 13, 14 & above illustrates as proposed Lower & Middle Floor Plans, Elevations & Sections.

4.4 The Tree – Summary Table

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

Trees Recommended for removal	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	Origin	Significance/Retention Values	Comments
1	<i>Lophostemon confertus</i> Brushbox	<11.00	<8.50	0.55	6.60	3.24	Mature	Good & Good	Planted	Moderate/Moderate	<u>Retain, Protect & Manage:</u> Tree is an Australian Native but is not locally indigenous. Viably able to be retained. Tree to be isolated from works initially by installation of tree trunk guard (prior to demolition). Then isolated by installation of TPZ radial distance fencing (as close to TPZ radial distance as site allows) from post demolition thru construction of suspended driveway section.
2	<u><i>Ficus macrocarpa</i></u> <i>Banyan Fig</i> (inconclusive relative to cultivar)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<u>Not a protected tree species.</u> Presumed to be replaced in new landscape concept plan when finalised.
3	<i>Lophostemon confertus</i> Brushbox	<6.50	<3.00	0.18	2.16	1.61	Semi-Mature	Fair & Fair	Planted	Low/Low	<u>Replace:</u> Tree is specified as NOT able to be viably retained. Replace.

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.

The subject site is 'E4, Environmental Living Land Zoned'. Three (3), same land zoning developed residential lots share common boundaries with the subject site. The subject & common boundary sites are not typical by plant species of their predevelopment plant community.

Works proposed within the subject site are assessed to NOT impact in any manner whatsoever to common boundary developed sites with respect to built form. Tree #1 is located only just within the subject site. It is reasonable to presume that like the majority of its canopy, its root system is also located within the adjoining property. This document has been prepared on the basis that we note a DA (determined) for Alterations & additions to 101 Bynya Road. By our interpretation the discussed Tree #1 is too be managed as per our specifications for its management within 103 Bynya Road.

Tree #1: This tree is confirmed to be a NBC protected species. The tree is assessed as able to be retained with implementation of an intensive *Site Specific "Plan of Tree Management"*. On the basis ground level disturbance (to areas not already developed) within its calculated TPZ radial distance of 6.60m. are not proposed little to nil disturbance with respect to the new built form is proposed to occur.

On the basis of new works requiring little to nil existing ground level disturbance consideration needs to be given as to what parts of the existing carport below ground infrastructure can/should be retained relative to minimising existing ground level disturbance. From a best practice Arboriculture perspective, the less disturbance required, the better.

There will likely be a requirement for minor canopy pruning over the new suspended driveway for reasonable vehicle/tree canopy separation. This can be determined once a final *DA determination with 'Conditions of Consent'* has been finalised.

Needless to say, any pruning (either above or belowground level) must be completed by suitably qualified & experienced practitioners (or persons under the direct supervision/instruction of a suitably experienced/qualified person) in compliance at all times with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See chapters 7 & 9 of this best practice guideline document.

- No builder's material of any description can be stored within the Tree Protection Zone radial distance (minimum 6.60m) on existing ground levels. Post completion of the project, the retained Project Arborist must document with supporting photographic evidence compliance with the *AS4970-2009 provisions* as well as any DA determination '*Conditions of Consent*' specifications.

Tree #2: This tree is confirmed to NOT be a NBC protected species. On this basis, we support it to be removed & replaced. Tree removal must only be undertaken by persons familiar with & able to abide by the *WorkSafe (WorkCover) Amenity Tree Industry 'Code of practice', 1998*.

See list of potentially suitable to the subject site tree species.

- New tree specimens are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for landscape use)*.
- New tree specimens are to be professionally planted & maintained for a minimum period of six (6) months once installed.

Tree #3: This tree is confirmed to be a NBC protected species. It is assessed as NOT able to be viably retained by implementation of standard AS4970-2009 *guideline provisions*. On this basis, we support it to be removed & replaced. Tree removal must only be undertaken by persons familiar with & able to abide by the *WorkSafe (WorkCover) Amenity Tree Industry 'Code of practice', 1998*.

See list of potentially suitable to the subject site tree species.

- New tree specimens are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for landscape use)*.
- New tree specimens are to be professionally planted & maintained for a minimum period of six (6) months once installed.

Potential Suitable new tree species list:

- *Angophora floribunda* (Rough bark Angophora)
- *Angophora costata* (Sydney Red Gum)
- *Corymbia maculata* (Spotted Gum)
- *Corymbia gummifera* (Red Bloodwood Gum)
- *Eucalyptus racemosa* (Scribbly Bark Gum)
- *Eucalyptus punctata* (Grey Gum)
- *Glochidion ferdinandi* (Cheese Tree)
- *Banksia integrifolia* (Coast Banksia)
- *Acacia binervia* (Coast Myall)
- *Alphitonia excelsa* (Red Ash)
- *Backhousia myrtifolia* (Grey Myrtle)
- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Melaleuca linariifolia* (Snow in Summer)

Site Specific “Preliminary Tree Plan of Management”

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	MANUAL EXCAVATION within TPZ/SRZ	Install Tree Trunk Guard Install TPZ Fencing Install Mulch	Excavation Signoff	CC Signoff	OC Signoff
1. <i>Lophostemon confertus</i> <i>Brushbox</i>	YES	YES/YES	YES YES YES	Yes (if excavation ii required)	YES	YES (
2. <i>Ficus microcarpa</i> <i>Banyan Fig</i>	N/A	N/A	N/A	N/A	N/A	N/A
3. <i>Lophostemon confertus</i> <i>Brushbox</i>	N/A	N/A	N/A	N/A	N/A	N/A

6 Conclusions

- Relative to the information as presented the GMW consultancy supports the proposed works as per documentation reviewed.
- The DA submission be 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 an 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

Age:	I	<i>Immature</i> refers to a refers to a well-established but juvenile tree
	SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size
	M	<i>Mature</i> refers to a full sized tree with some capacity for further growth
	LM	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
	OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining
	LS	<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 – Site Survey



Appendix C – 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.

