



TREE MANAGEMENT CONSULTING ARBORICULTURISTS

ARBORICULTURAL IMPACT ASSESSMENT

for

Toga Wicks Park Developments Pty Ltd
Level 5, 45 Jones Street
ULTIMO NSW 2007

SITE ADDRESS

182-196 VICTORIA ROAD and 28-30 FAVERSHAM ROAD
MARRICKVILLE NSW 2204

FEBRUARY 2019

Prepared by
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1 INTRODUCTION

- 1.1 This Arboricultural Impact Assessment (AIA) prepared by Urban Forestry Australia (UFA) was commissioned by Toga Wicks Park Developments Pty Ltd, the owners of the subject site.
- 1.2 Site A (Wicks Park) is identified as Lot 6 in DP 226899, Lot 10 in DP 701368, Lots 1 & 2 in DP 999026, Lot 1 in DP 136539 and Lot 1 in DP 74200, and known as 182-198 Victoria Road, Marrickville, New South Wales.
- 1.3 Site B is identified as Lot 4 in DP 226899 and known as 28–30 Faversham Street, Marrickville, New South Wales.
- 1.4 This AIA is to accompany a development application to Inner West Council for a mixed-use development of the site.
- 1.5 The purpose of this report is to assess the *vigour* and *condition* of the surveyed trees, and identify the potential impacts the proposed development may have on those trees to be retained in proximity to the works.
- 1.6 This report gives recommendations for tree retention or removal and provides guidelines for tree protection and maintenance.
- 1.7 Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.
- 1.8 This AIA is not intended as an assessment of any impacts on trees by any proposed future development of the site, other than the current development application.
- 1.9 This report is not intended to be a comprehensive tree *risk* assessment; however, the report may make recommendations, where appropriate, for further assessment, treatment or testing of trees where potential structural problems have been identified, or where below ground investigation may be required.

2 METHODOLOGY

- 2.1 In preparation for this report, ground level, *visual tree assessments*¹ of fourteen (14) trees was undertaken by Chantalle Hughes for Urban Forestry Australia, on 21 January 2019. Inspection details of these trees are provided in Appendix E—*Schedule of Assessed Trees*.
- 2.2 This AIA takes account of prescribed trees pursuant to Section 2.20 *Tree Management* of the Marrickville Council Development Control Plan 2011 (MDCP).
- 2.3 Tree heights and canopy spreads were visually estimated or measured using a Nikon ForestryPro Laser measurer. Unless otherwise noted in Appendix D, all trunk diameters were measured at approximately 1.4 metres above ground level (“the DBH”), using a Yamiyo diameter tape.
- 2.4 Field observations were written down, and photographs of the site and trees were taken using an iPhone 6.
- 2.5 No *aerial inspections*, *root mapping* or woody tissue testing were undertaken as part of this tree assessment. Information contained in this tree report covers only the trees that were examined and reflects the condition of those trees at the time of inspection.
- 2.6 Plans and documents referenced for the preparation of this report include:
- Survey Plan, Job Ref. 8333, Drawing no. 8333DU, dated 1 September 2016, prepared by Tree North Surveys.
 - Architectural Plans, A-DA-0008 – 010, Issue D, dated 06.02.2019, prepared by Turner Studio Architects.
 - AS4970-2009 *Protection of trees on development sites*, Standards Australia (AS4970).
- 2.7 No hydraulic service or landscape plans have been reviewed in preparation of this report.
- 2.8 The subject trees are shown on a marked-up excerpt of the survey plan. This marked-up plan is attached as Appendix F—Tree Location Plan.

¹ Visual Tree Assessment (VTA) is a procedure of defect analysis developed by Mattheck and Breloer (1994) that uses the growth response and form of trees to detect defects.

3 OBSERVATIONS AND DISCUSSION

3.1 Assessed Trees

3.1.1 Fourteen (14) trees (prescribed and non-prescribed) were assessed or identified and are included in this report. Details of these are included in the Schedule of Assessed Trees—Appendix E.

3.1.2 Tree numbers—of the 14 assessed trees, the following is noted:

- One (1) prescribed tree is located on Council land adjoining the site —Tree 1.
- One (1) has previously been removed—Tree 14.
- Four (4) are non-prescribed trees and exempt from protection controls under the MDCP—Trees 4, 5, 11, and 12.
- The remaining eight (8) prescribed trees are located within the subject site—Trees 2, 3, 5-10 and 13.

3.1.3 Species assemblage—of the nine (9) prescribed trees, the following is noted:

- One (1) is a locally indigenous species—Tree 1;
- One (1) is an introduced Australian native species—Tree 10;
- Seven (7) are introduced, exotic species—Trees 2, 3, 6, 7, 8, 9 and 13.

3.1.4 No assessed trees species is subject to threatened conservation status under Australian and/or State Government legislation (i.e. NSW *Biodiversity Conservation Act 2016*, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*).

3.1.5 The nine (9) prescribed trees and their respective *Retention Value* (RV) are identified in Table 1, below. Note: Refer to Appendix B for the methodology used to assess the Retention Value of a tree.

Table 1—Tree Identification and Retention Value, where **L**= Low, **M**= Medium, **H**= High. **R** = proposed removal.

Tree No.	Genus & species Common Name	RV	Tree No.	Genus & species Common Name	RV	Tree No.	Genus & species Common Name	RV
1	<i>Tristania laurina</i> Watergum	M	2	<i>Washingtonia filifera</i> Desert Fan Palm	H	3	<i>Washingtonia robusta</i> Mexican Fan Palm	M
6	Unkown exotic species	M	7	<i>Phoenix canariensis</i> Canary Id Date Palm	L	8	<i>Washingtonia robusta</i> Mexican Fan Palm	H
9	<i>Washingtonia robusta</i> Mexican Fan Palm	H	10	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	L	13	<i>Michelia figo</i> Port Wine Magnolia	M

3.2 Proposed Removal of Prescribed Trees for Site Development

3.2.1 Four (4) prescribed site trees are proposed to be removed.

- Tree 6—Unknown exotic species of Medium RV.

This tree was not surveyed however it is within the footprint of the proposed basement excavation and would require removal.

- Tree 7—Canary Island Date Palm of Low RV.

This tree was also not surveyed but is suppressed and is growing toward the public pathway, it requires removal irrespective of the development. It will be too close to the basement excavation to safely retain.

- Tree 10— Bangalow of Low RV.

This tree is located within the footprint of the basement excavation and would require removal.

- Tree 13—Port Wine Magnolia of Medium RV.

This specimen is located in the middle of the basement footprint and would require removal.

3.3 Proposed Tree Retention

3.3.1 One (1) prescribed street tree is proposed to be retained.

- Tree 1—Watergum

Street tree of Medium RV. This tree is located within one of the five proposed extended garden beds along the Victoria Road frontage.

3.4 Proposed Transplanting

3.4.1 Four (4) prescribed site palms are proposed to be lifted and stored on site and transplanted into their final locations at the landscaping stage of works.

- Tree 2—Desert Fan Palm of High RV.

- Tree 3— Mexican Fan Palm of Medium RV.

- Tree 8— Mexican Fan Palm of High RV.

- Tree 9— Mexican Fan Palm of High RV.

4 CONCLUSIONS

- A total of fourteen (14) trees are included in this Arboricultural Impact Assessment.
- No tree has special significance (such as association with a Heritage Item) or is listed as a threatened species under State or Federal legislation.
- Eight (8) trees have been identified for removal. Of these:
 - Four (4) trees within the subject site have been identified as exempt from protection under the MDCP and would be removed—Trees 4, 5, 11 and 12.
 - Four (4) prescribed trees are proposed for removal—Site trees 6, 7, 10 and 13.

Note: One (1) tree within the subject site has been previously removed—Tree 14.

- Five (5) trees have been identified for retention or transplanting. Of these:
 - One street tree will be retained—Tree 1.
 - Four (4) *Washingtonia* palms will be stored and cared for onsite, with future transplanting into their final locations—Trees 2, 3, 8 and 9.

5 RECOMMENDATIONS

5.1 Tree Removal

- 5.1.1 Removal of four (4) prescribed site trees (Trees 6, 7, 10 and 13) are subject to authority review of this report and approval is to be obtained (e.g. by Consent) before any trees are removed.
- 5.1.2 Tree removals are to be undertaken in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).

5.2 Project Arboriculturist

- 5.2.1 At the direction of Council, a Project Arboriculturist may require engagement prior to works commencing on the site, including demolition of structures, site clearing and the like.
- 5.2.2 The PA must have a minimum Australian Qualification Framework Level 5 (AQF5) or above in Arboriculture.
- 5.2.3 Duties of the PA shall include, but not be limited to:
 - Liaising with the Project Manager/Head Contractor/Site Manager to confirm the tree protection fencing locations, construction access, and other specific tree protection requirements prior to site works commencing.
 - Inspection of Tree Protection Devices and supervision of works as recommended in this report or as specified in any Conditions of Consent associated with an approved development application.
 - Provision of Compliance Certification as and when required.

5.3 Tree Retention

- 5.3.1 Tree 1 (Water Gum) is to be provided with a tree guard proper to any works commencing on the site. The tree guard is to be installed in general accordance with Figure 4 *Examples of Trunk, branch and ground protection* from AS4970, or with Figure 2, Appendix C of this report.
- 5.3.2 The Project Arboriculturist is to supervise the demolition and removal of existing pavements within 5m of the tree and provide ongoing advice in regard to construction and planting of the proposed extended garden bed around Tree 1.
- 5.3.3 Palms 2, 3, 8 and 9 are to be moved by a palm transplanting contractor with proven experience in the preparation, lifting, storing, management, and relocation of mature palms.

5.4 Arboricultural Advice

5.4.1 Tree and Root Pruning

- Any pruning required is to be assessed and approved by the project arboriculturist, prior to undertaking any of this type of work
- Pruning shall not be undertaken by unqualified site personnel at any time.
- Pruning of branches must be undertaken by a minimum AQF Level 3 arborist in accordance with the Australian Standard AS4373-2007 *Pruning of amenity trees*,
- Unless otherwise approved by the Conditions of Development Consent, or by separate application and approval by the consent authority, pruning is to be limited to cutting of limbs less than 80mm diameters, and no more than 10% total live material removed.

5.3.2 Stockpiling and location of site sheds

- The project arboriculturist must be consulted prior to placing any items within a tree's TPZ.
- Where stockpiling must be located within the TPZ offset of trees to be retained, the existing/undisturbed natural ground must be covered with thick, coarse mulch to a minimum 75-100mm thickness.
- Large, or bulky materials (non-contaminating) can be stacked on wooden pallets or boards placed over the mulch.
- Tarpaulins (or similar) placed on boards or pallets on top of mulch shall be used to prevent loose or potentially contaminating materials from moving into the soil profile within the TPZ of trees or within 10m upslope of trees.
- Where site sheds must be located within the TPZ offset of a tree/s, the shed must be fully elevated on all sides with a minimum 300mm between existing ground and the floor/floor bearers. Isolated pad footings must be carefully dug by hand and not damage or sever any roots greater than 20mm diameters.
- Any conflict between footing locations and larger roots (i.e. 30mm Ø plus) must be brought to the attention of the project arboriculturist who is to provide practical alternatives that do not include unnecessary tree root damage or removal.

5.3.3 Fill Material

- Placement of fill material within the TPZ of trees to be retained should be avoided where possible. Where placement of fill cannot be avoided, the material should be a coarse, gap graded material such as 20 — 50mm crushed basalt or equivalent to provide some aeration to the root zone. Note that roadbase or crushed sandstone or other material containing a high percentage of fines is unacceptable for this purpose.
- The fill material should be consolidated with a non-vibrating roller to minimise compaction of the underlying soil.
- Permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. No fill material shall be placed in direct contact with the trunk.

5.3.4 Pavements

- Pavements should be avoided within the TPZ of trees to be retained where possible.
- Proposed paved areas within the TPZ of trees to be retained is to be placed above grade to minimise excavations within the root zone, avoiding root severance and damage.

5.3.5 Fencing and walls within the SRZ and TPZ of retained trees.

- Where fencing and/or masonry walls are to be constructed along site boundaries, they must provide for the presence of any living woody tree roots greater than 50mm diameter.
- Hand digging must occur within the SRZ of trees to be retained.
- For masonry walls/fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (e.g. steel or timber pickets, lattice etc) fixed to pillars.

5.3.6 Landscaping within tree root zones.

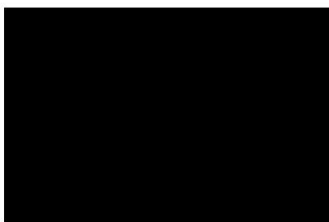
- The level of introduced planting media into any proposed landscaped areas within the TPZ is not to be greater than 75mm depth, and be of a coarse, sandy material to avoid development of soil layers that may impede water infiltration.
- Appropriate container size of proposed plants within the SRZ of trees should be determined prior to purchase of plants. Otherwise, any proposed landscaping within the SRZ must consist of tubestock only. This is required to ensure that damage to tree roots is avoided.
- Mattocks and similar digging instruments must not be used within the TPZ of the trees. Planting holes should be dug carefully by hand with a garden trowel, or similar small tool.
- Where possible, do not plant canopy trees beneath, or within 6 - 8m of overhead lines.

5.3.7 Other

- No washing or rinsing of tools or other equipment, preparation of any mortars, cement mixing, or brick cutting is to occur within 8m upslope of any palms or trees to be retained.
- Regular monitoring of the trees during development works for unforeseen changes or decline will help maintain the trees in a healthy state.

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APPENDIX A

TERMS AND DEFINITIONS



TERMS AND DEFINITIONS

The following relates to terms or abbreviations that may have been used in this report and provides the reader with a detailed explanation of those terms.

Age classes

Y	<i>Young</i> refers to a well-established but juvenile tree
SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity and full size
EM	<i>Early-mature</i> refers to a tree that is more or less full sized and vigourously growing.
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, not yet about to enter decline
OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining.

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

Crown All the parts of a tree arising above the trunk where it terminates by its division forming branches, e.g. the branches, leaves, flowers and fruit: or the total amount of foliage supported by branches.

Crown raise pruning Pruning technique where lower limbs are removed, thereby lifting the overall crown above the ground.

Deadwood refers to any whole limb that no longer contains living tissues (e.g. live leaves and/or bark). Some dead wood is common in a number of tree species.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height, i.e. measured at 1.4 m above ground level.

Form refers to the crown shape of the tree as influenced by the availability or restriction of space and light, or other contributing factors within its environment. Crown form may be determined by tree shape, species and habit and described as Dominant, Codominant, Intermediate, Emergent, Forest and Suppressed, as well as Forest Form or Open Grown. May also be described qualitatively as Good Form or Poor Form.

Growth crack / split Longitudinal crack/split that may develop as a rupture in the bark from normal growth. Longitudinal crack/split that may develop in the trunk of some fast growing palms.

Habit The shape of a tree when its growth is unencumbered by constraints for space and light, e.g. idealized by an isolated field grown specimen with consideration of the species and the type of environment in which it evolved e.g. rainforest, open forest, etc.

Habitat A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. It is the natural environment in which an organism lives, or the physical environment that surrounds (influences and is utilised by) a species population. In restoration ecology of native plant communities or habitats, some invasive species create monotypic stands that replace and/or prevent other species, especially indigenous ones, from growing there.

Health (syn. vigour) refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

Inclusion - the pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet. This is normally a genetic fault and potentially a weak point of attachment as the bark obstructs healthy tissue from joining together to strengthen the joint.

Indigenous Native to an area, and not introduced.

Lopping Cutting between branch unions (not to branch collars), or at internodes on a tree, with the final cut leaving a stub. Lopping may result in dieback of the stub and can create infection courts for disease or pest attack.

Root Mapping The exploratory process of recording the location of roots usually in reference to a datum point where depth, root diameter, root orientation and distance from trunk to existing or proposed structures are measured. It may be slightly invasive (disturbs or displaces soil to locate but not damage roots, e.g. hand excavation, or use of air or water knife), or non-invasive (does not disturb soil, e.g. ground penetrating radar).

Scaffold branch/root A primary structural branch of the crown or primary structural root of the tree.

Structural Root Zone (SRZ) Refers to the radial distance in metres, measured from the centre of the tree stem, which defines the critical area required to maintain stability of the tree. Only thorough investigation into the location of structural roots within this area can identify whether any minor incursions into this protection zone are feasible. Note: The SRZ is calculated on the diameter measured immediately above the root/stem buttress (DAB). Where this measurement is not taken in the field, it is calculated by adding 12.5% to the stem diameter at breast height (DBH). Note: The SRZ may not be symmetrical in shape/area where there is existing obstruction or confinement to lateral root growth, e.g. structures such as walls, rocky outcrops, etc).

Suppressed In crown class, trees which have been overtopped, whose crown development is restricted from above.

Tree Protection Zone (TPZ). Refers to the radial distance in metres, measured from the centre of the tree stem which defines the *tree protection zone* for a tree to be retained. This is generally the minimum distance from the center of the tree trunk where protective fencing or barriers are to be installed to create an exclusion zone. The **TPZ** surrounding a tree aids the tree's ability to cope with disturbances associated with construction works. 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 and 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. Note: In many circumstances the tree root zone does not occupy a symmetrically radial area from the trunk, but may be an irregular area due to the presence of obstructions to root spread or inhospitable growing conditions.

Tree Risk Assessment is the systematic process to identify, analyze, and evaluate tree risk. A tree risk rating of Low, Moderate, High or Extreme is derived by categorising or quantifying both the *likelihood* (probability) of tree or tree part(s) failure and impact on a target(s) and the severity of consequences of the impact on the target(s).

USEFUL LIFE EXPECTANCY (ULE) In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. ULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner. ULE categories are easily verifiable by experienced personnel without great disparity. A tree's ULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give the life expectancy); then by economics (i.e. cost of maintenance - retaining trees at an excessive management cost is not normally acceptable); and finally, effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population). ULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short ULE may at present be making a contribution to the landscape, but their value to the local amenity will decrease rapidly towards the end of this period, prior to them being removed for safety or aesthetic reasons. For details of ULE categories see Appendix B, modified from Barrell 2001.

Vigour (syn. health) refers to the tree's health as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

APPENDIX B

TREE RETENTION VALUE ASSESSMENT



APPENDIX B—TREE RETENTION VALUE ASSESSMENT

Part 1 of 3—Useful Life Expectancy (ULE)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. ULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner. ULE categories are easily verifiable by experienced personnel without great disparity. A tree's ULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give the life expectancy); then by economics (i.e. cost of maintenance - retaining trees at an excessive management cost is not normally acceptable); and finally, effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population). ULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short ULE may at present be making a contribution to the landscape, but their value to the local amenity will decrease rapidly towards the end of this period, prior to them being removed for safety or aesthetic reasons.

ULE categories (modified from Barrell 2001) The five categories and their sub-groups are as follows:

- 1. Long ULE** - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:
 - A. structurally sound trees located in positions that can accommodate future growth
 - B. trees which could be made suitable for long term retention by remedial care
 - C. trees of special significance which would warrant extraordinary efforts to secure their long term retention
- 2. Medium ULE** - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:
 - A. trees which may only live from 15 to 40 years
 - B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
 - C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
 - D. trees which could be made suitable for retention in the medium term by remedial care
- 3. Short ULE** - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
 - A. trees which may only live from 5 to 15 years
 - B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
 - C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
 - D. trees which require substantial remediation and are only suitable for retention in the short term
- 4. Removal** - trees which should be removed within the next 5 years.
 - A. dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
 - B. dangerous trees through instability or recent loss of adjacent trees
 - C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
 - D. damaged trees that are clearly not safe to retain.
 - E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
 - F. trees which are damaging or may cause damage to existing structures within the next 5 years.
 - G. trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
 - H. trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
- 5. Small, young or regularly pruned** - Trees that can be reliably moved or replaced.
 - A. small trees less than 5m in height.
 - B. young trees less than 15 years old but over 5m in height.
 - C. formal hedges and trees intended for regular pruning to artificially control growth

Part 2 of 3—IACA Significance of a Tree, Assessment Rating System (STARS)©

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.

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.



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 <i>in situ</i> - 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 a form typical or atypical for the species
The tree is a planted locally indigenous or a common species with its taxa commonly planted in the 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 and/or below ground influences, reducing its ability to reach dimensions typical for the taxa <i>in situ</i> .
3. LOW SIGNIFICANCE IN LANDSCAPE
The tree is in fair-poor condition and good or low vigour
The tree has a form atypical for 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 <i>in situ</i> - 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

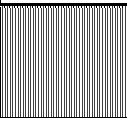
The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge. In the development of this document IACA acknowledges the contribution and original concept of the Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd and Andrew Morton in June 2001.

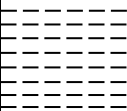
Part 3 of 3—Tree Retention Value Priority Matrix

		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																

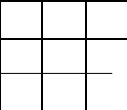
LEGEND FOR MATRIX ASSESSMENT



Priority for Retention (High) -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 AS4970 *Protection of trees on development sites*. Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.



Consider for Retention (Medium) -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.



Consider for Removal (Low) -These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.



Consider for Removal (Low) -These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

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CONSULTING ARBORICULTURISTS

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, 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

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

APPENDIX C

TREE PROTECTION DEVICES



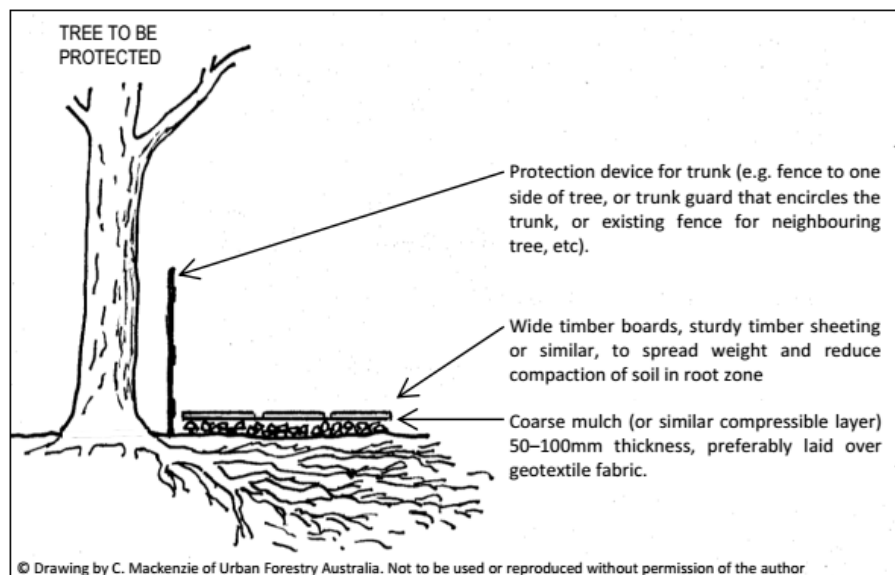


Figure 1
A method of reducing risk of root damage and soil compaction within the tree's Structural Root Zone.

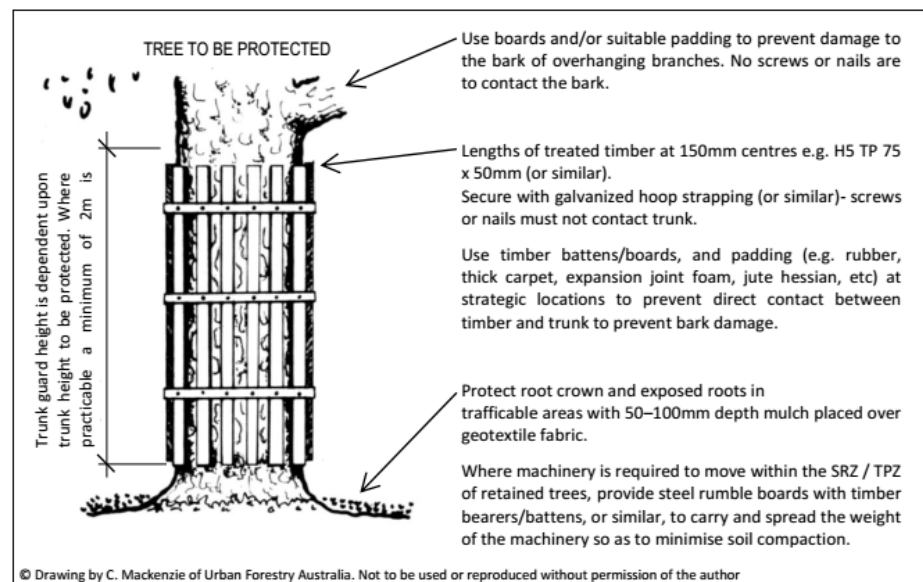


Figure 2
Example of tree trunk and tree branch protection.

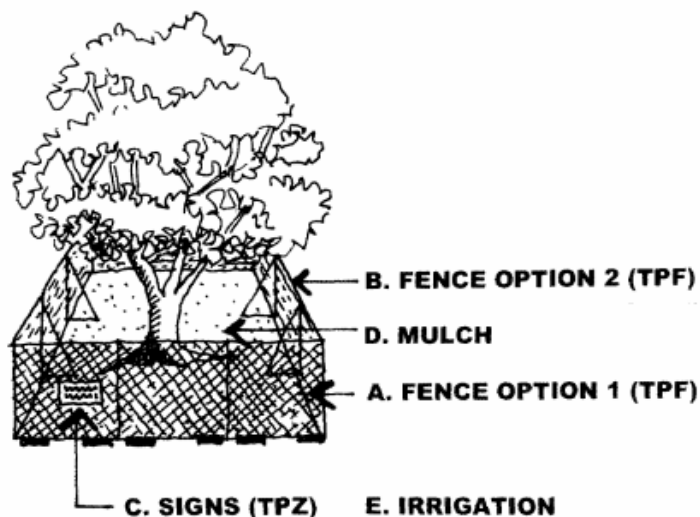


Figure 3

TREE PROTECTIVE FENCING (TPF)

A. Fence Option 1 (TPF)

1.8 metre high chain wire mesh panels with shade cloth attached if required, to be held in place with concrete blocks.

B. Fence Option 2 (TPF)

1.8 metre high plywood or wooden panel/paling fence (prevents soil or building contaminants from coming under fence when panels are laid flush to ground).

C. Signs (TPZ)

Tree Protection Zone Signs

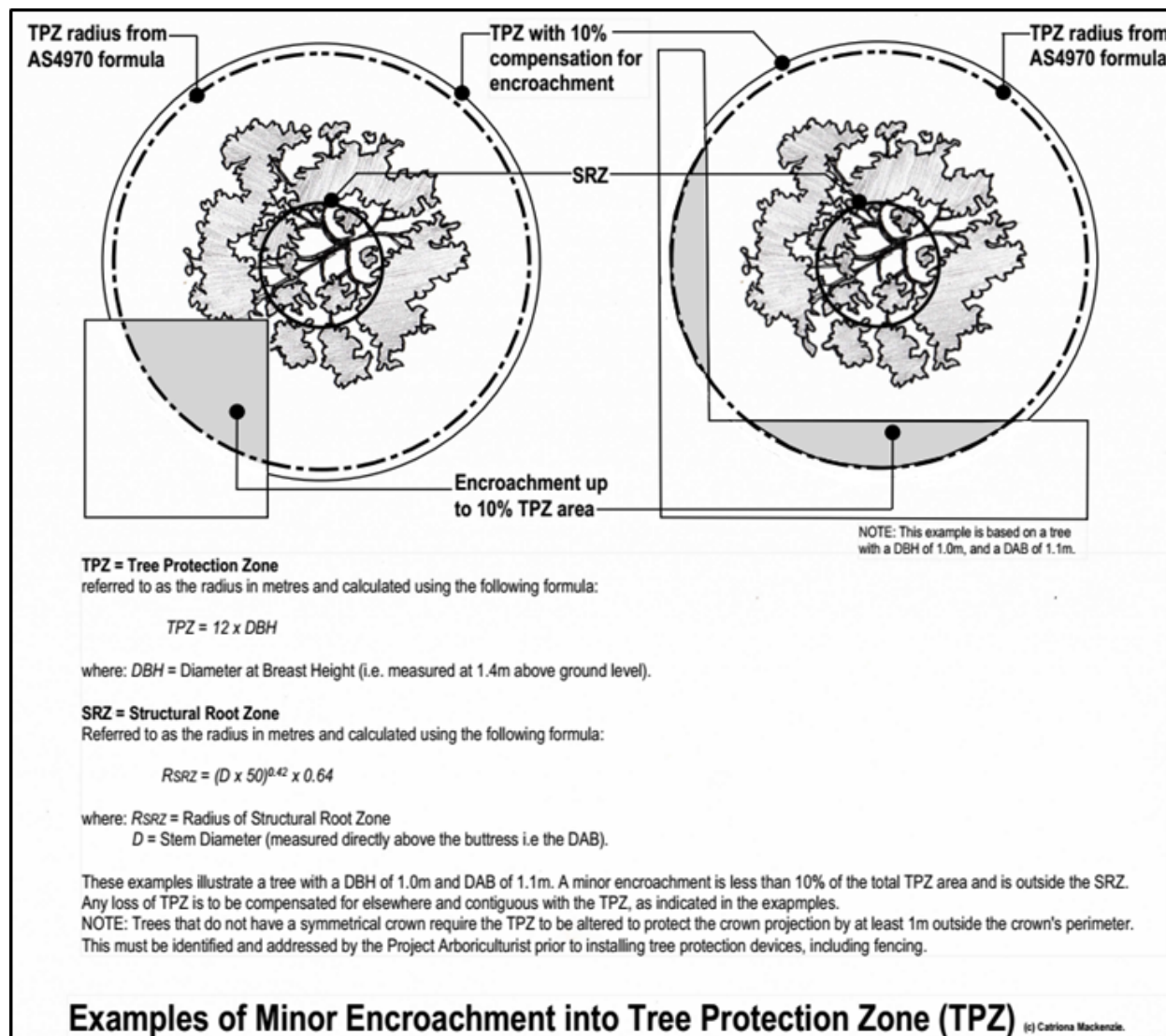
D. Mulch

50mm to 100mm thick layer of organic mulch, or aggregate, installed across surface area of TPZ.

E. Irrigation

Irrigation to arborist's advice.

© Drawing by Selena Hannan. Used with permission.



Include the Project Arboriculturist's details in the 'Contact' panel.

APPENDIX D

PHOTOGRAPHS





Plate 1 - Tree 1 – This Watergum is located on the street, substantial mechanical damage and torn limbs has created pockets of decay.



Plate 2
Trees 2-7 – Note Tree 7 in front with grey arrow, this specimen is located too close to the pathway (lean is not obvious in photo) and would require removal in the future irrespective of the development proposal.



Plate 3

Trees 8, 9 & 10 – All three trees (Bangalow can be noted behind with grey arrow) are located either too close to or within the footprint for the proposed basement.



Plate 4

Tree 13 – This Port Wine Magnolia noted with grey arrow will require removal.

APPENDIX E

SCHEDULE OF ASSESSED TREES

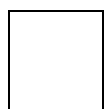


Schedule of Assessed Trees—182 - 192 Victoria Road, Marrickville. 21 January 2019

Tree No.	Genus & species Common Name	Ht (m)	Sp (m)	DBH (mm)	Age	V	C	Observations/Comments	ULE	TSR	RV	SRZ (m)	TPZ (m)	TPZ (area)
1	<i>Tristaniaopsis laurina</i> Watergum	6	6	275	M	G	F	Victoria Road Street Tree. Locally native species. wounds/decay surrounding stem @ 1m AGL and large tear out to the west deep into cambium. Multiple stems @ 3m AGL, fused and squeezing. Large diameter limb removed at base of stem to the north.	2A	M	M	2.1	3.3	35
2	<i>Washingtonia filifera</i> Desert Fan Palm	13	6	725	LM	G	G	Introduced exotic species. Base of stem hard against boundary wall with substation, breaking brick wall.	2A	H	H	N/A	4	48
3	<i>Washingtonia robusta</i> Mexican Fan Palm	11	6	425 @ 1m AGL	M	G	G	Introduced exotic species. Stem sweeps to west before self-correcting.	2A	M	M	N/A	4	48
4	<i>Syagrus romanzoffiana</i> Cocos Palm	12	6	350	M	G	G	Introduced exotic species. Wounds up stem from 'spike' use. Exempt species (non-prescribed) under MDCP 2011 Section 2.20.	2B	L	L	-	-	-
5	<i>Beaucarnea recurvata</i> Ponytail Palm	3.5	2	125 @ 1m AGL	M	G	G	Introduced exotic species. No special problems noted at time of assessment. Exempt species (non-prescribed) under MDCP 2011 Section 2.20.	2B	L	L	1.6	2	8
6	Unknown exotic species	10	10	200	EM?	G	G-F	Introduced exotic species. Sprawling branches, foliage affected by insect damage. Restricted root space.	2A	M	M	1.8	2.4	18
7	<i>Phoenix canariensis</i> Canary Island Date Palm	4	3	300 DAB	Y	G	F	Introduced exotic species. Leans to west (Phototropic) over pathway. Fig growing out of frond junction.	3B	L	L	N/A	2.5	18
8	<i>Washingtonia robusta</i> Mexican Fan Palm	12	4	400	M	G	G	Introduced exotic species. No special problems noted at time of assessment.	2A	H	H	N/A	3	28
9	<i>Washingtonia robusta</i> Mexican Fan Palm	12	4	525	M	G	G	Introduced exotic species. No special problems noted at time of assessment.	2A	H	H	N/A	3	28
10	<i>Archontophoenix cunninghamiana</i> Bangalow	6	4	150	M	G	F	Introduced native species. Fronds browned at tips.	3A	M	L	N/A	3	28
11	<i>Syagrus romanzoffiana</i> Cocos Palm x 2	10	8	*225 & 225	M	G	G	Introduced exotic species. Exempt species (non-prescribed) under MDCP 2011 Section 2.20. No access to stems as car parts stacked 3m deep at base of stem.	2B	L	L	-	-	-

Tree No.	Genus & species Common Name	Ht (m)	Sp (m)	DBH (mm)	Age	V	C	Observations/Comments	ULE	TSR	RV	SRZ (m)	TPZ (m)	TPZ (area)
12	<i>Cinnamomum camphora</i> Camphor laurel	5	6	*100	Y	G	F?	Introduced exotic species. Exempt species (non-prescribed) under MDCP 2011 Section 2.20 (under 10m in height). No access to stem.	2B	L	L	-	-	-
13	<i>Michelia figo</i> Port Wine Magnolia	3.5	6	300 DAB	M	G	G	Introduced exotic species. Multiple stems at base of tree.	2A	M	M	2	3.6	41
14	Removed	-	-	-	-	-	-	-	-	-	-	-	-	-

KEY



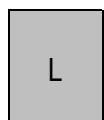
Prescribed trees to be retained. Palms to be transplanted into landscape.



Prescribed trees proposed to be removed.



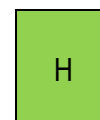
Non-prescribed trees exempt from tree preservation controls under MDCP, and to be removed.



LOW Retention Value-These trees are not considered important for retention.



MEDIUM Retention Value-These trees may be retained and protected.



HIGH Retention Value -These trees are considered important for retention and should be retained and protected.

DETAILS FOR HEADINGS AND SYMBOLS USED IN TREE SCHEDULE

* Denotes those situations where the tree's Diameter at Breast Height (DBH) has been *visually* estimated (usually adjoining trees or those that are hard to access and/or physically measure).

() The numerical figure in parentheses is the calculated DBH for a multiple stemmed tree, using the AS4970 formula, or, is the calculated DBH where the measurement cannot be made at the standard 1.4m above ground level, e.g. where the diameter of the stem is measured at ground level (DGL) or above the buttress (DAB). All calculated figures are rounded up to the nearest 25mm to determine the tree's TPZ offsets.

NOTE: According to AS4970, the TPZ of palms, other monocots, cycads and tree ferns should not be less than 1m outside the crown projection. The AS4970 formula for calculating the SRZ of a tree does not apply to palms, other monocots, cycads and tree ferns.

DAB—The trunk/stem diameter measured *above the buttress* (i.e. root and trunk confluence), using a diameter tape

DGL—The trunk/stem diameter measured *at ground level*, using a diameter tape.

AGL—*above ground level*.

GL—*at ground level*.

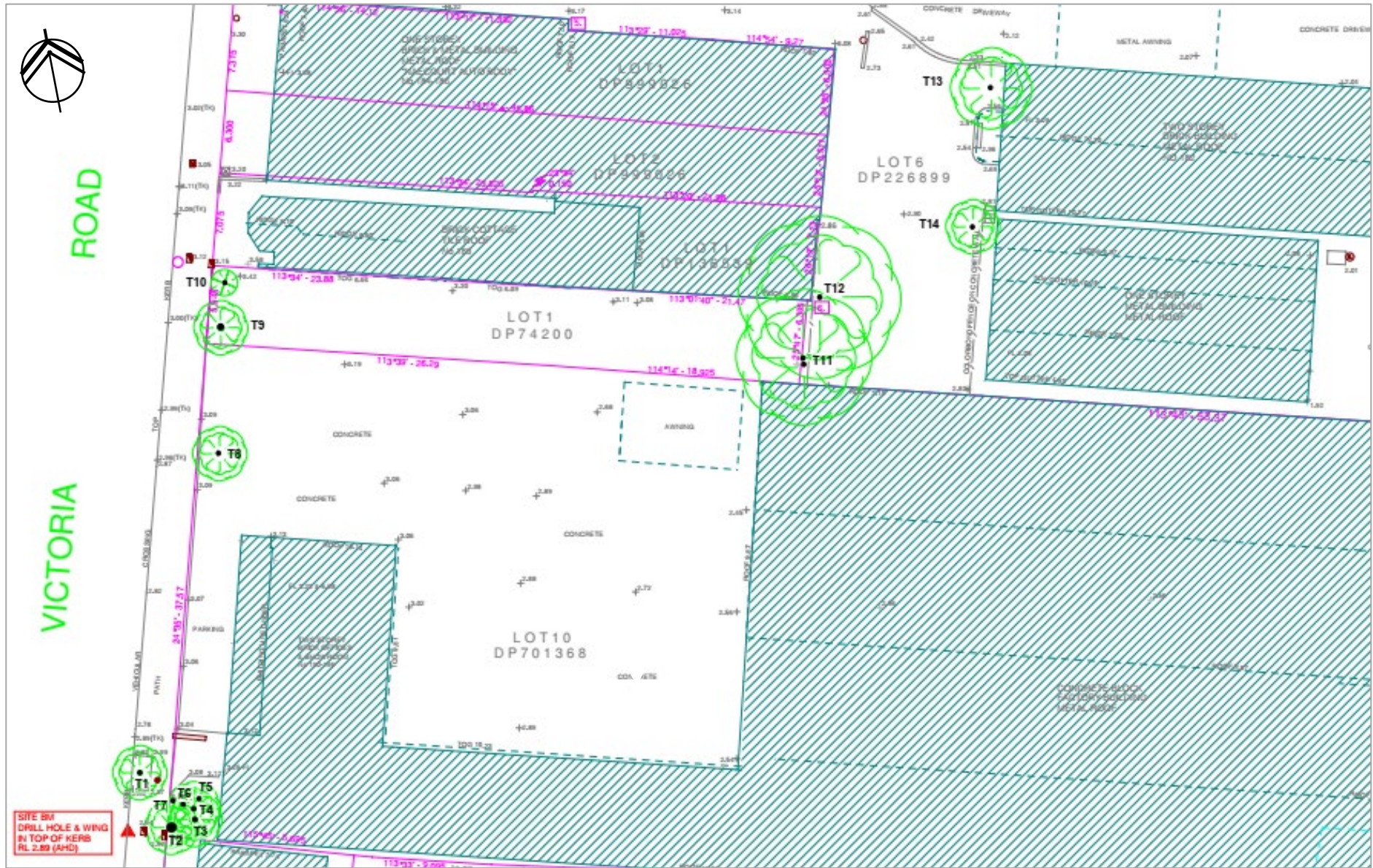
H refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

- Sp** refers to the approximate and/or average diameter spread in metres of branches/canopy (the 'crown') of a tree.
- DBH** refers to the approximate diameter of tree stem at breast height i.e. 1.4 metres above ground (unless otherwise noted) and expressed in millimetres.
- Age** refer to Appendix A -Terms and Definitions for more detail.
- V** refers to the tree's vigour (health) Refer to Appendix A -Terms and Definitions for more detail.
- C** refers to the tree's structural condition. Refer to Appendix A -Terms and Definitions for more detail.
- ULE** refers to the estimated *Useful Life Expectancy* of a tree. Refer to Appendices A and B for details.
- TSR** The *Tree Significance Rating* considers the importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit. Refer to Appendix B – Significance of a Tree Assessment Rating for more detail.
- RV** Refers to the retention value of a tree, based on the tree's ULE *and* Tree Significance. Refer to Appendix B – Significance of a Tree Assessment Rating for more detail.
- SRZ** Structural Root Zone (SRZ) refers to the critical area required to maintain stability of the tree. Refer to Appendix A -Terms and Definitions for more detail.
- TPZ** Tree Protection Zone (TPZ) refers to the *tree protection zones* for trees to be retained. Refer to Appendix A -Terms and Definitions for more detail.
- ILR** Impact Level rating. Refer to Appendix A -Terms and Definitions for more detail.

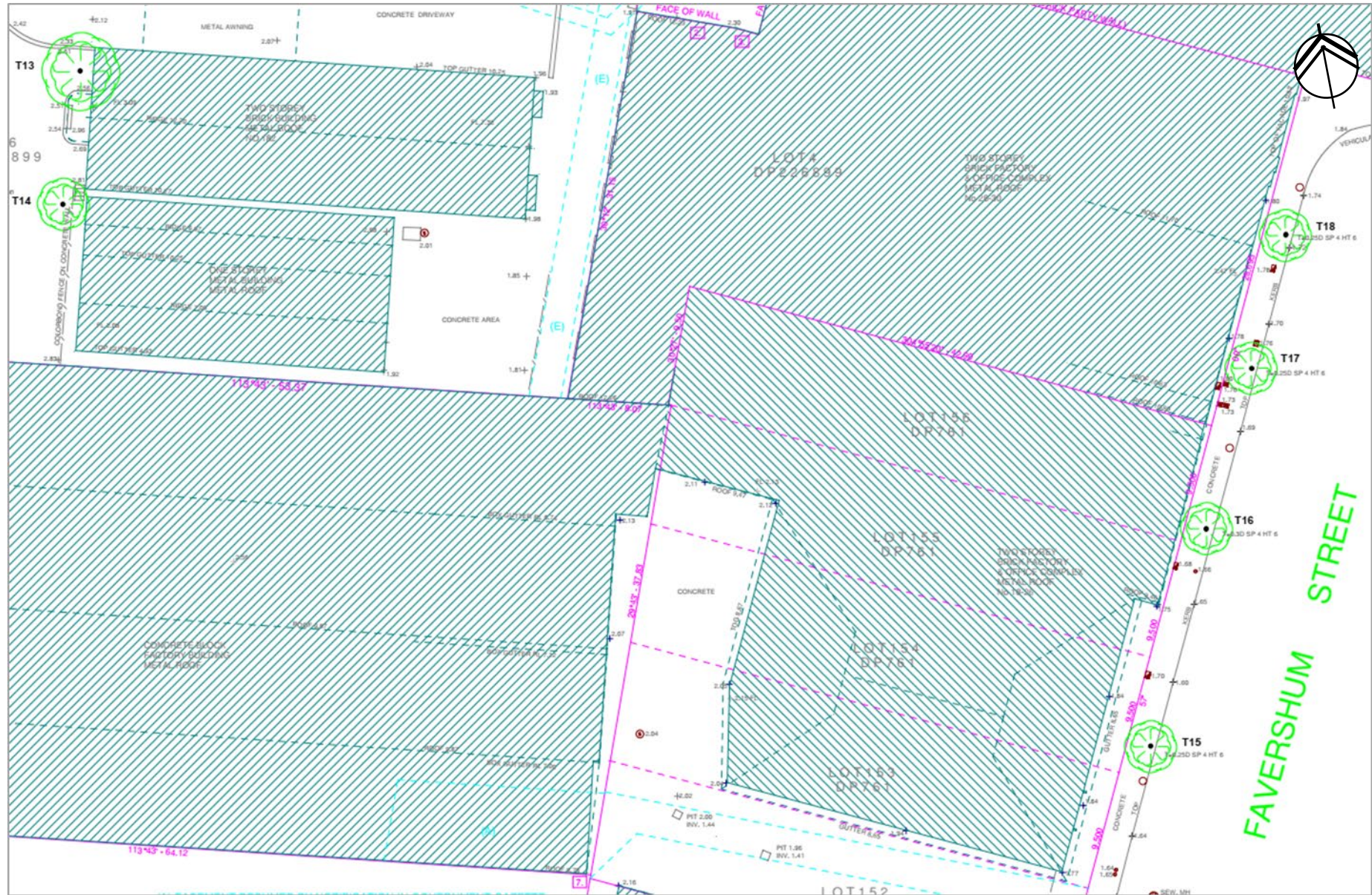
APPENDIX F

TREE LOCATION PLANS





PART PLAN - Not to scale (Excerpt of site detail and level survey by True North Surveys, marked up by C. Hughes)



PART PLAN - Not to scale (Excerpt of site detail and level survey by True North Surveys, marked up by C. Hughes)