

# **Arboricultural Impact Assessment Report**

## for

# **1 Frewin Place Scullin ACT**

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## Project Details

Job	2301004
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## Version History

Ver. No.	Ver. Date	Revised By	Description
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V0.2	30/01/23	Steve Griffiths	Review Initial draft report
V0.3	06/02/23	Alleyne O'Neill	Proof and format content
V1.0	06/02/23	Steve Griffiths	Final Report for submission

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### 1. Report Overview

Figure 1. Street view of 1 Frewin Place Scullin



The purpose of this Report is to provide an Arboricultural Impact Assessment Report (AIAR) for the trees at 1 Frewin Place Scullin. This Report describes the trees on and beside the site and how some of the trees will be impacted by the proposed development.

The Report details how the trees must be protected during the works to meet the requirements of ACT legislation.

All works agreed to be done on Regulated Trees in this Report that involves major trimming or tree removal, must be approved by the Tree Protection Unit within Transport Canberra and City Services (TCCS) prior to conducting this work. We are happy to apply for all necessary paperwork needed for this without charge, however only as it applies to the works recommended and agreed to be conducted by us in this Report.

Please Refer to the Report Summary on page 5 for Specifications, Site Plan and Sequence of Events.

Details of the Assessment Conducted are included in Section 3 on page 14.

Please note, additional important supporting information is included in Section 4 on page 23 and should be read in conjunction with the Report Summary and Assessment Conducted.

Thank you for the opportunity to provide this report. Should you have any questions, please feel free to email me at <a href="mailto:steve@treereports.com.au">steve@treereports.com.au</a>

Kind regards

Steve Griffiths Level 5 Consulting Arborist 30 years' experience in Arboriculture



### 2. Report Summary

#### 2.1 Specifications

This Report covers a total of 22 trees on or adjacent to 1 Frewin Place Scullin that may be impacted by the proposed construction of six units. There are 11 trees that are protected under ACT legislation because of their size or their location on the road verge:

- Three of these trees are in poor condition and removal is recommended (S6, C7 and S8).
- Seven trees must be protected (N1, S2, S3, S4, S5, S10, S12, C18) during all stages of the site development, including excavation and soil fill stages.
- One site tree (S11) is dead and removal is recommended.

In addition:

- Six site trees (S16, S17, S19, S20, S21, S22) are Cootamundra Wattle (*Acacia baileyana*) which is a weed species in the ACT and can be removed.
- Four trees (S9, S13, S14, S15) are under the size that requires their protection under legislation but because they contribute to the landscape of the site, we recommend they be retained and where located close to works, they should protected during construction.

The key methods of protection are:

- exclusion of equipment and personnel from the tree's root zone (TPZ) using a 1.8m high construction site fence panels or Tree Protection Fencing (TPF);
- Reducing compaction of TPZs using temporary (secondary) paths, and
- Applying good management techniques to ensure any stress on the trees is minimised during the implementation of works.

All necessary actions required to protect the trees recommended for retention are detailed in this Report.

# 2.2 Notes on Demolition, Construction and Post Construction that must be followed

- Firstly, install the TPF being a sturdy 1.8m in height with dust cover sheets over the TPF with "TREE PROTECTION ZONE – NO ACCESS" signs attached before demolition stage starts. Positions of TPF are in highlighted red dotted lines on the *Proposed Site Plan* on page 11.
- TPF is to remain during all phases of work. The TPF is to protect the trees' root zones and must be pegged down to keep it firmly in place **and not be moved**. There is to be no site sheds nor any vehicle parking on the front verge. The area on the verge can be used to store solid materials (not soil), providing they are away from the TPZs and must be placed on bearers to disperse compaction issues.
- Where specified, an irrigation program is to be set in place and dust cover sheets over the TPF with "TREE PROTECTION ZONE NO ACCESS" signs attached before any works start.
- There is to be no digging or compaction in the Structural Root Zones (SRZ) or scraping away of natural ground level within TPZs unless particular measures to compensate the impact are undertaken as described below.
- The type of footing proposed for Unit 2 (Tree S10) and Unit 4 (Tree S4) and potentially Unit 1 (if Tree S9 is to be retained) where it encroaches into the TPZ of these trees is waffle pod.



This methodology is best to lower the impact of construction on active root zones. Excavation within the TPZ of these trees must be using a Hydro vacuum system. Some of Tree S4's canopy may extend over the new proposed roof area of Unit 4 and therefore gutter guards are recommended for this building.

- All excavation within the TPZ of any trees must be using Hydro vacuum at half pressure so as not to harm the cambium layer of any roots. The Site Arborist is to be on site during this operation.
- Appropriate load-bearing mats/plywood boards with a width of 1.2m, are to be in place for lightweight machinery such as small Dingo diggers and even wheelbarrows, when within any of the trees' TPZs on this site. These temporary access paths (secondary paths) are to be laid down for access near Trees S4, S9 and S10. Refer to *Proposed Site Plan* on page 11 for positioning of the secondary paths marked in yellow.
- Placement of utilities within the TPZ of any tree must use hydro vacuum or under boring methods rather than open trenching.
- All additional post-construction digging, such as footpaths, gas, water, communication cable trenches, garden light trenches and new letterboxes, must be passed by the Site Arborist, but only if they encroach into a TPZ.
- Materials can be stored on wooden bearers; this is for distributing weight to help eliminate compaction issues.
- Builders' vehicles are not to park on the council verge, rather on the street.
- There must be a wash bay or bin for concrete slurry, plaster, paint and rubble, as well as a wash up area within this site. Builder's waste must not seep into the ground as this is very toxic to the trees' root system and all waste must be taken off site. These bins must be in a designated area and contractors advised where they are.



### 2.3 Tree Protection Zone (TPZ) Incursions

### 2.3.1 Incursion into the TPZ of Tree S4 – Southern Blue Gum

Figure 2. Tree S4 TPZ Incursion



Tree S4

The above illustration clearly shows there is an incursion of 31.2m<sup>2</sup>, which is 13.1% of the total root zone.

This appears to be an acceptable incursion if the new foundation has a minimal 50mm ground scrape and uses a waffle pod foundation. The placement of a temporary path between Unit 4 and Tree S4 is required to prevent compaction of the TPZ.

The placement of a permanent path beside Unit 4 must also be carried out with not more than 50mm of topsoil scraped away before placement of the base material for the path. Any compaction of the base must be light and carried out with a hand operated plate vibrator. No heavy rollers or vibrating roller are to be used in the tree's TPZ.

Under the building, any utilities going through the TPZ of this tree must be placed in the waffle pod rather than the ground - this includes all stormwater, sewer, electrical water, gas and communication cables. Placement of utilities within the TPZ must use hydro vacuum or under boring methods rather than open trenching.

Excavation for the proposed fence posts must use hydro vacuum within the Structural Root Zone (SRZ). Beyond the SRZ and within the TPZ hydro vacuum or Mega anchor system must be used when excavating holes for the fence posts.

An irrigation system is to be provided to this tree's entire TPZ and operated during drought or summer to maintain adequate soil moisture for the duration of works.



The *Proposed Site Plan* on page 11 shows the location of TPF and a temporary path to protect the tree's TPZ. Figure 25 on page 25 provides an illustration of what is required for TPF and temporary paths.

#### 2.3.2 Incursion into the TPZ of Tree S9 – Narrow Leaved Peppermint

Figure 3. Tree S9 TPZ Incursion



The figure above shows the extent of incursion of Unit 1 into the TPZ of Tree S9. This shows the TPZ to be 5.82 metres in diameter with Tree S9 located three metres from the building.

This is a significant incursion (18.7%) into the tree's TPZ. It may be possible to retain the tree by using a waffle pod construction method for the footings. The installation of services to the building through the TPZ would require hydro vacuum or under boring methods to be used to minimise the impact of works on the tree.

If this approach is not acceptable this tree can be removed because it does not, at present, meet the size that requires it to be protected under ACT legislation.



#### 2.3.3 Incursion into the TPZ of Tree S10 – Yellow Box

Figure 4. Tree S10 TPZ Incursion



The above illustration clearly shows there is an incursion of 19.7m<sup>2</sup>, which is 4.9% of the total root zone. This appears to be an acceptable incursion if the new foundation has a minimal 50mm ground scrape and uses a waffle pod foundation above the TPZ. The placement of a temporary path between Unit 2 and the tree is required to prevent compaction of the TPZ. The *Proposed Site Plan* on page 11 shows the location of the required temporary path and TPF for this tree.

The placement of a permanent path beside Unit 2 that extends into the TPZ must also be carried out with not more than 50mm of topsoil scraped away before placement of the base material for the path. Any compaction of the base must be light and carried out with a hand operated plate vibrator. No heavy rollers or vibrating roller are to be used in the tree's TPZ.

Under the building, any utilities going through the TPZ of this tree must be placed in the waffle pod rather than the ground - this includes all stormwater, sewer, electrical water, gas and communication cables. Placement of utilities within the TPZ must use hydro vacuum or under boring methods rather than open trenching.

Excavation for the proposed fence posts must use hydro vacuum within the SRZ. Beyond the SRZ and within the TPZ, hydro vacuum or Mega anchor system must be used when excavating holes for the fence posts.

An irrigation system is to be provided to this tree's entire TPZ and operated during drought or summer to maintain adequate soil moisture for the duration of works.



### 2.4 Existing Site Plan

Location of all trees to remain on this site. There are other small trees on this block, but are of low value.







### 2.5 Proposed Site Plan

Proposed Site Plan showing Tree Protection Fencing (in highlighted red dotted lines) and secondary (temporary) paths in yellow.





#### 2.6 **Summary and Sequence of Events Checklist**

Please print this checklist and mark as completed with the date completed. We strongly advise a copy of this checklist is kept on file for any future reference, if needed.

#### Please note: this checklist will be reviewed at subsequent inspections.

Timing	Mode of Action	Reason For	Done (√)	Date Completed	Marked as Done by (Initials)
Before commencement of excavation on this proposed building site.	Approval of this Report is needed from the Tree Protection Unit, ACT Territory and Municipal Services Directorate, before any demolition, excavation and construction.	By law under ACT legislation.		//20	
Two weeks before excavation - order a measured supply of mulch, needed for around secondary paths area shown on the <i>Proposed</i> <i>Site Plan</i> on page 11.	Have mulch dropped off in a single pile and be allowed to sit so it can undergo controlled aerobic and thermophilic biological transformation (reducing nitrogen draw-down). This mulch is under the temporary paths (marked in yellow) on page 11. About 10 cubic metres of mulch is needed for around these trees.	So that the mulch laid down to create temporary paths, allows access within the trees' TPZ.		//20	
After the soil is spread out, erect a 1.8m mesh TPF around trees to be retained, including verge area. For locations of TPF refer to the <i>Proposed Site Plan</i> on page 11.	Erecting the TPF within the TPZs is mandatory. Refer to page 11 for the correct location of the TPF and temporary paths. If unsure of the positioning, you must contact the Site Arborist. Once TPF is up, close up fencing. Place dust cover sheets over TPF with the attached signage "TREE PROECTION ZONE – NO ACCESS".	TPF needs to be erected at this stage before trucks and machines arrive. This area must be protected to give the trees their best shot at recovery from this building activity and to help preserve the front verge.		//20	
When TPF is erected, apply irrigation.	Keep soil moisture to approximately, but not less than, 60% of field capacity at a depth of 300mm around trees S4, S9 and S10 (near saturation level - fortnightly).	Maintaining a favourable moisture level in the soil for the root systems.		//20	
Install temporary/secondary	Laying down a layer of mulch 50mm thick, only in areas where it shows in the <i>Proposed Site</i>	To protect the soil and roots against compaction.		//20	



Timing	Mode of Action	Reason For	Done (√)	Date Completed	Marked as Done by (Initials)
TPZ paths and compaction mats/rumble boards.	<i>Plan</i> on page 11 then compaction mats/rumble boards to allow walkway passage only into the trees' root zone areas; only people and light equipment, e.g. laden wheelbarrows, are allowed on these boards. These secondary paths are always within the TPZ, being a width of 1.2m or more as indicated on the plan.				
After TPF, secondary paths and mulch is in place, install various site sheds, storage areas and toilets, if needed.	When installing these sheds, a spotter is to be in place to protect the tree branches when the sheds are craned off the truck.	For the accidental damage that may occur to the protected trees and their root systems when installing sheds, storing area and toilets, if needed.		//20	
After site shed, storage areas and toilets are in place, and before any earthworks.	Keep copies of this Report for contactors to read prior to working on this site, so all will understand what is acceptable and not acceptable for tree health, soil compaction, TPF, TPZ and chemical spillage.	To inform staff working on the site of the dangers of negligence.		//20	
	POST-CONSTRUCTION				
After building construction is completed and commencement of landscaping construction of concrete driveway.	Minor construction of pathways, letterboxes, seats, planting of hedge and install planter boxes.	All work within the TPZ will affect the health of the trees. Keep the TPF up until post-construction is complete.		//20	

Table 1.Sequence of Events Summary

1	AS 4454-20	112 Composts and	Mulches	
	10 4104 20		maiorico	



### 3. Assessment Conducted

### 3.1 Commission Brief, Method Used and Limitations

The author of this report has:

- visited the site on the afternoon of 23 January 2023
- identified the genus/species of two street trees on council verge and one site tree that is regulated (TCCS)
- observed the health and condition of the trees assessed
- provided a Visual Tree Assessment (VTA<sup>1</sup>) on these trees
- provided a tree management report for the construction of the new residences
- provide Tree Protection Zones (TPZ) for possible Tree Protective Fencing (TPF) positioning
- taken photos of all trees on and beside the site.

Body Language of Trees by Mattheck & Breloer (1994)

### 3.2 Tools Used to Collect Data for this Report

- Suunto tree height measuring tool
- Soft hammer (nylon type) for detecting acoustic variances in the trunk
- Tape measure for measuring trunk diameters at breast height (DBH)
- A camera for documentation of photos for further examination
- Binoculars

It is noted that the information in this Report covers only the trees mentioned in the tables below. There are other trees throughout the site, however, these are not mentioned as they are of no value. The trees listed in the *Tree Survey Schedule* below, reflects their health and condition at the time of assessment.

After conducting a VTA<sup>1</sup>, Steve Griffiths, the Level 5 Consulting Arborist was satisfied that an aerial inspection was not needed on any of the trees on this site.

			Basal				Canop	y (m)				Livo
Tree #	Botanical Name	DBH (mm)	DBH Trunk (mm) Flare (dia)	Health	Height (m)	N	S	E	W	Age Class	Integrity	Foliage %
N1	Eucalyptus mannifera	499	600	Good	15	2.5	2.0	4.9	2.6	Semi- mature	Good	90
S2	Eucalyptus mannifera	371 262 187	533	Good	15	3.1	4.1	5	6.3	Semi- mature	Good	85
S3	Eucalyptus mannifera	455	475	Good	16	5.4	1	1	2.4	Semi- mature	Good	85
S4	Eucalyptus globulus	725	830	Good	16	2.2	6.9	8.7	5.8	Semi- mature	Good	90

### 3.3 Tree Observation Tables



			Basal				Canopy (m)					Livo
Tree #	Botanical Name	DBH (mm)	Trunk Flare (dia)	Health	Height (m)	N	S	E	W	Age Class	Structural Integrity	Foliage %
S5	Eucalyptus globulus	798	940	Good	16	7.2	3.9	8.7	4.8	Semi- mature	Good	95
S6	Eucalyptus blakelyi	633	641	Poor	8	0	5.2	3.7	1	Semi- mature	Poor	45
C7	Eucalyptus blakelyi	920	1120	Poor	12	1	4.2	2	3.7	Semi- mature	Poor	50
S8	Eucalyptus blakelyi	730	840	Poor	7	0	1	0	3.7	NA	Fair	30
S9	Eucalyptus nicholii	485	570	Good	9	3.5	4	3.6	4	Semi- mature	Fair	80
S10	Eucalyptus melliodora	785 510	1100	Good	20	8.2	6.3	6.7	7.5	Semi- mature	Fair	90
S11	Eucalyptus	480	550	Dead	6	NA	NA	NA	NA	NA	NA	0
S12	Eucalyptus mannifera	408	575	Good	12	4.5	3.8	3.2	4.0	Semi- mature	Good	75
S13	Eucalyptus mannifera	190	255	Poor	8	1.0	3.2	0	3.3	Semi- mature	Fair	75
S14	Eucalyptus melliodora	205	275	Good	8.5	2	2.8	1.0	2.5	Semi- mature	Fair	80
S15	Eucalyptus nicholii	170 285 197	415	Poor	3	2.5	4.2	3.7	3.8	Semi- mature	Poor	70
S16	Acacia baileyana	100	180	Good	4	2.5	2.5	2.5	2.0	Semi- mature	Good	90
S17	Acacia baileyana	80	120	Good	3	2.0	1.0	2.5	2.5	Semi- mature	Good	90
C18	Eucalyptus mannifera	400	478	Good	8.5	5.0	3.8	4.2	4.3	Semi- mature	Good	85
S19	Acacia baileyana	60	100	Good	3	2.0	1.0	1.5	1.0	Semi- mature	Fair	70
S20	Acacia baileyana	180	250	Fair	4	1.0	2.0	2.0	2.0	Mature	Fair	80
S21	Acacia baileyana	150	200	Fair	4	2.5	0.5	2.0	3.0	Mature	Fair	85
S22	Acacia baileyana	250	300	Good	5	3.5	3.5	3.5	3.6	Mature	Fair	90

 Table 2.
 Tree Observation Table 1

Tree #	Common Name	Comments on Findings	Tree Status	Value Status
N1	Brittle Gum		Regulated	High
S2	Brittle Gum	Phototropism to the south.	Regulated	High
S3	Brittle Gum	Phototropism to the north.	Regulated	High
S4	Southern Blue Gum	Raised root plate on south-west.	Regulated	High
S5	Southern Blue Gum	Excellent tree.	Regulated	High
S6	Blakely's Red Gum		Unregulated	Low
C7	Blakely's Red Gum		Protected	Low



Tree #	Common Name	Comments on Findings	Tree Status	Value Status
S8	Blakely's Red Gum	Nearly a stag tree. Circumference is 2.29m therefore this tree is regulated.	Regulated	Low
S9	Narrow Leaved Peppermint		Unregulated	Medium
S10	Yellow Box	Old scar near base healing well. Previous borer activity. Trunk union has included bark and ant activity therefore should be monitored by an arborist every 12 months.	Regulated	High
S11	Narrow Leaved Peppermint	This tree is dead and should be removed.	Unregulated	None
S12	Brittle Gum	Deadwood to 100mm diameter.	Regulated	High
S13	Brittle Gum	Moderate dead wood to 50mm diameter. Leaning to west with small canopy.	Unregulated	Medium
S14	Yellow Box	Minor dead wood to 40mm diameter.	Unregulated	Medium
S15	Narrow Leaved Peppermint	Poor condition with major dead wood present and dropping on ground. Most growth is epicormic. I recommend removal of this tree.	Unregulated	Low
S16	Cootamundra Wattle	Can be removed due to status as a weed.	Unregulated	Low
S17	Cootamundra Wattle	Can be removed due to status as a weed.	Unregulated	Low
C18	Brittle Gum	Previous pest infestation evident.	Protected	Medium
S19	Cootamundra Wattle	Can be removed due to status as a weed.	Unregulated	Low
S20	Cootamundra Wattle	Some borer activity. Can be removed due to status as a weed.	Unregulated	Low
S21	Cootamundra Wattle	Some borer activity. Can be removed due to status as a weed.	Unregulated	Low
S22	Cootamundra Wattle	Some borer activity. Can be removed due to status as a weed.	Unregulated	Low

 Table 3.
 Tree Observation Table 2

Tree #	Common Name	ULE Useful Life Expectancy	TPZ (m) (radius)	SRZ (m) (radius)	M.T.L.E from Trunk (m)	TPZI %	Total Root Zone in m <sup>2</sup>	Total Root Zone Incursion Allowed
N1	Brittle Gum	25	5.99	2.67	4.1	9.64	109.36	10.54
S2	Brittle Gum	20	5.88	2.54	4.1	9.53	108.62	10.35
S3	Brittle Gum	25	5.46	2.42	3.8	9.59	93.66	8.96
S4	Southern Blue Gum	30	8.7	3.06	6.0	9.88	237.8	23.49
S5	Southern Blue Gum	35	9.58	3.22	6.6	9.91	288.32	28.58
S6	Blakely's Red Gum	2	7.6	2.75	5.3	9.53	181.46	17.29
C7	Blakely's Red Gum	2	11.04	3.47	7.9	9.73	408.28	39.71



Tree #	Common Name	ULE Useful Life Expectancy	TPZ (m) (radius)	SRZ (m) (radius)	M.T.L.E from Trunk (m)	TPZI %	Total Root Zone in m <sup>2</sup>	Total Root Zone Incursion Allowed
S8	Blakely's Red Gum	2	8.76	3.08	6.0	10	241.08	24.34
S9	Narrow Leaved Peppermint	20	5.82	2.61	4.0	10	106.41	10.63
S10	Yellow Box	20	11.28	3.44	7.8	9.8	399.73	39.15
S11		0	NA	NA	NA	NA	NA	NA
S12	Brittle Gum	30	4.9	2.62	3.4	9.69	75.43	7.31
S13	Brittle Gum	5	2.28	1.86	1.6	9.33	16.33	1.52
S14	Yellow Box	10-20	2.46	1.92	1.7	9.82	19.01	1.87
S15	Narrow Leaved Peppermint	1	4.68	2.29	3.3	9.17	68.81	6.31
S16	Cootamundra Wattle	10	2.0	1.61	1.4	9.41	12.57	1.18
S17	Cootamundra Wattle	10	2.0	1.5	1.4	9.41	12.57	1.18
C18	Brittle Gum	20	4.8	2.43	3.3	9.98	72.38	7.22
S19	Cootamundra Wattle	5	2.0	1.0	1.4	9.41	12.57	1.18
S20	Cootamundra Wattle	5	2.0	1.5	1.4	9.41	12.57	1.18
S21	Cootamundra Wattle	5	2.0	1.5	1.4	9.41	12.57	1.18
S22	Cootamundra Wattle	5	3.0	2.0	2.1	9.41	28.27	2.66

#### Table 4. Tree Observation Table 3

#### Notes

A glossary of all terms used in these tables is included in Appendix 1 on page 27.



### 3.4 Photos of Trees in this Report

Figure 7. Left to right - Trees N1, S2 and S3



Figure 8. Left to right - Trees S4 and S5. Protective measures required



Figure 9. Tree S6 – In decline and in poor condition. Removal recommended



Figure 10. Tree C7 – large hollow over road and in poor condition. Removal recommended





Figure 11. Tree S8 – In poor condition. Removal recommended



Figure 12. Tree S9



Figure 13. Tree S10



Figure 14. Tree S10 showing scar healing and trunk union with included bark. Inspect every 12 months





Figure 15. Tree S11 – removal recommended



Figure 16. Tree S12



Figure 17. Left to right - Trees S13 and S14



Figure 18. Tree S15





#### Figure 19. Tree S16



Figure 20. Tree S17



Figure 21. Tree S18



Figure 22. Tree S19





Figure 23. Left to right - Trees S21 and S20



Figure 24. Tree S22





### 4. Additional Important Supporting Information

### 4.1 Introduction

The information in this Section should be carefully read in conjunction with the Report Summary and Report Details to fully understand the requirements, specifications and recommendations included in this Report.

### 4.2 About the Trees

The majority of trees have defects that may or may not be detectable without invasive diagnostic tooling methods. These defects could be from environmental, human or genetic factors and may be hazardous to people and property.

All other trees not mentioned in this Report are non-regulated and are recommended to be removed as they are of low value.

The protection of those trees listed in this Report, is in accordance with the legislation of the *Tree Protection Act 2005* with guidance from *Australian Standards Protection of trees on development sites.* 



A living tree is a dynamic organism that needs specific environmental conditions to continue healthy, stable growth. It is rarely possible to repair stressed and injured trees, so substantial injury needs to be avoided during all stages of development and construction. For trees to be retained and their requirements met, procedures must be in place to protect trees at every stage of the development process. This should be taken into account at the earliest planning stage of any outdoor event or design of a development project where trees are involved.

Trees and their root systems may occupy a substantial part of the development site and because of their potential size, can have a major influence on planning the use of the site.



#### 4.3 Tree Management Process

In order to achieve success, it will depend on everyone's cooperation involved in the design and construction of this new residential development. It is essential for those involved working on the site to appreciate the need to retain the trees and maintaining the area of protection around the trees. This tree Report is to be available to all contractors that work on this site.

AS 4970-2009 Section 2.1, p. 7

### 4.4 Verge Management Plan

A tree on the verge (i.e. nature strip) and in reserves and parks, is not covered by the Tree Protection Act 2005 but rather by the *Nature Conservation Act 2014*, *Roads and Public Place Act 1937* and *Trespass on Territory Land Act 1932*. There is a Verge Management Plan in this Report for any council verge trees on this site. This is in accordance with Transport Canberra and City Services (TCCS) requirements.

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A2014-59 Nature Conservation Act 2014
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A2013-3 Public Unleased Land Act 2013 A1932-20 Trespass on Territory Land Act 1932

### 4.5 Construction Damage

Load-bearing mats (or secondary paths) are good for protecting the soil against possible compaction from any machinery, e.g. lightweight Bobcats that are used to lift in materials or work within a tree's TPZ. These mats can simply be rumble boards or plywood positioned on top of the mulch. The mats are to be used in the areas marked in yellow on the *Proposed Site Plan* on page 11.

### 4.6 Tree Protection Fencing (TPF)

As set down in *Australian Standard: Protection of trees on development sites*, fencing must be erected before any machinery or materials are brought onto the site and before the commencement of works, including demolition. Once erected, protective fencing must not be removed or altered without approval by the Site Arborist. The TPZ must be secured to restrict access.

Shade cloth or similar must be attached to reduce the transport of dust, other particulate matter and concrete splash into the protected area.

AS 4970-2009, p. 15

Signage is also required to be attached to the TPF declaring "TREE PROTECTION ZONE – NO ACCESS". See *AS 4970-2009, App. C, p. 28* for a suitable example.



### 4.7 Activities Restricted Within the Tree Protection Zone (TPZ)

These activities are generally excluded from the TPZ unless permitted by the Site Arborist:

- physical damage to the tree
- dumping of waste
- wash down of wheelbarrows and equipment
- stockpiling fill
- soil level changes
- refuelling
- use as a carpark
- storage area.



### 4.8 Tree Protective Fencing and Temporary (Secondary) Paths Illustration

Figure 25. TPF and Temporary (Secondary) Paths Illustration



#### 4.9 Hydrovac Excavation and Root Severing

If soil cut is aligned within the TPZ of any tree to be retained (as stated in this Report), Hydrovac excavation or hand digging to expose the tree roots along the side of the trench closest to the trunk must be carried out. This will prevent ripping of roots during excavation. Alternatively, roots can be severed with a flat blade attachment (sharp-edged) along the side of the trench and perpendicular to the roots before the trench is dug. All exposed roots will need to be cleanly severed with arborist's tools.

All trenches (if any) are to be filled-in within three days, or cut roots kept hydrated with wet hessian bags or cling wrap. An Arborist is to be present on site at this time.



### 5. Legal

### 5.1 Legislation

The Australian Standards; Protection of trees on development sites 4970-2009, outlines the required procedures for the protection of significant trees. This report highlights the relevant standards you need to follow.

This report is submitted and acknowledged by the client as prepared by Steve Griffiths, as instructed on a limited basis after visual inspection of the trees at ground level only.

Australian Standards; Protection of trees on development sites 4970-2009

#### 5.2 Acknowledgements

#### 5.2.1 The client acknowledges:

- a) That Steve Griffiths has not conducted any invasive procedure or ultrasound test on the trees, nor inspected it at crown level or below surface level;
- b) This report does not and cannot make comment upon, determine or assess defects that may exist in the trees internally. Whether arising from decay, disease, effect of drought, insect infestation or any other inherent condition that may exist.

#### 5.2.2 No Warranty for Non-Discernible Defects or Damage

Accordingly, this report cannot and does not warrant that defects or damage do not exist within the trees that may not be discernible to a competent Arborist making an inspection at ground level.

#### 5.2.3 Reliance Period

The client acknowledges that no reliance may be placed on this report after 12 months following the date of inspection.

#### 5.2.4 Disclaimer of Liability to Third Parties

To the extent permissible by law, Steve Griffiths is not liable for any loss, damage, personal injury, costs or expenses suffered by any person or persons other than the recipient of this report.



### Appendix 1 References

### A1.1 Glossary

Term	Description
Age Class	Sapling, young, semi-mature, mature and over mature (veteran).
Basal Trunk Flare	The lowest point of the trunk where it flares out.
Botanical Name	Botanical name is the formal scientific name which conforms to the International Code of Nomenclature.
Canopy Spread	Diameter of the dripline of the tree's canopy - north, south, east & west from trunk.
Comments on Findings	Relevant observations from data collected.
Common Name	The common layman's name for a tree.
DBH	Diameter of the trunk or trunks at breast height (1.4m).
Health	General health of the tree – very good, good, fair, poor
Height	Estimated height of a tree, give or take 5% accuracy.
Live Foliage %	The percentage of noticeable live leaves in a tree's canopy.
M.T.L.E. from (centre) trunk	Metres from Tangential Line Encroachment allowed, shows the safe distance from the central trunk to the severed roots. Refer
	AS 4970-2009, App. D, p. 29.
Regulated Tree (ACT)	Regulated trees have been classified by the ACT Government as being 12m in height, or a canopy spread greater than 12m, or 1.5m circumference at 1m above ground level.
SRZ	Structural root zone is an important area that must not be interfered with; containing zone of rapid growth and major transportation root area.
Structural Integrity	The ability of the tree to hold together under a load, in regard to weight, wind throw, weakened unions and diseases, without breaking excessively (measuring the tree's structural strength by means of visual bio-mechanics).
TCCS	Transport Canberra and City Services.
Total Root Zone in M <sup>2</sup>	The total root zone area of the tree in square metres.
Total Root Zone Incursion Allowed	the area that is allowed to be safely removed from the total tree root zone, providing the tree is in a fair or better condition.
TPF	Tree Protection Fencing
ТРΖ	Tree Protection Zone is the area of the root zone of the tree's radius from the central trunk. Tree Protection Zone (DBH x12= TPZ radius).
TPZI%	Tree Protection Zone Incursion Percentage This is the percentage of the tree's root zone that will be lost due to construction activity.
Tree #	The tree's number, as shown on the diagrams and Site Plan. The Prefix used determines the general location and ownership of the Tree: S = Site Tree, C= Council Tree, N= Neighbour's Tree
Tree Status	Whether this tree is Regulated, Unregulated or a Council tree
ULE	Useful Life Expectancy shows how many good years are left in the tree under normal circumstances. It is also an indicator of health and vigour of the tree.
Value Status	Recommendation whether to keep or remove the tree.
VTA	<ul> <li>Visual Tree Assessment.</li> <li>VTA<sup>1</sup> On-ground inspection - Identification of structural defects while on the ground using simple equipment such as acoustic mallets, probes and binoculars.</li> <li>VTA<sup>2</sup> Aerial inspection - Where a tree is climbed to get a better observation of the tree.</li> <li>VTA<sup>3</sup> Invasive testing - Where drilling or coring is required, often a very small drill is used.</li> </ul>



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### A1.5 Other End Notes and References

- Fourth addition Arboriculture Chapter 11, Locating Tree Roots, p. 265 (top right of page).
- Harris, Clark, and Matheny. Arboriculture bk. 4th edition 2004. Chapter 11, Assessing.

