REVISION: C. (previous revision 11 October 2024)

PROJECT: **Consulting Arboricultural Impact Assessment Report.**
Parramatta Civic Link Block 3.
Horwood Place (between George & Phillip Street, Parramatta).

BACKGROUND AND SUMMARY:

i. This Arboricultural Impact Assessment (**AIA**) report is to accompany the proposed street upgrade, through McGregor Coxall as the Project Lead, with Parramatta City Council as the project client.
ii. The proposal is seeking approval for the removal of **six (6)** trees and the proposed retention of **seven (7)** trees that are located within the study area (show in Figure 1).
iii. The reason for the proposed tree removal is for the installation of new streetscape upgrades and public amenities including new pavements and new landscape features including hardscape elements and approximately 29 new trees. As well, new services and stormwater works are proposed.
iv. The trees and their context were assessed by Elke Haege Thorvaldson on 4 August 2023.

PREPARED FOR: **McGregor Coxall, Project Lead**

PREPARED BY: **ELKE** - Consulting arborist AQF Level 5:
Elke Haege Thorvaldson AILA FRLA, MAIH

LAND OWNER: **Parramatta City Council.**

This arborist impact assessment report may be reproduced only for the purposes of this project's development and management if the author, title, and date are referenced.
The information contained in this assessment report is considered accurate at the time of tree inspection. The condition of the trees and site conditions may change over time.

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Dip. Arboriculture AQF Level 5. Consulting Arborist
QTRA Quantified Tree Risk Assessment . Registered # 7682
Member Australian Institute of Horticulture. MAIH #12631

GLOSSARY AND ABBREVIATIONS:

Reference	Description
AIA	Arboricultural Impact Assessment
AS4970-2009	Australian Standard for the Protection of Trees on Development Sites.
CC	Construction Certificate
AS 4373 – 1996	Australian Standard AS 4373 – 1996, Pruning of Amenity Trees, Standards Australia.
AS 4454 – 2003	Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches
Council	The City of Parramatta Council Local Government Area
DA	development application
DD	Design Development
Project Arborist	project consulting arborist
SRZ	Structural Root Zone
TPZ	Tree Protection Zone
TPP	Tree Protection Plan

Reference	Description
Tree, Protected Tree	Applies to any tree or palm, whether it is a native or an exotic species that is 5m in height, or if the tree is 3m in height or greater and is located on public land (irrespective of size), forms part of a heritage item or is within an HCA, or forms part of an Aboriginal object or within an Aboriginal place of heritage significance, is listed on the NSW Heritage Register, or is identified as part of an ecological community
HCA	Heritage Conservation Area
DCP	Parramatta Development Control Plan (DCP) 2023[1]. Part 5.3.4 Environmental Management, Control C.12 Publicly Owned Land
Pruning control	Permit /approval required for any pruning or removal of roots (greater than 30mm in diameter

[1] Parramatta_DCP_2023_05_As_published_23_November_2023_Part_5_Environmental_Management.pdf (nsw.gov.au)

Arborist report requirements	https://www.cityofparramatta.nsw.gov.au/environment/city-in-nature/urban-forest/trees-and-development
Greening Parramatta Tree Map	Interactive Map. No Planned tree planting under the Greening Our City grant program is planned near the site according to this map. Date accessed: 10 October 2024 https://parracity.maps.arcgis.com/apps/webappviewer/index.html?id=2ee535b6b6f74471973ed2f24008bafe

CONTENTS

1 Introduction

1.1 This arboricultural impact assessment (**AIA**) report package has been prepared by Elke Haege Thorvaldson, AQF Level 5 Consulting Arborist under the following methods:

1.2 Visual Tree Assessment per the 2006 *Claus Mattheck and Helge Breloer.* Visual Tree Assessment *and David Lonsdale's* Tree Assessment Strategy.

1.3 The Australian Standard, *AS 4790-2009* "*The Protection of Trees on Development Sites"* has been used as the guiding standard reference to provide recommendations of the assessed trees.

1.4 The Australian Standard, *AS 4373-2007 "Pruning of Amenity Trees"* has also been referred to in this assessment report within the recommendations section as relevant.

1.5 The site, a streetscape, being Horwood Place runs North/South with Parramatta River to the north just beyond the Parramatta Powerhouse Museum. The site slopes towards the north. The trees are all planted within urbanized settings, typically with pavement, kerb and road surrounding. Refer to Figure 1 below.

1.6 This AIA report has been prepared to assess the condition and impact of the thirteen (13) trees assessed. This AIA report proposes the removal of six (6) trees and the retention of seven (7) trees as outlined below.

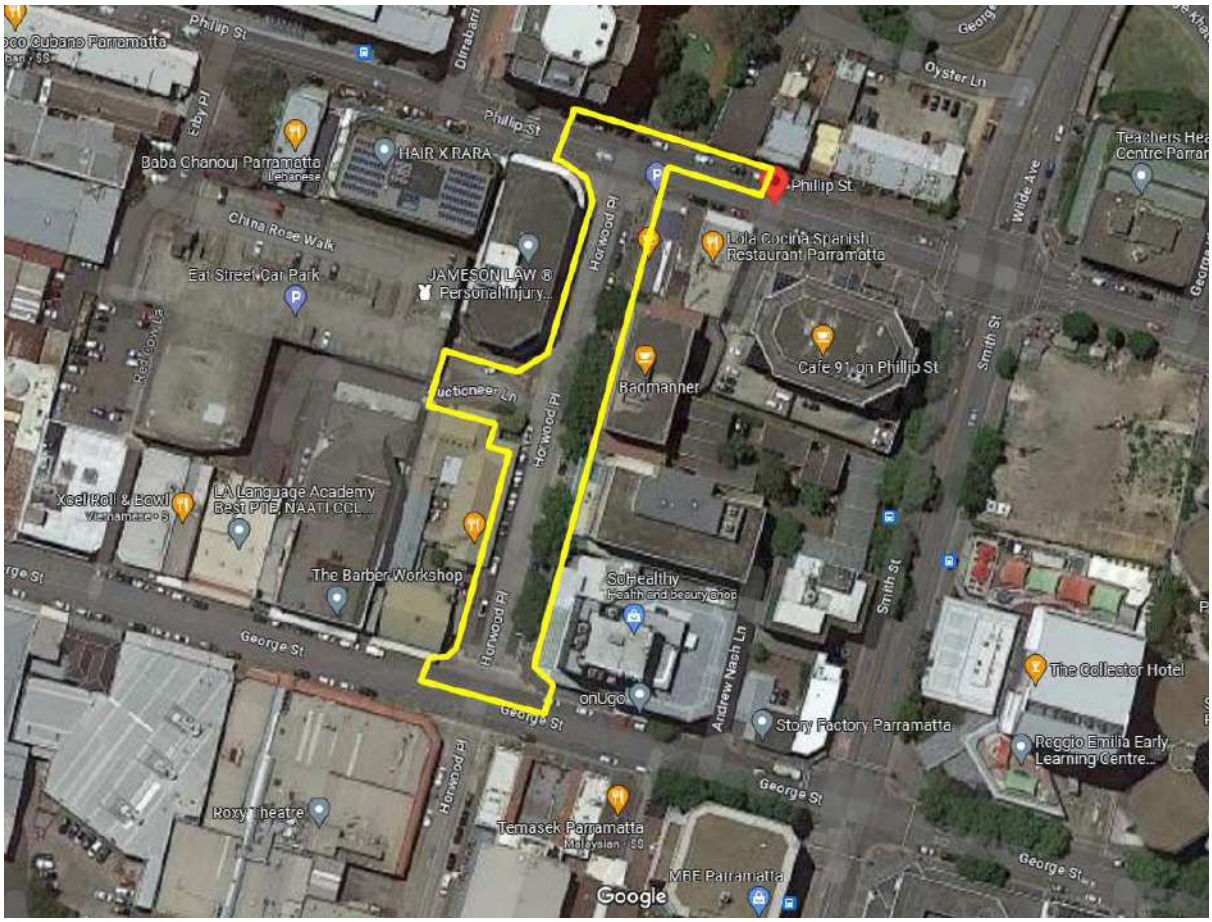

Figure 1. *The study area of Horwood Place with Phillip Street to the north and George Street, Parramatta to the south. Source: Google Maps. Date accessed: 28.07.2023.*

2 Assessment Methodology

The following industry accepted, and recognised methodologies have been used to visually assess the health and condition of the tree. Results are shown in *Table A*.

SUMMARY OUTLINE OF TREE ASSESSMENT METHODOLOGIES			
Refer to:	Category of Assessment	Methodology Name + description	Sources
Table A **Arb_601**	Visual Tree Assessment (VTA). On site measurements and calculations	Visual Tree Assessment (VTA) Procedure and strategy. Refer to Table A[2]	*Claus Mattheck and Breloer 2006. And David Lonsdale's Tree Assessment Strategy.*
Table A	Landscape Significance Rating	Determining Landscape Significance Rating	*Developed from: Earthscape Horticultural Services, December 2011*
Table A	SULE	Safe Useful Life Expectancy Procedure	*Jeremy Barrell 1996 from BS5837*
Arb_601 **Table A**	Retention Value	Determining Retention Value	*Developed from: Earthscape Horticultural Services, December 2011*[3]
Arb_601 **Table A**	Tree Protection Zones	Tree Protection Zones (TPZ's) and Structural Root Zones (SRZ's)	*AS 4970, Protection of Trees on Development Sites.*
Table A	Tree Retention Priorities	Analysing the implications for Proposed Development	*Earthscape Horticultural Services, December 2011*
	Australian Standards AS4790-2009	Protection of Trees on Development Sites. Determining permissible tree protection zones, encroachments, protection, fencing, incursions, terminology, and recommendations	*AS 4790-2009*
	QTRA. Quantified Tree Risk Assessment	QTRA quantifies the risk of significant harm from tree failure in a way that enables tree managers to balance safety with tree values and operate to predetermined limits of tolerable or acceptable risk.	*QTRA.* Risk management principles to tree safety management. [4]

1. Table above outlines the Methodologies used.

2 Claus Mattheck and Helge Breloer. Visual Tree Assessment *and David Lonsdale's* Tree Assessment Strategy.

3 Modified from: Couston, Mark and Howden, Melanie, 2001, Tree Retention Values table*, Footprint Green Pty., Ltd., Sydney, Australia.*

[4] *Directory of Licensed Users (qtra.co.uk)*

A. Australian Standards and Data Collection Documents

2.1 The Australian Standard, *AS 4790-2009* "*The Protection of Trees on Development Sites"* has been used as the guiding standard reference to provide recommendations of the assessed trees.

2.2 The Australian Standard, *AS 4373-2007 "Pruning of Amenity Trees"* has also been referred to in this assessment report within the recommendations section.

B. Not Assessed:

2.3 A visual tree assessment inspection from ground only was conducted. No invasive or destructive testing was conducted. Any changes to the proposed works will need tree reassessment.

2.4 Stormwater, services, earthworks, and construction management plans (CMP) were not viewed as part of this assessment and may require detailed design review following approval.

C. Reviewed:

2.5 The additional relevant Ryde Council documents have been reviewed as part of this assessment.

- Parramatta Development Control Plan (DCP) 2023[5].
- Part 5.3.4 Environmental Management, Control C.12 Publicly Owned Land
- Greening Parramatta Tree Map[6].
- Arborist Report Requirements for Parramatta Council. [7]

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3 Tree Data and Tree Assessment Plans.

Refer to the *Table A Schedule* on the following page for the tree condition description and tree data. Provided on the next pages in this report is the following schedule:

a. *Table A: Tree Schedule – A3 size, 2 sheets .*
Provides tree reference number, detail on health and structure, SULE rating, landscape, and retention rating, SRZ's, TPZ's[8] and relevant encroachment percentages.

Refer also to the '*Recommendations + Discussion*' chapter in this report.

b. *Arborist Plans 603 has been created on A1 sized sheets :*
   i. *Arb 600, Key Plan and Site Context Plan (1:500 at A1)*
   ii. *Arb_601: Arboricultural Tree Retention Rating Plan (1:200 at A1)*
   iii. *Arb_602: Arboricultural Tree Retention Rating Plan (1:200 at A1)*

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[5] Parramatta DCP 2023 05 As published 23 November 2023 Part 5 Environmental Management.pdf (nsw.gov.au)

[6] https://parracity.maps.arcgis.com/apps/webappviewer/index.html?id=2ee535b6b6f74471973ed2f24008bafe

[7] https://www.cityofparramatta.nsw.gov.au/environment/city-in-nature/urban-forest/trees-and-development

[8] *TPZ and SRZ's are calculated using AS4970-2009 (adapted from Matheney and Clarke's British Standard adaption method, 1991).*

Reference			(m)	(m)	AREA (m)											Refer to Appendix 4a and 4b				Refer to report.	
Id #	*Species*, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m) N	E	S	W	Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	TPZ Encroachment	SRZ Encroachment
Phillip Street - North of site																					
1	*Harpulia pendula or Castanospermum australe* / Tulip Lancewood or Black Bean	SM	8.5	0.22	Retain and Protect	2	3	3	3	0.3	Nearby the construction of the Powerhouse Museum. Slightly more open habit and larger height than T2, however likely planted at the same time. Overall form appears visually sound. Species identification to be clarified when in flower or fruit.	M - L	M	M / 3	OB, Phillip St North	2.64	21.90	2.00	12.51	nil	nil
2	*Harpulia pendula or Castanospermum australe* / Tulip Lancewood or Black Bean	SM	7	0.15	Retain and Protect	1.5	1.5	1.5	1.5	0.22	Visual appearance of a very suitable form for a pedestrianised street verge with compact canopy and dense foliage cover and clear trunk. Zone around tree pit has sunken (a depression), possibly due to slumping subgrade.	M - L	M	M / 3	OB, Phillip St North	1.80	10.18	1.75	9.64	nil	nil
3	*Harpulia pendula or Castanospermum australe* / Tulip Lancewood or Black Bean	SM	7.1*	0.14	Retain and Protect	1.5	2	1.5	2	0.22	slight lifting of pavers at base of tree pit surround. Small specimen which is not providing much by way of shade; nonetheless is evergreen and native. Compact form. Location lends itself for a larger specimen	M - L	M	M / 4	OB, Phillip St North	1.68	8.87	1.75	9.64	nil	nil
Parramatta Civic Block 3. Along Horwood Place																					
4	*Liquidambar styraciflua* / Liquidambar	M	15.4*	0.46	Proposal to remove (with approval)	6	5	6	6	0.62	Buttress roots flare at Root Crown Base. Measurement at RCB with buttress rooting is: 1.1m. Exposed roots visibly girdling and asphalt surround is lifting particularly on east side of T4. Stature of tree is established and likely provides good summer shade and allows winter afternoon sun. Many services located within/under tree pit zone. Crown lifted and first branch at 2.8m high and canopy extend over the road (west) as a favourable attribute.	M	M	M / 3	Street Verge. WP	5.52	95.73	2.71	23.03	over / full impact	over / full impact
5	*Platanus x acerifolia* / Plane Tree	M	21.8*	0.44	Proposal to remove (with approval)	9	6	9	7	1	Like T4, T5 also has a large asphalted zone around its base. Tree roots appear to have lifted and cracked asphalt in approximately 4 locations. Canopy tends west as well as extending over the fixed awning to the east. Established scale and canopy. A light pole is within the canopy and <1m from the base of the tree. Whilst the tree form appears visually sound, exposed roots are visible at the Root Crown Base. First branching is at 3.5m	M	M	M / 3	Street Verge. WP	5.28	87.58	3.31	34.41	over / full impact	over / full impact
6	*Platanus x acerifolia* / Plane Tree	M	20.3*	0.77	Proposal to remove (with approval)	5	5	8	8	0.72	co-dominant form at 1.5m high and tri-dominant form at 2m high, else the main trunks are clear /crown lifted of cars and fixed awning. Mistletoe present in canopy on west side. Form is established and tending slightly to the west (as would be expected). Some kerb lifting/shifting adjacent tree.	M	M	M / 3	Street Verge. WP	3.00	28.27	2.88	26.11	over / full impact	over / full impact

Age Class
ST (Senescent)
OM (Over Mature)
M (Mature)
SM (Semi-Mature)
J (Juvenile)

(Diameter at Breast Height) DBH is used in TPZ calculation.

Dia. RCB is used in **SRZ** calculation

Proposal to Retain
Proposal to remove (with approval)
Proposal to transplant

* Heights measured with Nikon Pro II Forestry Pro Laser Rangefinder in 3 point mode to 0.1m accuracy

Crown Density PFC
Dense >90%
Normal 70-90%
Slightly thin'g 60-70%
Thinning 40-60%
SP sparse <40%
PFC = projected foliage cover

SULE
L ong(> 40 Years)
M edium(15-40 Years)
S hort(5-15 Years)
T (Transient < 5)
H (Hazardous/Dead)

LANDSCAPE RATING
S (Significant)
VH (Very High)
H (High)
M (Moderate)
L (Low)
VL (Very Low)
IN (Insignificant)
Ex (Exempt TPO)
T (Threatened S)

Retention	Rating
H - high Priority retain	1 to 3
M - moderate Consider retain	4 to 5
L -low Consider Removal	6
VL - very low Priority Removal	7

Site Location
O Inconspicuous /obscured location
M Moderate location, not obscuring
P Prominent position
HV Highly Visible from street/surrounds
E (Edges) Periphery of site
WP Within Develoment Potential
OB Outside Boundary

Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.

Reference			(m)	(m)	AREA (m)											Refer to Appendix 4a and 4b				Refer to report.	
Id #	*Species*, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m) N	E	S	W	Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	TPZ Encroachment	SRZ Encroachment
Parramatta Civic Block 3. Along Horwood Place																					
7	*Platanus x acerifolia* Plane Tree	J to SM	13	0.22	Retain and Protect	4.5	4	5	5	0.35	Smaller specimen than T5 and T6, and located at top of crest in road. Single trunk with light pole within the tree pit (<1m from tree). T7 has Softfall to surround.	M - L	M	M 3	Street Verge. WP	2.64	21.90	2.13	14.24	nil	nil
8	*Elaeocarpos reticulatus* Blueberry Ash	SM to M	8.5	0.18	Proposal to remove (with approval)	3	3	1.5	3	0.26	Located in low brick planter (approx. 450mm high), and T8 is approximately 1.2m away from T9. Canopy density and tree condition visually appears very good. Juniperus horizontalis and dwarf Nandina are within planter bed at base (and are successful).	M	M	M 3	In raised planter. WP	2.16	14.66	1.88	11.10	over / full impact	over / full impact
9	*Melaleuca styphelioides* Prickly Leaved Paperbark	M	7.5	0.33	Proposal to remove (with approval)	3.5	3.5	3.5	2	0.28	Tree size and form is very suitable for its context, providing shade and landscape separation for the adjacent café alfresco area. Brick planter has 2 locations where bricks have shifted/cracked. T9 has a small amount of dieback on end branches present with some yellowing of the leaves (which could be due to the winter conditions or an indication of soil needing some additional nutrients). If tree to be retained in planter, soil improvements and testing likely recommended along with light pruning of small amount of dieback.	M	M	M 3	In raised planter. WP	3.96	49.27	1.94	11.81	over / full impact	over / full impact
10	*Platanus x acerifolia* Plane Tree	J to SM	14.8*	0.25	Retain and Protect	6	4	5	6	0.33	Exposed and girdling roots at Root Crown Base. T10 appears to be the same planting age as T7 . Also with Softfall surrounding. Crown lifted canopy to 4m. Some cracking of asphalt pavement.	M	M	M 3	Street Verge. WP	3.00	28.27	2.08	13.56	nil	nil
11	*Platanus x acerifolia* Plane Tree	M	17.2*	0.37	Proposal to remove (with approval)	7.5	6	7.5	7	0.53	Tall straight bole, however there is much pavement lifting and cracking (of Softfall, asphalt and granite unit pavers). 5 pits present on the northern side of the tree and one pit on the south (sewer, Telecoms, and water). Opening in Softfall indicates extensive surface rooting and likelihood of shallow and/or little soil volume available to the tree.	S to M	M	M 4	Street Verge. WP	4.44	61.93	2.53	20.19	nil	nil
12	*Platanus x acerifolia* Plane Tree	SM	6.6	0.19	Retain and Protect	3	3	4	3	0.27	Both T12 and T13 appear to be from the same genetic stock and age with extensive crossing limbs which have likely caused rubbing and branch wounding at contact/crossing locations which show visual signs at the wound sites of branch damage. Both trees T12 and T13 have lifting and cracking asphalt cracking and visual indication of stunting, poor visual appearance with extensive scarring, and appearance of stunting (possibly with limited soil volume indicated with pavement lifting at semi mature age class). T13 shows more extensive pavement lifting at Root Crown Base. T12 has hanging dead branches due to branch arrangement.	S	M to L	L 5	Street Verge. WP	2.28	16.33	1.91	11.45	nil	nil
13	*Platanus x acerifolia* Plane Tree	SM	6.6	0.26	Retain and Protect	4	3	4	4	0.4		S	M to L	L 6	Street Verge. WP	3.12	30.58	2.25	15.94	nil	nil

Age Class
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M (Mature)
SM (Semi-Mature)
J (Juvenile)

(Diameter at Breast Height) DBH is used in TPZ calculation.

Dia. RCB is used in **SRZ** calculation

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Proposal to remove (with approval)
Proposal to transplant

* Heights measured with Nikon Pro II Forestry Pro Laser Rangefinder in 3 point mode to 0.1m accuracy

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P Prominent position

HV Highly Visible from street/surrounds

E (Edges) Periphery of site

WP Within Develoment Potential

OB Outside Boundary

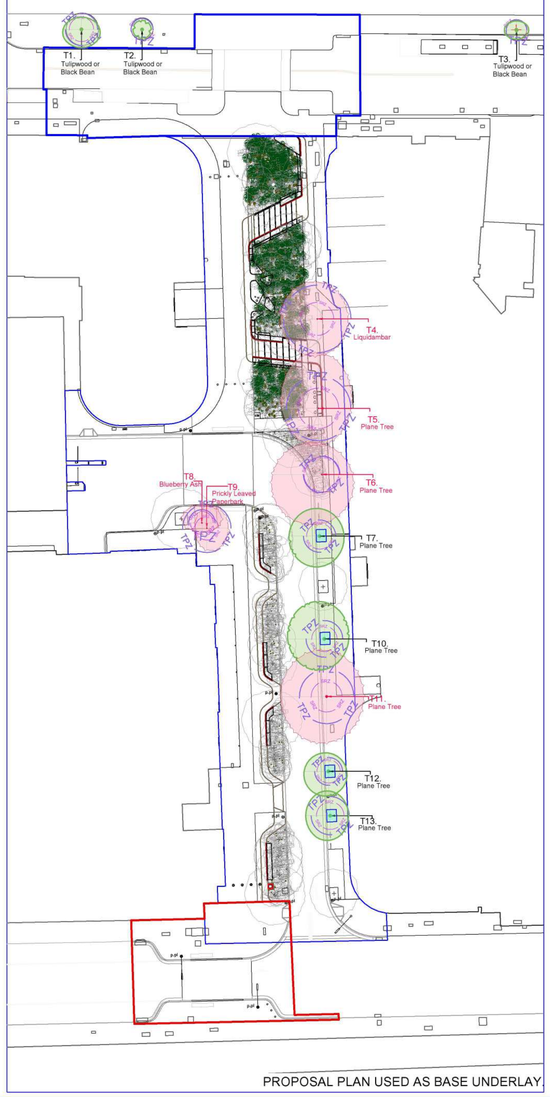
Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.

PROJECT: Parramatta Civic Link Block 3. Consulting Arboricultural Package

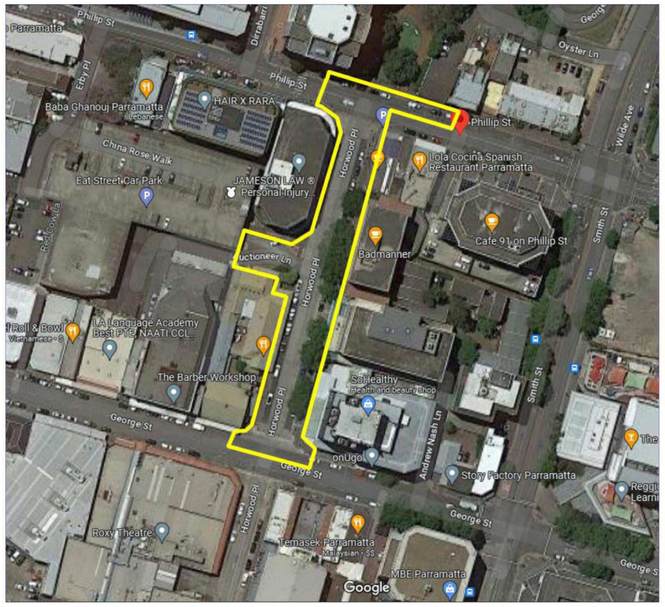
The Arborist Impact Assessment Report comprises:

- Arb_600 Consulting Arboricultural Key Plan + Cover Sheet (1:500 at A1)
- Arb_601 Consulting arboricultural Tree Retention Plan (with survey shown) (1:200 at A1)
- Arb_602 Consulting arboricultural Proposed Impact Plan (with proposal plan as underlay) (1:200 at A1)
- Tree Data Schedule, Table A. (2 x A3).
- Arborist Impact Assessment - Written Report (A4)

TREE IMPACT SITE PLAN.
REFER TO PLAN Arb_602 FOR DETAIL



PROPOSAL PLAN USED AS BASE UNDERLAY



AERIAL IMAGE. APPROXIMATE STUDY AREA SHOW WITH YELLOW LINE.
SOURCE: Google maps, accessed: 28.07.2023

TREE RETENTION RATING SITE PLAN AT 1:500 SCALE.
REFER TO PLAN Arb_601 FOR DETAIL

SURVEY PLAN USED AS BASE UNDERLAY.

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The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	100% Design Development	11.10.24
A	Preliminary information - for internal co-ordination only.	10.08.23

MN
TN

LANDSCAPE ARCHITECT
CONSULTING ARBORIST
HORTICULTURIST
m: 0410 456 404
elke@elkeh.com.au www.elkeh.com.au

Design Development 100%

Client: Parramatta City Council.
Project Lead, Urban Design and Landscape Architecture:
McGregor Coxall.
Consulting Arborist:
ELKE

Project:
Parramatta Civic Link Block 3,
Horwood Place, Paramatta. NSW
(between Phillip & George Streets)

Drawing Name:
Consulting Arboricultural
Key Plan
This plan forms part of the consulting arboricultural Package

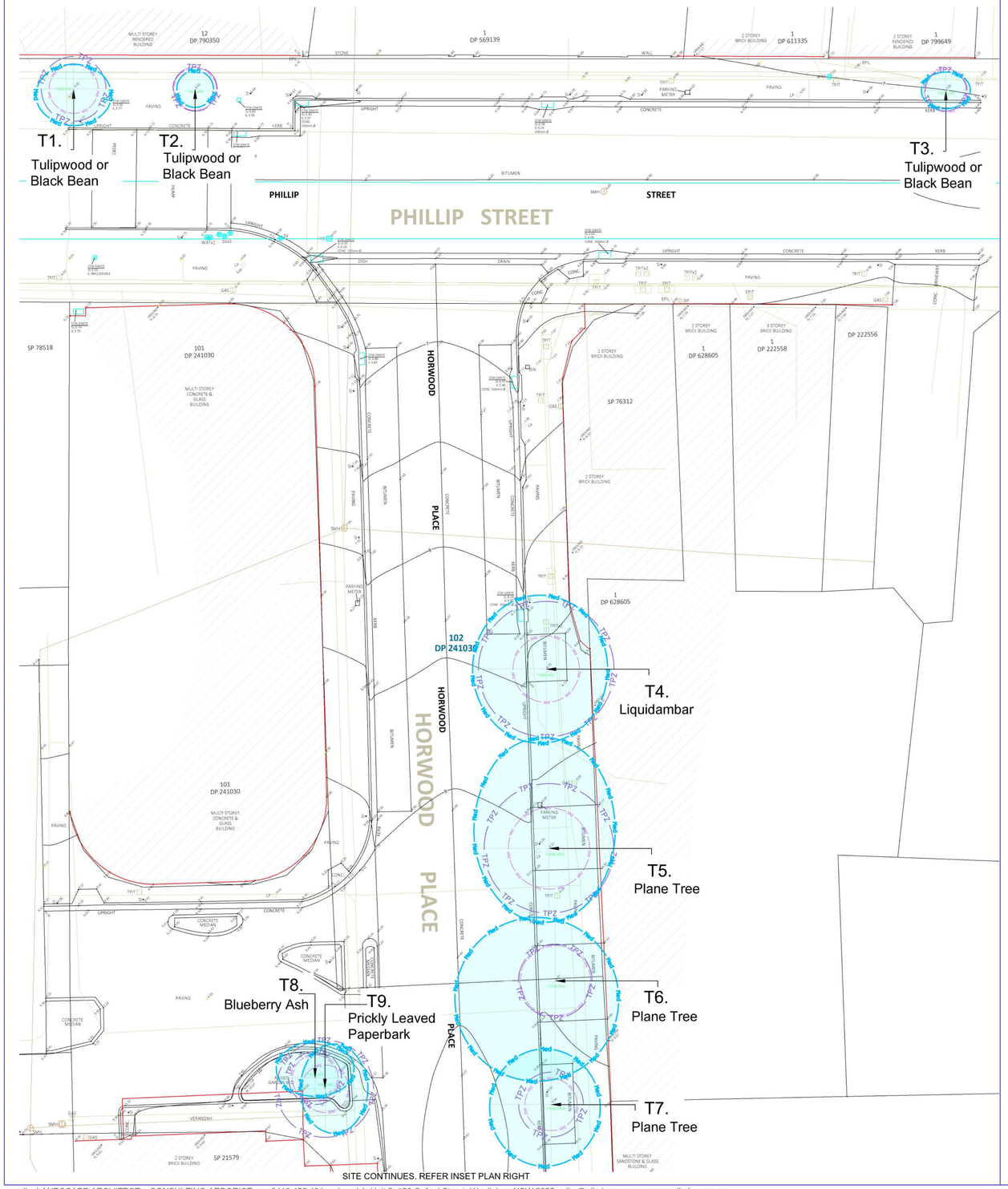
Scale: 1: 500 @A1
Scale bar: 0 2 5 10 15 25m
Drawn: EHT
Job Number: 2307_a
Drawing Number: Arb_600
Issue: B

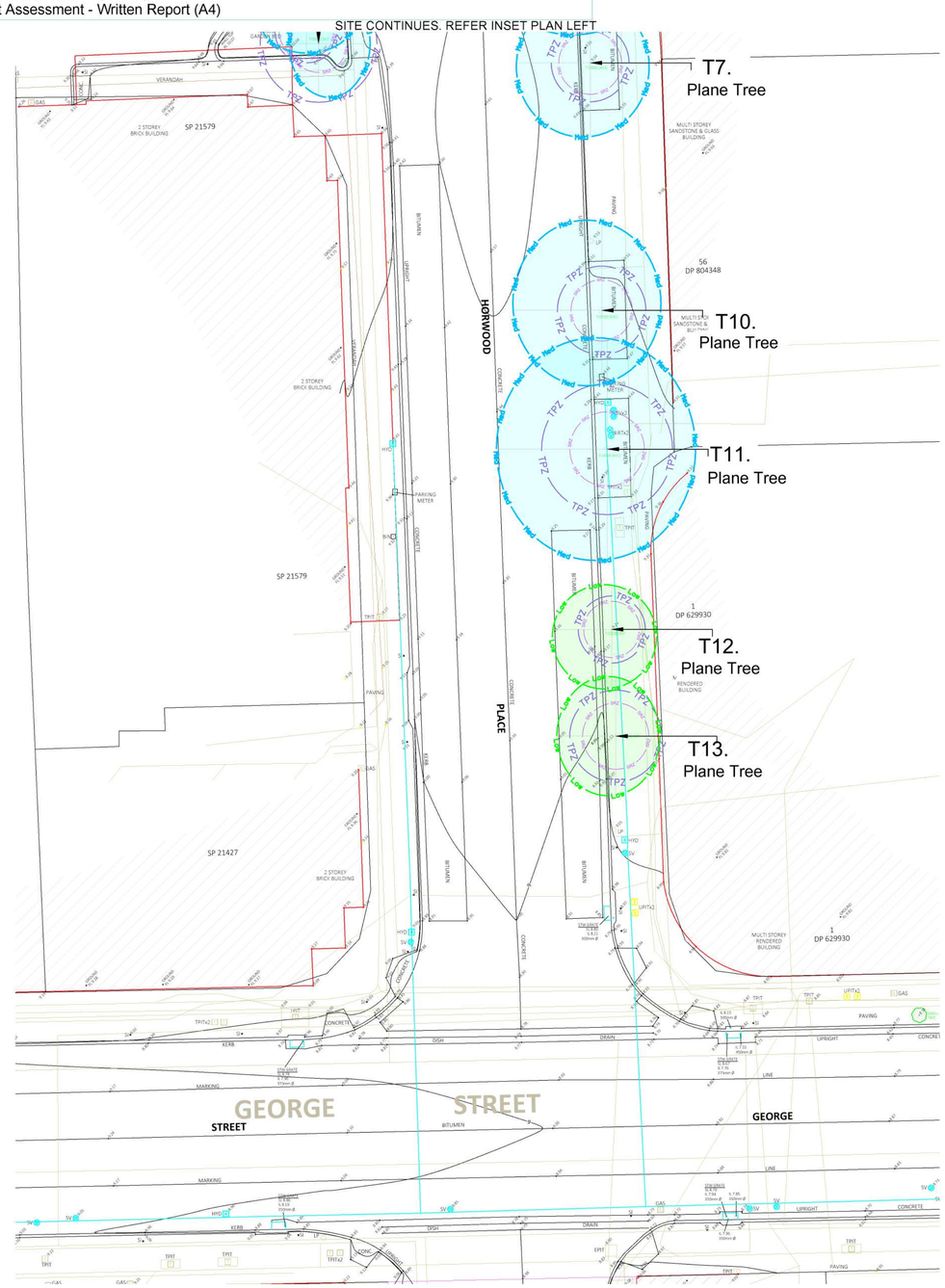
A1

PROJECT: Parramatta Civic Link Block 3. Consulting Arboricultural Package

The Arborist Impact Assessment Report comprises:

- Arb_600 Consulting Arboricultural Key Plan + Cover Sheet (1:500 at A1)
- Arb_601 Consulting arboricultural Tree Retention Plan (with survey shown) (1:200 at A1)
- Arb_602 Consulting arboricultural Proposed Impact Plan (with proposal plan as underlay) (1:200 at A1)
- Tree Data Schedule, Table A. (2 x A3).
- Arborist Impact Assessment - Written Report (A4)





elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2, 120 Oxford Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

Registered Landscape Architect AILA (#001539)

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	100% Design Development	11.10.24
A	Preliminary information - for internal co-ordination only.	10.06.23

LEGEND

T1. Tree Reference number (Refer to Arborist Report)

Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

Informed Tree Retention Rating as assessed by arborist (refer to arborist report).

- High
- Moderate
- Low
- Very Low
- Exempt

MN TN N

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elke@elkeh.com.au www.elkeh.com.au

Design Development 100%

Client: Parramatta City Council.

Project Lead, Urban Design and Landscape Architecture: McGregor Coxall.

Consulting Arborist: ELKE

Project: Parramatta Civic Link Block 3, Horwood Place, Paramatta. NSW (between Phillip & George Streets)

Drawing Name: Consulting Arboricultural Tree Retention Values Plan. (with survey as base).

This plan forms part of the consulting arboricultural Package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EHT

Job Number: 2307_a

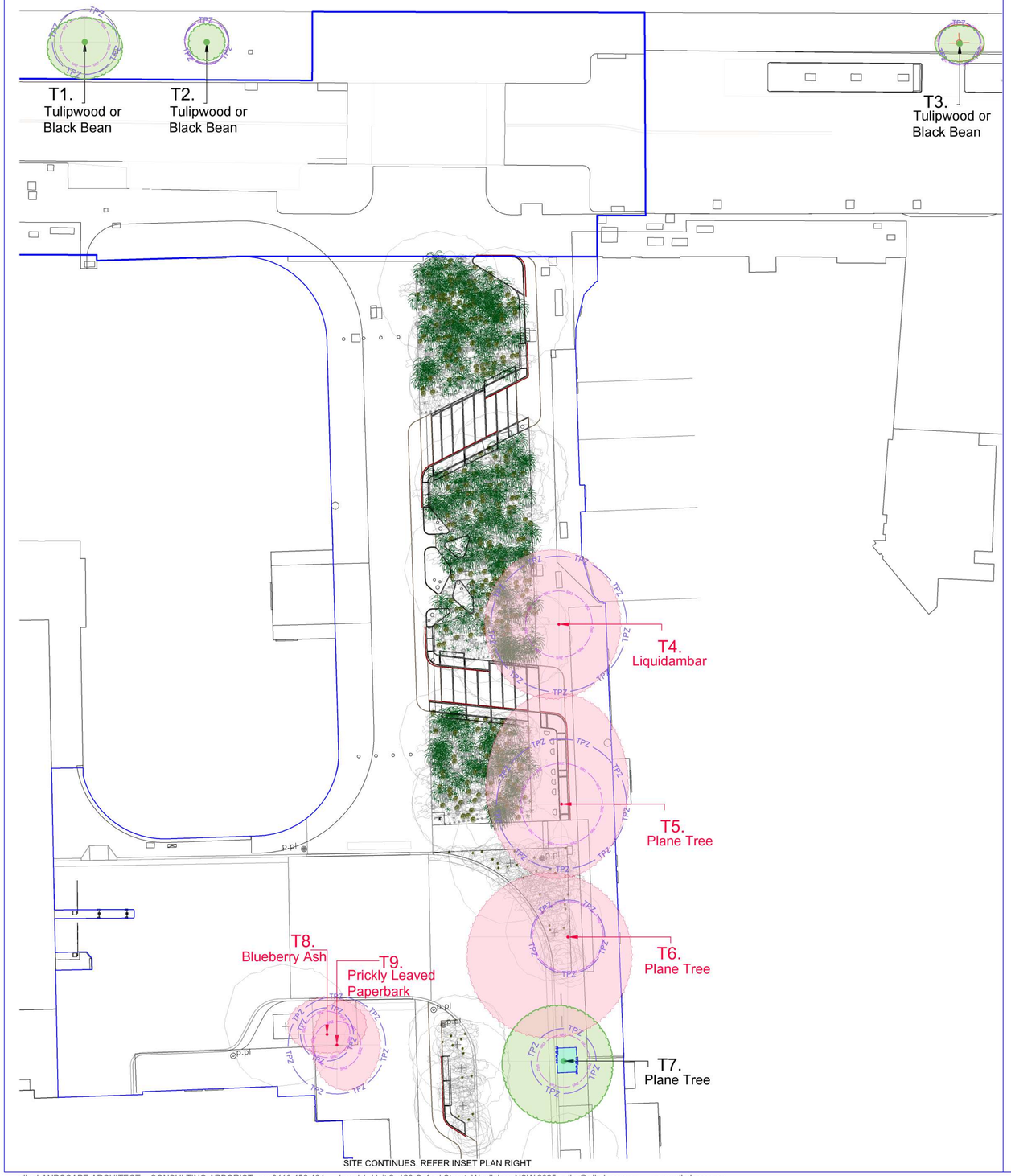
Drawing Number: Arb_601 Issue: B

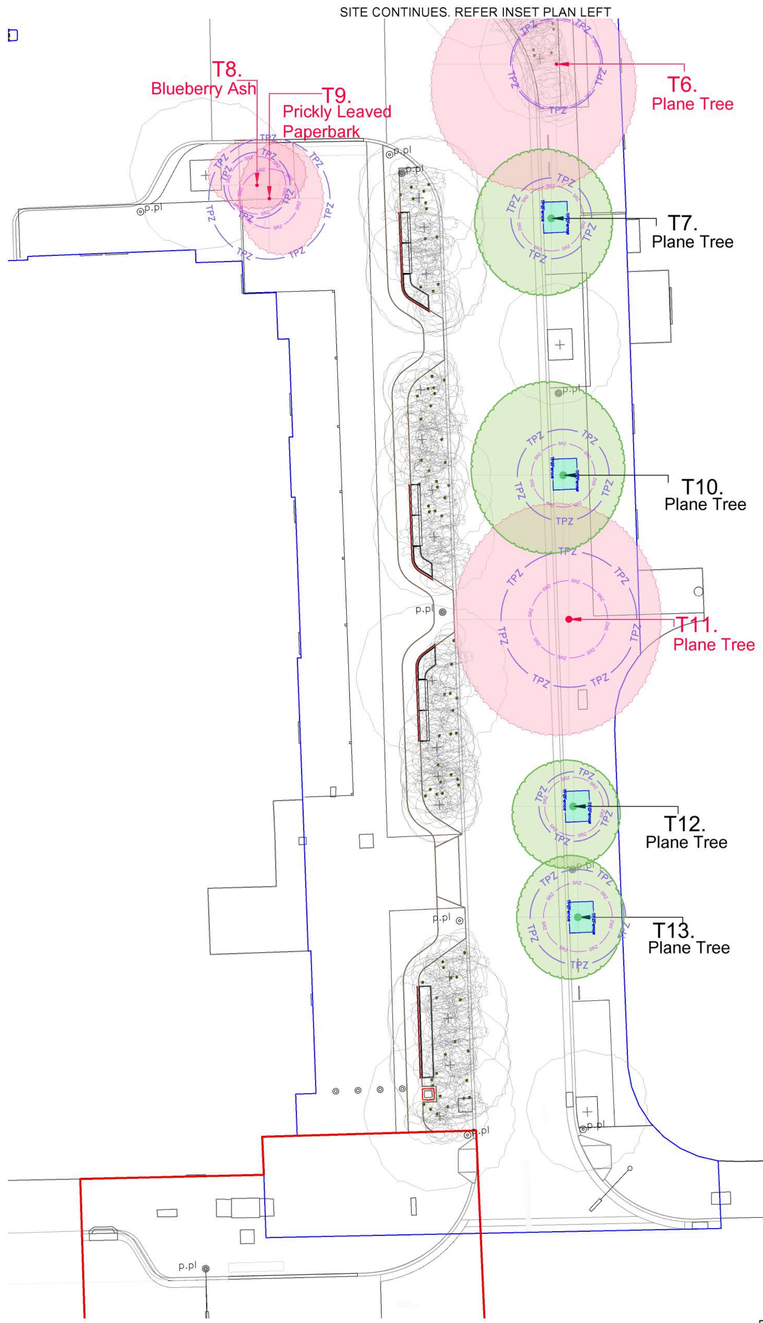
A1

PROJECT: Parramatta Civic Link Block 3. Consulting Arboricultural Package

The Arborist Impact Assessment Report comprises:

- Arb_600 Consulting Arboricultural Key Plan + Cover Sheet (1:500 at A1)
- Arb_601 Consulting arboricultural Tree Retention Plan (with survey shown) (1:200 at A1)
- Arb_602 Consulting arboricultural Proposed Impact Plan (with proposal plan as underlay) (1:200 at A1)
- Tree Data Schedule, Table A. (2 x A3).
- Arborist Impact Assessment - Written Report (A4)





elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2, 120 Oxford Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	100% Design Development	11.10.24
A	Preliminary information - for internal co-ordination only.	10.08.23

LEGEND

T1. Tree Name — Tree Reference number

Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

Existing Tree recommended for Retention and Protection

Existing Tree proposed to be removed.

Trunk Protection + signage Refer specification in Arborist report.

Encroachment by proposed development into the TPZ.

Tree Protection Zone signage & fencing 1.8m H Chainlink on pad footings. (to AS 4970-2007) Refer specification in Arborist report.

MN TN N

LANDSCAPE ARCHITECT
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HORTICULTURIST
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Design Development 100%

Client: Parramatta City Council.
Project Lead, Urban Design and Landscape Architecture: McGregor Coxall.
Consulting Arborist: ELKE

Project: Parramatta Civic Link Block 3, Horwood Place, Paramatta. NSW (between Phillip & George Streets)

Drawing Name: Consulting Arboricultural Tree Impact Plan. (with proposal plan as base).

This plan forms part of the consulting arboricultural Package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EHT

Job Number: 2307_a

Drawing Number: Arb_602 Issue: B

A1

4 Assessment of Impact, Discussion and Recommendations

4.1 Summary: A total of **13** trees were assessed. Out of this, **7** trees are proposed to be retained, and **6** trees are proposed to be removed

4.2 The reason for the proposed tree removals is to suitably facilitate the installation of new streetscape upgrades and public amenities including new pavements and new landscape features including hardscape elements, plants and approximately 29 new trees. In addition, new services and stormwater works are proposed and are to be accommodated in this holistic landscape approach. Refer to the landscape strategy, plans and design by McGregor Coxall.

4.3 The following table is a summary of the tree assessment data and a summary of the proposed tree retention and tree removal. Refer to *Table A* in this report for more detail.

Table 1

NUMBER OF TREES	RETENTION VALUE	PROPOSED FOR RETENTION	PROPOSED FOR REMOVAL
0	**High**	**0 trees**	**0 trees**
11	**Medium**	**5 trees** (T1, T2, T3 *Black bean trees*, T7 Plane Tree, T10 Plane Tree)	**6 trees** (T4 Liquidambar, T5 Plane tree, T6 Plane tree, T8 Blueberry Ash, T9 Prickly Leaved Paperbark, T11 Plane Tree)
2	**Low**	**2 trees** (T12 Plane Tree, T13 Plane Tree)	**0 trees**
0	**Very Low**	**0 trees**	**0 trees**
TOTAL TREES: 13		**7** trees proposed to be retained	Total **6** trees proposed to be removed.
(Refer Tree Data Table A).			

4.4 In consideration of replacement trees and tree species and regarding amenity, canopy cover habitat potential and replacement of landscape values and environmental qualities; the proposed landscape will provide better environmental and sustainable outcomes, improved canopy cover upon maturity, and improved landscape amenity compared to the existing trees.

4.5 The establishment and maturity of the landscape will however require several years following installation to meet these values and qualities and therefore has been considered within a long-term context.

4.6 At approximately 29 replacement trees, the tree replacement ratio is greater than 4.8 : 1, meaning this ratio equates to 4.8 new trees proposed for every tree removal.

4.7 Tree protection measures by way of tree protection zone fencing (**TPZ fencing**) and TPZ signage are recommended around the tree pit openings to ensure the trees are relatively protected during the site works. Thie tree protection measures are also to increase the likelihood of a viable tree at the completion of the works.

4.8 The tree protection measures comprise four (4) tree protection areas around the tree pit opening (which is generally a rectangular zone) around trees: **T7, T10, T12** and **T13**. These are all *Platanus species* (Plane trees). Refer to figures 12-16 for trees **T7** and **T10.** Refer to figures 20 - 24 for trees **T12** and **T13.**

4.9 The extent of the Tree Protection fenced zones is to the edge of the pavement or gutter/kerb around each of the trees.

4.10 The TPZ fencing locations are shown on arborist impact plan Arb_602 and also shown in Figures 2 and 3.

4.11 The trees proposed for retention have either a medium or low retention rating and in the case of the four Platanus species proposed for retention, these trees are considered a species that is increasingly undesirable with multiple councils across NSW, Vic and SA phasing this species out, and it is recommended that the Platanus should be replaced for more suitable tree species.

4.12 Noting that Elke, project arborist has not reviewed construction drawings at this DD stage, nor underground services, stormwater or earthworks plans, and value engineering phases, there may be instances that of the 4 Platanus trees, tree removal may be a more viable, economic, or suitable option or result in a better project landscape outcome or for buildability. As such, it is recommended to continue to co-ordinate with the project team on future design development.

4.13 Regarding trees **T1, T2** and **T3** which are proposed for retention, these trees, located on Phillip Street are adjacent and just outside the site works zone. It is assumed the site works zone will be fenced off at the works extent, and thereby, will exclude the trees from construction impact. The TPZ's of **T1, T2** and **T3** do not fall within the proposed site works zone. Tree protection fencing for these trees is therefore considered as not necessary or required. Refer figures 4 and 5.

4.14 To ensure compliance, the Tree Protection Schedule with relevant hold points as outlined below is to be adhered to (to ensure tree viability of retained trees).

Table 2 – Tree Protection Schedule

Hold Point	Task	Responsibility	Certification (written sign off)	Timing of project arborist inspection.
1	Indicate clearly (with spray paint) on trunks) trees **approved** for removal only.	Principal Contractor	Project arborist	Prior to demolition and site establishment and prior to tree removal.
2	Establishment of Tree Protection fencing and signage	Principal Contractor	Project arborist	Prior to demolition and site establishment.
3	Supervise All excavation works, services trenching, or other digging or under-boring works	Principal Contractor	Project arborist	As required prior to the works proceeding adjacent to the tree(s).

	proposed within the TPZ's of trees to be retained.			
4	Inspection of trees by project arborist	Principal Contractor	Project arborist	Bi-monthly during the construction period
5	Final inspection of trees by project arborist	Principal Contractor	Project arborist	Prior to issue of Occupation Certification.

The above table provides a typical checklist of hold points that are to be signed and dated by the project arborist and to be completed progressively and included as part of the final certification and provided to the Parramatta City Council on completion of the project.

4.15 Refer to Chapter 5 below for the TPZ Fence and TPZ signage specification

4.16 Generally, it is assumed and recommended that all TPZ fenced areas are "**No Go Areas**". This includes:

> *no stockpiling, no machinery, no storing of materials, no parking of vehicles, and no building works or construction footprint occurs within the TPZ fenced zones (refer to plan Arb_603).*

4.17 It is not envisaged for this DD application that any pruning works will be needed, however, should the need for pruning of branches arise, contact the project consulting arborist for direction and advice. Generally, pruning is only to be done by an AQF Level 3 in arboriculture, under the supervision of the project consulting arborist (who is to be AQF Level 5 in arboriculture) and under the Australian Standard *AS 4373 – 1996, Pruning of Amenity Trees, Standards Australia*.

4.18 Parramatta City Council states under the pruning control that a branch or root diameter of 30mm or greater requires permit and is to be avoided. During demolition and earthworks, there may be instances where the project arborist is to be contacted for prior written advice and/or supervision around tree roots and possible tree root pruning. Given the TPZ areas of trees to be retained are all under hard paved areas, it is not possible to ascertain if tree root pruning will be required until the works commence.

4.19 It is advised that no stormwater or other services or other trenches or associated works be located within the TPZ of trees to be retained. Contact the project arborist prior to any works within the TPZ of retained trees for written instructions. This may include bridging, under - boring, or other action as advised in writing by the project arborist.

4.20 The arborist *Table A* (data sheet) tabulates the tree data, calculations and health and structural condition.

4.21 Refer also to the arborist plans *Arb_600 – Arb_602.* within and forming part of this AIA report.

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5 Tree Protection Zone Fencing and TPZ signage

5.1 **Install compliant Tree Protection Fencing**: Prior to any construction and as soon as possible in the site set up phase, Tree Protection Zone fencing (TPZ fencing), and TPZ signage is to be installed in the locations shown on Arb_602. For this project, there are 4 areas (4 trees) that require TPZ fencing and signage.

5.2 TPZ fencing is to protect the retained trees and their above and below ground parts (roots and canopy) by limiting the construction footprint that may otherwise unduly compact, damage, or disturb the tree soil zone and the tree root growing zone of trees.

5.3 In addition, site set up and arborist sign off is required to ensure fencing and signage is compliant and for the project arborist to discuss relevant ongoing tree protection and future inspections that may be required during the construction phase (as part of a necessary induction with the site foreman).

5.4 **Type of Fence**: Tree or trunk protection fences (TPZ Fences) are to comply with AS *4970-2009* and are recommended to be a minimum **1.8 m high**. This can be achieved with a 1.8 m high **(ATF) or chain link fence with non-penetrable footings. E.g., temporary site or event fencing with plastic or concrete pad footing pads (that do not penetrate the ground**). The fencing panels are to be **bolt cleated** together so they cannot be easily/readily lifted out of place without the use of a wrench or other tools.

5.5 The TPZ signage is to be firmly fixed on the eastern and western faces of each of the TPZ fenced areas. That is: 2 signs per each of the 4 areas (**total of 8 x TPZ signs**, printed out at A3 or A2 size). An example of the TPZ fencing and TPZ signage is in Figures 2 and 3 and a printable version is in Appendix 7 (for printing onto core flute or laminated).

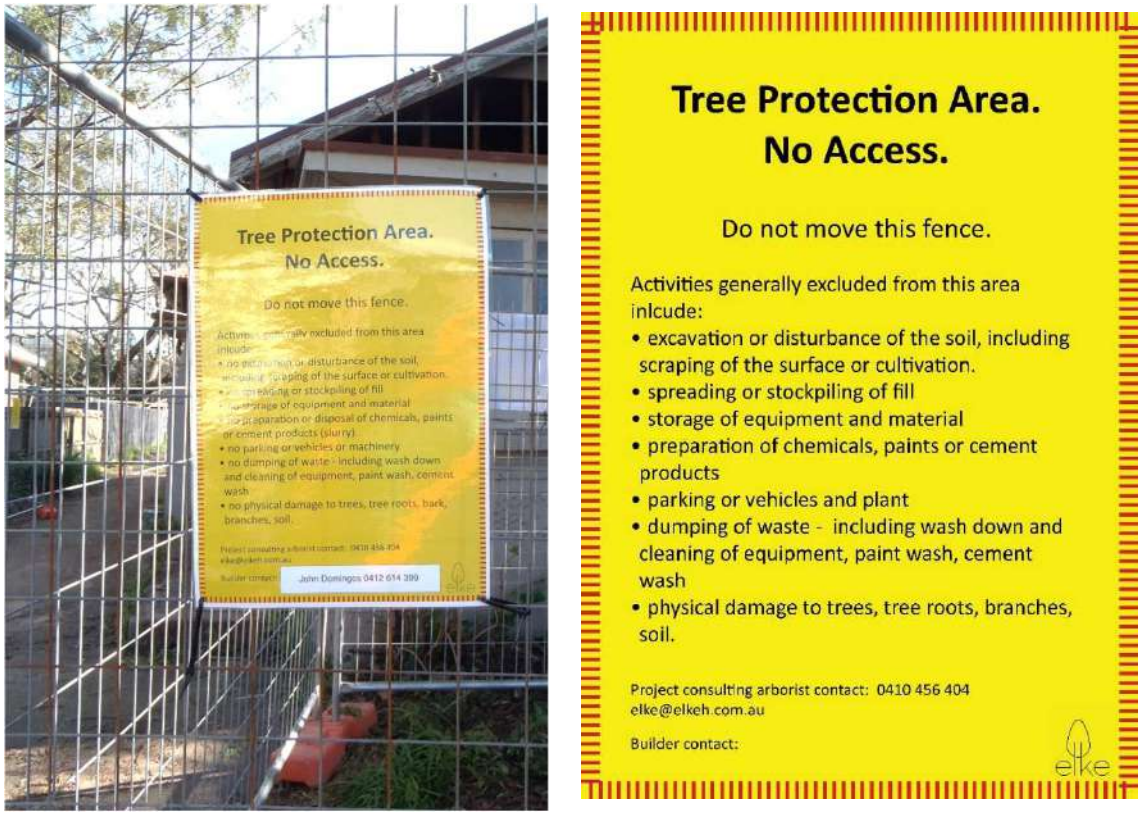

Figure 2 Example TPZ signage, printed at A3 or A2 and fixed to the TPZ fence. A printable TPZ sign is available in the Appendix of this report.

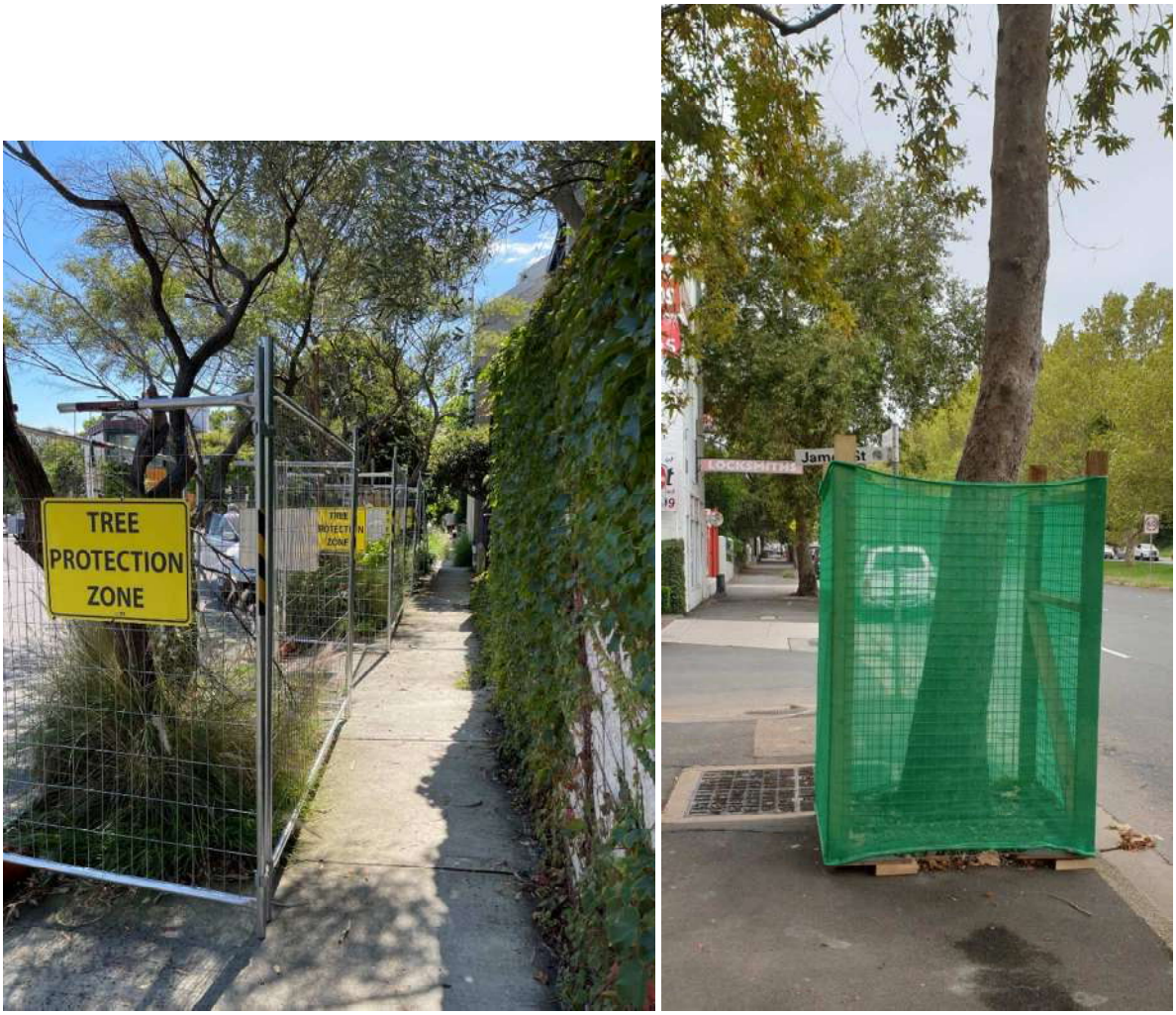

Figure 3 Examples of TPZ fencing. Note: shade cloth is not required for this proejct.

5.6 The site manager/builder is to ensure that all people and contractors on site know **not to enter** inside the tree protection fencing zone, **not to shift** the fence, **not to store** any materials inside the TPZ, and **not to damage, cut, crush, or sever any foliage**, **branches** or tree **roots** (30mm diameter or greater) within the TPZ, nor remove, disturb or contaminate soil within the TPZ.

5.7 Should access into the TPZ fenced zone be required, contact the project consulting arborist prior and obtain prior written permission or advice. Failure to do so will result in non-compliance.

5.8 No cutting, shaving, or removing of any tree parts may occur, including **tree roots >30mm**, any trunk, branches, or foliage without the prior written consent of the project arborist.

5.9 Should **tree roots >30mm** be exposed or uncovered, contact the project arborist for instructions (which may include root protection measures, root severance, tree removal, or other by the project consulting arborist instructions only).

5.10 The project consulting arborist is to advise on recommendations and implications at time of site inspection and make a record of the site visits which will be provided to the certifier, council/authority and client.

6 Site Photos.

6.1 Site photos below were taken on 4 August 2023 by Elke Haege Thorvaldson, consulting arborist, during the site / tree assessment.

*Figure 4. Trees **T1, T2** and **T3** are located on Phillip Street and are adjacen the porposed site works. These trees are proposed to be retained.*

*Figure 5. Trees **T1, T2** and **T3** are located on Phillip Street and are adjacen the porposed site works. These trees are proposed to be retained.*

Figure 6. Trees along the eastern side of Horwood Place. The trees labelled with the red box are propsoed for removal and the trees with the green boxes are proposed for retention.

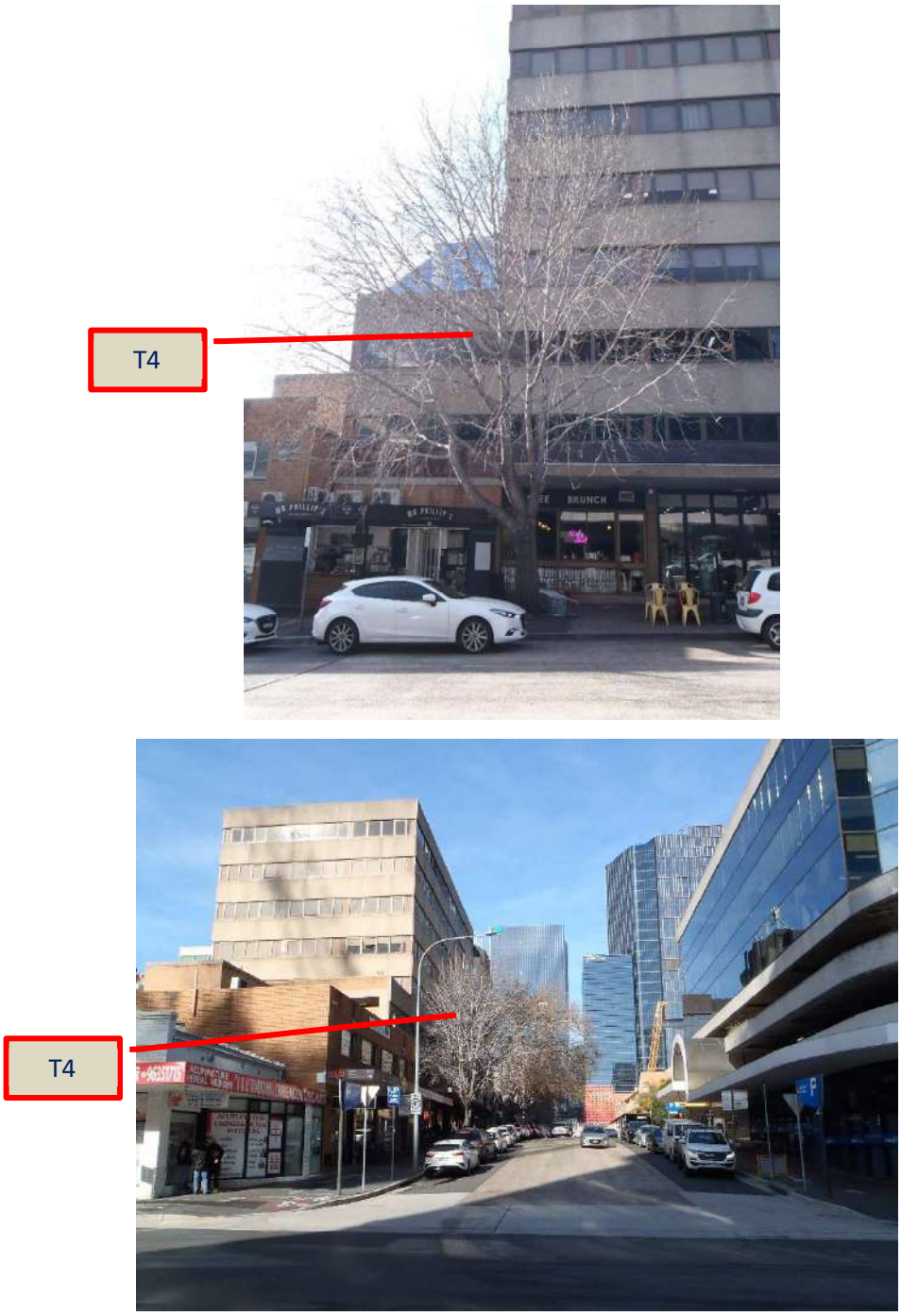

*Figure 7. View from Phillip St, looking south towards Horwood Place. **T4** is on the left side in the foreground. Date: 8 August, 2023. Source: ELKE*

*Figure 8. View looking south towards **T4** with surface mouding, multiple services and asphalt surround. Date: 8 August, 2023. Source: ELKE*

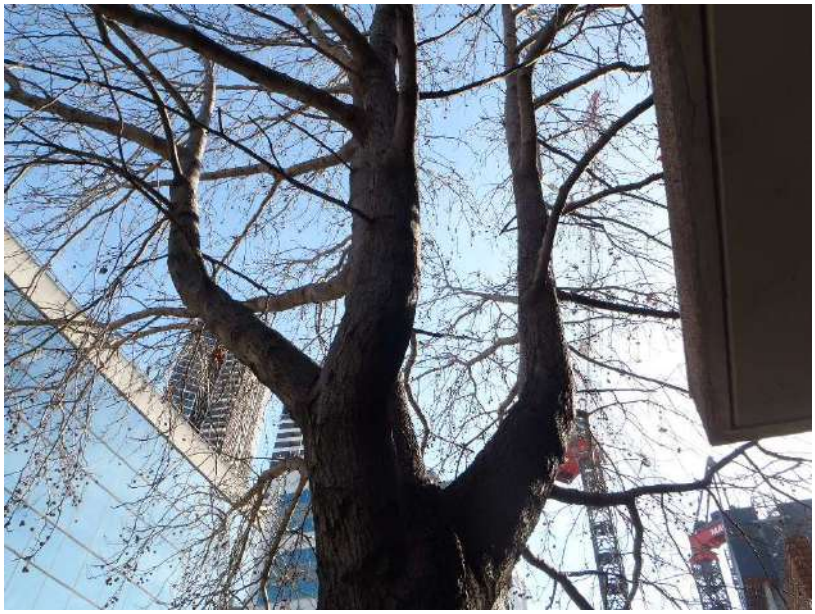

*Figure 9. View looking south towards **T4**, proposed for removal with surface mouding, multiple services and asphalt surround. Photo at top is of the upper canopy of T4 Date: 8 August, 2023. Source: ELKE*

*Figure 10. View looking south to **T5** with asphalt installed around the tree base. Surface cracks and uneven ground is visible and installed services and posts (e.g. parking meter). **T5** is proposed for removal. Date: 8 August, 2023. Source: ELKE*

*Figure 11 View looking north to **T5** with asphalt installed around the tree base. Surface cracks and uneven ground is visible and installed services and posts (e.g. parking meter). T4 is proposed for removal. Date: 8 August, 2023. Source: ELKE*

*Figure 12 View looking south to **T6**. Proposed for removal. Date: 8 August, 2023. Source: ELKE*

*Figure 13 View looking north to **T6**. Proposed for removal. Photo shows groudn condition. Date: 8 August, 2023. Source: ELKE*

*Figure 14. View looking south towards **T7,** proposed for retention. Tree T6 is in the foreground. Date: 8 August, 2023. Source: ELKE*

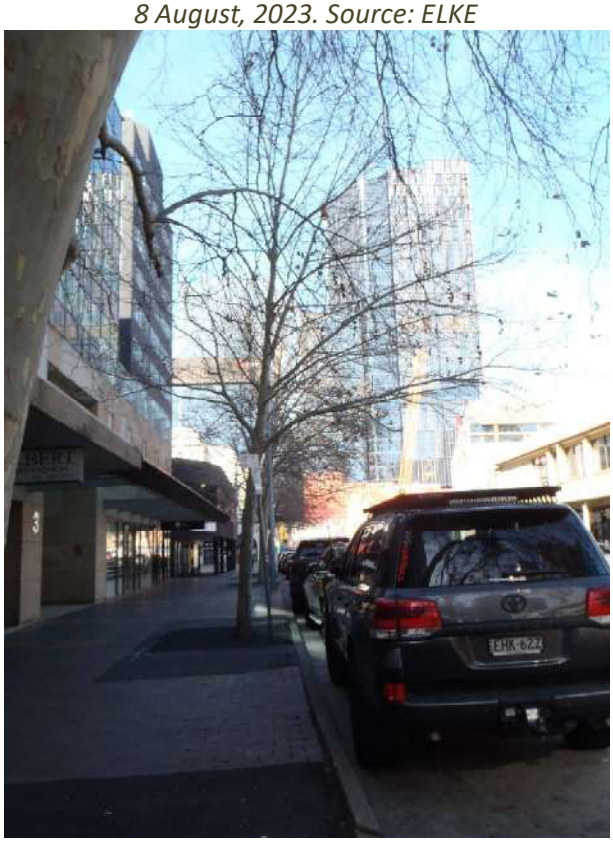

*Figure 15 View looking south towards **T7**, proposed for retention. Date: 8 August, 2023. Source: ELKE*

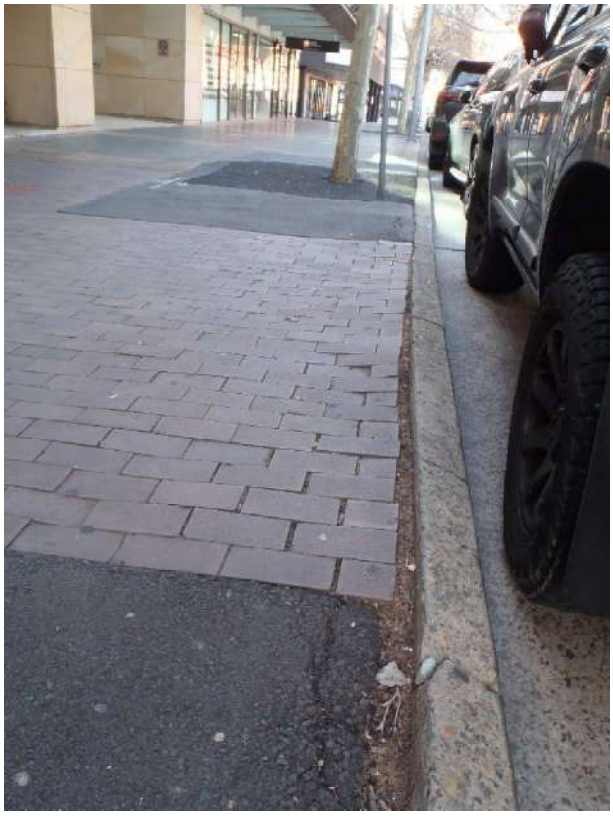

*Figure 16 View looking south towards **T7,** proposed for retention and showing the ground conditions of both T6 (foreground) and **T7** in the distance with sign post installed within the SRZ. Date: 8 August, 2023. Source: ELKE*

*Figure 17. Base condition of **T10**. Proposed for retention. Root girdling present at base of trunk. Date: 8 August, 2023. Source: ELKE*

*Figure 18. Base condition of **T10**. Proposed for retention. Surface cracking in asphalt visible. Date: 8 August, 2023. Source: ELKE*

*Figure 19. View looking south showing the base condition of **T11**. Proposed for Removal. Surface mounding and cracking and multiple services pits within close proximity of the tree. Date: 8 August, 2023. Source: ELKE*

*Figure 20. Photos above showing the base condition of **T11**. Proposed for Removal. Surface mounding and cracking and multiple services pits within close proximity of the tree. Date: 8 August, 2023. Source: ELKE*

*Figure 21. Photo above showing the base condition of **T11**. Proposed for Removal. Surface mounding, cracking, exposed roots (asphalt cover has gone), and multiple services pits within close proximity of the tree (top of photo) and survey marks showing services. Date: 8 August, 2023. Source: ELKE*

*Figure 22. Photos showing **T12** and **T13** proposed for retention. These photos were taken on 8 August, 2023. It is understood these trees have since had formative pruning. Source: ELKE Date: 8 August, 2023. Source: ELKE*

*Figure 23. Photos showing **T12** and **T13** proposed for retention. Date: 8 August, 2023. Source: ELKE*

*Figure 24. Photos showing **T12** and **T13** proposed for retention. Photo at the bottom shows displacement of asphalt indicating root zone upheaval indicating inadequate soil volume. Date: 8 August, 2023. Source: ELKE*

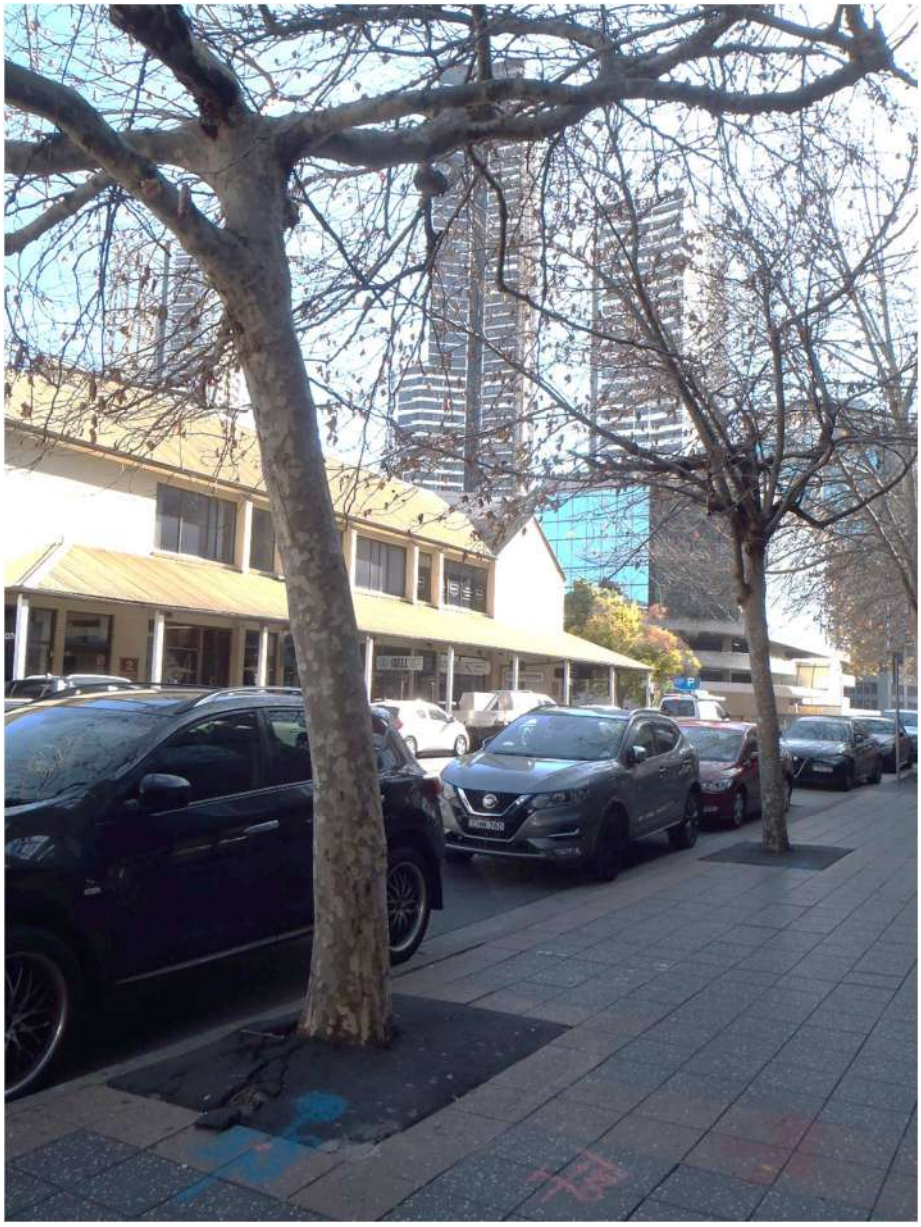

*Figure 25. Photo showing **T12** and **T13** proposed for retention. Date: 8 August, 2023. Source: ELKE*

Figure 26. View looking north along Horwood Place. Date: 8 August, 2023. Source: ELKE

*Figure 27. **T8** and **T9**. Proposed for removal. Date: 8 August, 2023. Source: ELKE*

*Figure 28. **T8** and **T9**. Proposed for removal. Date: 8 August, 2023. Source: ELKE*

Figure 29. ***T8*** *and* ***T9****. Proposed for removal. Date: 8 August, 2023. Source: ELKE*

7 Discussion and Conclusion

7.1 Six trees are proposed for removal with the gain of approximately 29 proposed new trees and an improvement in the landscape amenity. Further tree removals may be suitable as part of the project detailed development. Co-ordination with all consultants including underground services, earthworks and for value engineering are to be evaluated and balanced to meet the desired project outcomes.

7.2 Regarding tree protection of trees to be retained, provided the recommended tree protection measures and procedures are followed, as outlined in this report, the retention of the trees as shown and proposed to be retained on the arborist impact plan (Arb_602) and the recommendations at detailed documentation phases, the trees can be viable retained with minimal and acceptable impact during construction.

7.3 The tree replacement ratio of 4.8: 1 is considered a suitable replacement tree : to tree removal ratio to provide a better landscape outcome than is existing.

7.4 Adherence to the hold points, recommendations for protection and compliance to the tree protection schedule (Table 2) is the key mode of supporting suitable tree protection during construction.

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8 References

- *Australian Standard AS4970-2009, Protection of trees on Development Sites. Standards Australia.*
- *Australian Standard AS 4373 – 1996, Pruning of Amenity Trees, Standards Australia.*
- *Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches.*
- *Barrell, Jeremy, 1996, Pre-development Tree Assessment, SULE Categories and Sub-Categories, Proceedings of the International Conference on Trees and Building Sites (Chicago), International Society of arboriculture, Illinois, USA.*
- *Barrell, J, 2009, Draft for Practical Tree AZ version 9.02 A+NZ, Barrel Tree Consultancy, Bridge House, Ringwood BH24 1EX*
- *Craul, P.J. 1985. A description of urban soils and their desired characteristics, Journal of Arboriculture 11(11):330-339.*
- *Draper and Richards, 2009, Dictionary for Managing Trees in Urban Environments, CSIRO Publishing.*
- *Leake S and Haege E, 2014, Soils for Landscape Development, Selection, Specification and Validation, CSIRO Publishing.*
- *International Society of Arboriculture, 2009, The Landscape Below Ground III, Proceedings for a Third International Workshop on Tree Rood Development in Urban soils, ISA, Champaign, Illinois, USA.*
- *Mattheck C. and Breloer H., 2001, The Body Language of Trees - A handbook for failure analysis – Sixth impression (2001), The Stationery Office, London, U.K. Fig 120, Page 196.*
- *Mattheck C., and Breloer H., 2010, The Body Language of Trees – A Handbook for Failure Analysis – 11th impression, The Stationery Office (TS0), London UK*

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9 Relevant Appendices

D. Appendix 1: Landscape Significance Rating

Refer to next page. As well this rating takes into consideration the context and relationship of the tree to its surrounds and contribution to the streetscape/site surrounds and character of the site.

E. Appendix 6: ISA Tree Risk Assessment

Methodology: ISA (International Society of Arboriculture, 2013)[9]. Hazard potential (Risk rating matrix)

Likelihood of Failure and Impact	**Consequences of Failure**			
	Negligible	Minor	Significant	Severe
Very likely	*Low*	*Moderate*	*High*	*Extreme*
Likely	*Low*	*Moderate*	*High*	*High*
Somewhat likely	*Low*	*Low*	*Moderate*	*Moderate*
Unlikely	*Low*	*Low*	*Low*	*Low*

F. Appendix 2: Safe Useful Life Expectancy

Refer to next page.

The following worksheet template shows the categories for SULE as derived from the attached appendices.

Life expectancy (LE)				Safe Life Expectancy LE				Safe Useful Life Expectancy			Final SULE	SULE Category
Age of tree	Average Lifespan	Lifespan modified by local factors	Life expectancy	LE modified by health	structure	LE modified by location	SLE	expense	Interference	Space for planting		
1	2	3	4	5	6	7	8	9	10	11	12	

**The SULE categories and classifications are subjective and based on the knowledge, experience and expertise of the assessor.*

[9] http://www.isa-arbor.com/education/onlineresources/basictreeriskassessmentform.aspx

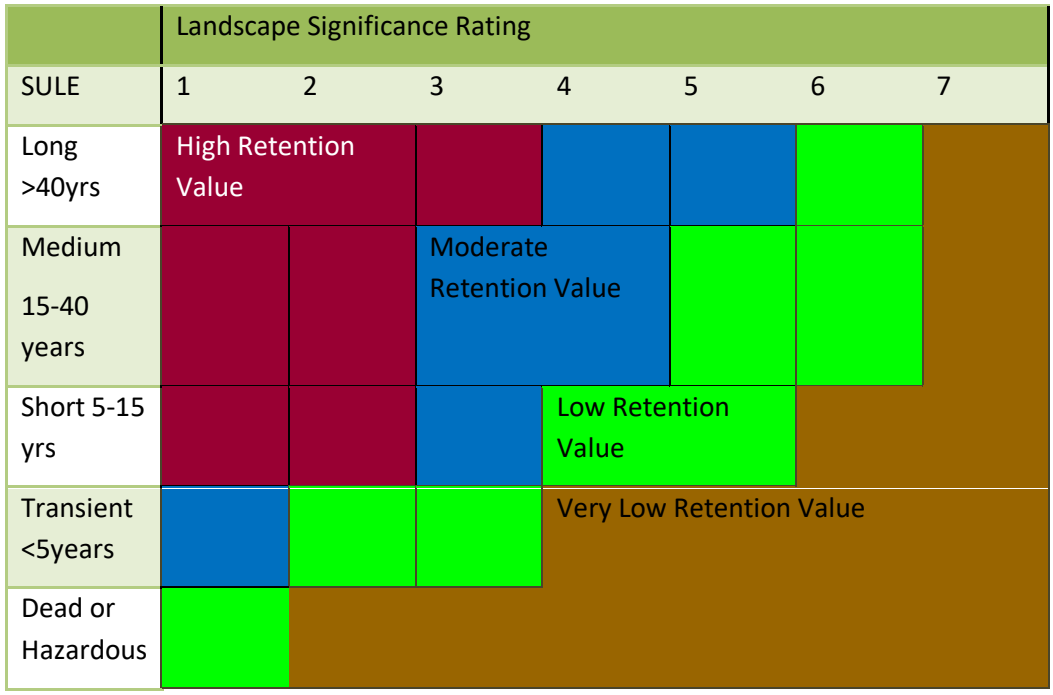
Sule Categories and Sub-Categories

	1	2	3	4	5
	Long SULE:	**Medium SULE:**	**Short SULE:**	**Remove:**	**Small, Young or regularly clipped:**
	Trees that appeared to be retainable at the time of assessment for more than 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 15 to 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 5 to 15 years with and acceptable level of risk	Trees that should be removed within the next 5 years	Trees that can be reliably transplanted or replaced
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for between 15 and 40 more years	Trees that may only live for between 5 and 15 more years	Dead, dying, supressed or declining trees through disease or inhospitable conditions	Small trees less than 5 metres in height
B	Trees that could be made suitable for retention in the long term by remedial Care	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent losss of adjacent trees	Young trees less than 15 years old but over 5 metres in height
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention	Trees that may live for more than 40 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Trees that may live for more than 15 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form	Trees that have been regularly pruned to arteficially control growth
D		Trees that could be made suitable for retention in the medium term by remedial Care	Trees that require substantial remedial care and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain	
E				Trees that may live for more than 5 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	
F				Trees that may cause damage to existing structures within 5 years	
G				Trees that will become dangerous after removal of other trees for reasons given in 1A-1F	

Ref: Barrell, Jeremy (1996)
Pre-development Tree Assessment
Proceedings of the International Conference on Trees and Building Sites (Chicago)
International Society of arboriculture, Illinois, USA

G. Appendix 3. Retention Rating

Tree retention priority. Refer to Plan 2.



Reference modified from: Earthscape and Couston, Mark and Howden, Melanie, 2001, Tree Retention Values table, Footprint Green Pty. Ltd., Sydney Australia

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H. Appendix 4a. AS 4970. Development of Trees on Protection Sites:

Tree Protection Zone (TPZ)

The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. The TPZ incorporates the structural root zone (SRZ)

Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH × 12.

TPZ = DBH × 12 where DBH = trunk diameter measured at 1.4 m above ground
Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 m nor greater than 15 m (except where crown protection is required). Clause 3.3 covers variations to the TPZ. The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 m outside the crown projection.

Structural Root Zone (SRZ)

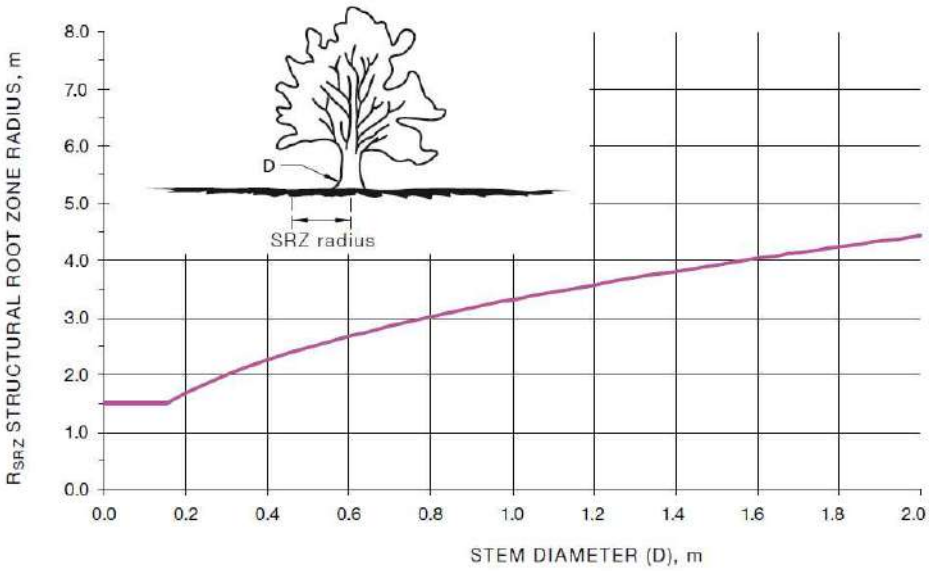
The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g., tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1.

Root investigation may provide more information on the extent of these roots.

SRZ radius = (D × 50)0.42 × 0.64 where D = trunk diameter, in m, measured above the root buttress



The curve can be expressed by the following formula:
$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

NOTES:

1 R_{SRZ} is the calculated structural root zone radius (SRZ radius).
2 D is the stem diameter measured immediately above root buttress.
3 The R_{SRZ} for trees less than 0.15 m diameter is 1.5 m.
4 The R_{SRZ} formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5 This does not apply to trees with an asymmetrical root plate.

FIGURE 1 STRUCTURAL ROOT ZONE CALCULATION

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NOTE: The SRZ for trees with trunk diameters less than 0.15 m will be 1.5 m (see Figure).

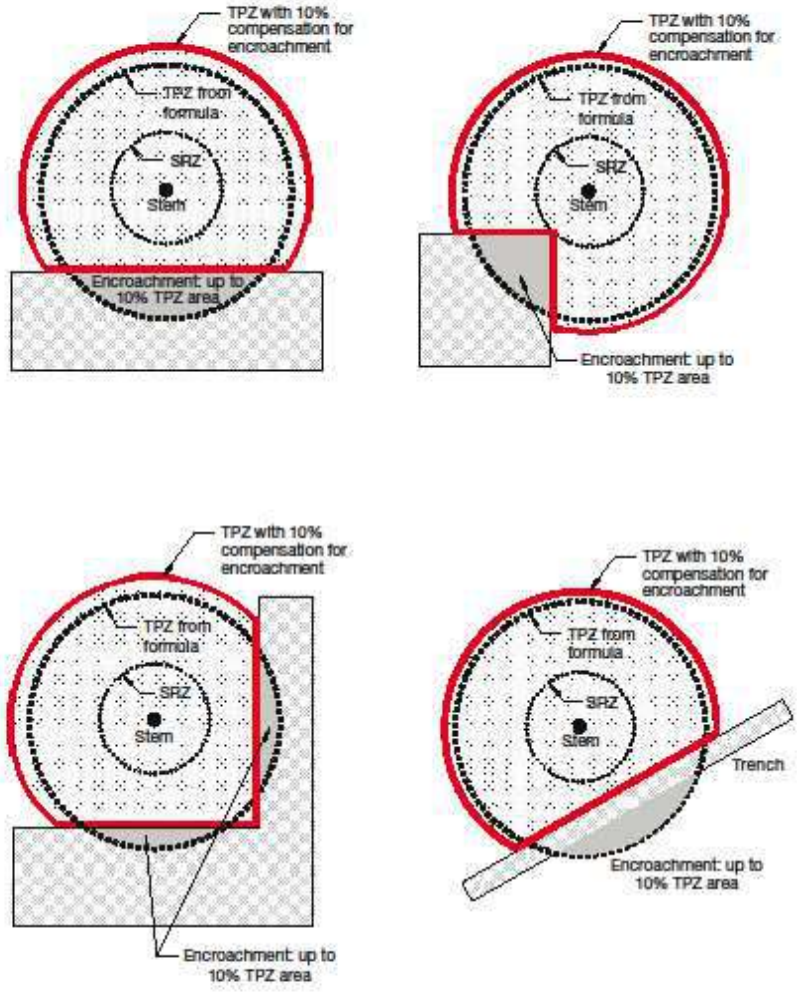
I. *Appendix 4b AS 4970. Development of Trees on Protection Sites: Acceptable Incursions*

APPENDIX D

ENCROACHMENT INTO TREE PROTECTION ZONE

(Informative)

Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

FIGURE D1 EXAMPLES OF MINOR ENCROACHMENT INTO TPZ

J. Appendix 5: Tree Retention Priorities

The following table describes the implications of the Retention Values on site layout and design. Refer to Plan 2: Tree Retention Values for direct correlations to table below.

Appendix 5

	Tree Retention Priorities
Retention Value	Recommended Action
"High"	• These trees are considered worthy of preservation; as such careful consideration, should be given to their retention as a priority. • Proposed site design and placement of buildings and infrastructure should consider the Tree Protection Zones as discussed in the following section to minimise any adverse impact. • In addition to Tree Protection Zones, the extent of the canopy (canopy drip line) should also be considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
"Moderate"	• The retention of these trees is desirable. • These trees should be retained as part of any proposed development if possible; however, they trees are considered less critical for retention. • If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
"Low"	• These trees are not considered to worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. • These trees should not be considered as a constraint to the future development of the site.
"Very Low"	• These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds. • The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Source: Derived from: Earthscape Horticultural Services, December 2011

K. Appendix 7: Tree Protection Fencing signage

The following page provides an A2 or A3 printable TPZ sign that can be laminated or printed onto core flute or other external suitable material for use on the tree protection fencing.

Tree Protection Area.
No Access.

Do not move this fence.

Activities generally excluded from this area inlcude:

- no excavation or disturbance of the soil, including scraping of the surface or cultivation.
- no spreading or stockpiling of fill
- no storage of equipment and material
- no preparation or disposal of chemicals, paints or cement products (slurry).
- no parking or vehicles or machinery
- no dumping of waste - including wash down and cleaning of equipment, paint wash, cement wash
- no physical damage to trees, tree roots, bark, branches, soil.

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