CPS

CREATIVEPLANNINGSOLUTIONS

ARBORICULTURAL IMPACT ASSESSMENT

Proposed Multi-Dwelling Housing Development

8-24 Nicholson Street, Wollstonecraft NSW 2065

Project No: H349
Date: 24 October 2025
Revision: A

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Document Control

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Accreditations

Disclaimer
The Client acknowledges this Report, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data, inspections, measurements and analysis carried out or obtained by CPS and referred to in the Report. No guarantee is implied with respect to future tree safety. The Client should rely on the Report and its contents, only to that extent.

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This Arboricultural Impact Assessment (AIA) has been prepared by Creative Planning Solutions Pty Limited (CPS) to accompany a detailed State Significant Development Application (SSDA) for a proposed multi-dwelling housing development at 8-24 Nicholson Street, Wollstonecraft within the North Sydney Council Local Government Area (LGA).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-86462209).

Accordingly, this arboricultural impact assessment provides an evaluation of the likely impact to forty-one (41) trees located on and adjacent to the subject site as a result of the proposed development, inclusive of associated building and basement footprints, stormwater infrastructure and landscaping.

A summary of those trees identified has been provided in ***Table1*** below, along with a description of their retention values, location, canopy cover and nominated retention/removal status under the proposal.

Based on the plans supplied, and should the proposed works proceed in their current form, it is recommended that:

- Twenty-four (24) trees be retained and protected (**Trees 1, 3-10, 12-15, 21-25, 31-33, 38, 40** & **41**); and
- Seventeen (17) trees be removed (**Trees 2, 11, 16-20, 26-30, 34-37** & **39**)

Table 1 - *Tree Assessment Summary*

Retain / Remove	Location	Identified Retention Values				Number of Trees	Canopy Cover
		High	Medium	Low	Dead		
Retain & Protect	**Subject Site**	**3 trees** Trees 14, 23 & 24	**4 trees** Trees 5, 13, 31 & 38	**7 trees** Trees 10, 12, 15, 21, 22, 25 & 33	-	**14 trees**	**531m²**
	Council Street verge	-	**4 trees** Trees 3, 4, 7, 9	**3 trees** Trees 1, 6, 8	-	**7 trees**	**449m²**
	Neighbouring Allotments	**1 tree** Tree 32	**1 tree** Tree 40	**1 tree** Tree 41	-	**3 trees**	**384m²**
					Total	**24 trees**	**1,364m²**

Retain / Remove	Location	Identified Retention Values				Number of Trees	Canopy Cover
		High	Medium	Low	Dead		
Remove	**Subject Site**	-	**1 tree** Tree 35	**14 trees** Trees 11, 16, 17, 18, 19, 20, 26, 27, 28, 29, 30, 34, 36 & 37	**1 tree** Tree 39	**16 trees**	**605m²**
	Council Street verge	-	**1 tree** Tree 2	-	-	**1 tree**	**127m²**
					Total	**17 trees**	**732m²**

This report concludes that the implementation of the following recommendations and mitigation measures will need to be adopted to mitigate any potential negative impacts to retained trees:

- Project arborist consultation and participation to ensure that development-related impacts to retained trees are appropriately managed for their long-term preservation;
- Preparation of a Tree Protection and Management Plan to ensure trees are appropriately maintained throughout the development;
- Root-sensitive construction methodology of pathways within the NRZ of retained tree (**Tree 14**);

Following the implementation of the above mitigation measures and specific recommendations as per ***Section 7***, the remaining impacts associated with the proposed development on retained trees are considered acceptable.

2 INTRODUCTION

2.1 Background

This AIA has been prepared by Creative Planning Solutions Pty Limited (CPS) to accompany a detailed State Significant Development Application (SSDA) for a proposed multi-dwelling housing development at 8-24 Nicholson Street, Wollstonecraft within the North Sydney Council Local Government Area (LGA).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-86462209).

***Table 2** - SEARs requirement*

Declaration		
Name	James Hume-Grimm	
Professional Qualifications	Dip. Arboriculture – AQF Level 5	
	The undersigned declares that this Arboricultural Impact Assessment has been prepared in response to the following SEARs requirements issued for the Project on 23 June 2025 for SSD-86462209:	
SEARs item	**SEARs Issue and Assessment Requirements**	**Relevant Section of this Report that addresses SEARs Requirement**
14. Trees and Landscaping	Trees and Landscaping • If the proposal involves impacts to trees, provide an Arboricultural Impact Assessment that assesses the number, location, condition and significance of trees to be removed and retained including: – Any existing canopy coverage to be retained on-site. – Tree root mapping. If the proposal involves significant impacts to Tree Protection Zones of retained trees identified as being significant	• Section 1 – Executive Summary; • Section 7 – Recommendations & Mitigation Measures
Signed		
Dated	10 October 2025	

Prior to the preparation of this report, CPS undertook an active role in the design development process whereby a root mapping investigation was carried out to provide information to the project team and minimise the level of impact that the proposed works would have upon existing trees.

The process included review of preliminary plans and a non-destructive root mapping investigation to determine impacts to **Trees 2** & **14** from the proposed driveway and building/basement footprints. Correspondence with the project management team then included recommendations for minimising extent of works within the NRZ of **Tree 14** to retain this high retention value tree.

Accordingly, this AIA report is to assess the potential impact of the current proposed development on the subject trees, as well as provide recommendations for further amendments to the design or construction methodology where necessary to minimise any adverse impact. The report also provides mitigation measures to ensure the long-term preservation of the trees to be retained.

2.2 Objectives

This report has been prepared to assess the level of impact development works are likely to cause to existing trees and make a determination as to whether trees will be adversely affected. The report will provide guidance as to those trees requiring removal, retention or protection in accordance with the provisions of *AS4970-2009 Protection of trees on development sites*. Where necessary, it will also provide recommendations for design modifications and any replacement planting. As such, the objectives of this report are as follows:

- Assess the current site and growing conditions of trees;
- Assess the current health, condition, lifespan & significance of the trees within the site;
- Identify relative retention values of trees within the site;
- Calculate anticipated encroachment levels resulting from proposed works;
- Determine the likely impact as a result of the calculated encroachments;
- Assess potential for retention and protection of trees where possible;
- Advise any design modifications necessary to retain important trees;
- Recommend tree and root sensitive design and construction methodologies to mitigate impacts to trees to be retained;
- Inform of any tree removal necessary due to unsustainable impacts.

No aerial inspection or internal diagnostic testing have been carried out as part of this report. Additionally, no cation exchange capacity testing or plant tissue analysis has been undertaken.

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Biodiversity and Conservation) 2021;*
- *North Sydney Local Environment Plan (LEP) 2013;*
- *North Sydney Development Control Plan (DCP) 2025;*
- *Greater Sydney Regional Strategic Weed Management Plan 2023-202*

2.4 Documentation Received

The following documents were received and have been relied upon for this Assessment:

***Table 2** – Documentation received and reviewed as part of the Arboricultural Impact Assessment*

Document Description	Author	Revision No. / Date
Architectural Plans	Group GSA	A / 10.10.2025
Civil Plans	BG&E Engineering	3 / 21.10.2025
Landscape Plans	Ground Ink	C / 15.10.2025
Detail Survey	SurveyPlus	B / 14.03.2024

Note: care has been taken to obtain all information from reliable sources; however, the author makes no representations, guarantees or warranties as to the accuracy of information provided by others. No other information has been reviewed, should this become available impacts may be subject to change.

2.5 The Site

The site is known as 8-24 Nicholson Street, Wollstonecraft and is legally described as Lots 1 & 2 in DP 220608, Lots A & B in DP 419382, Lots 1 & 2 in DP 513450, Lots A & B in DP 403932 and Lots A & B in DP 385256 (the site). The site is located on the south-western side of Nicholson Street and on the eastern side of Oxley Street and currently contains five (5) single-storey dual-occupancy dwellings with hard-paved curtilage areas, open garden areas and existing vegetation (refer to ***Figure 1*** below).

2.6 Project Description

This application seeks approval for a residential flat building at 8-24 Nicholson Street, Wollstonecraft for:

- Site amalgamation,
- Demolition of existing structures on the land and excavation of basement levels,
- The construction of a 12-storey residential flat building, comprising:
  - 3-levels of basement car parking,
  - Car parking, waste storage, loading and building services located to the lower ground level,
  - 12-levels of residential dwellings, comprising 1, 2 and 3-bedroom apartments,
  - Rooftop communal open space,
- Rooftop servicing and plant,
- Vehicle access and egress from Oxley Street,
- Landscaping on the ground floor, lower ground floor and on structure to the rooftop communal open space.

Specifically, those works considered likely to impact the existing trees on and adjoining the subject site include the new building/basement footprint, retaining walls, pathways and stormwater infrastructure (refer to ***Figure 2*** below).

2.7 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for one (1) year only from the date of the report, unless otherwise stated. Any changes to the site as it stands at present, for example building extensions, excavation works, importing of soils, extreme weather events etc. will invalidate this report. Any reproduction of this report must be in full colour using the report in its entirety.

Figure 1 *– Aerial image indicating the subject site (outlined blue.)*
Source*: Nearmap – 11 July 2025.*

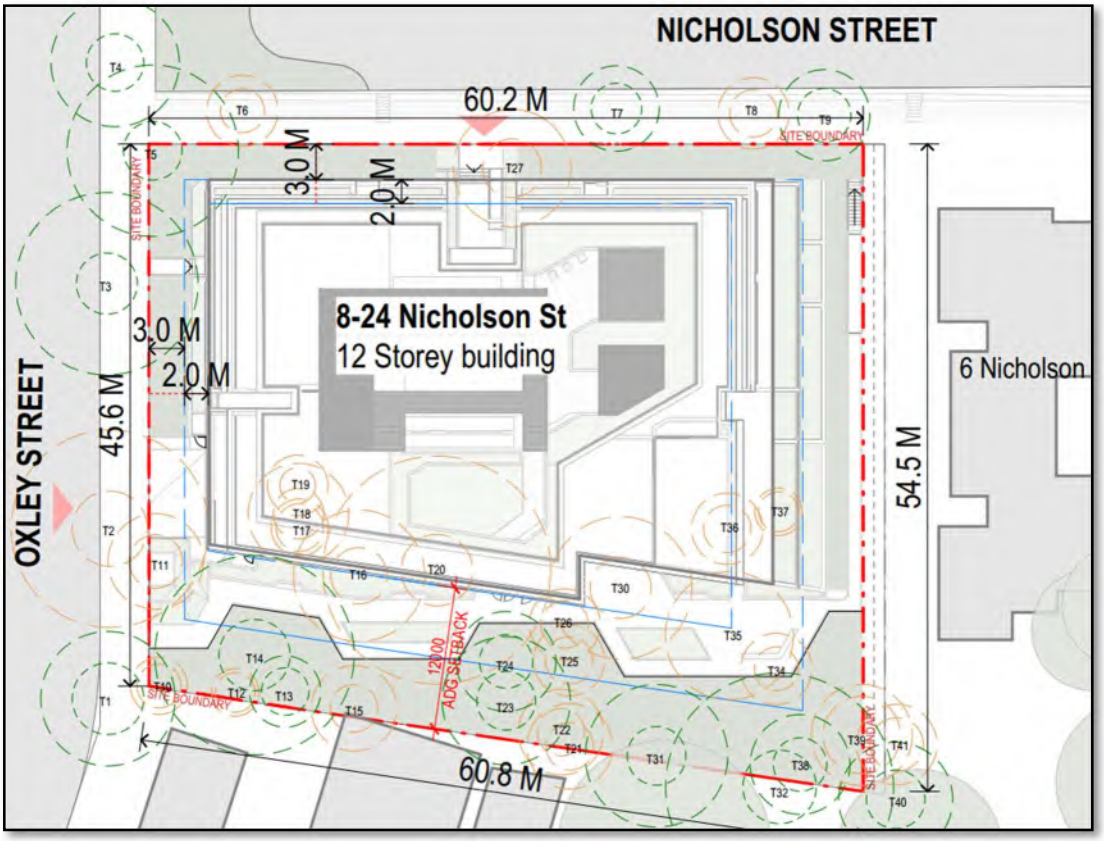

Figure 2 *– Site Plan extract showing the proposed layout of the development.*
Source*: Group GSA – 10/10/2025*

3 METHOD

3.1 Method

3.1.1 Site Inspection

A site inspection was carried out by the author with the subject trees and the general growing environment evaluated on the 14th of February 2025. The weather at the time of inspection was overcast with intermittent showers and good visibility.

The subject trees were inspected visually from ground level with the following information recorded and provided in tabulated form at ***Appendix 1***:

- Tree Species (Botanical & Common Name);
- Approximate height;
- Approximate canopy spread;
- Trunk Diameter (measured at 1.4 metres from ground level);
- Trunk Diameter at base (above root crown);
- Age class;
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators;
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators;
- Suitability of the tree to the site and its existing location;
- Useful Life Expectancy (ULE).

3.1.2 Useful Life Expectancy (ULE)

The remaining Useful Life Expectancy of a tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of each tree has been further modified where necessary in consideration of its current health, vigour, condition and suitability to the site. The estimated ULE of each tree is shown in ***Appendix 1***.

The following ranges have been allocated to each tree:

- Long ULE: Trees that appear to be retainable for > 40 years.
- Medium ULE: Trees that appear to be retainable for 15 to 40 years.
- Short ULE: Trees that appear to be retainable for 5–15 years.
- Remove: Trees that would need removing within the next 5 years.
- Small, Young or Regularly Pruned.

3.1.3 Landscape Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. Several factors contribute towards the assessment of a tree's significance including but not limited to condition and vigour, form, visual prominence, heritage status, indigeneity, legislative protection, cultural sentiment and future growth potential.

For the purposes of this report the Australian Institute of Consulting Arborists (IACA) Significance of a Tree, Assessment Rating System (STARS)© has been utilised. 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.

Appendix 3 provides a full outline of assessment criteria for each significance rating as per IACA STARS (2010).

3.1.4 Retention Value

Retention values have been determined for each tree on site to establish a hierarchy for tree retention. Retention values are based on estimated life spans and their associated landscape significance rating in accordance with the Tree Retention Value Priority Matrix. This matrix established the following retention values and can be found at ***Appendix 3*** with attributed retention values found within ***Appendix 1***:

- Priority for Retention (High)
- Consider for Retention (Medium)
- Consider for Removal (Low)
- Priority for Removal

3.1.5 AS4970-2025 Protection of Trees on Development Sites

The Australian Standard, *AS4970-2025- 'Protection of trees on development sites'*, has been used as a guide to provide recommendations for the assessed trees. The Standard provides guidance on the principles for protecting trees on land subject to development as well as principles for determining viability of tree retention. Terminology and recommended methods are consistent with *AS4970-2025*.

3.1.6 Notional Root Zones

The assessed trees have been allocated Notional Root Zones (NRZ). The Australian Standard, *AS4970-2025- 'Protection of trees on development sites'*, has been used as a guide in the allocation of NRZs for the assessed trees. The NRZ is calculated based on trunk (stem) diameter at standard height (DSH), measured at 1.4 metres above ground level. The radius of the NRZ is calculated by multiplying the trees DSH by 12. The method provides a NRZ that addresses health and growing requirements of a tree as well as the trees stability. NRZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The maximum NRZ should be no more than 15m radius and the minimum NRZ should be no less than 2m radius.

An extract of the *AS4970-2025* for calculating NRZ has been provided at ***Appendix 4*** for reference.

3.1.7 Structural Root Zone

The assessed trees have been allocated Structural Root Zones (SRZ). The Australian Standard, *AS4970-2025 - 'Protection of trees on development sites'*, has been used as a guide in the allocation of SRZ's for the assessed trees. The SRZ is a notional area extending outwards from the centre of the trunk required for tree stability and is calculated as follows:

SRZ (Radius) = $(D \times 50)^{0.42} \times 0.64$

3.1.8 Tree Protection Zone

Using the NRZ as a starting point, a Tree Protection Zone (TPZ) is a specified area located both above and below ground that is required for the protection of trees during development works. The purpose of a TPZ is to protect of a tree's roots and crown throughout the development process via the installation of tree protection measures and appropriate site management. The location and alignment of specified TPZs are shown in the Tree Location Plans held at ***Appendix 2***.

4 OBSERVATIONS

4.1 General

The site area subject to this assessment was observed as highly disturbed with minimal understorey present. Species observed varied including exotic, Australian native and locally endemic species. Health, vigour and condition was also highly varied across the trees forming part of the assessment. Root zones of assessed trees were generally observed as modified groundcover within deep soil areas.

4.2 Tree Preservation Order

Part B, Section 3.1 – *Tree & Vegetation Management* of the North Sydney DCP 2025 applies to all trees and native vegetation within the North Sydney Council LGA. The provisions included within the DCP generally protect any tree or vegetation that corresponds with the following criteria:

a) Any tree or vegetation on public land, regardless of size;
b) Any tree or vegetation with a height of 5m or more, or a crown width of 5m or more, or a trunk circumference of 500mm or more measured at ground level;
c) Any tree identified as a biosecurity risk under the Biosecurity Act, 2015 and is greater than 10m in height
d) Any of the following species of trees or vegetation on land identified as a heritage item under cl.5.10 of NSLEP 2013 regardless of size:
    a. Bangalow Palms (*Archontophoenix cunninghamiana sp*)
    b. European Nettle or Hackberry (*Celtis sp*);
    c. Indian Coral Tree (*Erythrina x sykesii*);
    d. Kentia Palms (*Howea forsteriana sp*);
    e. Privet Species (*Ligustrum sp*);
    f. Willow Trees (*Salix sp*).

4.3 The Trees

A total of forty-one (41) trees were observed within and adjoining the subject site. All tree data recorded on site has been tabulated and is contained at ***Appendix 1***. Each tree has been provided with an identification number for reference purposes and is denoted on the attached Tree Location and Protection Plan at ***Appendix 2***.

Of those trees assessed, thirty (30) fell within the boundaries of the subject site, including **Trees 5, 10-31** & **33-39**. Three (3) trees (**Trees 32, 40** & **41**) were located within the neighbouring allotments (3-15 & 17 Christie Street & 4-6 Nicholson Street) and eight (8) trees were located within the Council street verges (Nicholson Street & Oxley Street) adjoining the site (**Trees 1-4** & **6-9**).

Two (2) site trees (**Trees 20** & **39**) are exempt from protection under provisions of Part B, Section 3.1 – *Tree & Vegetation Management* of the North Sydney DCP 2025 due to species classification or due to being a dead tree with no habitat for native fauna observed.

5 DISCUSSION

5.1 Impact Assessment

The impact assessment is to calculate the encroachment to the root zones and canopies as a result of the proposed demolition and construction works and evaluate the likely impact of the proposed works on the subject trees. A summary of the impacts anticipated is contained within the Tree Schedule at ***Appendix 1***. Additionally, plans demonstrating the level of encroachment and conflict to TPZ's and SRZ's can be found at ***Appendix 2***. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Tree Protection Zones (TPZ);
- Structural Root Zones (SRZ);
- Footprint of the proposed development (incl. stormwater and services) and temporary structures (scaffolding, hoardings etc.);
- Encroachment to the TPZ & SRZ, including estimated cut & fill beyond the building footprint;
- Encroachment to the tree canopy from the building envelope and temporary structures;
- Pruning necessary for building clearance;
- Remediation works for soil contaminants;
- Species tolerance to disturbance; and
- Assessment of the likely impact of the works on existing trees.

5.2 Trees Recommended for Removal

Should the proposed works proceed in their current form, it is recommended that seventeen (17) trees be removed. This includes (**Trees 2, 11, 16-20, 26-30, 34-37** & **39**). Removals have been recommended based upon:

- **Trees 2, 11, 17-20, 26, 27, 29, 30** & **34-37** due to being located within the proposed driveway crossover, substation, building/basement or pathway footprints;
- **Tree 16** due to 'major' and unsustainable TPZ (73%) and SRZ (38%) encroachment from the proposed building/basement footprint, retaining walls and stormwater infrastructure;
- **Tree 28** subject to 'minor' TPZ (8%) encroachment from the proposed pathway to facilitate future landscape scheme;
- **Tree 39** due to being dead with no habitat for native fauna observed.

Refer to ***Appendix 2*** for a plan indicating the location of trees that will require removal (dashed red).

Table 3 *– Trees recommended for removal*

Tree No.	Genus & Species	Retention Value	Reason for Removal
2	***Callistemon viminalis*** Weeping Bottlebrush	Medium	Within footprint of proposed driveway crossover
11	***Acer palmatum*** Japanese Maple	Low	Within proposed substation footprint

Tree No.	Genus & Species	Retention Value	Reason for Removal
16	***Camellia sasanqua*** Camellia	Low	Major 73% NRZ + 38% SRZ encroachment from proposed building/basement footprint, retaining walls and stormwater infrastructure
17	***Gordonia axillaris*** Fried Egg Plant	Low	Within proposed building/basement footprint
18	***Lagerstroemia indica*** Crepe Myrtle	Low	
19	***Lagerstroemia indica*** Crepe Myrtle	Low	
20	***Radermachera sinica*** China Doll	Low	
26	***Camellia sasanqua*** Camellia	Low	Within footprint of proposed pathway
27	***Magnolia sp.*** Magnolia	Low	Within proposed building/basement footprint
28	***Dypsis lutescens*** Golden Cane Palm	Low	Minor 8% NRZ encroachment from proposed pathway
29	***Archontophoenix cunninghamiana*** Bangalow Palm	Low	Within footprint of proposed pathway
30	***Alnus jorullensis*** Evergreen Alder	Low	
34	***Plumeria sp.*** Frangipani	Low	
35	***Jacaranda mimosifolia*** Jacaranda	Medium	
36	***Ceratopetalum gummiferum*** NSW Xmas Bush	Low	Within proposed building/basement footprint
37	***Camellia japonica*** Camellia	Low	
39	***Dead tree*** -	Priority for Removal	Dead tree. No habitat observed. Proposed sewer line in proximity.

5.3 Trees Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that twenty-four (24) trees (**Trees 1, 3-10, 12-15, 21-25, 31-33, 38, 40** & **41**) be retained and protected given the proposed works are unlikely to result in any significant negative impacts to their long-term health and viability subject to Project Arborist supervision and root-sensitive construction measures as detailed within ***Section 7***.

Refer to ***Appendix 2*** for a plan indicating the location of trees that are to be retained and protected (shaded green).

Table 4 *– Trees recommended for retention & protection*

Tree No.	Genus & Species	Retention Value	Works within the Notional Root Zone (NRZ)
1	***Callistemon viminalis*** Weeping Bottlebrush	Low	Minor <1% NRZ encroachment from proposed pathway. Unlikely to be significantly impacted subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
3	***Callistemon viminalis*** Weeping Bottlebrush	Medium	Moderate 10% NRZ encroachment from proposed retaining walls, stormwater infrastructure and pathway. Unlikely to be significantly impacted due to species resilience to disturbance subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
4	***Corymbia maculata*** Spotted Gum	Medium	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
5	***Jacaranda mimosifolia*** Jacaranda	Medium	Minor 8% NRZ encroachment from proposed retaining walls, stormwater infrastructure, building/basement footprint and pathway. Unlikely to be significantly impacted subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
6	***Callistemon viminalis*** Weeping Bottlebrush	Low	Minor <1% NRZ encroachment from proposed retaining wall. Unlikely to be significantly impacted subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
7	***Callistemon viminalis*** Weeping Bottlebrush	Medium	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
8	***Callistemon viminalis*** Weeping Bottlebrush	Low	

Tree No.	Genus & Species	Retention Value	Works within the Notional Root Zone (NRZ)
9	***Callistemon viminalis*** Weeping Bottlebrush	Medium	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
10	***Persea americana*** Avocado	Low	
12	***Fraxinus griffithii*** Evergreen Ash	Low	
13	***Syzygium sp.*** Lilly Pilly	Medium	
14	***Araucaria heterophylla*** Norfolk Island Pine	High	Major 34% NRZ encroachment from proposed building/basement footprint, retaining walls, stormwater infrastructure and pathways. Impacts from building/basement footprint, retaining walls and stormwater infrastructure results in 10% NRZ encroachment, while impacts from pathways results in 24% NRZ encroachment. In this regard, impacts are capable of being mitigated via root sensitive design and construction of pathways. Pathways must be constructed utilising lightweight, raised, low profile boardwalk or grate structure (FRP). The structure is to be constructed above the existing ground levels with minimal excavation for isolated supports/piers to mitigate potential impacts within the root zone. Refer to *3.11 Landscape Ground Floor Section B-B* for representation of above grade pathway to be utilised (Refer to ***Figure 3*** below). Provided the proposed pathways within the NRZ of Tree 14 are to be constructed in accordance with the above, this tree is unlikely to be significantly impacted subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
15	***Waterhousea floribunda*** Weeping Lilly Pilly	Low	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
21	***Brachychiton acerifolius*** Illawarra Flame Tree	Low	
22	***Brachychiton acerifolius*** Illawarra Flame Tree	Low	
23	***Castanospermum australe*** Moreton Bay Chestnut	High	
24	***Castanospermum australe*** Moreton Bay Chestnut	High	Moderate 10% NRZ encroachment from proposed pathway. Unlikely to be significantly impacted subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
25	***Celtis sinensis*** Chinese Hackberry	Low	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
31	***Jacaranda mimosifolia*** Jacaranda	Medium	

Tree No.	Genus & Species	Retention Value	Works within the Notional Root Zone (NRZ)
32	***Eucalyptus grandis*** Flooded Gum	High	Minor 5% NRZ encroachment from proposed sewer line. Unlikely to be significantly impacted subject to implementation of general tree protection measures and Project Arborist supervision as detailed within ***Section*** below.
33	***Dypsis lutescens*** Golden Cane Palm	Low	No works proposed within NRZ. Negligible impacts anticipated subject to implementation of tree protection measures and Project Arborist supervision as detailed within ***Section 7*** below.
38	***Casuarina cunninghamiana*** River Sheoak	Medium	
40	***Glochidion ferdinandi*** Cheese Tree	Medium	
41	***Casuarina cunninghamiana*** River Sheoak	Low	

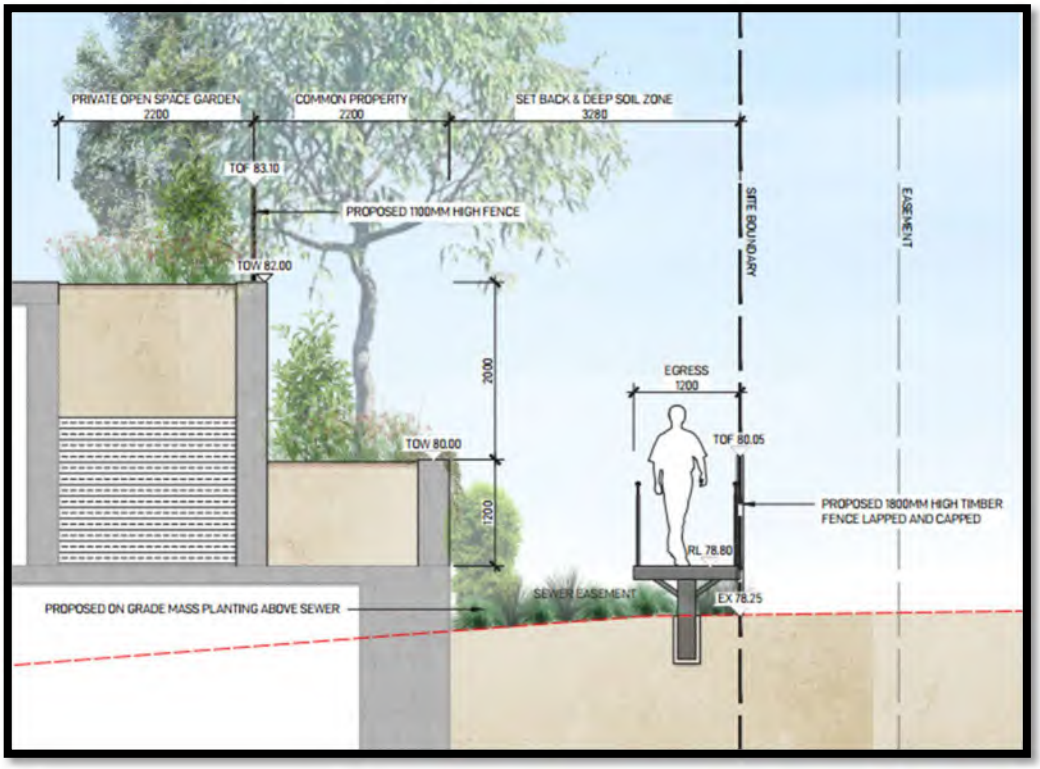

Figure 2 *– Landscape Ground Floor Section B-B showing representation of above grade pathway to be utilised within NRZ of Tree 14.*
Source: Ground Ink – 15/10/2025

5.4 Ancillary Construction Related Impacts

Vehicles, machinery and equipment requiring access to the site have potential to result in inadvertent impacts to those trees being retained including compaction of the root zone, soil disturbance, physical damage to roots, trunk damage etc. and as such will require management.

Furthermore, storage and stockpiling of material may result in similar impacts and will require management. In this regard, protection for those trees to be retained is to be carried out in accordance with ***Appendix 5***.

6 CONCLUSION

6.1 Proposed Development Impact

Based on the plans and information supplied, the proposal would result in the following impacts to existing trees on site:

Removal of seventeen (17) trees, including:

- One (1) Council street tree (**Tree 2**) due to falling directly within proposed driveway crossover;
- Thirteen (13) site trees (**Trees 11, 17, 18, 19, 20, 26, 27, 29, 30**, **34, 35, 36** & **37**) due to falling within the footprint of the proposed substation, building/basement or pathway footprints;
- One (1) site tree (**Tree 16**) due to 'major' and unsustainable TPZ (75%) and SRZ (38%) encroachment from the proposed building/basement footprint, retaining walls and stormwater infrastructure;
- One (1) site tree (**Tree 28**) subject to 'minor' TPZ (8%) encroachment from the proposed pathway to facilitate future landscape scheme;
- One (1) site tree (**Tree 39**) due to being dead with no habitat for native fauna observed.

Retention and protection of twenty-four (24) trees, including:

- One (1) site tree (**Tree 14**) subject to 'major' encroachment to its NRZ (34%) and as a result of the proposed building/basement footprint, retaining walls, stormwater infrastructure and pathways. As outlined within ***Sections 5*** & ***7***, root sensitive design and construction of the pathways within its NRZ is required to mitigate impacts to this tree to a sustainable level;
- One Council street tree (**Tree 3**) and one (1) site tree (**Tree 24**) subject to 'moderate' encroachment to their NRZs (10%) as a result of the proposed retaining walls, stormwater infrastructure or pathways. Impacts being considered tolerable due to good/average health/vitality of specimens as well as areas equivalent to the encroachment that are available incorporated into their Tree Protection Zones**.**
- Two (2) Council street trees (**Trees 1** & **6**), one (1) site tree (T**ree 5**) and one (1) neighbouring tree (**Tree 32**) which are to be subjected to 'minor' and sustainable encroachment to their respective Notional Root Zones considering areas equivalent to the encroachment can be incorporated into their Tree Protection Zones;
- Four (4) Council street trees (**Trees 4, 7, 8** & **9**), two (2) neighbouring trees (**Trees 40** & **41**) and eleven (11) site trees (**Trees 10, 12, 13, 15, 21, 22, 23, 25, 31, 33** & **38**) which are generally located away from the proposed construction works and are to have nil encroachment to their respective Notional Root Zones;

Specific recommendations as per ***Section 7*** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate the potential negative impacts to trees nominated for retention.

7 RECOMMENDATIONS & MITIGATION MEASURES

7.1 Tree Removal

Remove **Trees 2, 11, 16-20, 26-30, 34-37** & **39** (17 trees) to facilitate the proposed development works.

Development consent must be obtained prior to the removal or pruning of any tree protected under Part B, Section 3.1 – *Tree & Vegetation Management* of the North Sydney DCP 2025.

All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with *AS4373-2007 - Pruning of Amenity Trees*, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation.

7.2 Tree Retention & Protection

Retain and protect **Trees 1, 3-10, 12-15, 21-25, 31-33, 38, 40** & **41** (24 trees) in accordance with the Tree Location Plan & Tree Protection Specifications held at ***Appendix 2*** & ***5***, *AS497-2009 Protection of trees on development sites* and the specific recommendations below:

7.2.1 Tree Protection and Management Plan

Following design development and prior to any construction works taking place on site, a dedicated Tree Protection and Management Plan is to be prepared by a suitably qualified AQF Level 5 Arborist. The purpose of this document is to provide a suitable framework for tree protection to ensure all trees nominated for retention are not adversely impacted by the proposed works.

7.2.2 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites should be engaged prior to the commencement of any works on site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained trees during the works. The Project Arborist is to supervise and monitor any excavation, machine trenching or compacted fill placement within the TPZ of retained trees throughout construction.

7.2.3 Root-Sensitive Construction of Pathways

The pathways within the NRZ of **Tree 14** must be constructed utilising lightweight, raised, low profile boardwalk or grate structure (FRP). The structure is to be constructed entirely above the existing ground levels with minimal excavation for isolated supports/piers to mitigate potential impacts within the root zone. The final design, levels and construction methodology of the are to be reviewed and approved by the Project Arborist prior to construction.

Works associated with the footings/piers of the elevated pathways and decking within the NRZ of **Tree 14** must be undertaken under the supervision of the Project Arborist. Initial test exploratory excavation must be undertaken for footing/pier locations to a depth of 600mm to ensure no conflict with existing significant tree roots. Exploratory test excavation is to be carried out by hand using non-motorised hand tools or pneumatic excavation methods (or similar approved device) to protect tree roots. Should test excavation reveal conflict between the proposed footing/piers locations and existing significant tree roots, footings/piers are to be re-positioned as directed by the Project Arborist to avoid any conflict.

8 REFERENCES

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Tree No.	*Genus & species*	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
1	***Callistemon viminalis***	Weeping Bottlebrush	10	11	400, 250	800	5.66	3.01	OM	Fair	Fair	Short 5-15 years	Low	Low	Minor <1% NRZ encroachment from proposed pathway	Retain	Street tree. Basal swelling and decay. Branch failures
2	***Callistemon viminalis***	Weeping Bottlebrush	10	14	400, 400, 400	900	8.31	3.17	OM	Average	Fair	Medium 15-40 years	Medium	Medium	Within footprint of proposed driveway crossover	Remove	Street tree. Branch failures and dieback
3	***Callistemon viminalis***	Weeping Bottlebrush	10	11	500	550	7.68	2.57	M	Average	Average	Medium 15-40 years	Medium	Medium	Moderate 10% NRZ encroachment from proposed retaining walls, stormwater infrastructure and pathway	Retain	Street tree.
4	***Corymbia maculata***	Spotted Gum	14	12	450	500	5.40	2.47	M	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Street tree. Base distended. Branch failure
5	***Jacaranda mimosifolia***	Jacaranda	11	15	450, 400	500	7.22	2.47	M	Good	Good	Medium 15-40 years	Medium	Medium	Minor 8% NRZ encroachment from proposed retaining walls, stormwater infrastructure and building/basement footprint	Retain	Pruned - dwelling clearance
6	***Callistemon viminalis***	Weeping Bottlebrush	6	5	200, 150	250	3.00	1.85	SM	Fair	Average	Medium 15-40 years	Low	Low	Minor <1% NRZ encroachment from proposed retaining wall	Retain	Street tree. Sparse canopy.
7	***Callistemon viminalis***	Weeping Bottlebrush	8	6	300	350	3.60	2.13	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Street tree. Under powerlines
8	***Callistemon viminalis***	Weeping Bottlebrush	7	5	200, 150	300	3.00	2.00	SM	Fair	Average	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Street tree. Under powerlines. Sparse canopy
9	***Callistemon viminalis***	Weeping Bottlebrush	9	6	250, 200	400	3.84	2.25	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Street tree. Under powerlines
10	***Persea americana***	Avocado	6	4	200	250	2.40	1.85	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Foliage predation
11	***Acer palmatum***	Japanese Maple	7	8	200, 200, 150, 100	400	4.02	2.25	OM	Fair	Fair	Short 5-15 years	Low	Low	Within proposed substation footprint	Remove	Branch decay, hollows, failures. Sparse canopy
12	***Fraxinus griffithii***	Evergreen Ash	8	6	150	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
13	***Syzygium sp.***	Lilly Pilly	10	6	250	300	3.00	2.00	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
14	***Araucaria heterophylla***	Norfolk Island Pine	20	13	700	800	8.40	3.01	M	Average	Average	Long 40 years +	Medium	High	Major 34% NRZ encroachment from proposed building/basement footprint, retaining walls, stormwater infrastructure and pathways	Retain	Nil
15	***Waterhousea floribunda***	Weeping Lilly Pilly	13	8	300	300	3.60	2.00	M	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Excessive pruning western canopy for boundary clearance. Splits and cracks around main included union. Exposed structural root zone
16	***Camellia sasanqua***	Camellia	9	9	350, 300	450	5.53	2.37	OM	Fair	Fair	Short 5-15 years	Low	Low	Major 73% NRZ + 38% SRZ encroachment from proposed building/basement footprint, retaining walls and stormwater infrastructure	Remove	Canopy bias to north west
17	***Gordonia axillaris***	Fried Egg Plant	6	4	200	300	2.40	2.00	OM	Average	Fair	Short 5-15 years	Medium	Low	Within proposed building/basement footprint	Remove	Branch failures, decay. Fauna habitat in crown
18	***Lagerstroemia indica***	Crepe Myrtle	8	4	250, 200, 150	350	4.24	2.13	M	Average	Average	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Topped
19	***Lagerstroemia indica***	Crepe Myrtle	4	3	150	150	2.55	1.50	M	Average	Average	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Topped
20	***Radermachera sinica***	China Doll	13	13	800	800	9.60	3.01	M	Good	Fair	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Exempt from protection under North Sydney DCP due to species. DGL used for DBH
21	***Brachychiton acerifolius***	Illawarra Flame Tree	15	6	300	300	3.60	2.00	M	Average	Poor	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Major lean and kink lower trunk. Pruned for boundary clearance

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
22	*Brachychiton acerifolius*	Illawarra Flame Tree	15	6	300	300	3.60	2.00	M	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Pruned for boundary clearance
23	*Castanospermum australe*	Moreton Bay Chestnut	15	10	450	500	5.40	2.47	M	Good	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
24	*Castanospermum australe*	Moreton Bay Chestnut	14	10	350	400	4.20	2.25	M	Good	Average	Long 40 years +	Medium	High	Moderate 10% NRZ encroachment from proposed pathway	Retain	Nil
25	*Celtis sinensis*	Chinese Hackberry	14	9	250	300	3.00	2.00	M	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Over extended branches
26	*Camellia sasanqua*	Camellia	9	7	250	300	3.00	2.00	OM	Average	Fair	Short 5-15 years	Low	Low	Within footprint of proposed pathway	Remove	Nil
27	*Magnolia sp.*	Magnolia	8	7	300, 200, 200	500	4.95	2.47	M	Fair	Average	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Tips of foliage necrotic
28	*Dypsis lutescens*	Golden Cane Palm	8	2	50	100	2.00	N/A	M	Average	Average	Medium 15-40 years	Low	Low	Minor 8% NRZ encroachment from proposed pathway	Remove	10x palms in clump
29	*Archontophoenix cunninghamiana*	Bangalow Palm	7	3	150	200	2.50	N/A	SM	Average	Average	Medium 15-40 years	Low	Low	Within footprint of proposed pathway	Remove	Nil
30	*Alnus jorullensis*	Evergreen Alder	16	15	500	550	6.00	2.57	OM	Average	Fair	Short 5-15 years	Low	Low	Within footprint of proposed pathway	Remove	Branch failures, decay
31	*Jacaranda mimosifolia*	Jacaranda	16	16	500	500	6.00	2.47	M	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Canopy bias to north west
32	*Eucalyptus grandis*	Flooded Gum	20	18	800	850	9.60	3.09	M	Average	Average	Long 40 years +	Medium	High	Minor 5% NRZ encroachment from proposed sewer line	Retain	Typical branch failures and deadwood
33	*Dypsis lutescens*	Golden Cane Palm	5	2	50	100	2.00	N/A	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	10x palms in clump
34	*Plumeria sp.*	Frangipani	7	5	200, 150	250	3.00	1.85	M	Average	Average	Medium 15-40 years	Low	Low	Within footprint of proposed pathway	Remove	Nil
35	*Jacaranda mimosifolia*	Jacaranda	16	11	450	500	5.40	2.47	M	Average	Fair	Medium 15-40 years	Medium	Medium	Within footprint of proposed pathway	Remove	Nil
36	*Ceratopetalum gummiferum*	NSW Xmas Bush	8	5	250	300	3.00	2.00	M	Average	Average	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Minor branch dieback and Epicormic growth
37	*Camellia japonica*	Camellia	6	3	100, 100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	Within proposed building/basement footprint	Remove	Shrub habit
38	*Casuarina cunninghamiana*	River Sheoak	18	10	350	400	4.20	2.25	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Sparse canopy. Suppressed from adjoining Eucalyptus
39	*Dead tree*	-	18	10	400	450						Dead	Low	Priority for Removal	Proposed sewer line in proximity	Remove	Dead tree. No habitat observed
40	*Glochidion ferdinandi*	Cheese Tree	11	13	400	500	4.80	2.47	M	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Lean and canopy bias to south
41	*Casuarina cunninghamiana*	River Sheoak	8	10	200, 200	400	3.39	2.25	SM	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Branch dieback. Sparse canopy

Tree Inspection Data Notes & Terminology

Tree No. (Tree Number)
The tree number associated to each tree located on or adjacent to the subject site.

Botanical Name and Common Name
The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. is recorded to indicate this.

Height, Crown Width and DSH
- The trees height and crown spread is recorded in metres (m);
- The tree DSH is recorded in millimetres (mm). DSH is an abbreviation of Diameter (of the trunk) measured at Standard Height (or 1.4m from the base of the trunk). If more than one trunk is present the DSH is calculated in accordance with AS4970-2025 Protection of Trees on Development Sites

Age Class
The age class of each tree is estimated as either:
J – Juvenile refers to a well established but young tree
SM – Semi Mature, a tree that has not grown to mature size
M – Mature, a tree that has reached mature size and will slowly increase in size over time
OM – Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches
S – Senescent, an over mature tree that is now in decline

Health & Condition
The trees health and vigour is recorded as a measurement of:
Good - the tree does not appear to appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots
Average - the tree appears stressed and has some crown dieback, and /or a few epicormic shoots, and/or some deadwood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health
Fair - the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve trees health
Poor - the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long period of time, remediation of the growing environment would not return the tree to good health.

SRZ (Structural Root Zone)
The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the trees structural integrity. The SRZ is calculated as follows (This calculation is taken from the Australian Standard 4970 – 2025 Protection of Trees on Development Sites): (D x 50)0.42 x 0.64

NRZ (Notional Root Zone)
The NRZ is a radial area measured by multiplying the DSH by twelve (12) or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The NRZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2025 Protection of Trees in Development Sites. NRZ encroachment is potentially acceptable if no other option is available and is classified under AS4970-2025 as 'Minor' (≤10%), 'Moderate' (>10≤20%) or 'Major' (>20%). A major encroachment (in excess of 20%) is required to be clearly justified by the Project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or individual tree's health, vigour and ability to withstand disturbance and may require root investigation.

Landscape Significance
The landscape significance of a tree or group of trees is determined using a combination of health/vigour/condition, amenity, heritage and ecological values in accordance with IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©.
1. High Significance in Landscape
2. Medium Significance in Landscape
3. Low Significance in Landscape

Retention Value (RV)
Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.
High Retention - 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 the Australian Standard 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.
Medium Retention - 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.
Low Retention - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

U.L.E. Categories
Useful Life Expectancy (after *Barrell* 1996, modified by the author). A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition and location. U.L.E. assessments may be modified as dictated by changes in trees health and environment.
Long - Appear retainable at the time of assessment for over 40 years assuming reasonable maintenance.
Medium - Appear to be retainable at the time of assessment for 15 to 40 years assuming reasonable maintenance.
Short - Trees appear to be retainable at the time of assessment for 5 to15 years assuming reasonable maintenance.
Very Short - Removal - Trees which should be scheduled for removal within the very short term or as specified within this report.
Small, Young or Regularly Pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

Development Impact
Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

Retain/Remove
The proposed removal or retention recommendation in light of the proposed development related impacts.

NOTES: This report acknowledges the current Australian Standard 'Protection of Trees on Development Sites' AS 4970 – 2025 with reference to the Notional Root Zone (NRZ): being a combination of the root and crown area requiring protection. The NRZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. The standard states where a greater than 20% encroachment occur,s the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.2.
Encroachments are referred to within this report as major or minor encroachments (AS4970 s. 3.3.2 & 3.3.3). To retain specific trees and ensure their viability, development must take into consideration protection of the NRZ radius.

APPENDIX 2 - TREE LOCATION PLAN

NOTE: TO BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT

NICHOLSON STREET

STREET

OXLEY

EXISTING MASONRY WALL TO BE RETAINED AND RAISED - REFER TO STRUCTURAL DRAWING IN DETAILED DESIGN STAGE

PATHWAYS TO BE CONSTRUCTED UTILISING FRP OR SIMILAR, AT/ABOVE EXISTING LEVELS WITH MINIMAL EXCAVATION FOR SUPPORT/PIERS UNDER PROJECT ARBORIST SUPERVISION

PROPOSED DEVELOPMENT
(REFER TO ARCHITECTURAL PLANS)

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19 T20 T21 T22 T23 T24 T25 T26 T27 T28 T29 T30 T31 T32 T33 T34 T35 T36 T37 T38 T39 T40 T41

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TEL: + (61) 2 8039 7461
INFO@CPSPLANNING.COM.AU
CPSPLANNING.COM.AU

DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

LEGEND

- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- NRZ INCURSION ZONE
- TREE PROTECTION FENCING (AS PER APPENDIX 6)
- TRUNK PROTECTION (AS PER APPENDIX 6)

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	JHG	GT	23.10.25

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

PROPOSED DEVELOPMENT

8-24 NICHOLSON STREET, WOLLSTONECRAFT

DRAWING TITLE

TREE LOCATION PLAN

CLIENT

TRADERS IN PURPLE

Drawn : JHG
Designed : GT
Project No. : H349
Bar Scale

1:250 @ A3

SHEET NUMBER H349_TLP_01

REVISION A

APPENDIX 3

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

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.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. 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. An example of its use in an Arboricultural report is shown as Appendix A.

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 *in situ* - 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 form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local 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 or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of 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 *in situ* - 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.

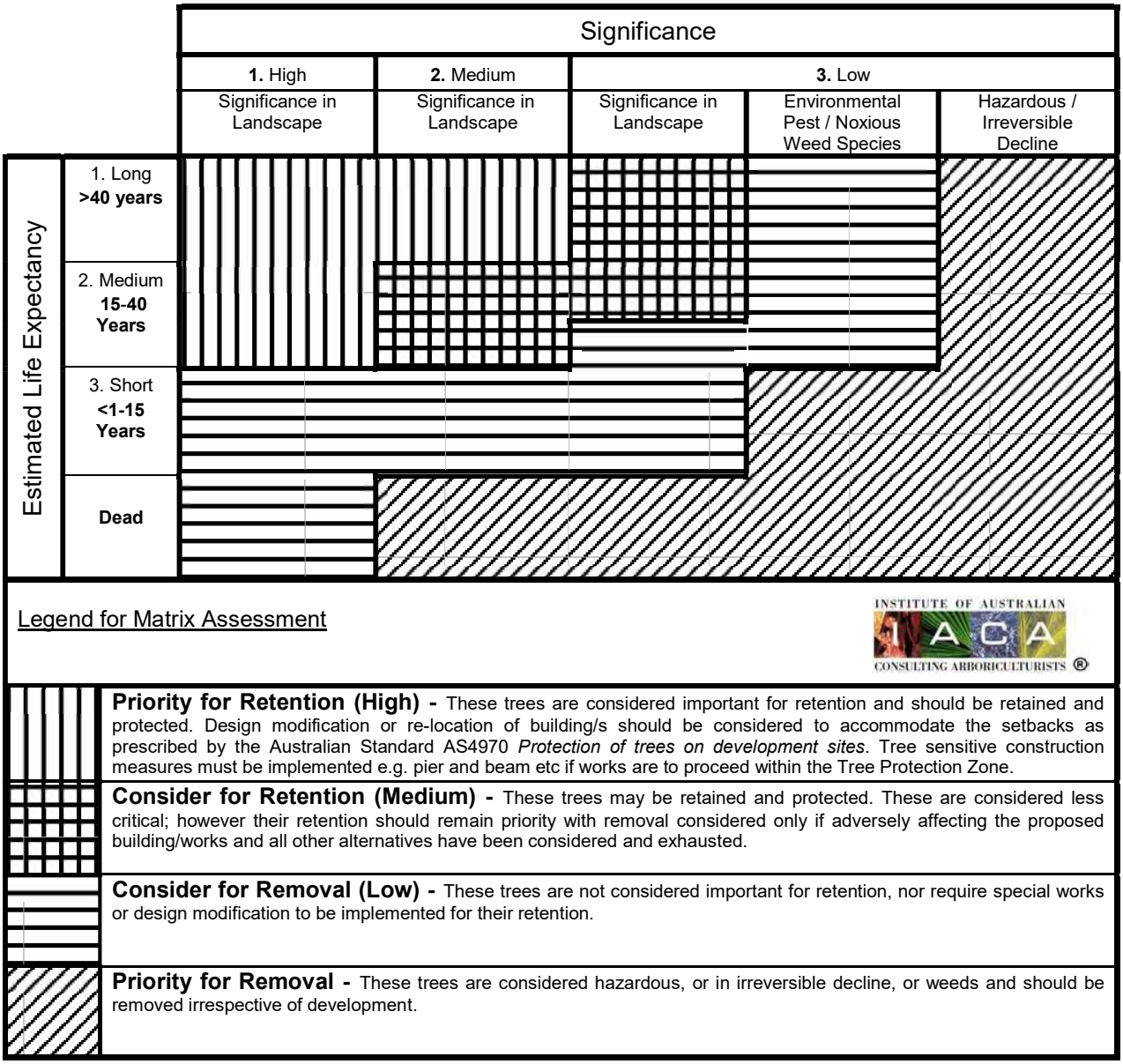
Hazardous/Irreversible Decline

- 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.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

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

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good from and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.

APPENDIX 4 - EXTRACT FROM AS4970-2025: PROTECTION OF TREES ON DEVELOPMENT SITES

Section 3 Determining protection zones

3.1 Tree Protection Zone (TPZ)

Establishing and maintaining a TPZ is the most important part of protecting trees during the onsite stages of work (e.g. site establishment, demolition, construction). The TPZ is the zone determined by the project arborist using the process set out below. It shall be shown on the TPP to be isolated or managed so that the tree remains viable.

The NRZ is the starting point for determining the TPZ, along with the considerations in Clause 3.3.2. Alternatively, the TPZ may be specified by the consent authority.

3.2 Calculating the Notional Root Zone (NRZ)

The radius of the NRZ is calculated for each tree by multiplying its diameter at standard height (DSH) by 12.

Radius of the NRZ = DSH × 12

where

DSH = trunk diameter measured at 1.4 m above ground

The radius of the NRZ is measured from the centre of the stem.

The NRZ for palms, cycads, tree ferns and the like, is not calculated but shall not be less than 2 m.

Any NRZ radius shall not be less than 2 m nor greater than 15 m. Clause 3.3 details the methods to produce the TPZ based on the NRZ.

3.4 Structural Root Zone (SRZ)

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

The SRZ shall be calculated when major encroachment (greater than 20 %) into an NRZ is proposed. SRZ locations and dimensions may be included on arboriculture documentation.

Many factors affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). Natural or built structures, such as rocks and footings, can also influence the SRZ. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 2. Root investigation can provide more information on the extent of these roots.

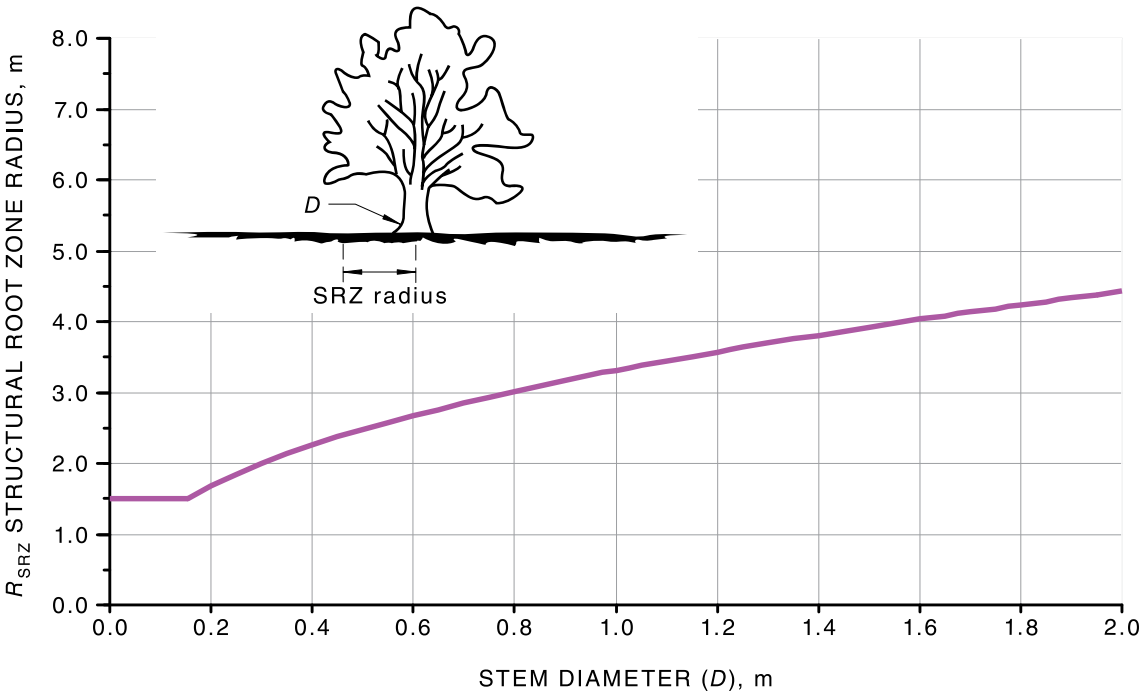
$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

D = trunk diameter, in m, measured above the root buttress flare.

Where the tree is multi-stemmed, the project arborist should determine if they will measure around all stems or work out the cross-sectional area, as noted in Figure A.1, and provide their reasons for the method selected. The SRZ calculation does not apply to palms, cycads, tree ferns and the like.

NOTE The SRZ for trees with trunk diameters less than 0.15 m is 1.5 m, as shown in Figure 2.



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

Figure 2 — Structural Root Zone (SRZ) calculation

APPENDIX 5 – GENERAL TREE PROTECTION SPECIFICATION

1.0 Project Arborist

A Project Arborist with AQF Level 5 qualifications may be appointed prior to works commencing to ensure trees to be retained are appropriately monitored and protected throughout the proposed works. The Project Arborist shall review all tree protection measures, ensure compliance with requirements set out by the Principal Certifying Authority and provide compliance reports as per the schedule of works and responsibilities below.

Table 5 - *Schedule of Works and Responsibilities*

HOLD POINT	TASK	RESPONSIBILITY	CERTIFICATION	TIMING OF INSPECTION
1	Review & certification of all tree protection measures	Principal Contractor	Project Arborist (AQF5)	Prior to demolition or site establishment
2	Supervise all excavation works proposed within the TPZ	Principal Contractor	Project Arborist (AQF5)	As required prior to works proceeding within TPZ
3	Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Quarterly during construction
4	Final Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Following removal of tree protection measures prior to Occupation Certificate

2.0 Compliance

Compliance Documentation shall be prepared by the Project Arborist following each site inspection. The Compliance Documentation shall include documentary evidence of compliance with the tree protection measures and methods as outlined within this Specification. Upon the completion of the works, a final assessment of the trees shall be undertaken by the Project Arborist and future management strategies recommended.

3.0 Tree Removal

The trees to be removed shall be removed prior to the establishment of the tree protection measures. Tree removal works shall be undertaken in accordance with the *Workcover Code of Practice for the Amenity Tree Industry (1998)*. All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with AS4373-2007 - Pruning of Amenity Trees, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation. Care should be taken to avoid damaging trees to be retained.

4.0 Tree Protection Zone

The Tree Protection Zone (TPZ) is a specified area above and below ground set aside for the protection of a tree. The TPZ should be protected to ensure development activities do not have an adverse effect on the viability and stability of trees to be retained. Activities restricted within the TPZ include:

- Soil cutting or filling, including excavation and trenching
- Soil compaction and modification
- Storage of materials and waste
- Parking of vehicles and plant
- Temporary or permanent installation of sheds, utilities and signs
- Cement or chemical preparation
- Refuelling
- Any other action leading to damage of the tree

5.0 Tree Protection Fencing

TPZ fencing shall be located at the perimeter of the TPZ. Where TPZ areas overlap, TPZ fencing may be combined to form a single larger TPZ area. The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works.

Fencing may be setback to allow for demolition/construction access only where appropriate ground protection is installed and approved by the Project Arborist.

Tree Protection Fencing shall consist of galvanised steel temporary fencing panels supported by concrete feet with panels coupled together. Care should be taken to avoid damaging the tree during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (***Appendix** 6*).

6.0 Scaffolding

Scaffolding shall be erected outside of the TPZ. If scaffolding is deemed essential within the TPZ, the ground shall be protected, and branch removal minimised. Ground below scaffolding shall be protected by boarding placed over a layer of mulch to prevent soil compaction. Scaffolding shall be designed to avoid branches or branches tied back. Refer to Typical Tree Protection Details (***Appendix** 6*).

7.0 Ground Protection

Where deemed necessary by the Project Arborist, temporary ground protection, such as ground mats or steel road plates placed over a mulch layer with geotextile fabric underneath, shall be utilised to prevent damage to tree roots during construction. Refer to Typical Tree Protection Details (***Appendix** 6*).

8.0 Trunk Protection

Trunk protection shall be installed by wrapping padding around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (***Appendix** 6*).

9.0 Works within the Tree Protection Zones

The Principal Certifying Authority may approve works within Tree Protection Zones. The Project Arborist shall ensure compliance with the prescribed requirements as set out by the Principal Certifying Authority to ensure trees nominated for retention are adequately retained and protected throughout the works.

10.0 Structure & Pavement Demolition

Demolition of existing structures/pavement within the TPZ shall be supervised by the Project Arborist. Machinery is to be excluded from the TPZ unless operating from the existing slabs, pavements or areas of ground protection.

Pavement is to be shattered with a hand-operated pneumatic/electric breaker prior to removal taking place and carefully lifted to minimise damage to the underlying soil profile and tree roots. The underlying soil profile and existing sub-base materials shall remain in-situ.

When removing slab sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un- demolished sections of slab at all times. Machinery should not contact the tree's roots, trunk, branches and crown.

Exposed roots shall be irrigated by hand and covered with a 75-100mm layer of mulch as soon as possible after being exposed. The mulch must remain in place until new surfaces are put into place.

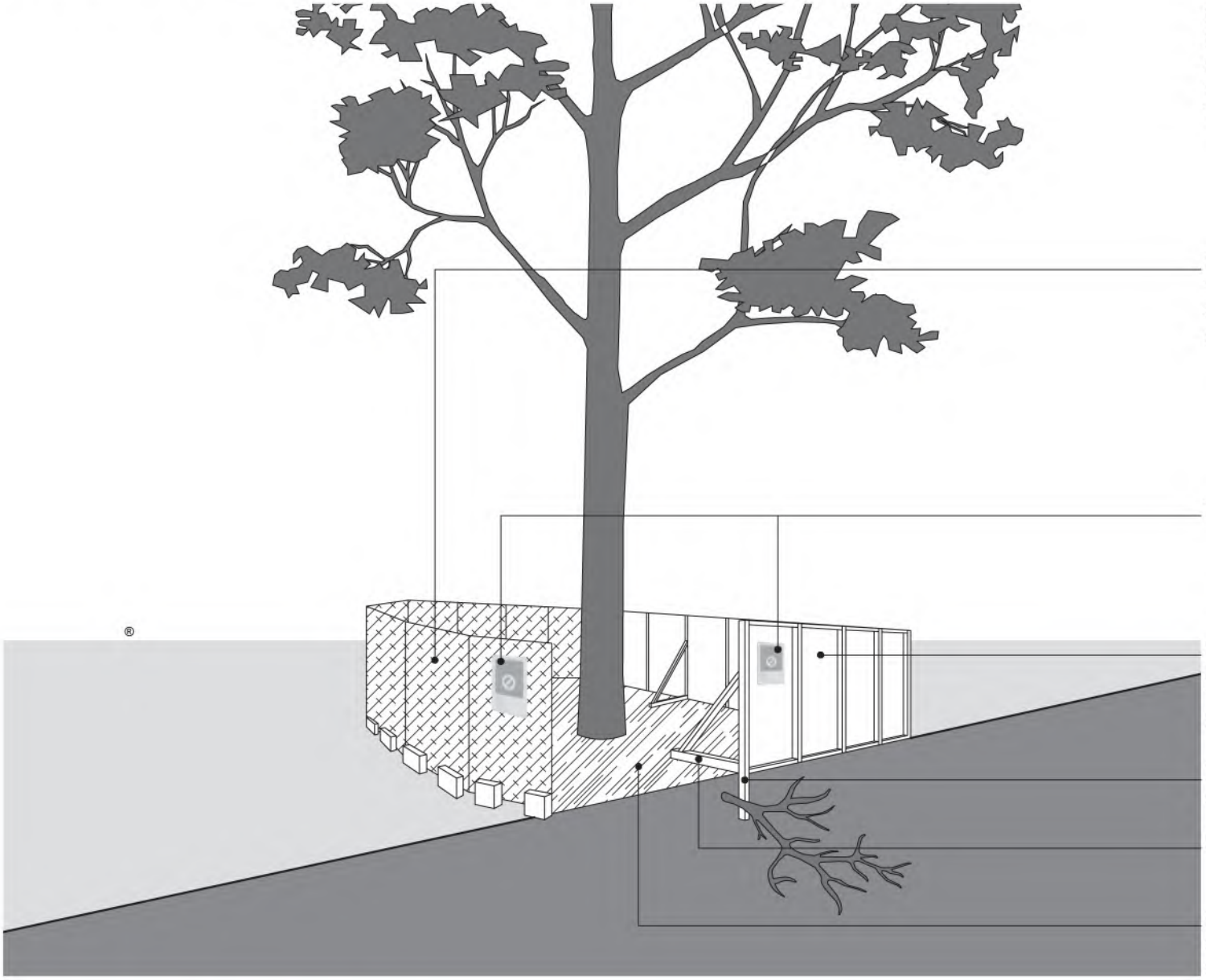
11.0 Underground Services

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using in a root-sensitive manner utilising manual hand excavation methods or employ a pneumatic excavation device to ensure roots are maintained and undamaged under supervision of the Project Arborist. Services are to be threaded in between and/or under to preserve existing roots.

13.0 Excavations, Root Protection & Root Pruning

Excavation required within the TPZ shall be undertaken using non-motorised hand tools or a pneumatic excavation device under supervision of the Project Arborist. Excavation must be undertaken in a root sensitive manner to ensure roots are maintained and un-damaged. Should significant roots be identified (>25mmØ) during construction, works are to cease and direction sought from the Project Arborist with regards to root pruning, modification of construction methodology or design alteration.

APPENDIX 6 - TYPICAL TREE PROTECTION DETAILS



Note:
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

Option 1 - Fencing
1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

01 Tree Protection Fencing

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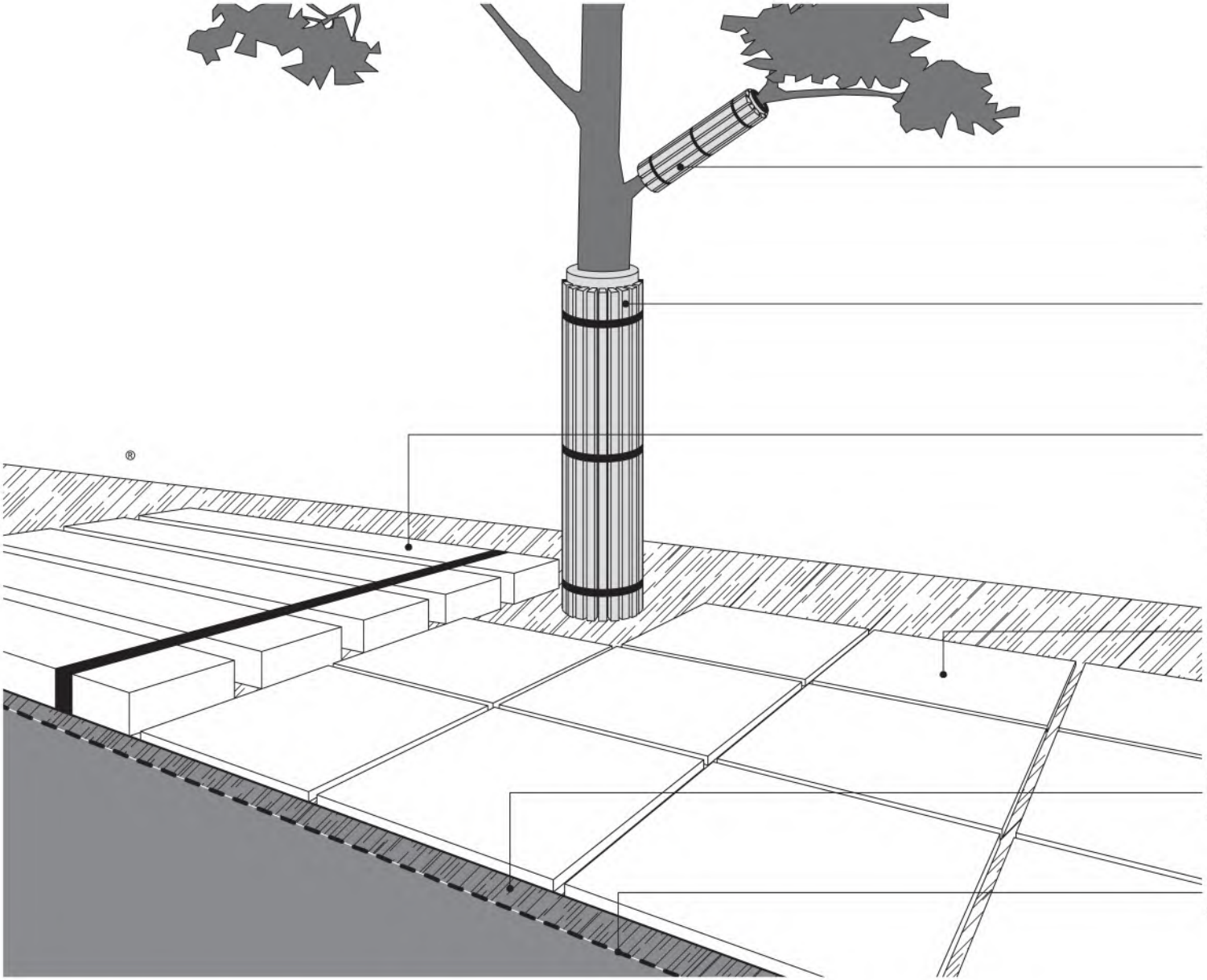

Branch Protection - use boards and padding to prevent damage to bark on branch. Boards are to be strapped, not screwed or nailed to the branch.

Trunk Protection - use boards and padding to prevent damage to bark (minimum 2m). Boards are to be strapped, not screwed or nailed to the trunk.

Ground Protection - use device strapped over mulch or aggregate layer. Ground protection device should be of a suitable thickness to prevent soil compaction and root damage.

Steel plates (or approved equivalent) with or without mulch or aggregate layer below.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer.

Geotextile fabric underneath mulch or aggregate layer.

02 Examples of Branch, Trunk and Ground Protection

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Branches may require pruning to erect scaffolding. Pruning may be subject to local regulations. Flexible branches should be tied back in preference to pruning.

Minimum 1.8m high hoarding. Temporary fencing may be incorporated into scaffolding as either containment screening or as hoarding.

Note:
If excavation is required for installation of support post for fencing, the Project Arborist should assess any pruning of roots greater than 20mm diameter.

Scaffold planks

Boards or plywood to be installed over mulch or aggregate layer for any areas requiring access within the TPZ.

Soleplate over geotextile. No excavation for soleplate within TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer within TPZ.

Geotextile fabric

03 Indicative Scaffolding within a Tree Protection Zone (TPZ)

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