

## Arboricultural Assessment and Report

59 – 101 Alfred Street & 103-117 Boundary Road, North Melbourne.

9 September 2025  
Tree Logic Ref. 013897

### ADVERTISED PLAN

Prepared for Metrics Real Estate Partners c/o Callum Reagan - Tango.

Prepared by David Phillips – Consulting Arborist  
Tree Logic Pty. Ltd.

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## Introduction

### Reason for Assessment

Treelogic Pty. Ltd. was engaged by Tango on behalf of Metrics Real Estate Partners to undertake a tree assessment and prepare an Arboricultural Impact Assessment (AIA) report for the proposed redevelopment located at 59 – 101 Alfred Street and 103-117 Boundary Road in North Melbourne.

The requirements of the arboricultural report include.

To provide information on the species, origin, dimensions, health and structure of the trees and their appropriateness for retention (arboricultural value).

Determine the Tree Protection Zones (TPZ) and Structural root zones (SRZ) for trees compliant with AS4970 'Protection of trees on development sites'.

Review the statutory requirement/s relating to tree preservation.

- Review the current design proposal and determine the impacts to the tree population.
- To offer recommendations regarding the management of retained trees including design or construction considerations and tree protection measures to maintain the ongoing viability of the assessed trees.

### Overview

Five (5) individual trees and three (3) tree groups comprising 10 stems in total were assessed as part of the proposed redevelopment of 59 – 101 Alfred Street and 103 - 117 Boundary Road, North Melbourne.

Trees located within the subject site are not subject to any planning overlays if they are removed, lopped or destroyed. No locally native (indigenous) trees are present on the site that conform to Clause 52.17 that applies to the site.

The arboricultural impact assessment found that Tree 1 and Tree groups 1 and 3 are not considered for retention. These trees are not subject to tree controls. City of Melbourne Asset ID 1290260, 1290246, 1290258 and 1290270 would be unsustainable as they will incur significant root and canopy loss. The new plantings that offset the removal of trees across the site would contribute to environmental outcomes and canopy cover pursued by the City of Melbourne within their Urban Forest Strategy. Tree group 2 can be retained with no modification to the design.

## Method

A site inspection was carried out on Wednesday 5th February 2025 under warm conditions. The trees were inspected from the ground and observations were made of the growing environment and surrounding area. The trees were not climbed, and no samples of the trees or soil were taken for further analysis.

Only trees were assessed and data collected. A tree is generally a plant with a height greater than 5 metres on a single trunk with a single trunk (stem) diameter (DBH) being greater than 150 mm at a height of 1.4 metres above ground level.

Observations were made of the assessed trees to determine the species, age category, and condition with measurements taken to establish tree crown height (measured with a height meter) and crown width (paced) and trunk dimensions (measured 1.4 metres above ground level with a diameter tape unless otherwise stated). Descriptors used in the assessment can be seen in Appendix 4.

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Trees located within neighbouring properties were assessed from within the subject site. Observations were generally limited to one side only and measurements were estimated where access was unavailable.

Homogeneous trees with similar management requirements were assessed and included within the report as tree groups. All measurements were estimated, and average stem and basal diameters, height and widths were applied across the tree group/s.

Each tree feature was captured using a field tablet within inbuilt GPS capabilities utilising the geo-coordinate system GDA 2020 Zone 55 and recent aerial imagery.

Aerial imagery seen in Appendix 2 was sourced from Nearmap.com (2025).

Assessment details of individual trees are listed in the tree assessment detail attached as Appendix 1 and their location can be seen in Appendix 2.

The City of Melbourne Asset ID has been attributed to each City of Melbourne tree asset. Trees and tree groups not owned by the City of Melbourne have been attributed with a simple Tree Id, for example 1 for an individual or tree group 1 for a tree group.

Some photographs of the trees and the environs were taken for further reference and inclusion in the report.

Each of the assessed trees was attributed an 'Arboricultural Rating'. The arboricultural rating correlates the combination of tree condition factors (health and structure) with tree amenity value. Definitions of arboricultural ratings can be seen in Appendix 3.

The assessed trees have been allocated Notional root zones (NRZ). The Australian Standard, AS 4970-2025, has been used as a guide in the allocation of NRZs for the assessed trees. This method provides a TPZ that addresses both the stability and growing requirements of a tree. NRZ distances are measured as a radius, from the centre of the trunk at (or near) ground level. All NRZ measurements for retained trees are provided in Appendix 1.

## Documents viewed.

- Planning Property Report for 59 - 101 Alfred Street, North Melbourne 3051 ([www.planning.vic.gov.au](http://www.planning.vic.gov.au), cited 24/01/2025).
- The site is located within the Melbourne Planning Scheme and is scheduled to the Mixed Use Zone (MUZ).
- Clause 52.17 of the Melbourne Planning Scheme relating to vegetation native to Victoria.
- City of Melbourne Tree Policy (2021).

## Observations

The subject site is located on the western side of Boundary Road at the intersection of Alfred Street in North Melbourne. The site is 1.4346 ha in size and is an amalgamation of six titles in total including 103 – 105, 107 – 109, 111 – 113 and 117 Boundary Road and Lot 1 on PS409694J and Lot 2 on PS339485G 59 – 101 Alfred Street.

The site is largely a vacant allotment with several businesses/organizations to the east fronting Boundary Road. An existing small, double-storey brick building was also present in the north-east section of the site fronting Alfred Street. Several existing businesses about the southern title boundary and a raised section of Citylink, and the Moonee Ponds Creek about the western title boundary.

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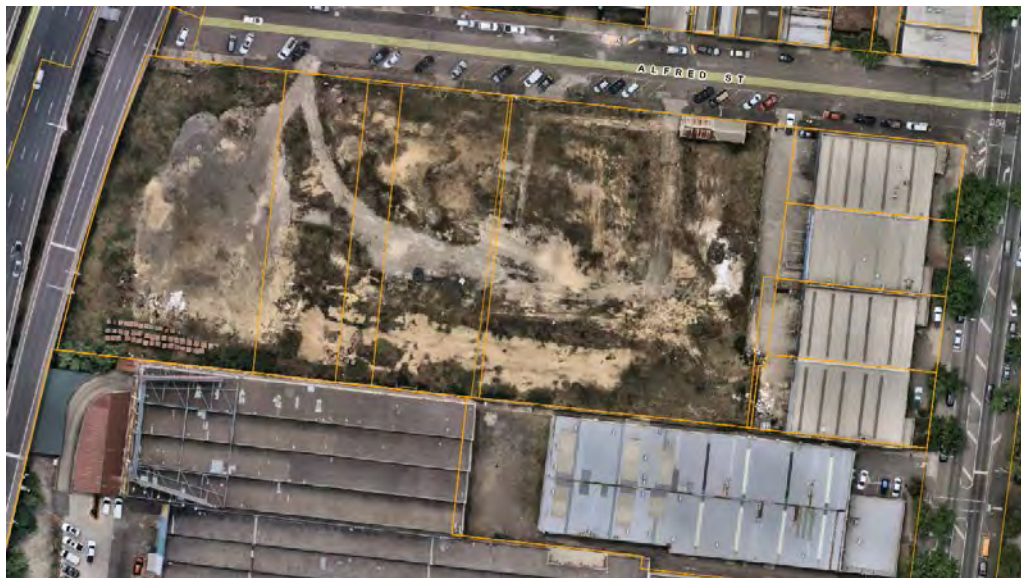


Figure 1: Aerial view of the subject site located at 59 – 101 Alfred Street & 103 – 117 Boundary Road in North Melbourne.

## Tree Population

Five (5) individual trees and three (3) tree groups comprising 10 stems in total were assessed. The details of each tree can be seen in the tree assessment table attached as Appendix 1 and their location can be seen in Appendix 2.

Based upon the species observations, they were all planted specimens and there were no indigenous trees present. There were four (4) street trees growing on Boundary Road and one (1) individual tree and two (2) tree groups located within the site. Tree group 2 was located within the neighbouring southern property at 64 Sutton Street. There were no street trees located within Alfred Street adjacent to the site.

Tree 1 and Tree groups 1 and 3 are small (less than 4 m tall) Peppercorn trees (*Schinus molle*) located within the subject site. Despite their potential to develop into canopy trees, they have self-sown within the site and consequently are of low quality and value. The self-sown location of Tree group 1 and 3 is also expected to be problematic into the future as they develop in size.

Four (4) street trees, all London Plane trees (*Platanus Xacerifolia*) were located within the narrow footpath of Boundary Road where they are growing within granitic sand cut outs. These included City of Melbourne Asset ID includes Asset ID 1290260, 1290246, 1290258 and 1290270. The Plane trees were in the early phase of their maturity, except for ID 1290270 which was mature in age and larger in size.

Tree health was assessed based on foliage colour, size and density as well as shoot initiation and elongation. The assessed trees were displaying fair health with characteristics considered to be typical of the species growing under the current environment conditions.

Tree structure was assessed for structural defects and deficiencies, likelihood of failures and risk to potential targets. There were no significant defects within the population that present an imminent risk to persons or property. Asset ID 1290260 and 1290246 had been pruned and managed for powerline clearance.

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The assessed trees were attributed with an arboricultural rating. This rating relates to the combination of tree condition factors, including health and structure (arboricultural merit), and conveys an amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics within an urban landscape context.

**Table 1: Summary of arboricultural ratings.**

Arboricultural Rating	No. of trees	Tree numbers
High	0	N/A
Moderate A	1	1290270
Moderate B	1	1290258, Tree group G2
Moderate C	2	1290260, 1290246
Low	0	N/A
Very Low	1	1, Tree groups G1, G3.
<b>Total</b>	<b>5</b>	

A summary of the arboricultural ratings applied by Treelogic is provided below. The arboricultural rating attributed to each tree feature can be seen in Appendix 1 and the descriptors used to determine the rating can be seen in Appendix 3.

Trees attributed with an arboricultural rating of High represent trees of high quality in better than typical condition. Generally, the tree is a prominent feature of the landscape, or a good example of the species, rare or uncommon. It may also have significant conservation or other cultural value. These trees have the potential to be medium to long-term components of the landscape if managed appropriately.

Trees attributed with an arboricultural rating of Moderate A represent trees that are moderate to large mature examples in fair or better condition that contribute to the landscape character. These trees may have conservation or other cultural values. Retention of these trees is highly desirable as they have the potential to be medium to long-term features of the landscape if managed appropriately.

Trees attributed with an arboricultural rating of Moderate B represent trees that are greater than 50 % of their attainable size, are well established in the landscape, exhibit fair or better overall condition with good vigour and contribute to the landscape character. These trees have a moderate to long useful life expectancy if managed appropriately and are desirable to be retained within any proposed development.

Trees attributed with an arboricultural rating of Moderate C were of moderate quality in fair condition. They may also be relatively of small size and semi-mature in age or a maturing tree with accumulating deficiencies, trending towards becoming of Low arboricultural value. These trees may have a moderate-long useful life expectancy, if managed appropriately and retention of these trees is generally desirable within a development context.

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Trees attributed with an arboricultural rating of Low represent trees displaying health and/or structural issues that are limiting factors to their retention or, were of small size that could be easily replaced within new landscape plantings. These trees should not be a constraint on development occurring within the site however, they could be retained if not requiring a disproportionate expenditure of resources for a tree in its current condition and location.

Trees attributed with an arboricultural rating of Very Low exhibit a severe health problem and/or structural defect that cannot be sustained with practical arboricultural treatment and the loss of the tree is expected in the short-term. They may also be acknowledged environmental woody weed species that can have a detrimental effect on the environment. For example, the tree has weed potential and is likely to spread into waterways or natural areas if nearby.

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## Images



Figure 2: Asset ID 1290260 – view to south.



Figure 3: Asset ID 1290246 – view to south.



Figure 4: Asset ID 1290258 – view to north.



Figure 5: Asset ID 1290270 – view to south.

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Figure 6: Tree 1 – view to south-east.



Figure 7: Tree group 1 – view to south-east.

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Figure 8: Tree group 2 – view to south.



Figure 9: Tree group 3 – view to west.

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## Permit Requirements

The subject site at 59 – 101 Alfred Street and 103 – 117 Boundary Road, North Melbourne is subject to the Melbourne Planning Scheme and is scheduled to the Mixed Use Zone (MUZ). Planning overlays pertaining to the site include.

- CityLink Project Overlay (CLPO).
- Schedule 2 to Clause 45.06 Development Contributions Overlay (DCPO2).
- Schedules 26, 63 & 66 to Clause 43.02 Design and Development Overlay (DDO26, DDO63-A7, DDO66).
- Environmental Audit Overlay (AUO).
- Schedule 1105 to Clause 43.01 Heritage Overlay.
- Schedule 3 to Clause 44.04 Land subject to inundation Overlay (LSIO).

None of the above planning overlays have permit requirements regarding tree preservation.

Clause 52.17 of the Melbourne Planning scheme relating to vegetation native to Victoria applies as the land size exceeds 4.000 m<sup>2</sup> (0.4 ha). None of the assessed trees were native to Victoria and do not conform to permit requirements set out under 52.17.

A review of the planning overlays found there is no requirement to retain trees located within the subject site.

Asset ID 1290260, 1290246, 1290258 and 1290270 are assets belonging to the City of Melbourne. If they are to be removed, lopped, damaged or destroyed, written permission from the Responsible Authority must be sought.

## Notional Root Zones

Notional Root Zones (NRZs) provided for each tree in the Tree Assessment Table in Appendix 1 and referred to in this statement, are calculated using the formula provided in the Australian Standard AS4970-2025 where the Radial NRZ = Trunk diameter at standard height (DSH) measured at 1.4m above grade and multiplied by 12. NRZ distances are measured as a radius from the centre of the trunk at (or near) ground level. A NRZ should not be less than 2m nor greater than 15m. The method for calculating, applying and managing the notional protection zone is described in Appendix 5.

The structural root zone (SRZ) provided for each tree has been calculated using the method provided in AS4970-2025. The SRZ is the area in which the larger woody roots required for tree stability are found close to the trunk and which then generally taper rapidly. This is the minimum area recommended to maintain tree stability but does not reflect the area required to sustain tree health. No works should occur within the SRZ radius as tree stability could be compromised.

The NRZ forms an area around a tree or group of trees that addresses both the stability and growing requirements of a tree. Encroachment into the NRZ is possible with AS4970 identifying three levels of incursion:

- Minor NRZ encroachment is where the proposed encroachment is <10% of the total NRZ area, where there has not been recent NRZ encroachments and where the encroachment is outside the SRZ. This level of encroachment is not expected to impact tree health, stability or longevity of the tree.

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- Moderate NRZ encroachment is where the proposed encroachment is between 10 - 20% of the total NRZ area and outside the SRZ. This level of encroachment requires review from a project arborist to demonstrate that the tree will remain viable at this incursion level.
- Major NRZ encroachment is where the proposed encroachment is greater than 20% of the NRZ area or within the SRZ. This level of encroachment requires engagement of a project arborist to assist with alternative design options and/or undertake advanced investigations to demonstrate that the tree would remain viable.

Any level of permitted NRZ incursion (Minor, Moderate or Major) requires adoption of a tree protection zone (TPZ) during site works. The TPZ should recruit an area equal to the encroachment, adjoining another part of the TPZ.

Past and current site use is a key factor in determining whether root zone incursion is likely to impact a tree. The presence of site features such as buildings, hard surfaces and compacted areas may have inhibited root growth. Where these areas are retained within new designs, the impacts on trees would be minimal.

See Appendix 5 for TPZ establishment and types of encroachment.

## Design Considerations & Tree Impacts

In accordance with Section 2.2.5 of AS4970, a review of the proposed design drawings has been undertaken to determine the impacts on the assessed trees.

When determining the impacts to trees it is important to consider any existing site conditions that may affect root growth and development, the species and age of the subject tree/s (vigorous young or semi-mature trees are more tolerant of disturbance than mature trees), the species tolerance to root loss and disturbance, and the amount of encroachment or disturbance incurred under the design proposal.

Design plans reviewed include,

- Design drawings, prepared by Cera Stribley, Dwg No. TP0999 – TP1016, TP2001 – 20023 & TP2500 (23 sheets in total), Rev A, dated 04/09/2025.

No landscape, services, civil, hydraulic or electrical plans were reviewed as part of the impact assessment.

The proposed design plans detail the construction of three precincts with each precinct comprising a 15-level building with a lower ground floor. Drawing TP2500 shows that bulk earthworks are proposed across the site including several excavations and the placement of fill.

Impacts to the assessed trees are as follows.

Tree 1 and Tree groups 1 and 3 located within the site have been nominated for removal to facilitate the proposed development. These small, self-sown Peppercorn trees are of low value and quality and are not subject to any statutory requirements. Their removal should not be a constraint on the proposed design.

Asset ID 1290260, 1290246, 1290258 and 1290270 are located to the front of the site on Boundary Road where they are well established and contribute to the streetscape character. Plan TP1000 shows the extent of the building footprint while TP2500 shows a site cut is proposed along the eastern boundary of the site. The excavation is to occur within the NRZ of each City of Melbourne asset (See Appendix 3). Table 2 provides encroachment details for the four street trees.

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Table 2: Encroachment details of City of Melbourne tree assets.

Asset ID	NRZ (m radius)	SRZ (m radius)	Design element	Encroachment %	AS 4970 Impact type	Impact
1290260	3.8	2.4	Building / site cut	16.25 %	Major - SRZ	Unsustainable
1290246	3.4	2.2	Building / site cut	13.59 %	Major - SRZ	Unsustainable
1290258	4.4	2.4	Building / site cut	15.62 %	Moderate - TPZ	Unsustainable
1290270	7.0	2.8	Building / site cut	24.81 %	Major - TPZ	Unsustainable

Table 2 shows that the four City of Melbourne assets would be unsustainable due to the extent of encroachment into their NRZs. In addition to the NRZ encroachment, the trees would also require excessive canopy pruning, removal of up to 50 % of live foliage (including primary branch removal) to accommodate the multi-level building within Precinct 1. The trees cannot be sustained under the current design proposal due to the combination of the two impact types (root and canopy loss) in conjunction within the limited area for new root growth post development. The trees would be at risk of destabilization in the future if retained under the current design proposal.

The four street trees cannot be sustained under the current design proposal. Modification to the design would be required to increase the building setback to minimize root and canopy loss if the trees be considered for retention in the future.

The City of Melbourne Tree policy outlines requirements in Section 7 where public tree removal is proposed. The reasoning for their removal is that the proposed development will impact upon their ongoing viability by resulting in an unbalanced crown and excessive root loss. Further design options may need to be explored as part of exhausting all options and it is when alternative options are not feasible that tree removal is required as a last resort.

The design proposal shows new tree plantings across the site, and within Alfred Street that will increase the existing amount of vegetation across the site. This would be a net improvement to green space within the site. The new plantings would contribute to environmental outcomes and canopy cover pursued by the City of Melbourne within their Urban Forest Strategy.

Tree group 2 is comprised of three (3) early mature Willow trees located in the neighbouring property to the south-west of the subject site. The proposed design shows the building footprint and above ground storeys are located outside of the NRZ of each tree within the group. No impact to the neighbouring trees is expected under the current design plans. Design documentation must ensure that the existing soil grade remains unchanged, i.e no excavation below the natural ground line to avoid impacting on the trees.

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## Conclusion

Five (5) individual trees and three (3) tree groups comprising 10 stems in total were assessed as part of the proposed redevelopment of 59 – 101 Alfred Street and 103 – 117 Boundary Road, North Melbourne. The report includes a review of the current design proposal to determine the impacts to the assessed trees.

Tree 1 and Tree groups 1 and 3 are self-sown individuals that are of low quality and do not require a permit for their removal. Under the design proposal, these trees are nominated for removal.

Asset ID 1290260, 1290246, 1290258 and 1290270 are City of Melbourne assets located on Boundary Road. The proposed cut along the eastern property boundary to construct the Lower ground floor of Precinct 1 significantly impacts upon their ongoing condition. As a result, the four street trees are unsustainable under the current design proposal. If they are to be retained within the proposed redevelopment, an increased building setback would be required. New tree plantings across the site would seek to offset the removal of the street trees that would contribute to environmental outcomes pursued by the City of Melbourne within their Urban Forest Strategy.

Tree group 2 located within the neighbouring property are not expected to be impacted under the current design proposal. Design documentation must ensure that excavation below the natural grade does not occur within the NRZ to maintain their ongoing viability.

The tree population do not conform to Clause 52.17 of the Melbourne planning scheme and permit or offsets are required if they are removed lopped or destroyed.

Permission from the City of Melbourne is required if Asset ID 1290260, 1290246, 1290258 and 1290270 are to be removed, lopped or destroyed.

I am available to answer any questions arising from this report.

No part of this report is to be reproduced unless in full.

Signed



David Phillips – Ass Deg. Env Hort

Senior Consulting Arborist

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## References

Australian Standard (4970-2009) Protection of Trees on development sites. Standards Australia, Sydney NSW Australia.

Clark, J.R. & Matheny, N.P (1998), Trees and Development: A technical guide to preservation of trees during land development. ISA, Champaign, Illinois.

Australian Standard (4373-2007) Pruning of amenity trees. Standards Australia, Sydney NSW Australia.

Harris R.W., Clark J.R. & Matheny N.P., Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines, Prentice Hall, Upper Saddle River, New Jersey 07458.

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## Appendix 1: Tree Assessment Table: 59 – 101 Alfred Street & and 103 – 117 Boundary Road, North Melbourne (Treelogic, 2025).

Key: **DBH** = Diameter at breast height, 1.4m up trunk, unless otherwise indicated. Basal dimensions is trunk diameter at base immediately above root buttress. **ARB rating** = arboricultural rating. **TPZ** = Tree protection zone in radial metres. **SRZ** = Structural root zone in radial metres. **ULE** = Useful Life Expectancy measured in years. Definition of the descriptor categories used in the assessment can be seen Appendix 3.

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Tree ID	Common Name (Botanical Name)	Age class	Origin	DBH (cm)	Basal (cm)	Height x Width (m)	Health	Structure	Arboricultural rating	ULE (yrs)	Comments	TPZ (m radius)	SRZ (m radius)	Encroachment Design element	Encroachment type	TPZ area (m2)	Encroachment area (m2)	Encroachment %	AS4970 Encroachment type
1290260	London Plane (Platanus Xacerifolia)	Early-mature	Exotic deciduous	32	42	10 x 9	Fair	Fair to poor	Moderate C	21 to 40	Past powerline clearance. 2m to boundary, growing in 1.5 x 1.5m granitic sand tree plot	3.8	2.3	Building / site cut - 16.25%	SRZ	45.34	7.37	16.25	Major
1290246	London Plane (Platanus Xacerifolia)	Early-mature	Exotic deciduous	28	36	10 x 9	Fair	Fair to poor	Moderate C	21 to 40	Past powerline clearance.	3.4	2.2	Building / site cut - 13.59%	SRZ	36.3	4.93	13.59	Major
1290258	London Plane (Platanus Xacerifolia)	Early-mature	Exotic deciduous	37	47	12 x 12	Fair	Fair	Moderate B	21 to 40		4.4	2.4	Building / site cut - 15.62%	TPZ	60.79	9.49	15.62	Moderate
1290270	London Plane (Platanus Xacerifolia)	Maturing	Exotic deciduous	58	70	15 x 17	Fair	Fair	Moderate A	21 to 40	Minor cracking of concrete in site	7	2.8	Building / site cut - 24.81%	TPZ	153.87	38.17	24.81	Major
1	Peppercorn Tree (Schinus molle subsp. areira)	Semi-mature	Exotic evergreen	15 @ 1m	19	3 x 4	Fair	Fair	Very Low	<1	Self sown environmental weed	2	1.6	N/A	N/A	N/A	N/A	N/A	N/A

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Tree group ID	Common Name (Botanical Name)	Age class	Origin	No. of stems	Average DBH (cm)	Average Basal (cm)	Average Height x Width (m)	Health	Structure	Arboricultural rating	ULE (yrs)	Comments	TPZ (m radius)	SRZ (m radius)
G1	Peppercorn Tree (Schinus molle subsp. areira)	Semi-mature	Exotic evergreen	4	25	30	5 x 4	Fair	Fair to Poor	Very Low	1 to 5	Self sown environmental weed. Base of trees located within 1m of building foundation, future root conflict is expected	3	2
G2	Willow (Salix sp.)	Early-mature	Exotic deciduous	3	40 (estimated)	50	11 x 8	Fair	Fair to Poor	Mod.B	11 to 20	Neighbour's trees. Corrugated fence obstructing view of trunk & buttress. Approx 3m wide channel along boundary within site, roots possibly in channel.	4.8	2.5
G3	Peppercorn Tree (Schinus molle subsp. areira)	Semi-mature	Exotic evergreen	3	10	15	3 x 3	Fair	Fair	Very Low	1 to 5	Self-sown environmental weed. Group located at base of fill within site along boundary. Trees will interfere with fencing into future	2	1.5

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**APPENDIX 2 — TREE LOCATIONS AND PROTECTION ZONES**

**PROJECT**  
59 - 101 Alfred Street & 103 - 117 Boundary Road, North Melbourne

TL REF. 013897    MAP NO. 1 / 1    DATE 2025-02-12    CLIENT Metrics c/o Tango    DATA SOURCES Nearmaps, 2025

**LEGEND**  
Arb rating Tree group

- Very Low
- TPZ
- SRZ
- Mod-B
- Mod-C
- Very Low
- TPZ
- SRZ
- boundary
- Mod-B

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**NOTES**  
Tree protection and structural root zones calculated in accordance with AS4970-2020 (revised) Protection of trees on development sites.

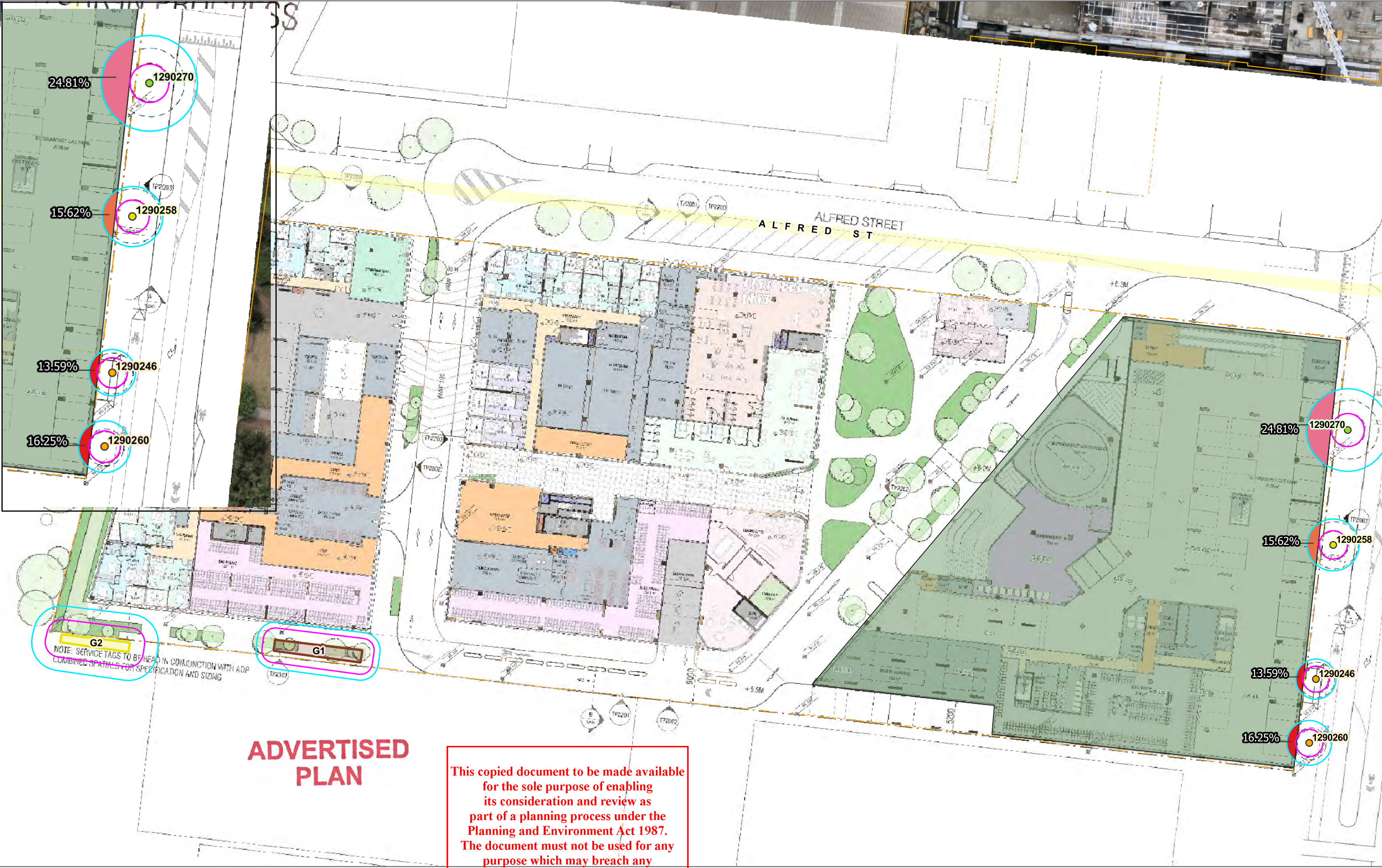
**TREE LOCATION DISCLAIMER**  
Tree locations are approximate

**COORDINATE REFERENCE SYSTEM**  
EPSG:7855 | GDA 94 MGA Zone 55



ABN: 95 080 021 610    **TREELOGIC PTY LTD**  
TEL: 1300 656 926    4 / 21 Eugene Toe  
Ringwood, VIC  
Australia 3134





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## APPENDIX 3 — DESIGN PROPOSAL & ENCROACHMENTS

**PROJECT**  
59 - 101 Alfred Street & 103 - 117 Boundary Road, North Melbourne

**TL REF.** 013897    **MAP NO.** 1/1    **DATE** 2025-09-09    **CLIENT** Metrics Real Estate Partners c/o Tango

**DATA SOURCES**  
Nearmaps, 2025.  
Dwg TP1000, Rev A, dated 04/09/2025

### LEGEND

- |         |                       |          |                                 |
|---------|-----------------------|----------|---------------------------------|
| ● Mod-A | TPZ                   | Low      | Encroachment                    |
| ● Mod-B | SRZ                   | Very Low | Major encroachment - within SRZ |
| ● Mod-C | Tree group Arb rating | TPZ      | Moderate encroachment > 10 %    |
|         | Mod-B                 | SRZ      | Major encroachment - >20 %      |

**NOTES**  
Tree protection and structural root zones calculated in accordance with AS4970-2025 Protection of trees on development sites.

**TREE LOCATION DISCLAIMER**  
Tree locations are approximate

**COORDINATE REFERENCE SYSTEM**  
EPSG:7855 | GDA 94 MGA Zone 55



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Ringwood, VIC  
Australia 3134

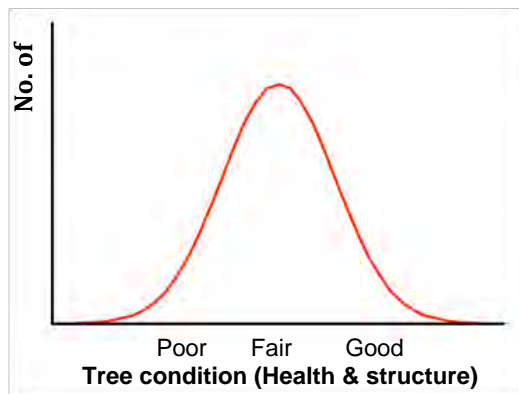


## Appendix 4: Arboricultural Descriptors (February 2019)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

### 1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.



**Diagram 1:** Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

### 2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

### 3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon
Exotic Palm	Occurs outside of Australia. Woody monocotyledon

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## 4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

## 5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

### Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard AS 4970-2009 *Protection of trees on development sites*. Measurements undertaken using foresters tape or builders tape.

### Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

## 6. Health

Assesses various attributes to describe the overall health and vitality of the tree.

Category	Vitality, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical vitality. >80% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vitality	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds
Poor	Minimal declining	Excessive, large and/or prominent amount & size of dead wood. Significant dieback	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline

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Category	Vitality, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Dead	N/A	N/A	N/A	N/A

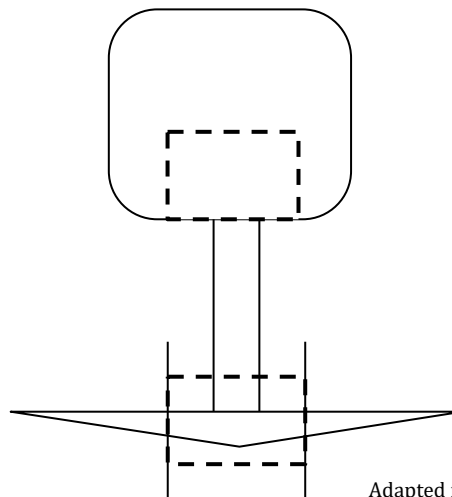
## 7. Structure

Assesses principal components of tree structure (Diagram 2).

Descriptor	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
<b>Good</b>	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
<b>Fair</b>	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally, well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
<b>Fair to Poor</b>	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence.	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
<b>Poor</b>	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
<b>Very Poor</b>	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

**Diagram 2:** Tree structure zones

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots



Adapted from Coder (1996)

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Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will consider the combination of likelihood of failure and impact, including the perceived importance of the target(s).

## 8. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. > 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

## 9. Useful life expectancy

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It would enable tree managers to develop long-term plans for the eventual removal and replacement of existing trees in the public realm. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the trees positive contribution to the urban landscape.

Within an urban landscape context, particularly in relation to street trees, it could be considered a point where the costs to maintain the asset (tree) outweigh the benefits the tree is returning.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs).

Useful Life Expectancy	Typical characteristics
<1 year (No remaining ULE)	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1-5 years (Transitory, Brief)	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Major structural defects that cannot be remedied. Tree may be over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6-10 years (Short)	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be

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	evident. Dieback may include large limbs. Structural defects present that influence the tree's risk rating, amenity or vitality. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management inputs.
11-20 years (Moderate)	Tree not showing symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). Developing structural defects that reduce viability with limited scope for management. Tree may be over-mature and beginning to senesce. Potential for infrastructure conflicts regardless of management inputs.
21-40 years (Moderately long)	Trees displaying normal growth characteristics, but vitality is likely to be reduced (bud development, extension growth etc.). Structural issues relatively minor and manageable with arboricultural input. Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.
>40 years (Long)	Generally juvenile and semi-mature trees exhibiting normal growth characteristics within adequate spaces to sustain growth, such as in parks or open space. Could also pertain to maturing, long-lived trees. No observable major structural defects. Tree well suited to the site with negligible potential for infrastructure conflicts.

Note that ULE may change for a tree dependent on the prevailing climatic conditions, sudden changes to a tree's growing environment creating an acute stress or impact by pathogens.

The ULE may not be applicable for trees that are manipulated, such as topiary, or grown for specific horticultural purposes, such as fruit trees.

There may be instances where remedial tree maintenance could extend a tree's ULE.

## 10. Arboricultural Rating

Relates to the combination of assigned tree condition factors, including health and structure (arboricultural merit) and ULE, and conveys an amenity value (An amenity tree can occupy a site that complements its surroundings in a useful manner which culminates in the aid, protection, comfort and emotional response of humans. Adapted from Coder, 2004). Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough, 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are considered.

The arboricultural rating can be used by applying only the main category high, moderate, low or very low without using the sub categories. The sub-categories can assist in differentiating a trees value and/or characteristic in more detail within the specific tree assessment context, such as a development site.

Arboricultural rating			
Category	Description		
High	Exemplary specimen due to multiple factors which could include; good condition and vitality, large size/canopy and prominence in the landscape. Likely to be a very long-term component in the landscape with a long ULE. Other factors that could contribute to a high rating: <ul style="list-style-type: none"> <li>• Particularly good example of the species; rare or uncommon.</li> <li>• Tree has visual importance as a landscape feature; provides substantial contribution to landscape character.</li> <li>• Tree may have significant ecological or conservation value.</li> <li>• *Tree has historical, commemorative or other distinct social/cultural significance.</li> </ul> Trees in this category must be considered for retention and/or incorporated within design proposals.		
Category	Description	Sub category	Description
Moderate	Tree of moderate quality, in fair or typical condition. Tree may have a condition, and	A	Moderate to large, maturing tree. Suited to the site & contributes to the landscape character.

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	or structural problem that will respond to arboricultural treatment. These trees have the potential to be moderate- to long-term components of the landscape (moderate to long ULE) if managed appropriately. The sub-categories relate predominately to age, size and amenity. Trees in this category should be considered for retention and/or incorporated within design proposals.		Tree may have conservation or other cultural/social value.
		B	Moderate sized, established tree, > 50% of attainable age/size. Suited to the site & contributes to the landscape character (other attributes covered under 'Moderate' description)
		C	<ul style="list-style-type: none"> <li>Young to semi-mature, generally a smaller tree, established, &gt;15 cm DBH, &gt;5 years in the location. Not a dominant canopy. No significant qualities currently but has the potential to become a higher value tree &amp; long-term component of the landscape. Replacement of tree is likely to take up to 6 - 10 years to attain similar attributes.</li> <li>Semi- to mature tree with accumulating deficiencies and reducing ULE, trending towards Low arboricultural value.</li> </ul>
<i>Category</i>	<i>Description</i>		
Low	<p>Unremarkable tree of low quality or little amenity value. Tree in either poor health and/or with poor structure. Short to transitory useful life expectancy (&lt;10 years).</p> <ul style="list-style-type: none"> <li>Tree is not prominent in the landscape due to its size or age, such as young trees with a stem diameter below 15 cm. Tree &lt; 5 years in location. These trees are easily replaceable or capable of being transplanted.</li> <li>Tree (species) is functionally inappropriate to the specific location. Is causing excessive damage/nuisance to adjacent infrastructure or would be expected to be problematic if retained (i.e. palm tree under power lines).</li> <li>Unremarkable tree of no material landscape, conservation or other cultural value. Not visible from surrounding landscapes.</li> <li>Tree infected with pathogens that could lead to its decline.</li> <li>Tree has potential to be an environmental woody weed (may be dependent on location of tree in an urban landscape).</li> <li>Tree impacting or suppressing trees of better quality.</li> </ul> <p>Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.</p>		
<i>Category</i>	<i>Description</i>		
Very low	<p>Trees of low quality with a brief to no remaining ULE (&lt;5 years).</p> <ul style="list-style-type: none"> <li>Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree or tree part would be expected in the short term.</li> <li>Tree whose retention would not be viable after the removal of adjacent trees, such as trees that have developed in close spaced groups and would not be expected to adapt to severe and sudden alterations to environmental &amp; site conditions, e.g. removal of adjacent shelter trees.</li> <li>Small or young tree, &lt;5m in height, &lt;10cm DBH. Easily replaced in short-term or capable of being transplanted.</li> <li>Acknowledged environmental woody weed species. Tree has a detrimental effect on the environment, for example, the tree has weed potential and is likely to spread into waterways or natural areas if nearby.</li> <li>Tree infected with pathogens that will lead to decline and has potential to spread to adjacent trees.</li> <li>Tree is dead (dead tree may offer habitat values) or is showing signs of significant, immediate, and irreversible overall decline.</li> </ul> <p>Tree cannot realistically be retained and should be considered for removal.</p>		

Other considerations - Even though a tree may be declining or dead, a tree could be retained for other purposes such as habitat or soil stabilisation. These trees would still need to be managed appropriately to reduce risk.

\*A tree may have (attract) a high value by the community for historical, commemorative or other distinct social/cultural significance factors, albeit the tree may not be in good condition. In the context of an

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assessment, for multiple reasons, but more so for development, if it is a noted 'significant' tree it should receive higher consideration during the planning process.

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criteria is designed to highlight other considerations that may influence the future management of such trees.

Significance	Description
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.
Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees.  Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.
Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve.  Remnant Indigenous vegetation that contribute to biological diversity

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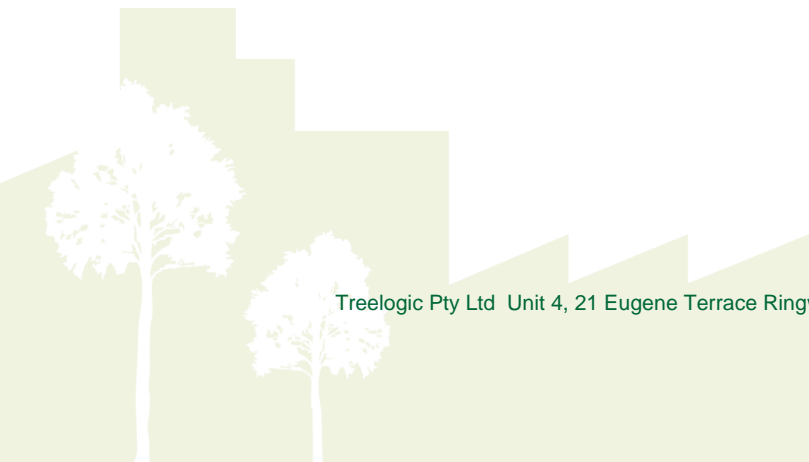
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## Appendix 5: Protection Zones

### 1. Introduction

To sustain trees on a development site, consideration must be given to the establishment of tree protection zones.

The physical dimensions of tree protection zones can sometimes be difficult to define. The projection of a tree's crown can provide a guide but is by no means the definitive measure. The unpredictable nature of roots and their growth, differences between species and their tolerances, and observable and hidden changes to the trees growing environment, because of development, are variables that must be considered.

Most vigorous, broad canopied trees survive well if the area within the drip-line of the canopy is protected. Fine root density is usually greater beneath the canopy than beyond (Gilman, 1997). If few to no roots over 3cm in diameter are encountered and severed during excavation the tree will probably tolerate the impact and root loss. A healthy tree can sustain a loss of between 30% and 50% of absorbing roots (Harris, Clark, Matheny, 1999), however encroachment into the structural root system of a tree may be problematic.

The structural root system of a tree is responsible for ensuring the stability of the entire tree structure in the ground. A tree could not sustain loss of structural root system and be expected to survive let alone stand up to average annual wind loads upon the crown.

### 2. Notional Protection Zone (NPZ)

Calculation of the NPZ (as defined in Australian Standard AS 4970-2025 *Protection of trees on development sites*) is a theoretical zone that surrounds each tree radially. The NPZ for individual trees is calculated based on trunk (stem) diameter (DSH), measured at 1.4 metres up from ground level. The radius of the NPZ is calculated by multiplying the trees DBH by 12. NPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The minimum NPZ should be no less than 2m and the maximum no more than 15m radius. The NPZ of palms should be not less than 1.0m outside the crown projection.

Encroachment into the NPZ is permissible under certain circumstances though is dependent on both site conditions and tree characteristics. Minor encroachment, up to 10% of the NPZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the NPZ. Examples are provided in Diagram 1. Encroachment between 10-20% is considered moderate encroachment and is only permissible if it can be demonstrated that after such encroachment the tree would remain viable. Major Encroachment, greater than 20% of the NPZ and/or incursion into the SRZ, may have deleterious effects on tree condition/stability and requires engagement of a project arborist to assist with alternative design options and/or undertake advanced investigations to demonstrate that the tree would remain viable.

Existing infrastructure around some trees may be within the NPZ or root plate radius. The roots of some trees may have grown in response to the site conditions and therefore if existing hard surfaces and building alignments are utilised in new designs the impacts on the trees should be minimal.

The most reliable way to estimate root disturbance is to find out where the roots are in relation to the demolition, excavation or construction works that will take place (Matheny & Clark, 1998). Exploratory excavation prior to commencement of construction can help establish the extent of the root system and where it may be appropriate to excavate or build.

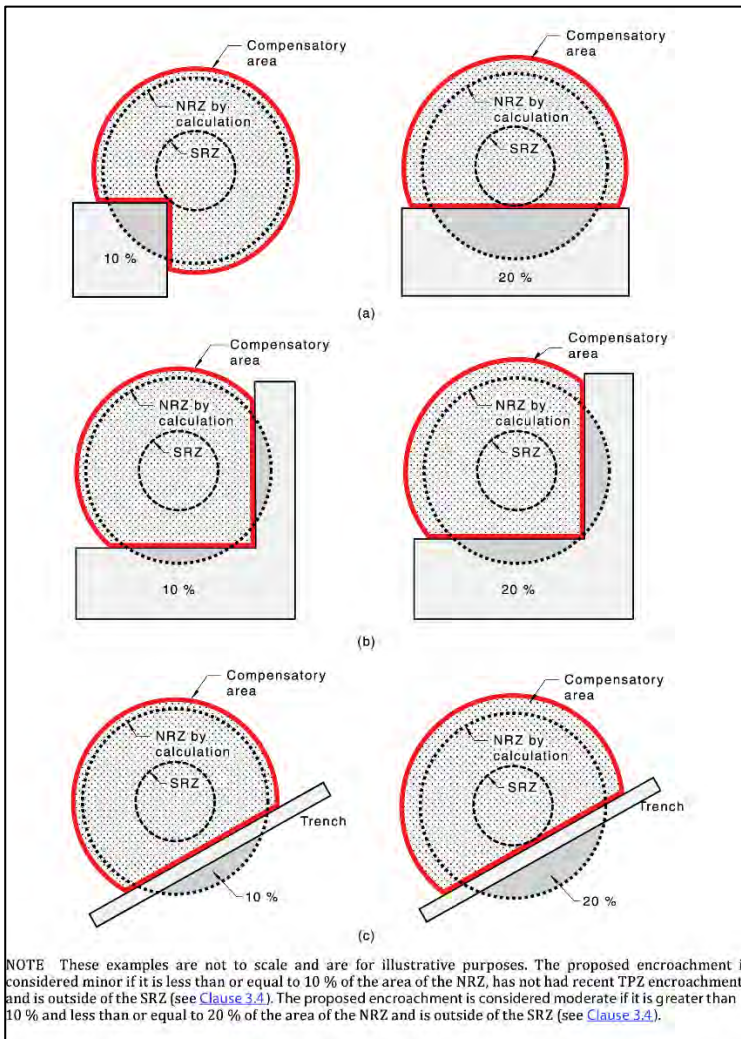


Diagram 1: Examples of minor, moderate and major encroachment into a NPZ. (Extract from: AS4970-2025, Figure 1, p23 of 46)

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### 3. Allocation of tree protection zone (TPZ)

Once it has been established, through an arboricultural assessment, which trees and tree groups are to be retained, the next step will require careful management through the development process to minimise any impacts on the designated trees. The successful retention of trees on any particular site will require the commitment and understanding of all parties involved in the development process.

The most important activity, after determining the trees that will be retained, is the implementation of a TPZ.

The intention of tree protection zones is to:

- mitigate tree hazards.
- provide adequate root space to sustain the health and aesthetics of the tree into the future.
- minimise changes to the trees growing environment, which is particularly important for mature specimens.

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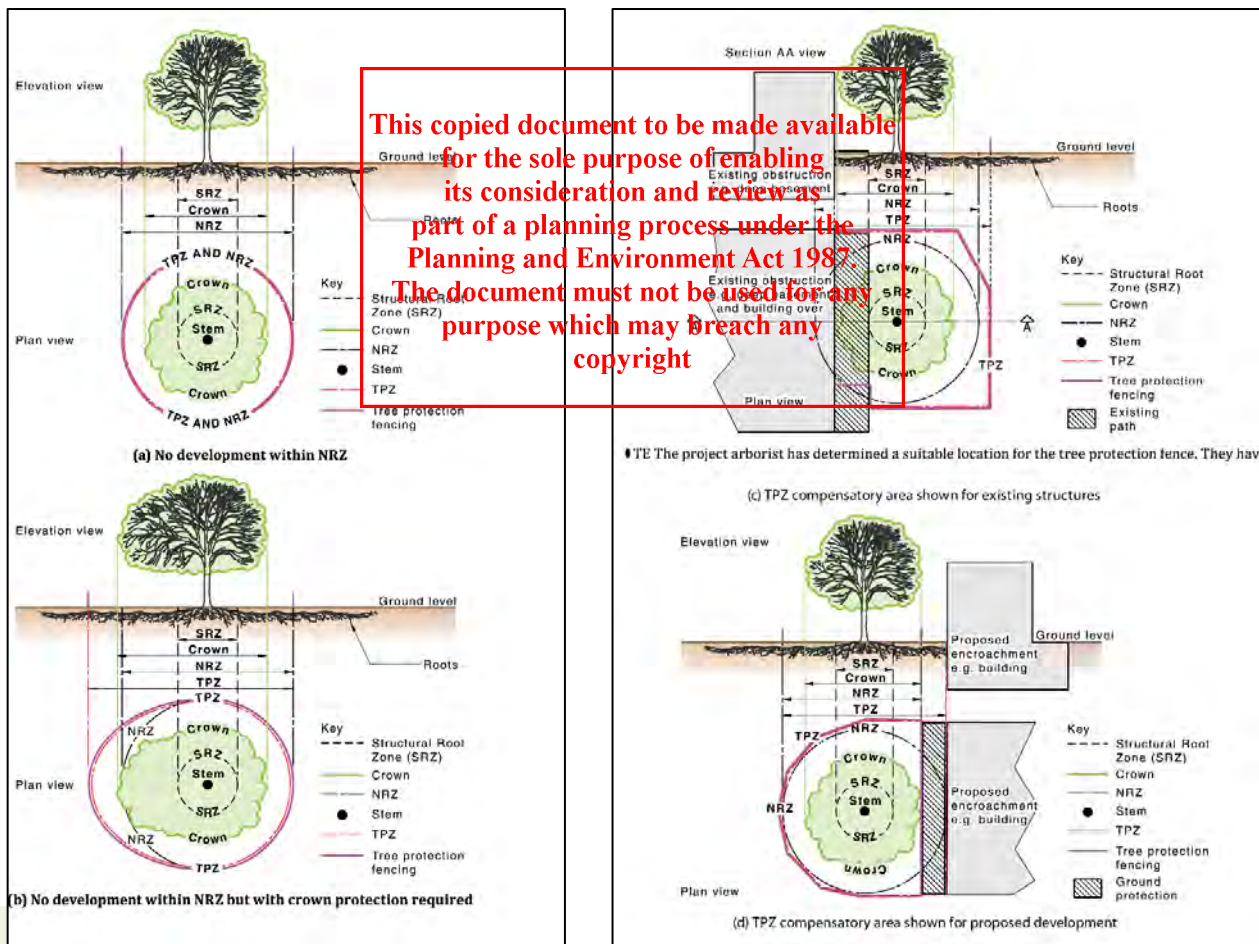
- minimise physical damage to the root system, canopy and trunk; and
- define the physical alignment of the tree protection fencing

TPZs are to be allocated to trees being retained within a site redevelopment. The method of allocating a TPZ to a tree will be influenced by the NPZ along with site factors, the tree species, its age, and developed form.

Tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard surfaces and buildings may have inhibited the development of a symmetrically radiating root system. The TPZ should factor in site conditions along with any allowed encroachments and allocate a zone that can realistically be protected and provide sufficient nourishment for the tree's ongoing vitality.

The TPZ should also consider the canopy and overall form of the tree which may require TPZ expanding beyond the NPZ in some areas (e.g. see Diagram 3). If the canopy requires severe pruning to accommodate a building or other works and in the process the form of the tree is diminished it may be worthwhile considering altering the design or removing the tree.

Importantly, the TPZ should account for any allowed encroachment within the NPZ, by allocating a compensatory area equal to the encroachment onto another area contiguous to the TPZ (see Diagrams 1 and 5).



Diagrams 2, 3, 4 & 5. Examples of TPZ establishment in different scenarios (Extract from: AS4970-2025, Figure 3, pp25-26 of 46).

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## Appendix 6: Protection of Retained Trees.

The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the retained trees.

- The Tree Preservation Zone (TPZ) is fenced and clearly marked at all times. This fence should deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Australian Standard AS 4687 - 2007 Temporary fencing and hoardings, specifies appropriate fencing requirements. Existing perimeter fencing can be incorporated into the protective fencing. Shade cloth should be attached to reduce the movement of dust and other particulates into the TPZ. Signs identifying the TPZ are to be placed on the fencing.
- If the area within the TPZ is to be accessed during the construction phase then the area will need ground protection. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area beneath a 100 mm layer of crushed rock below rumble boards.
- Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project. Members of the project team need to interact with each other to minimise the impacts to the trees, either through design decisions or construction practices.
- The consultant arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.
- No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.
- Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the root zone of any tree.
- Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.
- Any pruning that is required must be carried out by trained and competent arborist who has a thorough knowledge of tree physiology and pruning methods and carry out pruning to the Australian Standard AS 4373 – 2007 '*Pruning of Amenity Trees*'.
- All root excavation should be carried out by hand digging or with the use of 'Air-Excavation' techniques, and roots should be severed by saw cutting or with a sharp axe and not with a Backhoe or any machinery or blunt instrument.
  - Pruning of roots greater than 50mm in diameter at the edge of the TPZ must be undertaken using a sharp saw or secateurs or any other machinery specifically designed to prune tree roots. Any machinery not specifically designed to prune roots must not be used.
  - Where required, trunk protection can be achieved through the use of adequate padding secured around the trunk. Timber hoarding or palings, sufficient in length to cover the trunk, laid over rubber or similar

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padding wrapped around the trunk and fixed using non-invasive fixing device such as steel strapping is suitable.

Attaching items to a trunk requiring invasive fittings such as screws, nails or bolts is not permitted.

- Trunk protection material should not be maintained for prolonged periods and should be removed from the tree as soon as the threat ceases.

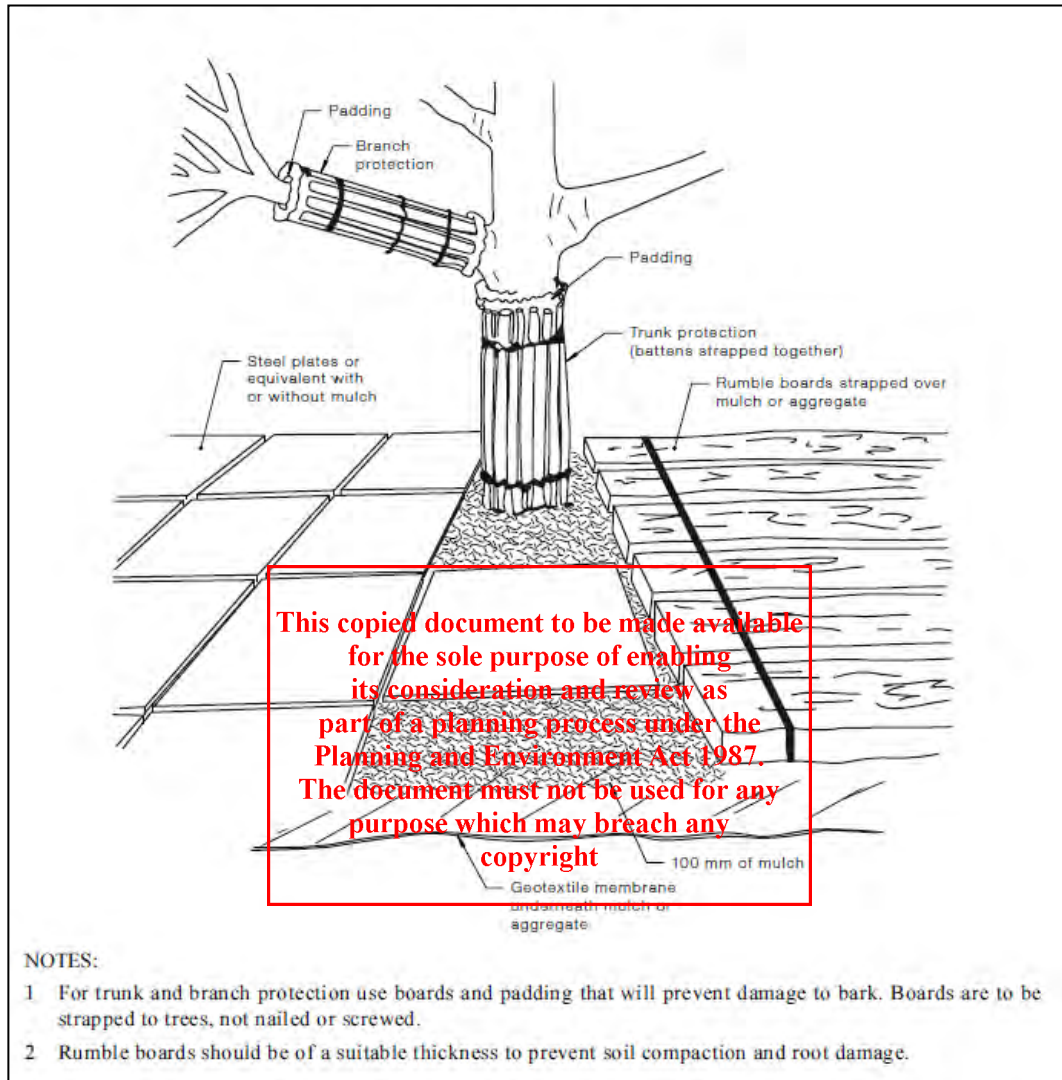


Diagram 1. Examples of appropriate Trunk, limb and root zone buffering protection.

Extract from Australian Standard (4970-2009) Protection of Trees on development sites – Section 4.5.3.

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