SEASONED TREE CONSULTING

# ARBORICULTURAL IMPACT ASSESSMENT REPORT

Prepared for

## BSWLD MAROUBRA PTY LTD

Site address

## 251 - 257 Maroubra Road & 133 Garden Street, Maroubra


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## COPYRIGHT

# 1. INTRODUCTION

1.1 This Arboricultural Impact Assessment Report prepared by Seasoned Tree Consulting on behalf of BWSLD Maroubra Pty Ltd is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a concurrent Rezoning Proposal and State Significant Development Application (Rezoning and SSDA) for a residential flat building and ground floor childcare facility at 251-257 Maroubra Road and 133-135 Garden Street, Maroubra.

This concurrent Rezoning and SSDA seeks approval for:

- Site preparation works including demolition, bulk excavation and tree removal.
- Construction of a ten-storey residential flat building comprising four levels of basement parking, a childcare centre at ground level, communal open space on level 1, residential apartments on levels 1-9.
- Landscaping.
- Civil infrastructure works, and augmentation of utilities and services.

A detailed description of the proposed development is included in the Environmental Impact Statement and Rezoning Report prepared by Colliers Urban Planning, the Architectural Plans prepared by BKA Architecture, and the other accompanying technical documents that form part of the State Significant Development Application.

1.2 This report assesses trees located on and adjoining the site that may be impacted by a proposed development.

**Table 1:** Plans and documents reviewed or prepared as part of this assessment:

| Title | Author | Date | Reference on document |
|---|---|---|---|
| Architect Drawings | BKA Architecture | 12.02.2026 | Rev A |
| Survey Plan | RGM Property Surveys | 07.04.2025 | - |
| Landscape Plans | Conzept Landscape Architects | 26.02.2026 | Rev A |

1.3 Tree data collected for the purpose of this assessment and report was collected on 2nd April 2025 where all trees were surveyed.

1.4 The weather at the time of the site assessment was clear with good visibility.

## 2. ASSIGNMENT

2.1 This report has been carried out to meet the objectives listed below.

2.1.1 Conduct a Visual Tree Assessment from ground level of all trees identified on the survey plan provided that may be impacted by a proposed development.

2.1.2 In accordance with the relevant Consent Authority, a 'tree' is defined as a "height equal to or exceeding six (6) metres, a canopy width equal to or exceeding four (4) metres, for a single trunk tree species, a trunk circumference equal to or exceeding one (1) metre at a height of one (1) metre above ground level or, for a multi-trunk tree species, a combined trunk circumference (measured around the outer girth of the group of trunks) equal to or exceeding one (1) metre at a height of one (1) metre above ground level".

2.1.3 Determine the trees estimated useful life expectancy and award retention values to each tree.

2.1.4 Provide an assessment of the potential impact the proposed development is likely to cause to the condition of the subject trees in accordance with **AS4970- 2025 Protection of trees on development sites**.

2.1.5 Recommend methods to mitigate development impacts where appropriate.

2.1.6 Provide tree protection advice in accordance with AS4970-2025 Protection of Trees on Development Sites and a site-specific tree protection plan where reasonably practical.

## 3. METHODOLOGY

3.1 **The following data was collected from each tree during the site assessment.**

3.1.1 Age class

3.1.2 Diameter at Standard Height (DSH Trunk/Stem diameter at 1.4m above ground level) – centimetres (generally estimated if access to the base of the tree is not available in the instance of neighbours trees or inaccessible vegetation)

3.1.3 Diameter above Buttress (DAB trunk diameter above the root flare near the base of the tree- (generally estimated if access to the base of the tree is not available in the instance of neighbours trees or inaccessible vegetation)

3.1.4 Estimated height - metres

3.1.5 Estimated crown spread (diameter of crown) - metres

3.1.6 Health

3.1.7 Structural condition

3.1.8 Amenity value

3.1.9 Safe Useful Life expectancy (SULE)[1]

3.1.10 Trees AZ retention value [2]

3.1.11 An assessment of the trees condition was made using the Visual Tree Assessment (VTA) method (Mattheck & Breloer, 1994).[3]

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[1] Barrell Tree Consultancy, *SULE: Its use and status into the New Millennium*, TreeAZ/03/2001, http://www.treeaz.com/.

[2] Barrell Tree Consultancy, *Tree AZ version 10.10-ANZ*, http://www.treeaz.com/.

[3] Mattheck, C. & Breloer, H., *The body language of trees - A handbook for failure analysis*, The Stationary Office, London, England (1994).

3.1.12 Trunk diameter was measured using a calculated diameter tape measure. Where this was not possible the measurements have been estimated. All other measurements were estimations unless otherwise stated.

3.1.13 Notional Root Zones (NRZ) and Structural Root Zones (SRZ) have been calculated using formulas given within the Australian Standards 4970-2025 The Protection of Trees on Development Sites

3.1.14 The Notional Root Zone (NRZ) was calculated from DSH x 12

3.1.15 The Structural Root Zone (SRZ) was calculated using the formula SRZ radius = (D x 50)0.42 x 0.64

3.1.16 Palm NRZ - The NRZ of palms, other monocots, cycads and tree ferns is not calculated, but should not be less than 2m

3.1.17 Details of how the observations in this report have been assessed are listed in the appendices.

## 4. GLOSSARY OF BASIC TERMS

4.1 The **Tree Protection Zone (TPZ)** is defined as a specified zone above and below ground and at given offsets from the trunk set aside to protect a tree's roots and canopy where these might be damaged by a development. **AS4970-2025 The Protection of Trees on Development Sites** lists three (3) levels of encroachment into the Tree Protection Zone of a tree, where the **NRZ** calculation (DSH x 12) is used as a starting point.

4.2 **Minor encroachments** are those of 10% or less of the NRZ area. This encroachment is unlikely to cause a significant impact to health, structure or longevity. While considered minor, a contiguous area to the NRZ is required and incorporated into a Tree Protection Zone unless it can be demonstrated tree viability will not be affected.

4.3 **Moderate encroachments** are those between 10-20% of the NRZ area but not within the SRZ. Further investigations are required to demonstrate that the tree will remain viable, which are noted in section 3.3.2 of the standard and mentioned below. A larger contiguous area of the NPZ is required to be incorporated into the Tree Protection Zone unless it can be demonstrated the tree will remain viable.

4.4 **Major encroachments** are those greater than 20% of the NRZ, or within the SRZ. Alternative design options should be explored, or it must be demonstrated otherwise that the tree will remain viable. Detailed investigations are necessary, which may include exploratory root investigations, relevant literature or examples of similar encroachments. Similarly to Minor and Moderate encroachments, an area similar to the encroachment must be incorporated into the Tree Protection Zone unless it can be demonstrated the tree will remain viable.

4.5 **Section 3.3.2** of AS4970-2025 *The Protection of Trees on Development Sites* lists considerations that the assessing arborist can take into account when working within a Tree Protection Zone. These considerations help the arborist into making a determination on the encroachment and whether the development will negatively impact trees that may be affected by the proposal. This includes (but not limited to):

- Tree species, its age, health and tolerance to root disturbance
- Site topography and soil characteristics
- The presence of past or existing obstacles that may affect root development and distribution
- Lean and stability of the tree
- Proposed tree maintenance and tree care activities
- If the works will result in a temporary or permanent loss of soil volume
- Potential loss of root mass resulting from the encroachment
- Proposed construction measures that reduce the impact on trees (pier and beam, suspended or cantilevered slabs, screw piles)
- Location and distribution of roots (found through non-destructive exploratory investigations)
- Regardless of the extent of encroachment, a site-specific **Tree Protection Specification (TPS)** and **Tree Protection Plan (TPP)** should be developed in accordance with the standard with these factors in mind to ensure trees on site remain viable for the duration of the build and the future.

## 5. THE SITE AND PROPOSED WORKS

5.1 The Site is located at 251–257 Maroubra Road and 133–135 Garden Street, Maroubra, within the Randwick Local Government Area (LGA). It is situated approximately 210m east of the intersection of Maroubra Road and Anzac Parade, which forms the core of the Maroubra Junction commercial centre. It is bounded to the north by Maroubra Road, Garden Street to the west, Garden lane to the south and a residential flat building development to the east. It is legally described as Lots A, B, C, D and E in DP 14198 and Lot D in DP 320521, is irregular in shape and is approximately 3270m2 in area. Existing development on the site includes a mechanic's workshop and four (4) residential dwellings.

**Tile 1. Site location [4] (Boundaries are only approximate)**


[4] https://maps.six.nsw.gov.au/

**Table 3: Site Considerations**

| Site Considerations | Application to site Yes/No | Source/References |
|---|---|---|
| Heritage Conservation Area | No | https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address<br><br>https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap |
| Heritage Item | No | |
| Biodiversity | No | |
| Ecologically Sensitive | No | |
| Bushfire Prone Land | No | |

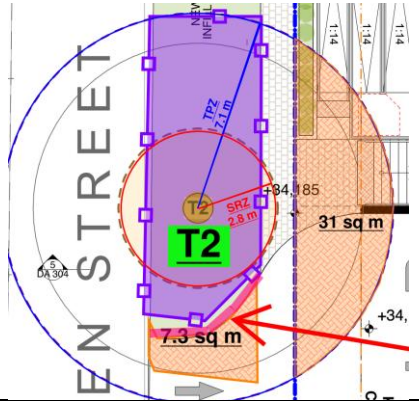
## Secretary's Environmental Assessment Requirements

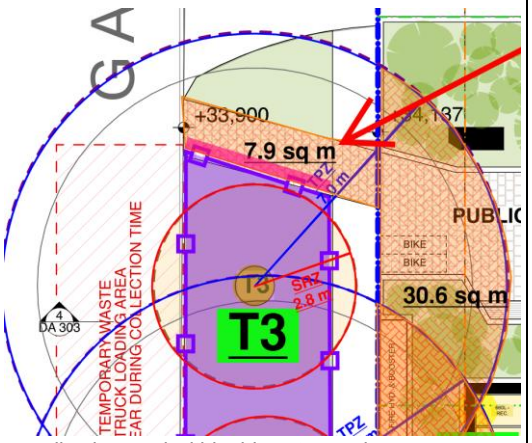
This report has been prepared to respond to the Secretary's Environmental Assessment Requirements (SEARs) dated 16 July 2025 for SSD-87865706. Specifically, this report has been prepared to respond to those SEARs outlined in **Table 2** below.

| Table 2 SEARs relevant to this Report | | |
|---|---|---|
| SEARs | SEARs description | Report name and section |
| 8. Trees and Landscaping | Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site. | Arboricultural Impact Assessment Report (AIA) |

## 6. ASSESSEMENT OF CONSTRUCTION IMPACTS

6.1 **Table 4:** Summary of the impact of proposed development impact to all trees included in the report.

| Tree ID | Species | Retention value | TPZ radius (m) | SRZ Radius (m) | TPZ Area (sqM) | TPZ encroachment | Discussion/ Conclusion | Recommendation |
|---|---|---|---|---|---|---|---|---|
| 1 | *Lophostemon confertus,* Brushbox | A2 | 4.68 | 2.2 | 68.8 | Minor | Development proposed within the site will encroach into the Tree Protection Zone by less than 10% (5.4sqm) which is a minor encroachment and of low impact. | Retain and protect. |
| 2 | *Lophostemon confertus,* Brushbox | A1 | 7.08 | 2.8 | 157.5 | Major | The tree will be subject to a major calculated encroachment of 31sqm (= 19.7%) from development of the replacement building within the site.<br><br>No canopy pruning would be required.<br><br>The Australian Standard Protection of trees on development sites (AS 4970- 2025- TPZ encroachment considerations) states that when determining the potential impacts of encroachment into the TPZ, the project arborist should consider the following: (g) the presence of existing or past structures or obstacles affecting root growth.<br><br>In this case, the existing masonry building has likely restricted root growth into the subject site and therefore works within the site are unlikely to impact the tree.<br><br>There is the additional encroachment for the driveway crossover within the nature strip area to the south of the tree- it is recommended that root investigations (shown below in pink line) be carried out to determine if this footpath can be constructed without severing any roots over 40mm in diameter.<br>  | Retain and protect. |
| 3 | *Eucalyptus haemastoma,* Scribbly gum | A1 | 6.96 | 2.8 | 152.2 | Major | The tree will be subject to a major calculated encroachment of 30.6sqm (= 20%) from development of the replacement building works within the site, plus a pedestrian footpath within the nature strip area to the north of the tree (additional 7.9sqm (=5%).<br><br>No canopy pruning would be required.<br><br>The Australian Standard Protection of trees on development sites (AS 4970- 2025- TPZ encroachment considerations) states that when determining the potential impacts of encroachment into the TPZ, the project arborist should consider the following: (g) the presence of existing or past structures or obstacles affecting root growth. | Retain and protect + root investigations. |

| Tree ID | Species | Retention value | TPZ radius (m) | SRZ Radius (m) | TPZ Area (sqM) | TPZ encroachment | Discussion/ Conclusion | Recommendation |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | In this case, the existing masonry walling on the boundary has likely restricted root growth into the subject site and therefore works within the site are unlikely to impact the tree.<br><br>There is the additional encroachment for the pedestrian footpath within the nature strip area to the north of the tree- it is recommended that root investigations (shown below in pink line) be carried out to determine if this footpath can be constructed without severing any roots over 40mm in diameter as there are surface roots that have been easily observed within this nature strip area.<br>  | |
| 4 | *Eucalyptus haemastoma,* Scribbly gum | A1 | 6.72 | 2.8 | 141.9 | Major | The tree will be subject to a major calculated encroachment of 31sqm (= 19.7%) from development of the replacement building within the site.<br><br>No canopy pruning would be required.<br><br>The Australian Standard Protection of trees on development sites (AS 4970- 2025- TPZ encroachment considerations) states that when determining the potential impacts of encroachment into the TPZ, the project arborist should consider the following: (g) the presence of existing or past structures or obstacles affecting root growth.<br><br>In this case, the existing masonry walling on the boundary has likely restricted root growth into the subject site and therefore works within the site are unlikely to impact the tree. | Retain and protect. |
| 5 | *Callistemon sp.,* Bottlebrush | Z5 | 4.2 | 2.4 | 55.4 | Minor | Development proposed within the site will encroach into the Tree Protection Zone by less than 10% (4.2sqm) which is a minor encroachment and of low impact. | Retain and protect. |
| 6 | *Archontophoenix cunninghamiana* , Bangalow palm | A1 | - | - | - | Footprint | Small palm tree located within the footprint of the development area. | Remove and replace. |
| 7 | *Camellia japonica,* Japanese camellia | Z1 | - | - | - | Footprint | Small tree located within the footprint of the development area. | Remove. |

| Tree ID | Species | Retention value | TPZ radius (m) | SRZ Radius (m) | TPZ Area (sqM) | TPZ encroachment | Discussion/ Conclusion | Recommendation |
|---|---|---|---|---|---|---|---|---|
| 8 | *Castanospermum australe,* Black Bean | Z2 | 3.24 | 2 | 33 | Footprint | Medium sized tree located within the footprint of the development area. | Remove. |
| 9 | *Persea sp.*, Avocado | Z3 | 3 | 1.9 | 28.3 | Footprint | Small tree located within the footprint of the development area. | Remove. |
| 10 | *Frangipani sp.*, Frangipani | A1 | 3 | 1.8 | 28.3 | Major | Small tree located close to the footprint of the development area. | Remove and replace. |
| 11 | *Cupressus torulosa*, Bhutan cypress | A1 | 2.4 | 1.8 | 18.1 | Major | Small tree located close to the footprint of the development area. Whilst the tree could be considered to be retained, the form of the tree is fair as it has been canopy raised to 2.5-3m in height- and therefore it is recommended for removal and replacement. | Remove and replace. |
| 12 | *Syzygium paniculatum,* Magenta Lilly pilly | A1 | 3.72 | 2.1 | 43.5 | Footprint | Medium sized tree located within the footprint of the development area. | Remove. |
| 13 | *Morus Sp.,* Mulberry | Z3 | 3 | 1.8 | 28.3 | Minor | Tree is in poor structural condition and regardless of development is recommended for removal. | Remove. |
| 14 | *Row of Murraya* paniculata, Murraya | A2 | - | - | - | Footprint | Row of small trees/ hedges located within the footprint of the development area. | Remove. |
| 15 | 2 x *Cupressus sp.,* Cypress pine | Z10 | 2.4 | 1.8 | 18.1 | Minor | General development proposed within the site will encroach into the Tree Protection Zone by less than 10% which is a minor encroachment and of low impact- as the trees are located behind high masonry walling on the boundary.<br><br>Canopy pruning will not be required. | Retain and protect. |
| 16 | *Leptospermum petersonii* Lemon scented Tea Tree | Z10 | 2.4 | 1.7 | 18.1 | Minor | General development proposed within the site will encroach into the Tree Protection Zone by less than 10% which is a minor encroachment and of low impact- but the tree is in fair condition and recommended for removal. | Remove. |
| 17 | *Syagrus romanzoffiana,* Cocos palm | Z3 | - | - | - | Minor | Subject tree is a weed species (exempt from requiring permission for removal) and regardless of development is recommended for removal. | Remove. |
| 18 | *Cinnamomum camphora,* Camphor laurel plus *Morus Sp.,* Mulberry plus *Mangifera sp.,* Mango | Z3 | 4.44 | 2.3 | 61.9 | Minor | There are 3 trees here, directly beside each other. Some of the trees of this group are considered to be weed species and regardless of development, all are recommended for removal. | Remove. |
| 19 | *Jacaranda mimosifolia,* Jacaranda | A1 | 2.4 | 1.8 | 18.1 | Minor | General development proposed within the site will encroach into the Tree Protection Zone by less than 10% which is a minor encroachment and of low impact- especially as the tree is located behind high masonry walling on the boundary. | Retain and protect. |

| Tree ID | Species | Retention value | TPZ radius (m) | SRZ Radius (m) | TPZ Area (sqM) | TPZ encroachment | Discussion/ Conclusion | Recommendation |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Canopy pruning may be required and is estimated at approximately 10% of the canopy volume. | |
| 20 | *Phoenix canariensis,* Canary island date palm | Z2 | | | | Footprint | Medium sized tree located within the footprint of the development area. | Remove. |
| 21 | *Morus Sp.,* Mulberry | Z3/Z5 | 3 | 2.5 | 28.3 | Footprint | Medium sized tree located within the footprint of the development area. | Remove. |
| 22 | Dead stump | - | - | - | - | | Dead stump for removal. | |
| 23 | *Cedrus deodara,* Deodar cedar | Z10 | 4.08 | 2.2 | 52.3 | Minor | Development proposed within the site will encroach into the Tree Protection Zone by less than 10% (6.6sqm) which is a minor encroachment and of low impact.<br><br>Not withstanding this, the tree is in overall fair condition (with a small leaf size and the canopy being generally sparse and poorly shaped from inappropriate pruning practices). As the tree is located in the corner of the site and is surrounded on the northern and eastern sides of the tree by masonry walling it is expected that the majority of the root system grows back towards the south west of the tree (and the proposed development area).<br><br>Due to these 2 issues, the tree is therefore recommended for removal and replacement. | Remove and replace. |
| 24 | *Agonis flexuosa*, Peppermint | Z4 | 5.64 | 2.7 | 99.9 | Minor | Street tree located on Maroubra road with development proposed within the site that will encroach into the Tree Protection Zone by less than 10% (6.6sqm) which is a minor encroachment and of low impact. | Retain and protect. |
| 25 | *Cupressocyparis leylandii,* Leighton green | Z3 | 2 | 1.5 | 12.6 | Footprint | Row of hedges located within the footprint of the development area. | Remove. |
| 26 | *Howea forsteriana,* Kentia palm | A1 | - | - | - | Footprint | Small palm located within the footprint of the development area. | Remove. |
| 27 | *Lagerstroemia indica,* Crepe myrtle | Z4 | 2.4 | 1.7 | 18.1 | Footprint | Small tree located within the footprint of the development area. | Remove. |
| 28 | *Murraya paniculata,* Murraya | Z1 | 2 | 1.1 | 12.6 | Footprint | Multiple hedges located within the footprint of the development area. | Remove. |

| Tree ID | Species | Retention value | TPZ radius (m) | SRZ Radius (m) | TPZ Area (sqM) | TPZ encroachment | Discussion/ Conclusion | Recommendation |
|---|---|---|---|---|---|---|---|---|
| 29 | *Cinnamomum camphora*, Camphor laurel | Z10 | 15 | 4.2 | 706.9 | Footprint | This large tree is located within the footprint of the development area and cannot be retained with the proposed plans. Camphor Laurel is listed as a weed on the NSW Department of Primary Industries weeds database (weeds.dpi.nsw.gov.au), which reflects its recognition under the Biosecurity Act 2015 (NSW). Under this framework, landowners and developers have a legal duty of care to prevent the spread of declared weeds. Retaining the tree on an active development site — where soil disturbance, machinery movement, and altered drainage conditions are inevitable — creates a significant risk of seed dispersal and vegetative propagation to adjoining land.<br><br>The subject tree exhibits a large but declining canopy, which is consistent with the natural senescence patterns of mature Camphor Laurels as they age and respond to root zone competition, soil compaction, and environmental stress. A declining canopy is a clear arboricultural indicator that the tree's structural integrity and long-term viability are compromised. From a risk management perspective, retaining a structurally declining tree within a high density development — where there will be elevated foot traffic, residents, and built infrastructure — introduces unacceptable safety liability. Limb failure and whole-tree collapse events become increasingly probable as the canopy continues to deteriorate, exposing the developer and future occupants to foreseeable harm.<br><br>A large, spreading Camphor Laurel is fundamentally incompatible with high density residential or mixed-use development. The tree's extensive root system — which typically extends well beyond the canopy drip line — poses a serious and ongoing threat to footings, underground services, drainage infrastructure, and hardscaping. Building within or near the root protection zone of a large tree of this scale is generally prohibited under relevant planning instruments, and attempting to do so invariably leads to costly structural damage over time. The footprint constraint imposed by the tree's canopy spread and root zone would also significantly reduce the developable area, undermining the yield and viability of the project as a whole.<br><br>Removal should not simply result in a net loss of canopy. Replacement planting with ecologically appropriate native species — selected to match the local provenance and suited to the constraints of the development — would deliver genuine biodiversity, amenity, and urban greening outcomes. Suitable replacement species can be chosen for their non-invasive root systems, structural compatibility with built form, and capacity to support local fauna. This approach satisfies council landscape requirements, contributes meaningfully to canopy cover targets, and delivers long-term amenity value to future residents without the biosecurity, structural, or safety risks associated with the existing tree.<br><br>The subject Camphor Laurel should be removed on the combined grounds of its declared weed status and biosecurity obligations, its ongoing ecological harm through seed dispersal and allelopathy, its declining structural condition and associated safety risks, its fundamental incompatibility with the built and underground infrastructure of a high-density development, and its absence of any conservation or planning value. Replacement with appropriate native species is strongly recommended to ensure positive ecological and amenity outcomes are achieved as part of the development. | Remove and replace. |

# 7. CONCLUSIONS

7.1 **Table 5:** Summary of development impacts on trees assessed.

| Impact | Reason | Retention Category | | |
|---|---|---|---|---|
| | | AA | A | Z |
| Trees to be removed | Building construction, new surfacing and/or proximity, or trees in poor condition. | - | **T6, T10, T11, T12, T14, T26**<br><br>**(6 trees)** | **T7, T8, T9, T13, T16, T17, T18, T20, T21, T22, T23, T25, T27, T28, T29**<br><br>**(15 trees)** |
| Retained trees that will be subject to TPZ encroachment | Removal of existing surfacing/structures and/or installation of new surfacing/structures | - | **T1, T4, T19**<br><br>**(3 trees)** | **T5, T15, T24**<br><br>**(3 trees)** |
| Trees to be retained that will not be subject to TPZ encroachment | Trees are located sufficiently away from the development not to be impacted. | - | - | - |
| Retained trees that will require Root Investigations + project arborist supervision + sensitive installation of structures | Refer to section 6 specifications | - | **T2, T3**<br><br>**(2 trees)** | - |

## 8. RECOMMENDATIONS AND MITIGATION STRATEGIES

8.1 This report assesses the impact of a proposed development at the site on **29 trees** in accordance with AS4970-2025 Protection of trees on development sites.

8.2 For trees that will be required to be removed to facilitate the proposed works, or due to being in poor condition, it is recommended that trees **T6, T7, T8, T9, T10, T11, T12, T13, T14, T16, T17, T18, T20, T21, T22, T23, T25, T26, T27, T28, T29 (total of 21 trees) are removed and replaced**. A landscape plan is recommended to detail replacement tree species and hedge/ screening plantings within the site.

8.3 It is recommended that trees **T1, T2, T3, T4, T5, T15, T19, T24 (total of 8 trees) all be retained within the site.**

8.4 **Trees T1, T2, T3, T4, T5 and T24 (total of 6 trees) require tree protection measures to be installed.**

**Trees T15 and T19 are adequately protected by existing boundary fencing.**

8.5 **Root Investigations are recommended to be carried out along the pink highlighted lines (as shown within Appendix 1A) within the TPZ of T2 and T3 to determine if the driveway access and pedestrian footpath can be constructed without significantly impacting the tree.**

8.6 Tree protection measures are recommended to be installed prior to the commencement of any site activity, inclusive of demolition and installed in accordance with the recommendations made within this report and be compliant to AS4970-2025 Protection of Trees on Development Site.

8.7 All works within the TPZ areas are to be carried out in consultation with the project Arborist who is to monitor the condition of the trees and the site activities throughout the development process.

8.8 All construction activity is to comply with Australian Standard AS4970-2025 Protection of Trees on Development Sites (2025), sections 7, 10 and 11 of this report.

8.9 No services plan has been assessed as part of this report. All underground services located inside the TPZ of any tree to be retained must be installed via tree sensitive techniques. This should include either directional drilling methods or manual excavations to minimise the impact to trees identified for retention. Section 4.5.5 of AS4970-2025 says that 'The directional drilling bore should be at least 600 mm deep. The project Arborist should assess the likely impacts of boring and bore pits on retained trees. For manual excavation of trenches the project Arborist should advise on roots to be retained and should monitor the works'.[5]

8.10 This report does not provide approval for tree removal or pruning works. All recommendations in this report are subject to approval by the relevant authorities and/or tree owners. This report should be submitted as supporting evidence with any tree removal/pruning or development application.

[5] Council of Standards Australia, *AS 4970 Protection of trees on development sites* (2025) page 21.

# 9. ARBORICULTURAL WORK METHOD STATEMENT (AWMS) AND TREE PROTECTION SPECIFICATIONS (TPS)

9.1 **Use of this report:** All contractors must be made aware of the tree protection requirements prior to commencing works at the site and be provided a copy of this report.

9.2 **Tree protection Specifications:** It is the responsibility of the principle contractor to install tree protection prior to works commencing at the site (prior to demolition works) and to ensure that the tree protection remains in adequate condition for the duration of the development. The tree protection must not be moved without prior agreement of the project Arborist. The project Arborist must inspect that the tree protection has been installed in accordance with this document and AS4970-2025 prior to works commencing.

9.3 **Project Arborist:** Prior to any works commencing at the site a project Arborist should be appointed. The project Arborist should be qualified to a minimum AQF level 5 and/or equivalent qualifications and experience, and should assist with any development issues relating to trees that may arise. If at any time it is not feasible to carryout works in accordance with this, an alternative must be agreed in writing with the project Arborist.

9.4 **Tree work:** All tree work must be carried out by a qualified and experienced Arborist with a minimum of AQF level 3 in arboriculture, in accordance with NSW Work Cover Code of Practice for the Amenity Tree Industry (1998) and AS4373 Pruning of amenity trees (2007).

9.5 **Variations to protective fencing:** Where it is not feasible to install fencing at the specified location due to factors such restricting access to areas of the site or for constructing new structures, an alternative location and protection specification must be agreed with the project Arborist. Where the installation of fencing in unfeasible due to restrictions on space, trunk and branch protection will be required (see below). The protective fencing must be constructed of 1.8 metre ‘cyclone chainmesh fence’. The fencing must only be removed for the landscaping phase and must be authorised by the project Arborist. Any modifications to the fencing locations must be approved by the project Arborist.

9.6 **TPZ signage:** Tree protection signage is to be attached to the protective fencing, displayed in a prominent position and the sign repeated at 10 metres intervals or closer where the fence changes direction. Each sign shall contain in a clearly legible form, the following information:

- Tree protection zone/No access.
- This fence has been installed to prevent damage to the tree/s and their growing environment both above and below ground. Do not move fencing or enter TPZ without the agreement of the project Arborist.
- The name, address, and telephone number of the developer/builder and project Arborist

9.7 **Trunk and Branch Protection:** The trunk must be protected by wrapped hessian or similar material to limit damage. Timber planks (50mm x 100mm or similar) should then be placed around tree trunk. The timber planks should be spaced at 100mm intervals, and must be fixed against the trunk with tie wire, or strapping and connections finished or covered to protect pedestrians from injury. The hessian and timber planks must not be fixed to the tree in any instance. The trunk and branch protection shall be installed prior to any work commencing on site and shall be maintained in good condition for the entire development period.

9.8 **Mulch:** Any areas of the TPZ located inside the subject site (only trees to be retained directly adjacent to site works must be mulched to a depth of 75mm with good quality composted wood chip/leaf mulch.

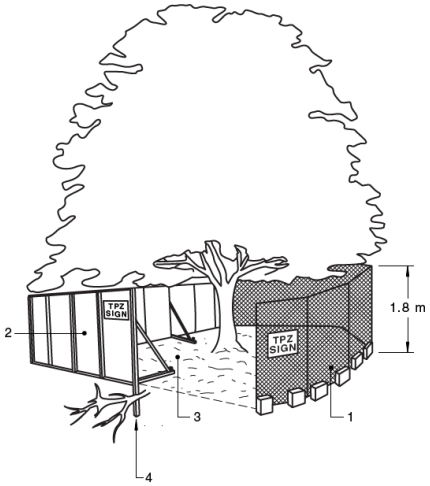
9.9 **Ground Protection:** Ground protection is required to protect the underlying soil structure and root system in areas where it is not practical to restrict access to whole TPZ, while allowing space for construction. Ground protection must consist of good quality composted wood chip/leaf mulch to a depth of between 150-300mm, laid on top of geo textile fabric. If vehicles are to be using the area, additional protection will be required such as rumble boards or track mats to spread the weight of the vehicle and avoid load points. Ground protection is to be specified by the project Arborist as required.



Figure 4 indicates an example of protective fences.

**4.4 Signs**

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site, as shown in Figure 4. The lettering on the sign should conform to AS 1319. Appendix C provides an example of a suitable TPZ sign.




**KEY:**

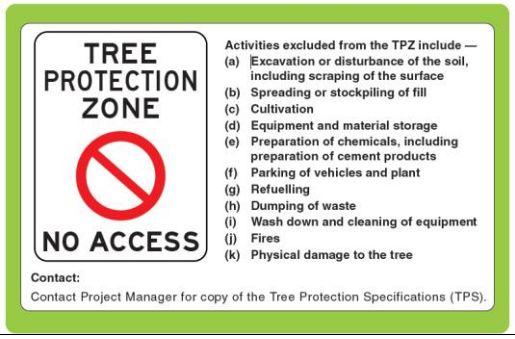
1 Chain wire mesh panels that are held in place with concrete feet.

2 Alternatively, plywood or wooden paling fence panels may be used. This fencing material also prevents building materials or soil from entering the TPZ.

3 Mulch installation across the surface of the TPZ (as detailed in the TPS). No excavation, construction activity grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ other than those indicated in the TPS.

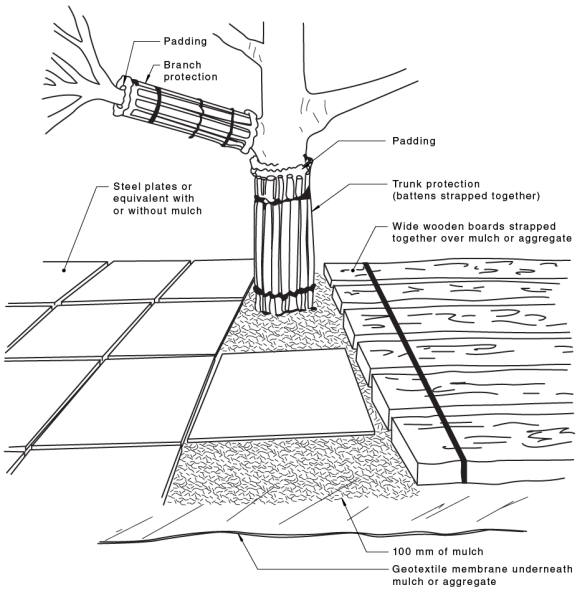
4 Bracing may be used within the TPZ. Installation of posts or supports should avoid damaging roots.

**Figure 4 — Protective fences**




An image from AS4970-2025,[6] with example tree protection, plus a standard TPZ Sign

[6] Council of Standards Australia, *AS4970-2025 Protection of trees on development sites*, page 18, page 31




NOTE 1 For trunk and branch protection, boards and padding may be used to prevent damage to bark. Boards shall be joined to each other using hoop straps and screws or similar. They shall not be screwed or nailed to the tree.

NOTE 2 Wide wooden boards or plastic or metal plates should be of a suitable thickness to spread the load and prevent soil compaction and root damage.

**Figure 5 — Examples of trunk, branch and ground protection**

An image from AS4970-2025,[7] with example tree protection.



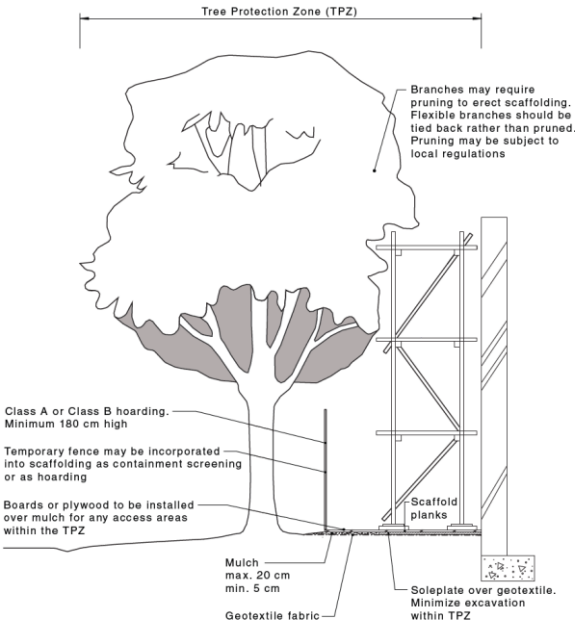



**Figure 6 — Indicative scaffolding within a TPZ**

**Image 3:** An image from AS4970-2025,[8] with example tree protection involving scaffold.

[7] Council of Standards Australia, *AS4970-2025 Protection of trees on development sites*, page 20

[8] Council of Standards Australia, *AS4970-2025 Protection of trees on development sites*, page 22

9.10 **Root investigations:** Where major TPZ encroachments require demonstrating the viability of trees the following method for root investigations is to be used. Non-destructive excavations are to be carried out along the outer edge of proposed or existing structures within the TPZ (excavation methods include the use of pneumatic and hydraulic tools, high-pressure air or a combination of high-pressure water and a vacuum device). Excavations generally consist of a trench to a depth dictated by the location of significant roots, bedrock, unfavourable conditions for root growth, or the required depth for footings up to 1 metre. The investigation is to be carried out by AQF5 consulting Arborist who is to record all roots greater than 30 millimetres in diameter and produce a report discussing the significance of the findings. No roots 30 millimetres in diameter are to be frayed or damaged during excavation and the trench is to be backfilled as soon as possible to reduce the risk of roots drying out. In the event roots must be left exposed they are to be wrapped in hessian sack and regularly irrigated for the duration of exposure.

9.11 **Restricted activities inside TPZ:** The following activities must be avoided inside the TPZ of all trees to be retained unless approved by the project Arborist. If at any time these activities cannot be avoided an alternative must be agreed in writing with the project Arborist to minimise the impact to the tree.

A) Machine excavation.
B) Ripping or cultivation of soil.
C) Storage of spoil, soil or any such materials
D) Preparation of chemicals, including preparation of cement products.
E) Refueling.
F) Dumping of waste.
G) Wash down and cleaning of equipment.
H) Placement of fill.
I) Lighting of fires.
J) Soil level changes.
K) Any physical damage to the crown, trunk, or root system.
L) Parking of vehicles.

9.12 **Demolition:** The demolition of all existing structures inside or directly adjacent to the TPZ of trees to be retained must be undertaken in consultation with the project Arborist. Any machinery is to work from inside the footprint of the existing structures or outside the TPZ, reaching in to minimise soil disturbance and compaction. If it is not feasible to locate demolition machinery outside the TPZ of trees to be retained, ground protection will be required. The demolition should be undertaken inwards into the footprint of the existing structures, sometimes referred to as the ‘top down, pull back’ method.

9.13 **Excavations and root pruning:** The project Arborist must supervise and certify that all excavations and root pruning are in accordance with AS4373-2007 and AS4970-2025. For continuous strip footings, first manual excavation is required along the edge of the structures closest to the subject trees. Manual excavation should be a depth of 1 metre (or to unfavourable root growth conditions such as bed rock or heavy clay, if agreed by project Arborist). Next roots must be pruned back in accordance with AS4373-2007. After all root pruning is completed, machine excavation is permitted within the footprint of the structure. For tree sensitive footings, such as pier and beam, all excavations inside the TPZ must be manual. Manual excavation may include the use of pneumatic and hydraulic tools, high-pressure air or a combination of high-pressure water and a vacuum device. No pruning of roots greater 30mm in diameter is to be carried out without approval of the project arborist. All pruning of roots greater than 10mm in diameter must be carried out by a qualified Arborist/Horticulturalist with a minimum AQF level 3. Root pruning is to be a clean cut with a sharp tool in accordance with AS4373 Pruning of amenity trees (2007).[9] The tree root is to be pruned back to a branch root if possible. Make a clean cut and leave as small a wound as possible.

9.14 **Landscaping:** All landscaping works within the TPZ of trees to be retained are to be undertaken in consultation with a consulting Arborist to minimize the impact to trees. General guidance is provided below to minimise the impact of new landscaping to trees to be retained.

9.15 **Level changes should be minimised**. The existing ground levels within the landscape areas should not be lowered by more than 50mm or increased by more 100mm without assessment by a consulting Arborist.

9.16 **New retaining walls** should be avoided. Where new retaining walls are proposed inside the TPZ of trees to be retained, they should be constructed from tree sensitive material, such as timber sleepers, that require minimal footings/excavations. If brick retaining walls are proposed inside the TPZ, considerer pier and beam type footings to bridge significant roots that are critical to the trees condition. Retaining walls must be located outside the SRZ and sleepers/beams located above existing soil grades.

9.17 **The location of new plantings** inside the TPZ of trees to be retained should be flexible to avoid unnecessary damage to tree roots greater than 30mm in diameter.

9.18 **Sediment and Contamination:** All contamination run off from the development such as but not limited to concrete, sediment and toxic wastes must be prevented from entering the TPZ at all times.

9.19 **Tree Wounding/Injury:** Any wounding or injury that occurs to a tree during the construction process will require the project Arborist to be contacted for an assessment of the injury and provide mitigation/remediation advice. It is generally accepted that trees may take many years to decline and eventually die from root damage. All repair work is to be carried out by the project Arborist, at the contractor's expense.

9.20 **Completion of Development Works:** After all construction works are complete the project Arborist should assess that the subject trees have been retained in the same condition and vigour. If changes to condition are identified the project Arborist should provide recommendations for remediation.

[9] Council Of Standards Australia, *AS 4373 Pruning of amenity trees* (2007) page 18

## 10. HOLD POINTS

10.1 **Hold Points:** Below is a sequence of standard hold points requiring project Arborist certification throughout the development process**.**

10.2 It provides a list of hold points that must be checked and certified where specified by the Consent Authority.

10.3 Certification is recommended to be provided in written format upon completion of each point. The final certification must include details of any instructions for remediation undertaken during the development.

| Hold Point | Stage | Responsibility | Certification | Complete Y/N and date |
|---|---|---|---|---|
| Project Arborist to hold pre construction site meeting with principle contractor to discuss methods and importance of tree protection measures and resolve any issues in relation to feasibility of tree protection requirements that may arise. | Prior to work commencing. | Principle contractor | Project Arborist | |
| Project Arborist To supervise all pruning works to retained trees. | Prior to works commencing | Principal Contractor | Project Arborist | |
| Project Arborist to assess and certify that tree protection has been installed in accordance with section 11 and AS4970-2025 prior to works commencing at site. | Prior to development work commencing. | Principle contractor | Project Arborist | |
| In accordance with AS4970-2025 the project arborist should carryout regular site inspections to ensure works are carried out in accordance with the recommendations. I recommend site inspections on a bi-monthly frequency. | Ongoing throughout the development | Principle contractor | Project Arborist | |
| Project Arborist to oversee all initial pier excavations and demolition inside the TPZ of any tree to be retained. | Construction | Principle contractor | Project Arborist | |
| Project Arborist to certify that all pruning of roots greater than 40mm in diameter has been carried out in accordance with AS4373-2007. All root pruning must be carried out by a qualified Arborist/Horticulturalist with a minimum AQF level 3. | Construction | Principle contractor | Project Arborist | |
| Project Arborist to certify that all underground services including storm water inside TPZ of any tree to be retained have been installed in accordance with AS4970-2025. | Construction | Principle contractor | Project Arborist | |
| All landscaping works/boundary walls within the TPZ of trees to be retained are to be undertaken in consultation with the project Arborist to minimize the impact to trees. | Landscape | Principle contractor | Project Arborist | |
| After all construction works are complete the project Arborist should assess that the subject trees have been retained in the same condition and vigor and authorize the removal | Upon completion of construction | Principle contractor | Project Arborist | |

| | | | | |
|---|---|---|---|---|
| of protective fencing. If changes to condition are identified the project Arborist should provide recommendations for remediation. | | | | |
| Any wounding or injury that occurs to a tree during the demolition/construction process will require the project arborist to be contacted for an assessment of the injury and provide mitigation/remediation advice. All remediation work is to be carried out by the project arborist, at the contractor's expense. | Ongoing throughout the development | Principle contractor | Project Arborist | |

## 11. BIBLIOGRAPHY/REFERENCES


- Council of Standards Australia, *AS4970-2025 Protection of trees on development sites*.
- Council of Standards Australia, *AS4373 Pruning of amenity trees* (2007).
- Mattheck, C. & Breloer, H., *The body language of trees - A handbook for failure analysis*, The Stationary Office, London, England (1994).
- Barrell Tree Consultancy, *SULE: Its use and status into the New Millennium*, TreeAZ/03/2001, http://www.treeaz.com/.
- Barrell Tree Consultancy, *Tree AZ version 10.10-ANZ*, http://www.treeaz.com/.
- State Environmental Planning Policy (SEPP) (Biodiversity and Conservation Act 2021)

## 12. LIMITATIONS AND ASSUMPTIONS

12.1 Observations and recommendations are based on one site inspection. The findings of this report are based on the observations and site conditions at the time inspection. All observations were carried out from ground level. No detailed additional testing was carried out on trees or soil on site and none of the surrounding surfaces were lifted for investigation.

12.2 Where access was not available to neighbouring trees, their dimensions have been estimated from within the property boundary or from public land.

12.3 It is possible that root decay and defects can be present below ground with no visual indication above ground. It is impossible to know the extent of any root damage caused by mechanical damage such as underground root cutting during the installation of services without undertaking detailed root investigation or being present at the time of the works. Any form of tree failure due to these occurrences is beyond the scope of this assessment.

12.4 The report reflects the subject tree(s) as found on the day of inspection. Any changes to the growing environment of the subject tree, or tree management works beyond those recommended in this report may alter the findings of the report. There is no warranty, expressed or implied, that problems or deficiencies relating to the subject tree, or subject site may not arise in the future.

12.5 Tree identification is based on accessible visual characteristics at the time of inspection. As key identifying features are not always available the accuracy of identification is not guaranteed. Where tree species is unknown, it is indicated with a spp.

12.6 Seasoned Tree Consulting neither guarantees, nor is responsible for, the accuracy of information provided by others that is contained within this report.

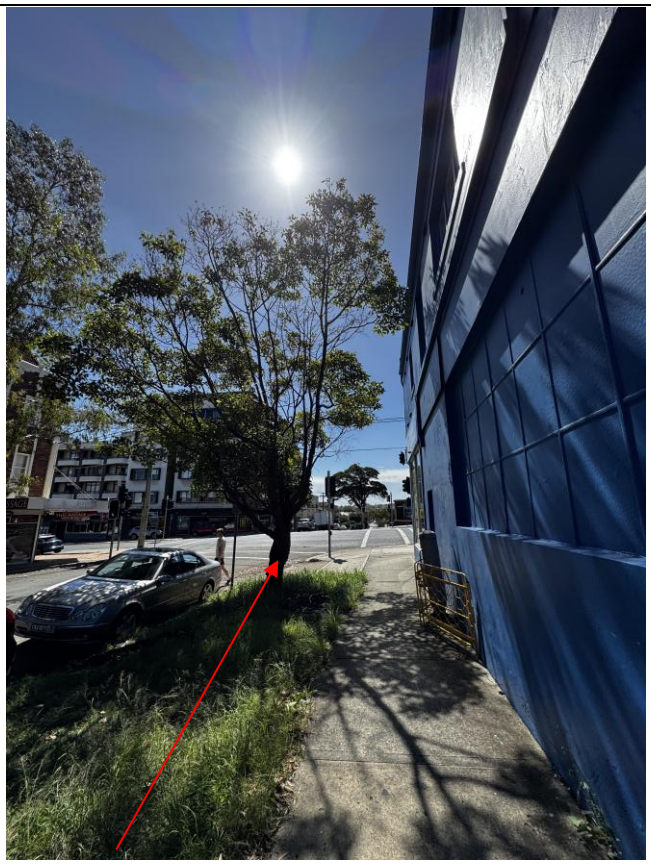
12.7 Trees useful life expectancy has been estimates however this report is not an assessment of risk or probability of failure.

12.8 Trees stated as ‘retainable’ in this report may only be retained in a viable condition in the event they are correctly managed as per the recommendations and specifications in this report. In the event deviations occur the level of impact will increase and likely further impact the trees.

12.9 The ultimate safety of any tree cannot be categorically guaranteed. Even trees apparently free of defects can collapse or partially collapse in extreme weather conditions. Trees are dynamic, biological entities subject to changes in their environment, the presence of pathogens and the effects of ageing. These factors reinforce the need for regular inspections. It is generally accepted that hazards can only be identified from distinct defects or from other failure-prone characteristics of a tree or its locality.

12.10 Alteration of this report invalidates the entire report.

## 13. PHOTOGRAPHS



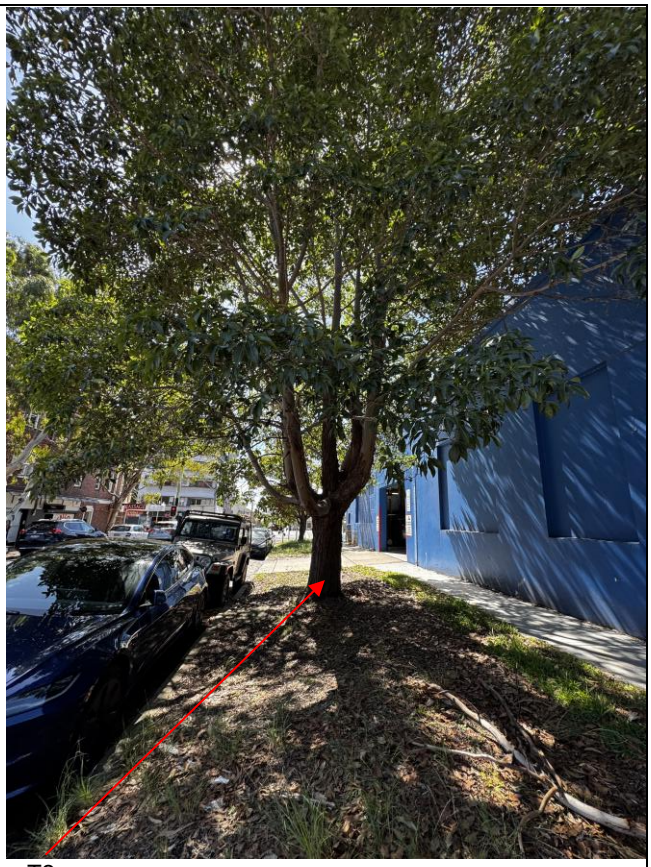
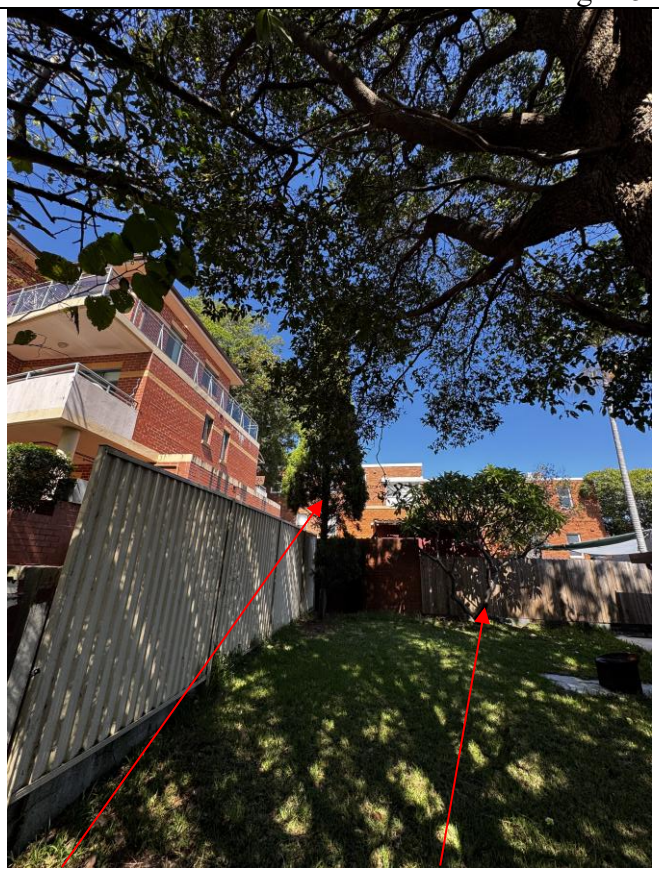
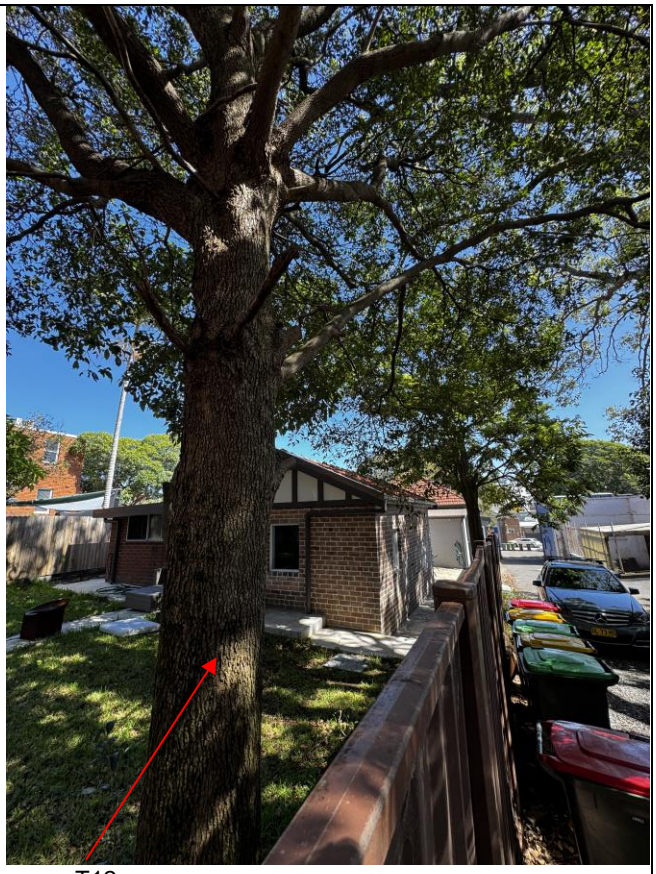


**Image a:** T4, T2

**Image b:** T2, T3, T4





c**Image c:** T11, T10 T12

**Image d:** T23, T22, T21, T20

Site Address: 251 - 257 Maroubra Road & 133 Garden Street, Maroubra
Client Name: BSWLD MAROUBRA PTY LTD
Date prepared: 10 March 2026
Revision: 001

**Image e:** T23, T24

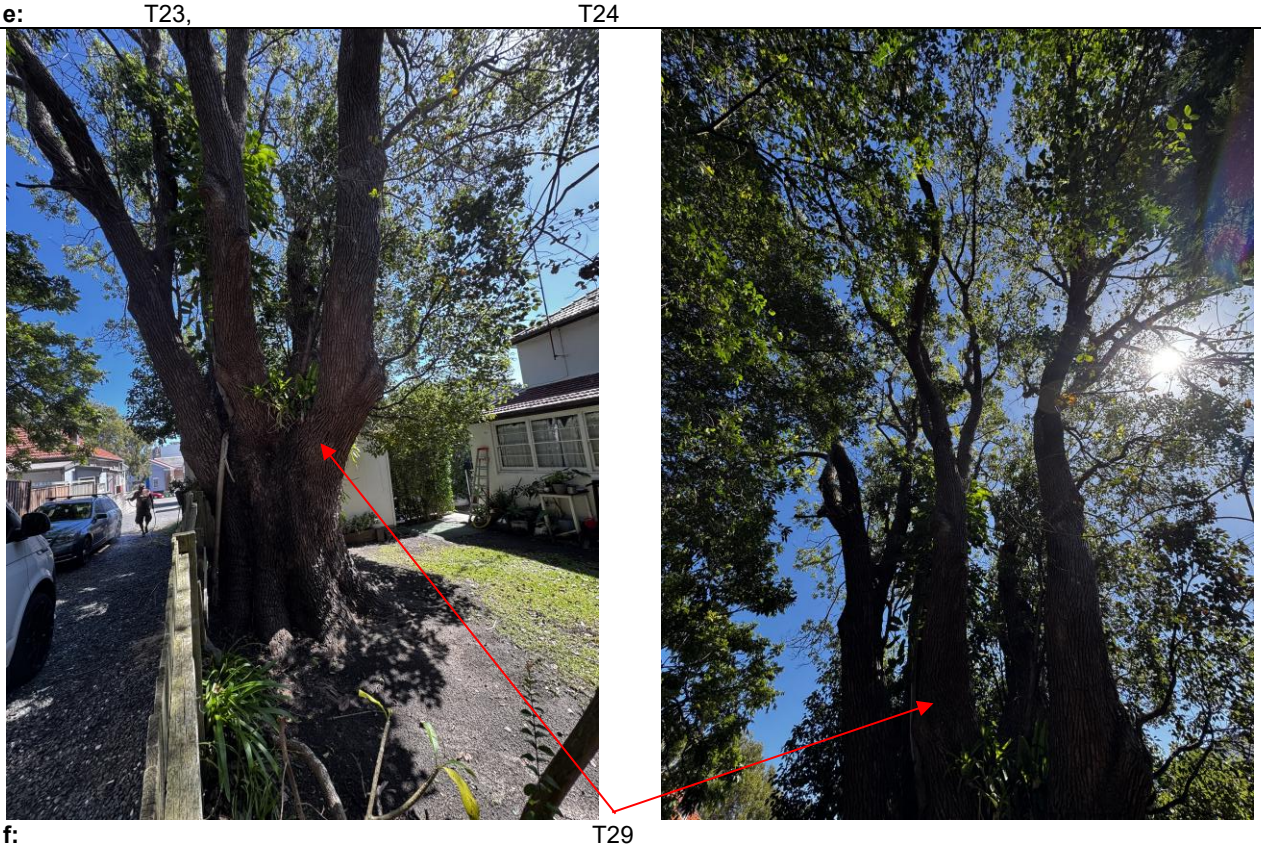


**Image f:** T29

## 14. LIST OF APPENDICIES

The following are included in the appendices:

Appendix 1 – Tree Location Plan
Appendix 1A – Proposed Site Plan and Tree Protection Plan
Appendix 2 - Tree Inspection Schedule
Appendix 3 – Health
Appendix 4 – Structural Condition
Appendix 5 – Age Class
Appendix 7 – SULE Categories
Appendix 8 – Trees AZ Field Sheet
Appendix 9 – NRZ Encroachment Examples

Regards

D. Gowenlock

David Gowenlock- Seasoned Tree Consulting

***Diploma of Arboriculture AQF5***
***Diploma of Conservation and Land Management AQF5***
***TRAQ (International Society of Arboriculture – Tree Risk Assessment Qualification)***
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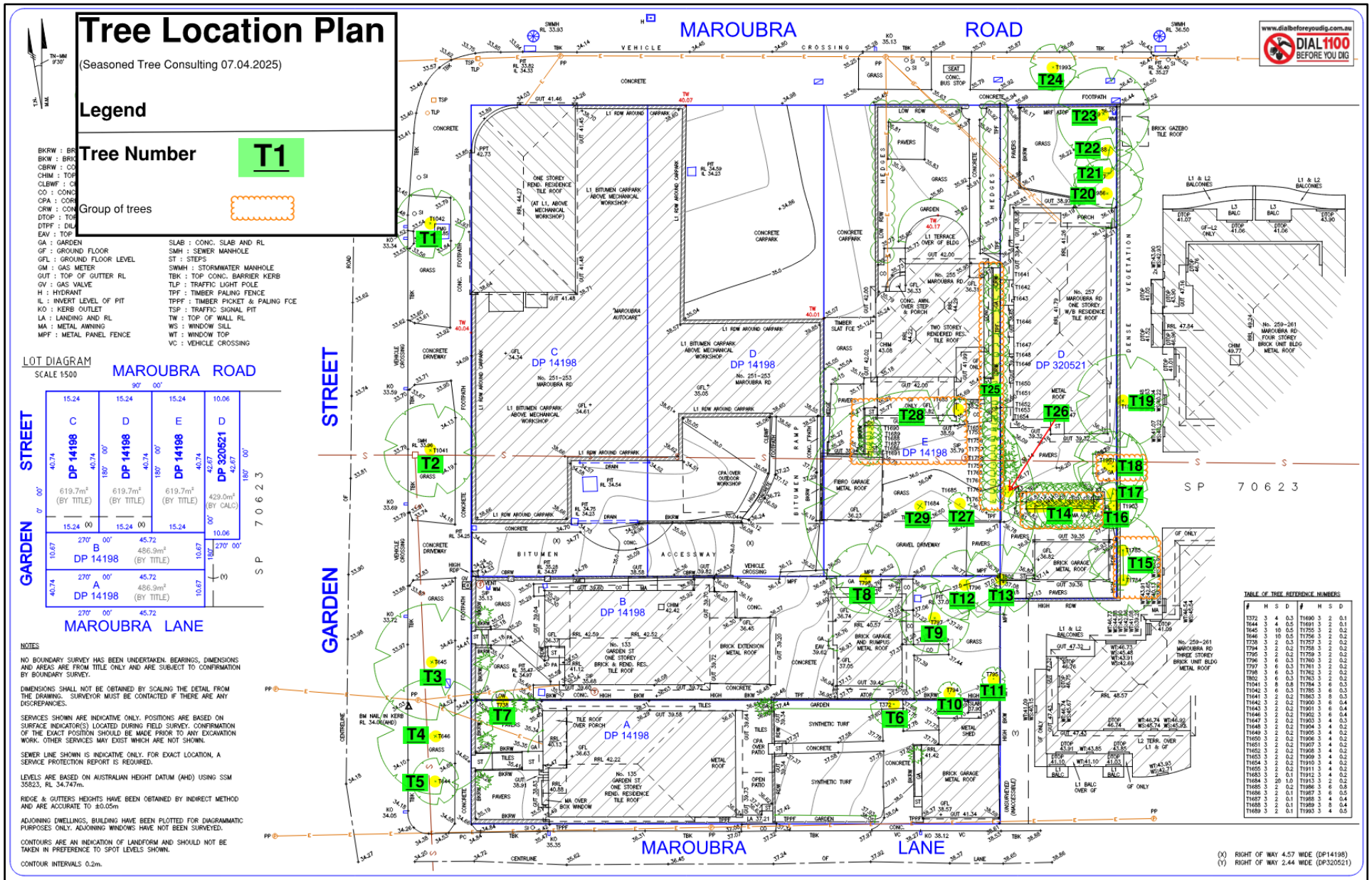
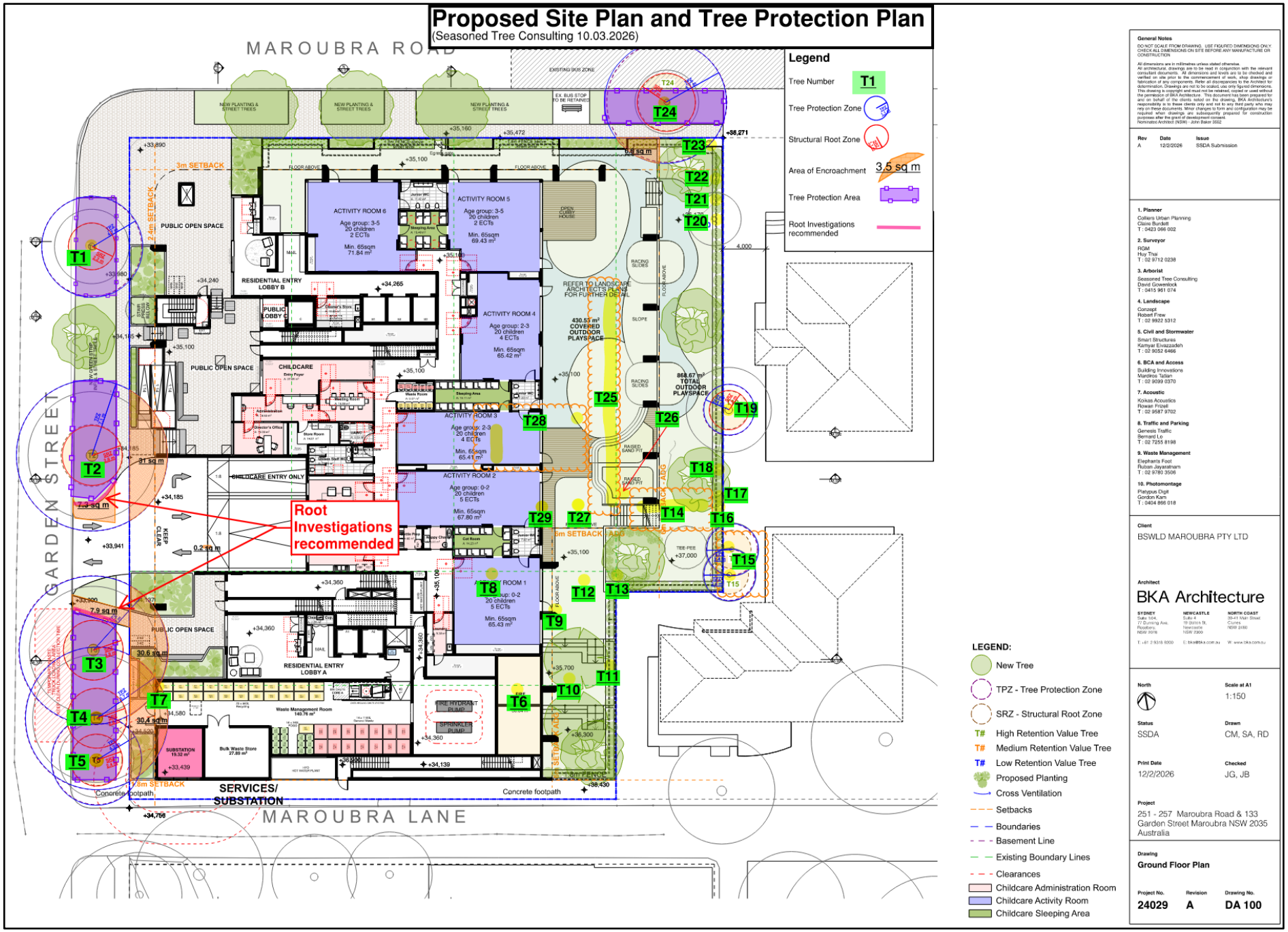
## APPENDIX 1 – TREE LOCATION PLAN



## APPENDIX 1A – PROPOSED SITE PLAN AND TREE PROTECTION PLAN (TPP)



# APPENDIX 2- TREE INSPECTION SCHEDULE

## Tree Inspection Site: 251 - 257 Maroubra Road & 133 Garden Street, Maroubra

**Surveyed by: David Gowenlock  Date of Inspection: 2nd April 2025  Tagged: No**

| Tree ID | Tree Species | DBH (CM) | TPZ radius (M) | TPZ Area (Sq.M) | DAB (CM) | SRZ radius (M) | Height (M) | Spread (M) | Age Class | Health | Structure | Amenity value | SULE (yrs.) | TreeAZ retention Value | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Lophostemon confertus,* Brushbox | 24*31 (=39) | 4.68 | 68.8 | 36 | 2.2 | 7 | 7 | Semi-mature | Fair | Good | Medium | 15 to 40 | A2 | Minor canopy decline |
| 2 | *Lophostemon confertus,* Brushbox | 59 | 7.08 | 157.5 | 65 | 2.8 | 12 | 12 | Mature | Good | Good | High | >40 | A1 | Approx 5% of canopy overhangs existing building |
| 3 | *Eucalyptus haemastoma,* Scribbly gum | 58 | 6.96 | 152.2 | 65 | 2.8 | 13 | 12 | Mature | Good | Fair / good | High | >40 | A1 | Surface roots on street side. |
| 4 | *Eucalyptus haemastoma,* Scribbly gum | 56 | 6.72 | 141.9 | 65 | 2.8 | 14 | 12 | Mature | Good | Good | High | >40 | A1 | Nearly no branches grow into subject site. Large amount of Surface roots on street side. |
| 5 | *Callistemon sp.,* Bottlebrush | 24*19*17(=35) | 4.2 | 55.4 | 45 | 2.4 | 6 | 7 | Mature | Good | Poor | Medium | <5 | Z5 | Separating Codominant stems at ground. |
| 6 | *Archontophoenix cunninghamiana,* Bangalow palm | - | - | - | - | - | 9 | 3 | Mature | Good | Good | Low | 15 to 40 | A1 | |
| 7 | *Camellia japonica,* Japanese camellia | - | - | - | - | - | 3 | 3 | Mature | Good | Fair | Low | 15 to 40 | Z1 | Hedged ball. |
| 8 | *Castanospermum australe,* Black Bean | 27 | 3.24 | 33 | 30 | 2 | 8 | 7 | Semi-mature / mature | Good | Good | Medium | >40 | Z2 | Close to dwelling. |
| 9 | *Persea sp.*, Avacado | 25 | 3 | 28.3 | 28 | 1.9 | 6 | 6 | Mature | Good | Fair | Medium | 5 to 15 | Z3 | Large trunk lean |
| 10 | *Frangipani sp.*, Frangipani | 25 | 3 | 28.3 | 25 | 1.8 | 4 | 5 | Semi-mature / mature | Good | Good | Low | >40 | A1 | Hard to assess tree, all data estimated over fence |
| 11 | *Cupressus torulosa*, Bhutan cypress | 20 | 2.4 | 18.1 | 22 | 1.8 | 8 | 2.5 | Juvenile / semi-mature | Good | Good | Medium | >40 | A1 | |
| 12 | *Syzygium paniculatum,* Magenta Lilly pilly | 31 | 3.72 | 43.5 | 35 | 2.1 | 10 | 10 | Semi-mature | Good | Fair | Medium | >40 | A1 | Slightly sparse |
| 13 | *Morus Sp.,* Mulberry | 25 | 3 | 28.3 | 25 | 1.8 | 7 | 5 | Mature | Fair | Poor | Low | <5 | Z3 | Trunk decay |
| 14 | *Row of Murraya* paniculata, Murraya | - | - | - | - | - | 4 | 3 | Mature | Good | Fair | Low | 15 to 40 | A2 | |
| 15 | 2 x *Cupressus sp.,* Cypress pine | 20 | 2.4 | 18.1 | 25 | 1.8 | 7 | 5 | Semi-mature | Good | Fair | Medium | 15 to 40 | Z10 | Behind brick wall |

| Tree ID | Tree Species | DBH (CM) | TPZ radius (M) | TPZ Area (Sq.M) | DAB (CM) | SRZ radius (M) | Height (M) | Spread (M) | Age Class | Health | Structure | Amenity value | SULE (yrs.) | TreeAZ retention Value | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | *Corymbia citriodora,* Lemon scented gum | 20 | 2.4 | 18.1 | 20 | 1.7 | 5 | 4 | Mature | Fair | Fair | Low | - | Z10 | |
| 17 | *Syagrus romanzoffiana,* Cocos palm | - | - | - | - | - | 10 | 5 | - | - | - | - | - | Z3 | |
| 18 | *Cinnamomum camphora,* Camphor laurel plus *Morus Sp.,* Mulberry plus *Mangifera sp.,* Mango | 37 | 4.44 | 61.9 | 42 | 2.3 | 12 | 10 | Semi-mature / mature | Fair | Fair | Medium | 15 to 40 | Z3 | Group of 3 trees |
| 19 | *Jacaranda mimosifolia,* Jacaranda | 20 | 2.4 | 18.1 | 25 | 1.8 | 9 | 8 | Semi-mature | Good | Good | Medium | >40 | A1 | Behind brick wall. Grows into site by max 2m. |
| 20 | *Phoenix canariensis,* Canary island date palm | | | | | | 6 | 5 | Semi-mature | Good | Good | Medium | >40 | Z2 | Close to dwelling |
| 21 | *Morus Sp.,* Mulberry | 25 | 3 | 28.3 | 50 | 2.5 | 8 | 7 | Senescent | Fair | Poor | Medium | <5 | Z3/Z5 | Trunk decay. |
| 22 | Dead stump | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 23 | *Cedrus deodara,* Deodar cedar | 34 | 4.08 | 52.3 | 37 | 2.2 | 13 | 10 | Mature | Fair | Fair | Medium | 5 to 15 | Z10 | Small leaf, sparse. Roots likely concentrated within site due to brick walls on boundaries |
| 24 | *Agonis flexuosa*, Peppermint | 47 | 5.64 | 99.9 | 60 | 2.7 | 4 | 6 | Mature | Fair | Poor | Medium | <5 | Z4 | Topped under LVOH. At least 3 bracket fungi on S side of trunk. |
| 25 | *Cupressocyparis leylandii,* Leighton green | 15 | 2 | 12.6 | 15 | 1.5 | 6 | 3 | Semi-mature / mature | Good | Poor | Medium | 15 to 40 | Z3 | Half hedged/ half let go |
| 26 | *Howea forsteriana,* Kentia palm | - | - | - | - | - | 8 | 4 | Mature | Good | Good | Medium | >40 | A1 | |
| 27 | *Lagerstroemia indica,* Crepe myrtle | 20 | 2.4 | 18.1 | 20 | 1.7 | 5 | 2 | Senescent | Poor | Poor | Low | <5 | Z4 | Mostly dead |
| 28 | *Murraya paniculata,* Murraya | 5 | 2 | 12.6 | 8 | 1.1 | 4 | 2 | Semi-mature | Good | Good | Low | >40 | Z1 | Tiny. |
| 29 | *Cinnamomum camphora*, Camphor laurel | 150 | 15 | 706.9 | 180 | 4.2 | 18 | 20 | Mature | Fair | Good | High | 5 to 15 | Z3/ Z10 | Massive trunk. Canopy decline. |

**Explanatory Notes**
**Tree Species** - Botanical name followed by common name in brackets. Where species is unknown it is indicated with an '*spp'*.

Site Address: 251 - 257 Maroubra Road & 133 Garden Street, Maroubra
Client Name: BSWLD MAROUBRA PTY LTD
Date prepared: 10 March 2026
Revision: 001

**DSH – Diameter at Standard Height (Measurement used for NRZ calculation).** Measured or estimated at approximately 1.4m above ground level by use of diameter tape. If trees are inaccessible due to dense bush or being located in private property they are generally estimated.
**NRZ – Notional Root Zone. DSH x 12 measured in radius from the centre of the trunk (Palm NRZ - The NRZ of palms, other monocots, cycads and tree ferns is not calculated, but should not be less than 2m)**
**NRZ Area (Sq.M)-** The area of the TPZ calculated in square metres.
**Diameter At Base (DAB):** Measured with a DBH tape or estimated above root buttresses (DAB) for calculating the SRZ.
**Structural Root Zone (SRZ)** - (DAB x 50) $^{0.42}$ x 0.64. Measured in radius from the center of the trunk. Rounded up to nearest 0.1m.
**Height** - Height from ground level to top of crown. All heights are estimated unless otherwise indicated.
**Spread** - Diameter of crown at widest section. All tree spreads are estimated unless otherwise indicated.
**Age Class** - Over mature (OM), Mature (M), Early mature (EM), Semi mature (SM), Young (Y), Dead (D).
**Health** - Good/Fair/Poor/Dead
**Structure** - Good/Fair/Poor
**Amenity Value** - Very High/High/Medium/Low/Very Low.
**Safe Useful Life Expectancy (SULE)** - 1. Long (40+years), 2. Medium (15 - 40 years), 3. Short (5 - 15 years), 4. Remove (under 5 years), 5. Small/young.
**TreeAZ retention Value-** See Appendix

## Appendix 3 – Assessment of Health

| Category | Example condition | Summary |
|---|---|---|
| Good | • Crown has good foliage density for species.<br>• Tree shows no or minimal signs of pathogens that are unlikely to have an effect on the health of the tree.<br>• Tree is displaying good vigour and reactive growth development. | • The tree is in above average health and condition and no remedial works are required. |
| Fair | • The tree may be starting to dieback or have over 25% deadwood.<br>• Tree may have slightly reduced crown density or thinning.<br>• There may be some discolouration of foliage.<br>• Average reactive growth development.<br>• There may be early signs of pathogens which may further deteriorate the health of the tree.<br>• There may be epicormic growth indicating increased levels of stress within the tree. | • The tree is in below average health and condition and may require remedial works to improve the trees health. |
| Poor | • The may be in decline, have extensive dieback or have over 30% deadwood.<br>• The canopy may be sparse or the leaves may be unusually small for species.<br>• Pathogens or pests are having a significant detrimental effect on the tree health. | • The tree is displaying low levels of health and removal or remedial works may be required. |
| Dead | • The tree is dead or almost dead. | • The tree should generally be removed. |

## Appendix 4 - Structural condition

| Category | Example condition | Summary |
|---|---|---|
| Good | • Branch unions appear to be strong with no sign of defects.<br>• There are no significant cavities.<br>• The tree is unlikely to fail in usual conditions.<br>• The tree has a balanced crown shape and form. | • The tree is considered structurally good with well developed form. |
| Fair | • The tree may have minor structural defects within the structure of the crown that could potentially develop into more significant defects.<br>• The tree may a cavity that is currently unlikely to fail but may deteriorate in the future.<br>• The tree is an unbalanced shape or leans significantly.<br>• The tree may have minor damage to its roots.<br>• The root plate may have moved in the past but the tree has now compensated for this.<br>• Branches may be rubbing or crossing. | • The identified defects are unlikely cause major failure.<br>• Some branch failure may occur in usual conditions.<br>• Remedial works can be undertaken to alleviate potential defects. |
| Poor | • The tree has significant structural defects.<br>• Branch unions may be poor or weak.<br>• The tree may have a cavity or cavities with excessive levels of decay that could cause catastrophic failure.<br>• The tree may have root damage or is displaying signs of recent movement.<br>• The tree crown may have poor weight distribution which could cause failure. | • The identified defects are likely to cause either partial or whole failure of the tree. |

## Appendix 5 - Age class

Determining the exact age of a tree is difficult without carrying out potentially invasive testing. The age class of the subject tree has been estimated using the definitions below.

| Category | Description |
|---|---|
| Young/Newly planted | • Young or recently planted tree. |
| Semi Mature | • Up to 20% of the usual life expectancy for the species. |
| Early mature/Mature | • Between 20% - 80% of the usual life expectancy for the species. |
| Over mature | • Over 80% of the usual life expectancy for the species. |
| Dead | • Tree is dead or almost dead. |

## Appendix 7 - Safe Useful Life Expectancy (SULE), (Barrel, 2001)

A trees safe useful life expectancy is determined by assessing a number of different factors including the health and vitality, estimated age in relation to expected life expectancy for the species, structural defects, and remedial works that could allow retention in the existing situation.

| Category | Description |
|---|---|
| 1. Long | Useful life expectancy over 40 years |
| 2. Medium | Useful life expectancy 15 to 40 years |
| 3. Short | Useful life expectancy 5 to 15 years |
| 4. Remove | Useful life expectancy under 5 years |
| 5. Small/Young | Trees that could be transplanted or replaced with similar specimen. |
| 6. Unstable | Tree has become hazardous or structurally unstable. |

# Appendix 8 – Trees AZ Field Sheet

### TreeAZ Categories (Version 10.04-ANZ)

**CAUTION:** TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

## Category Z: Unimportant trees not worthy of being a material constraint

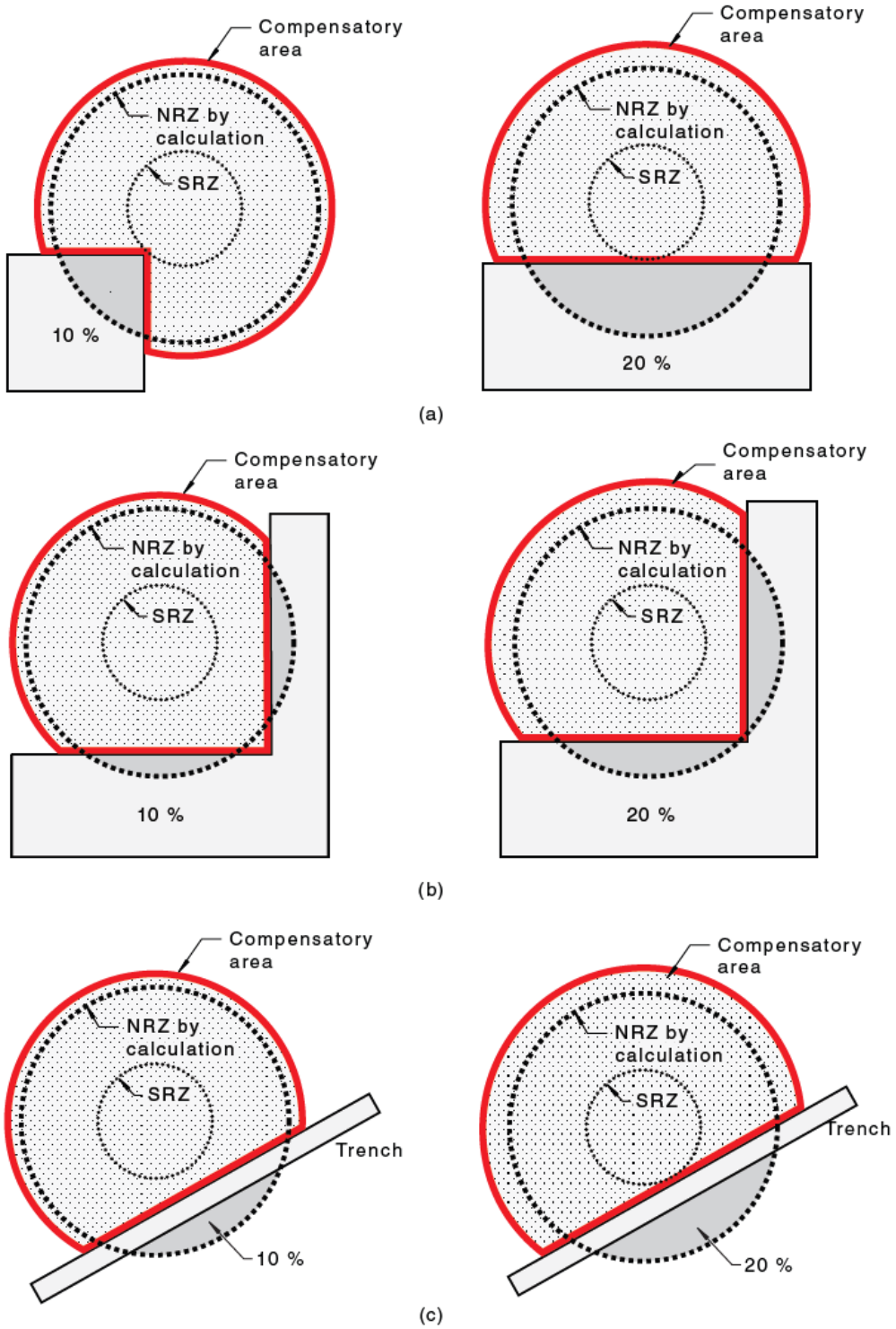
| | |
|---|---|
| **Local policy exemptions:** Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species | |
| **Z1** | Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc |
| **Z2** | Too close to a building, i.e. exempt from legal protection because of proximity, etc |
| **Z3** | Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc |
| **High risk of death or failure:** Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure | |
| **Z4** | Dead, dying, diseased or declining |
| **Z5** | Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc |
| **Z6** | Instability, i.e. poor anchorage, increased exposure, etc |
| **Excessive nuisance:** Trees that are likely to be removed within 10 years because of unacceptable impact on people | |
| **Z7** | Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc |
| **Z8** | Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc |
| **Good management:** Trees that are likely to be removed within 10 years through responsible management of the tree population | |
| **Z9** | Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc |
| **Z10** | Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc |
| **Z11** | Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc |
| **Z12** | Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc |

**NOTE:** Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

## Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

| | |
|---|---|
| **A1** | No significant defects and could be retained with minimal remedial care |
| **A2** | Minor defects that could be addressed by remedial care and/or work to adjacent trees |
| **A3** | Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years |
| **A4** | Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment) |

**NOTE:** Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.




NOTE These examples are not to scale and are for illustrative purposes. The proposed encroachment is considered minor if it is less than or equal to 10 % of the area of the NRZ, has not had recent TPZ encroachments and is outside of the SRZ (see Clause 3.4). The proposed encroachment is considered moderate if it is greater than 10 % and less than or equal to 20 % of the area of the NRZ and is outside of the SRZ (see Clause 3.4).

**Figure 1 — Sample minor and moderate encroachments**