
rain Tree consulting

Arboricultural Management

PO Box 326 AVALON NSW 2107

Mobile 0419 250 248

12 September 2025

2 FISHBURN CRESCENT

CASTLE HILL, NSW

DEVELOPMENT PROPOSAL

ARBORICULTURAL IMPACT

ASSESSMENT

(AIA) REPORT

Ref No- 5125

Prepared for
Arada Development Management Pty Ltd
12 Harvey Street, PYRMONT NSW

Prepared by
Mark A. Kokot
AQF Level 5 Consulting arborist



CONTENTS	page
INTRODUCTION	3
METHODOLOGY	4
1. SUMMARY OF ASSESSMENT	
1.1 General tree assessment	5
1.2 The development proposal	5
1.3 Tree removal to accommodate design	6
Figure 1, showing proposed design footprint & tree removal plan	6
1.4 Discussion of development impacts	7
Figure 2, showing T15 & 16 design occupancy area	9
1.5 Details which require further information	10
2. CONCLUSIONS & RECOMMENDATIONS	
2.1 Tree removal	11
2.2 Specific recommendations & Critical stages	11
2.3 General tree protection requirements	13
APPENDICES	16
Appendix- A: Terminology & References	17
Appendix- B: Tree Protection & Fencing Detail	18
Appendix- C: Tree Retention Values <i>Checklist</i>	19
Appendix- D: Tree Assessment Schedule	20
Appendix- E: Tree Location Plan	25
Appendix- F: Tree Management Plan <i>Sheet 1 of 2</i>	26
Tree Management Plan <i>Sheet 2 of 2</i>	27

INTRODUCTION

This report has been commissioned by Arada Development Management Pty Ltd. The purpose & scope of work is to assess potential impacts that may occur to trees in relation to a new development proposal located within Lot 1 in DP 1316896 known as 2 Fishburn Crescent CASTLE HILL NSW.

Recommendations for retention or removal of trees are based on the tree's protection status being prescribed (LGA protected) trees, environmental & landscape significance, tree structural condition, estimated remaining Useful Life Expectancy (U.L.E.) and potential impacts to trees by the development proposal.

This report acknowledges and utilizes the current Australian Standards 'Protection of Trees on Development Sites' AS4970 – 2025 as explained within Notes of Appendix- A. Within this report development incursions within Notional Root Zone's (NRZ's) are based on percentages of incursion noted within Note 2 of Appendix- A; described as *Negligible* (0%), *Minor* (<10%), manageable *Moderate* (<20%) or *Major* (>20%) NRZ occupancy; having *low*, *moderate* to *high-level* impacts within tree protection zones. Where site restrictions within notional root zone radiuses exist development impacts or encroachment disturbances are based on author's experience, observations of site conditions, soil type and topography.

Each tree assessed within this report has been accorded a temporary identification number and is referred to by number throughout this report. For additional trees not plotted in provided documentation their location has been estimated by taking offsets from existing trees and structures.

The trees, their location, development impact and design requirements have been detailed within the Tree Assessment Schedule of Appendix- D and located within the Tree Location Plan provided within Appendix- E.

Care has been taken to obtain information from reliable sources. All data has been verified as far as possible, however, I can neither guarantee nor be responsible for the accuracy of information provided by others.

DISCLAIMER & LIMITATION ON THE USE OF THIS REPORT

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or copy) is referenced in, and directly to that submission, report or presentation. Unless stated otherwise: Information contained in this report covers only the tree/s that were examined and reflects the condition of the trees at the time of inspection: and the inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Trees are a living entity and change continuously, they can be managed but not controlled and to be associated near one involves some degree of risk.

METHODOLOGY

1. In preparation for this report a site and ground level visual tree inspection was conducted on Friday 6 June 2025 by the author of this report. The principles of visual tree inspection were primarily adopted from components of Mattheck & Breloer 1994 'The Body Language of Trees' with basic risk values determined by criteria explained within the ISA TRAQ (tree risk) manual 2017. The inspection included observing the overall health and vigour of trees, tree form, structure and structural condition as best as site conditions would allow. On completion of the inspection the retention value of the tree was summarised utilizing the tree inspection Checklist provided within Appendix- C.
2. The inspection was limited to visual observations where no invasive investigation was undertaken. Tree height and canopy spread was estimated and expressed in metres with trunk diameters measured at approximately 1.4 metres above ground level, rounded off to the nearest 50mm and expressed as DSH (Diameter at Standard Height). Where multi stems at or near the base exist the stem group diameter was estimated as a tight clump. Where neighbouring trees were unable to be visually inspected trunk diameters and structural condition was estimated. Estimated trunk diameters were also provided where the trunks of trees have been protected by timber beam trunk protection, or fenced tree protection zone have been installed restricting access to trees.
3. Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree as indicated within provided survey and/or design documentation.
4. Plans and/or documentation reviewed to assist in preparation of this assessment include:
 - Turner Architects, project No: 23104 *specific to:*
 - Basement 01 Dwg No: 110-006 Rev S dated 13.8.2025.
 - Lower Ground Dwg No: 110-007 Rev U dated 13.8.2025.
 - Ground Level Dwg No: Dwg No: 110-008 Rev S dated 13.8.2025.
 - Upper Ground Level Dwg No: 110-009 Rev S dated 13.8.2025.
 - Arcadia job No: 24-1020, *specific to landscape design plans:*
 - Master Plan Dwg No: L-101, issue B dated 29.7.25
 - Softworks, Lower, Ground & Upper Ground Floor Dwg No: L-401, issue B dated 29.7.25.
 - East Coast Surveyors
 - Detailed Survey, Sheet 1, Dwg No: ECP2896.D.01B, Rev B dated 17.5.2024

1. SUMMARY OF ASSESSMENT

1.1 General tree assessment

1.1.1 Sixteen (16) trees have been assessed for the purpose of this development proposal. Of the sixteen trees nine (9) trees are Council verge Street trees and three (3) trees are neighbouring trees or groups of.

1.1.2 Council verge trees are identified as trees:

- T1 to 9.

Of these trees T1, 2 & 7 have been identified with low retention values and T4 is a dead tree. Being dead or trees of low retention values, the trees should generally not restrict development within the site due to their expected remaining short safe useful life expectancies.

Of the above trees T7 has been identified for removal to accommodate new public pathway access with trees T1 & 4 recommended for removal for safety reasons due to being dead or structurally defective.

1.1.3 Neighbouring trees are identified as trees:

- T10, 11 & 12.

Basement and Ground Floor design, encroachment impacts have been determined as *manageable Moderate (<20%)* NRZ disturbance to T10 with *Minor (<10%)* encroachment impacts occurring to remaining trees. The trees will likely require removal for neighbouring development, however, for as long as the trees exist tree protection fencing is recommended to be installed as indicated within this report.

1.1.4 Trees within the site are identified as trees:

- T13, 14, 15 & 16.

The above trees are highly significant trees with Sydney Blue Gum trees T15 & 16 forming part of an Endangered Ecological Community and protected under the Threatened Species Conservation Act 1995.

Of the above trees T13 & 14 require removal to accommodate the design proposal with tree 15 & 16 receiving *High-level* occupancy within Structural Root Zone's (SRZ's) and Notional Root Zone (NRZ) radiuses.

1.1.5 In general, with the exception of dead and low retention value trees the trees inspected are considered viable for retention without change in existing site conditions or modification within Tree Protection Zone (TPZ) radiuses as indicated within the SRZ & NRZ distance column provided within Appendix- D.

1.2 The development proposal

1.2.1 The development proposal consists of constructing multi-level residential apartments with deep excavation to accommodate ground floor and basement levels. New public domain areas including green space corridors incorporate the design that requires site leveling and deep excavation within Structural Root Zone (SRZ) and Notional Root Zones (NRZ) radiuses of prescribed (protected) trees.

1.3 Tree removal to accommodate design

- 1.3.1 The design proposal requires the removal of three (3) trees T7, 13 & 14. Of the above tree T7 contains a low retention value.
- 1.3.2 Trees recommended for removal being potential hazard trees are identified as trees T1 & 4.
Of the above tree T1 is a structurally defective tree at risk of failing and T4 is a dead tree.
Tree 2 has also been assessed as containing a low retention value and is only expected to remain viable for the very short term (5-15yrs).
- 1.3.3 The identified development impacts and design requirements have been detailed and required to be reviewed as part of this report within Appendix-D, with the following sections summarizing impacts by the design proposal.

Figure 1: showing proposed design footprint & tree removal plan



1.4 Discussion of development impacts

Tree removal

1.4.1 Based on the documentation assessed three (3) trees T7, 13 & 14 specifically require removal to accommodate the design proposal. Impacts relating to tree removal consist of:

- Tree 7: The tree is located within the footprint of the proposed new and upgraded public footpath.
- Trees 13 & 14: Proposed public domain works including public pathways, Civil works, road modification and landscape design proposes a *High-level* of disturbance within SRZ & NRZ radiuses. Given the age and establishment of the trees within the site, design footprints and site disturbances indicate the trees will unlikely tolerate new works and occupancy impacts by the design proposal.

1.4.2 Given the poor structural condition of T1 the tree should be considered for removal with T2 also identified as containing a short retention value.

Unless specified otherwise the following discussions are based on the above trees being specified for retention.

Tree retention:

<i>Trees receiving Negligible, Minor (<10%) or Moderate (10-<20%) NRZ encroachments without SRZ occupancy.</i>
--

1.4.3 Excluding dead tree T4 the following four (4) trees receive *Negligible* or new manageable *Moderate* NRZ design footprint encroachment impacts.

- T2, 10, 11 & 12.

Having works outside the SRZ the trees are capable of being managed in accordance with standard practices outlined within Section 2.3 *General tree protection requirements* and as indicated below:

1.4.4 Specific recommendations for managing TPZ disturbances within the site and during construction include:

Council verge pathways:

- a) Within TPZ's pathways are recommended to be of tree sensitive design & construction being placed on top of ground level without excavation cut or compaction to protect underlying tree roots.
- b) Prior to works pathway Civil design plans are recommended to be reviewed by an appointed project arborist to provide any additional tree management advice.
- c) All excavations within NRZ radiuses are to be supervised & certified by an appointed project arborist.
- d) Encountered tree roots are to be managed as instructed by the supervising arborist and treated / clean cut as per Section 2.3 subsection g) or as indicated within AS4970–2025 Section 4.5.4 *Root protection during works within the TPZ.*

Trees receiving Minor (<10%) or Moderate (10-<20%) NRZ encroachments with SRZ occupancy.

1.4.5 Those trees receiving *Moderate* NRZ design footprint encroachment impacts with SRZ occupancy are identified as tree: T1, 3, 5, 6 & 8.

Having works within the SRZ being *the area required for tree stability* the trees require specific tree management to mitigate impacts by the design proposal being specific to:

- a) Within SRZ's pathways are recommended to be suspended or placed on top of ground level to span over critical anchoring roots. At no stage should excavation cut, compaction or root severing occur within SRZ radiuses. The management of SRZ radiuses should incorporate design factors within NRZ's as indicated below.
- b) Within NRZ's pathways are recommended to be of tree sensitive design & construction being placed on top of ground level without excavation cut or compaction to protect underlying tree roots.
- c) Prior to works all final Civil design plans are recommended to be reviewed by an appointed project arborist providing additional tree protection and management advice.
- d) All excavations within NRZ radiuses are to be supervised and certified by an appointed project arborist.
- e) Encountered tree roots are to be managed as instructed by the supervising arborist, treated and clean cut as per Section 2.3 subsection g) or as indicated within AS4970–2025 Section 4.5.4 *Root protection during works within the TPZ*.
- f) Having manageable (<20%) encroachment impacts all management requirements as indicated within Section 2.3 *General tree protection requirements* apply.

Tree 5 specific:

- g) An appointed project arborist shall supervise and certify the line of excavation cut to accommodate the proposed vehicle access from Fishburn Crescent.
- h) Additional supervision during excavation is recommended for the proposed Substation hardstand with electrical service routes provided for arborist review and comment prior to works commencing within the TPZ.

Trees receiving Moderate-high (20 - 25%) NRZ encroachment impacts with SRZ occupancy.

1.4.6 Tree 9 receives a *Moderate* to *high* level of Civil and landscape design occupancy with footpath construction within the SRZ. Mitigating impacts primarily consist of:

- a) Within the SRZ the pathway is recommended to be suspended or placed on top of ground level to retain and span over critical anchoring roots.

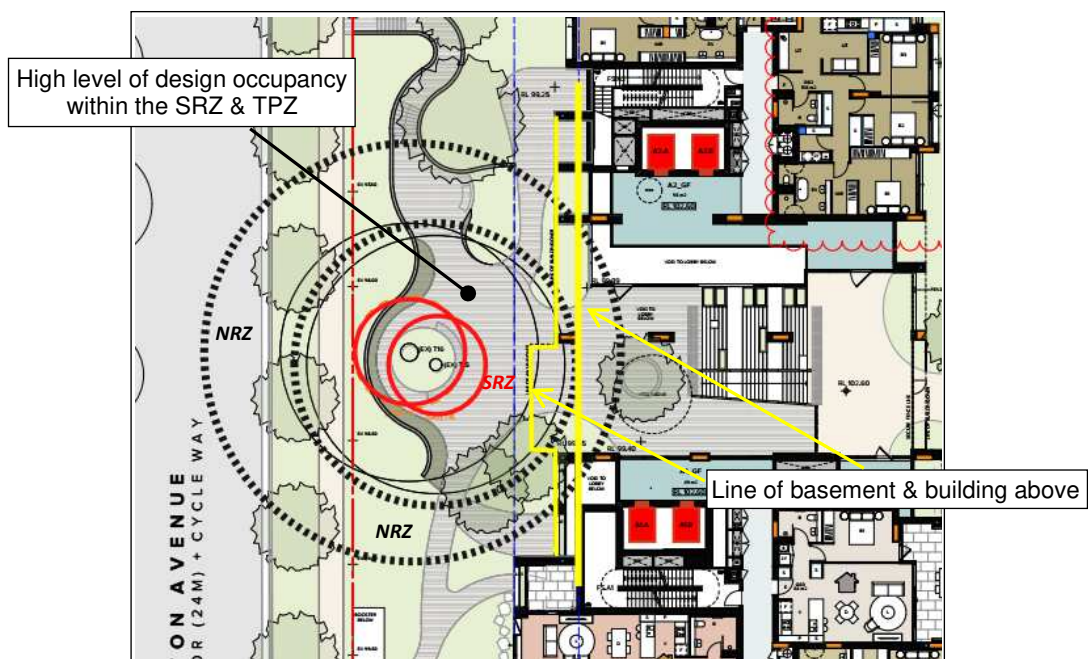
- b) At no stage should excavation cut, compaction or root severing occur within SRZ radiuses. The management of SRZ radiuses should incorporate design factors within NRZ's that include:
- c) Within the NRZ pathways and paver hardstand are recommended to be of tree sensitive design and construction being placed on top of ground level without excavation cut or compaction to protect underlying tree roots.
- d) The paver hardstand as indicated within design Plan 110-009 is recommended to be of tree sensitive design and construction with permeable pavement material to manage underlying tree roots.

Tree(s) likely adversely affected, may fail, decline or become hazardous due to High-level impacts.

1.4.7 Two (2) trees T15 & 16 receive *High-level* Tree Protection Zone (TPZ) occupancy by general work construction occupancy or disturbances, Civil works and landscape design within the SRZ & NRZ. Although both building and basement footprints have manageable *Minor* (<10%) NRZ encroachment impacts, the occupancy and impact by external works indicates the trees will unlikely tolerate the design proposal beyond the building footprint. Mitigating impacts by the design proposal should include:

- a) Providing a colour coded Cut & Fill / Bulk Earthwork Plan for arborist review and comment.
- b) Restricting design and any proposed soil disturbance within SRZ's.
- c) Reducing the landscape design occupancy within notional root zones (NRZ's) where design should be limited to *Moderate* (<20%) NRZ occupancy without SRZ encroachment.

Figure 2: showing T15 & 16 NRZ occupancy area



1.5 Details which require further information

Public Domain & landscaping

- 1.5.1 Prior to construction or works within NRZ's all final Public Domain and Civil design plans are recommended to be reviewed for additional tree management comments by an appointed project arborist.

Colour coded Bulk Earthwork (Cut & Fill) Plan

- 1.5.2 Given the size of the development area and extent of proposed works including excavation and site leveling; a detailed colour coded Bulk Earthwork (cut and fill) plan is recommended to be provided for project arborist assessment. Any additional impacts within tree protection zones should be addressed by an appointed arborist. Ideally cut & fill should not exceed *Moderate* (<20%) encroachments within Notional Root Zones (NRZ's), where reducing *Major* (>20%) cut & fill encroachment or disturbance within NRZ's is recommended.

Hydraulic (stormwater & sewer) services

- 1.5.3 Prior to construction works within NRZ's all final hydraulic plans are recommended to be reviewed and endorsed by an appointed project arborist providing any additional tree management advice.

Boundary fences or retaining walls

- 1.5.4 Proposed fencing or retaining wall design is to be reviewed and endorsed by an appointed project arborist. At no stage should excavation to accommodate retaining walls or fences occur within SRZ radius without project arborist advice & certification.

Scaffold & Hoarding Plans

- 1.5.5 Prior to installation an appointed site arborist is recommended to review and comment on both scaffolding and any Hoarding Plan impact. The appointed project arborist is recommended to address where scaffolding may need to be altered to mitigate canopy conflicts and address any stem pruning within a Pruning Specification Report.

Construction Management Plan (CMP)

- 1.5.6 Prior to construction or site works a detailed Construction Management Plan (CMP) showing areas of over excavation, vehicle access and storage areas is recommended to be provided for arborist review & endorsement. The CMP should clearly show work area exclusion zones within specified tree protection or Notional Root Zone (NRZ) radiuses. The CMP should include any site-specific tree protection notes as referenced within this report.

2. CONCLUSIONS & RECOMMENDATIONS

2.1 Tree removal

2.1.1 Based on the assessment conducted the following three (3) trees require or are recommended for removal to accommodate the development proposal.

- **T7, 13 & 14.**

2.1.2 Trees recommended for removal due to poor structural condition are identified as Council verge trees:

- **T1 & 4.**

Should T1 & 4 be specified for retention no works should be conducted within Structural Root Zone's (SRZ's) without project arborist advice, site supervision and certification.

2.2 Specific recommendations & Critical stages

2.2.1 Specific recommendations: managing trees or designated site-specific Tree Protection Zone's (TPZ's) include:

Public pathways & hardstands

- a) No excavation cut or compaction should occur within Structural Root Zone (SRZ) radiuses without project arborist advice & certification. Unless approved otherwise the SRZ shall remain a development activity exclusion zone.
- b) Pathways and pavement hardstands are to be of tree sensitive design & construction being suspended or placed on top of ground level without cut and compaction within SRZ & notional root zone (NRZ) radiuses.

Tree 5

- c) An appointed project arborist shall supervise and certify vehicle access excavations within the NRZ managing tree roots in accordance with AS4970 – 2009 Section 4.5.4 *Root protection during works within the TPZ*, such that tree roots are not damaged or ripped beyond the point of excavation by site machinery.
- d) The location of electrical service routes to and from the Substation shall be made clear to the project arborist prior o works within the notional root zone or specified Tree Protection Zone (TPZ).

Trees 15 & 16

- e) Design should consider reducing NRZ occupancy to a *Moderate* (<20%) level of occupancy without SRZ disturbances.
- f) The impact of the proposal should also be addressed by assessing any proposed Bulk Earthwork (Cut & Fill) and hydraulic service routes within the NRZ.

General

- g) An appointed project arborist is to be engaged to manage and oversee works within Notional Root Zones (NRZ's) or specified Tree Protection Zones (TPZ's) within the site.
- h) The project arborist is to certify key milestone stages such as:
 - Certifying fenced or protection areas within arborist approved site specific Tree Protection Zones (TPZ's); being *the area that may be damaged by development* (AS4970-2025).
 - Specifically, the designated TPZ or extending NRZ within the site is to be managed as indicated within Section 2.3 Subsection b).
 - TPZ protection should include tree protection fencing, ground protection, branch and/or timber beam trunk protection as indicated within Appendix- B.
 - Supervise and certify excavation activities within the NRZ, specified tree protection zones or areas, see Appendix- F.
- i) There is to be no excavation for any service within SRZ radiuses without prior arborist advice, supervision and certification.
- j) Unless approved otherwise the SRZ being *the area required for tree stability* (AS4970) is to remain a development access and excavation exclusion zone.
- k) Where Public Domain and landscaping occupancy is proposed within the SRZ further advice from an appointed project arborist is required to ensure critical structural roots are not damaged.
- l) As indicated within Section 2.3 *General tree protection requirements*, subsection h) *additional inground services* that may include landscape works, fencing, sewer, stormwater, water and electrical services: final design and impact to trees shall be reviewed and endorsed by the project arborist prior to works within the NRZ.

2.2.2 Critical stages & certification points:

- a) Critically; no excavation shall occur within SRZ radiuses without prior arborist consultation and certification.
- b) No excavation shall occur within NRZ radiuses without prior project arborist notification, site supervision & certification.
- c) Unless certified otherwise excavations within Notional Root Zones are to be conducted manually to the first 0.5m (500mm). All works are to be supervised & certified by an appointed site arborist to ensure encountered tree roots are appropriately managed.
- d) Construction of public pathways within NRZ's and approved SRZ areas are to be supervised & certified by an appointed site arborist.
- e) At completion of works the appointed project arborist is recommended to provide *Final Certification* specific to AS4970 / 5.5.2: *the arborist should assess the condition of tree(s) and their growing environment and make any recommendations for any necessary remedial action.*

2.3 General tree protection requirements

- a) Based on *low-level* or *manageable Moderate* TPZ occupancy: Prior to site works Tree Protection Fencing (TPF) and/or zones as identified within this report and specific to Appendix- B & F are recommended to be located under the guidance of an appointed site arborist. Unless specified otherwise the location of tree protection fencing is to be positioned to allow for adequate work access and/or be located at the extremity of the NRZ radius as indicated within the SRZ & NRZ distance column of Appendix- D. Where design & construction access may be restrictive by tree protection fencing timber beam trunk protection is recommended to be installed with ground protection mats provided to protect underlying tree roots within arborist approved designated tree protection zones (TPZ).
- b) Unless approved otherwise activities to be excluded within NRZ and/or specified TPZ include:
 - Machine access & excavation.
 - Minor works including trenching & installation of utility services.
 - Storage & work preparation including wash down areas.
 - Soil level change and physical damage to trees.Activities that minimize the impact of TPZ disturbances include:
 - Within NRZ or arborist specified TPZ radius or extending 2m outside the canopy dripline installation of native leaf mulch not greater than 80mm in depth with routine irrigation based on arborist advice is recommended.
- c) In accordance with AS4970 – 2025, a Project or Site Arborist is to be engaged to oversee works within TPZ's, monitor, supervise excavation and provide certification of protection works conducted. The project arborist is recommended to hold a minimum Australian Qualification Framework (AQF) Level 5 certification and be competent in methodology of protecting trees on development sites.
- d) The project arborist is to provide final certification outlining tree protection measures with photographic evidence of ongoing works retained for certification purposes (AS4970 S/5.5.2 *Final certification*).
- e) The project arborist is to be familiar with protection measures specific to Australian Standard AS4970 'Protection of Trees on Development Sites' – 2025 requirements with any modification in Tree Protection Fencing (TPF) or Zones (Z) to be compliant with AS4970 Section 4.5 *Other Tree Protection Measures*.
- f) Approved excavation within Notional or TPZ setbacks; there shall be no over excavation beyond the line of cut as shown within construction drawings without arborist advice. Should over excavation be required the extent of excavation should be detailed within approved drawings or a construction management plan for arborist review and certification.

- g) Unless specified otherwise during approved excavation within TPZ setbacks excavation is to be conducted manually (by hand) under the supervision of an appointed site arborist. Where approved by the arborist the pruning of roots at or <30mm(Ø) is to be conducted in accordance with AS4970 – 2025 Section 4.5.4 *Root protection during works within the TPZ*, such that tree roots are not damaged or ripped beyond the point of excavation by site machinery.

Where larger roots have been encountered, they are to be referred to an independent Level 5 arborist for further advice. For deep excavations exposed roots at the excavated cut face are to be protected with jute mesh, geotextile fabric or similar being secured in place to avoid drying of roots and the exposed soil profile.

- h) *Additional inground services* which may include landscape works, fencing, sewer, stormwater, water and electrical services, final design and impact to trees shall be reviewed and endorsed by the project arborist prior to works. Where landscaping (excavation) is required within the SRZ further advice from an appointed project arborist is recommended.
- i) *Tree sensitive construction measures* such as pier and beam bridging over critical roots, suspended slabs, cantilevered building sections, screw piles and contiguous piling can minimise the impact of encroachment (AS4970). Where Bushfire BAL conflicts exist with tree management advice the appointed project arborist shall be consulted to advise on an appropriate design outcome.
- j) *Canopy pruning / tree removal*: where required tree removal and canopy reductions are to be approved by the Local Government Authority. Works are to be conducted by a suitably qualified AQF Level 3 certified arborist in accordance with AS4373 Pruning Standards, and specifically be conducted in accordance with Safe Work Australia – Guide to managing risks of tree trimming and removal works 2016 (www.swa.gov.au).
- k) *Hold points*: specific to no works are to commence without arborist advice, inspections & certifications:
- 1) Prior to construction arboricultural certification is to be provided ensuring that all trees have been adequately protected in accordance with this report, or as indicated within AS4970 Protection of Trees on Development Sites 2025.
 - 2) No works (including landscaping) shall occur within the SRZ of any tree without prior arborist advice and certification. Where excavation may be required prior exploratory tree root investigation are to identify the location, distribution and impact to underlying tree roots.
 - 3) No excavation shall occur within specified TPZ's or NRZ's without prior project arborist notification, approval or site supervision.

- 4) Unless specified otherwise no access or work activity is permitted within fenced or designated tree protection zones or NRZ's as indicated within Appendix- F without prior arborist notification, advice & supervision.
 - l) To ensure tree(s) are appropriately protected the development site superintendent is recommended to be familiar with all tree protection and ongoing certification requirements.
The site superintendent is responsible for informing all subcontractors of the responsibilities and requirements of tree protection prior to their engagement.
 - m) Should there be any uncertainty with tree protection requirements the site superintendent shall contact the appointed project arborist for advice prior to works occurring within specified tree protection zones (TPZ) or Notional Root Zone (NRZ) areas.
-

Should you require further liaisons in this matter please contact me direct on
0419 250 248

Yours sincerely



Mark A Kokot

AQF Level 5 consulting arborist

Diploma of Hort/Arboriculture (AQF5), Associate Diploma Parks Management (AQF4)
Certified Arborist / Tree Surgeon (AQF3), ISA Tree Risk Assessment Qualified exp-2029
Member: ISA, Arboriculture Australia & IACA, Working With Children No: WWC0144637E



APPENDICES

Appendix- A: Terminology & references	17
Appendix- B: Tree Protection & Fencing Detail	18
Appendix- C: Tree Retention Values <i>Checklist</i>	19
Appendix- D: Tree Assessment Schedule	20
Appendix- E: Tree Location Plan	25
Appendix- F: Tree Management Plan <i>Sheet 1 of 2</i>	26
Tree Management Plan <i>Sheet 2 of 2</i>	27

APPENDIX- A: Terminology, notes & references

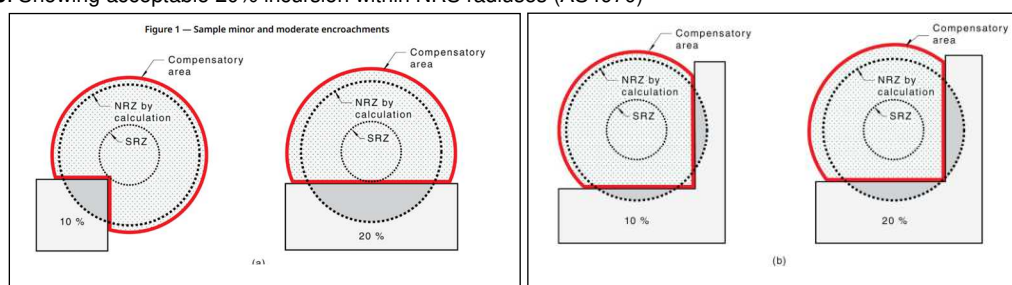
Acceptable Risk: Exposure to or reject risk of varying degrees. The acceptable risk is defined as 'The person who accepts some degree of risk in return for a benefit being exposed to some risk of varying degree. **Age classes:** (I) Immature refers to a well established but juvenile tree. (ESM) refers to an early semi mature tree not of juvenile appearance. (SM) Semi-mature refers to a tree at growth stages advancing into maturity and full size. (LSM) Late Semi- Mature, refers to a tree between semi-mature and close to mature. (EM) refers to a tree at the first stages of maturity. (M) Mature refers to a full size tree with some capacity for future growth. **Health:** Refers to a trees vigor exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and the degree of dieback. **Condition:** Refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. Trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk / branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition. **Decay:** (N) – an area of wood that is undergoing decomposition. (V) – decomposition of an area of wood by fungi or bacteria. **Decline:** Is the response of a tree to a reduction of energy levels resulting from stress. Recovery from decline is difficult and slow; is usually irreversible. **Defect:** A identifiable fault in a tree. **Epicormic Shoots:** Shoots that arise from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of the tree. A symptom / result of stress related factors. **Footprint:** The area occupied by site structures, including the dwelling driveways and hard surfaces. **Included Bark:** (Inclusion) a genetic weak fault, pattern of development at branch junctions where the bark is turned inwards rather than pushed out, can pose a potential hazard. **Order of branches:** First order being those that are the first to extend from the main trunk or codominant limbs, second order branches extend from the first order and third order branches extend from the second order. **Probability:** The likelihood of some event happening. **Risk:** Is the probability of something adverse happening. **Suppression:** Restrained growth pattern from competition of other trees or structures. **Wound:** Damage inflicted upon a tree through injury to its living cells, may continue to develop further weakening of the structure compromising structural integrity. **Works:** any activity that modifies above & below ground conditions within specified tree protection zone radiuses.

NOTE 1: This report acknowledges the current **Australian Standards 'Protection of Trees on Development Sites'** AS 4970 – 2025 with reference to the **Notional Root Zone (NRZ)** being a radius of 12x the DSH / area for arboricultural advice, and **Tree Protection Zone (TPZ):** being a combination of the root and crown area requiring protection that may be damaged by development. The NRS & TPZ takes into consideration the **Structural Root Zone (SRZ):** The area required for tree stability. Determined by AS4970 - 2025 Section 3.4 of the standards. The standard states where a *Major* or greater than 20% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 S/-3.3.6. Encroachments are referred to within this report as major (>20%), moderate (10-20%) or minor (<10%) encroachments (AS4970. 3.3.3, 3.3.5 & 3.3.6). To retain specific trees and ensure their viability development must take into consideration protection of the Notional (NRZ) or TPZ radius with terminology used for estimated percentage of development incursion noted below.

NOTE 2: The extent of inclusion within the NRZ radius has been categorised as follows:

Negligible (0%) incursion of no to low-level impact, *Minor* (<10%) of minor consequence, *Moderate* 10 - <20% incursion of a moderate level of impact provided works are outside the SRZ, and where the project arborist is required to demonstrate the tree/s remain viable. *Medium to high* 20 - <25% incursion impacts, *High level* 25 - <35% impact to *Significant* >35% incursion. Where *Major* (>20%) impacts occur design may require changes or further information to ensure a tree remains viable. **WBF** = located within the building footprint where design necessitates tree removal.

NOTE-3: Showing acceptable 20% incursion within NRS radiuses (AS4970)



SELECTED REFERENCES:

Barrell J. 1993, 'Preplanning Tree Surveys: Safe useful Life expectancy (SULE) is the Natural Progression', *Arboricultural Journal* 17: 1, February 1993, pp. 33-46.

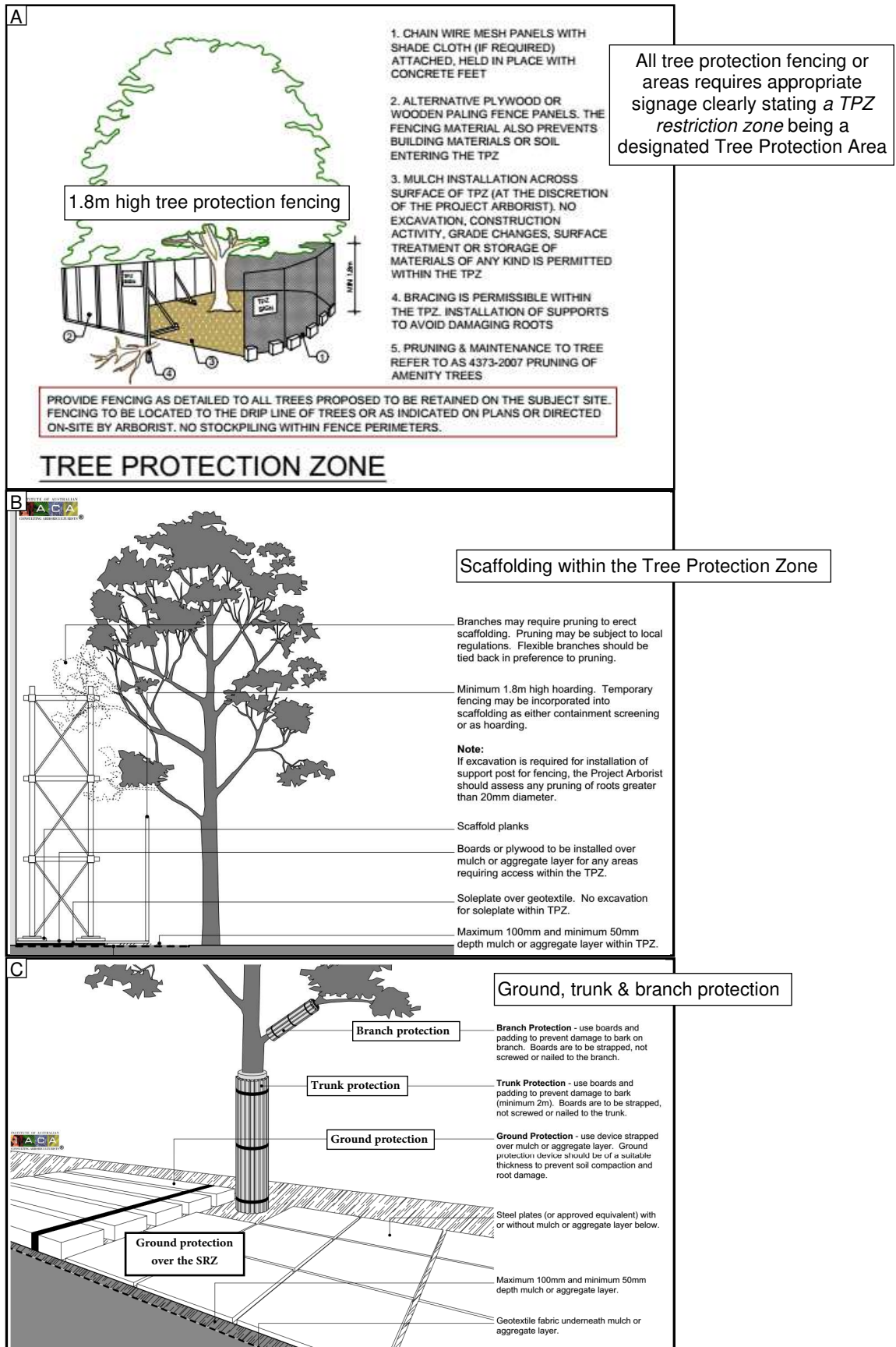
International Society of Arboriculture (ISA) 2013, Tree Risk Assessment Manual, Martin Graphics, Champaign Illinois U.S.

Mattheck, C. & Breloer, H.(1994) The Body Language of Trees. Research for Amenity Trees No.4 the Stationary Office, London.

Standards Australia 2009, Australian Standards 4970 Protection of Trees on Development Sites - Standards Australia, Sydney, Australia.

The Hills Shire Council Tree management Fact Sheet <https://www.thehills.nsw.gov.au/Council/Fact-Sheet-Directory/Fact-Sheets-Tree-and-Vegetation-Management>

APPENDIX- B: Tree protection fencing, ground and trunk protection detail



APPENDIX- C: Tree Retention Value Check list @rainTree consulting

i) Landscape Significance (LS): The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values. There are no industry standards for referencing tree retention value or significance. The values provided may be subjective, however, are based after IACA Sustainable Retention Index Value (SRIV) which offer a visual understanding of the relative importance of the tree to the environment. The LS of a tree is described in seven categories to assist in determining the retention value of trees.

1	Significant	2	Very High	3	High	4	Moderate	5	Low	6	Very Low	7	Insignificant
---	-------------	---	-----------	---	------	---	----------	---	-----	---	----------	---	---------------

ii) Visual Tree Assessment (VTA)

0	If appropriate to VTA - * <i>exempt</i> trees from Local Government Authority (LGA) Tree Management Orders or known NSW *Weedwise environmentally invasive species	2E	Tree location likely to be affected by infrastructure restricting root growth potential, or tree has potential to cause infrastructure damage where risk mitigation or rectification works may compromise tree anchorage. Tree(s) may be contained by solid structures with restricted radial root anchorage
0A	Noxious or invasive weed species located within heritage conservation areas		
1	Trees that are dead, significantly declining >75% volume or obviously hazardous	3	This rating incorporates trees that may require further investigation of defects such as cavities or symptoms indicating internal decay to an extent that cannot be quantified under visual examination. Further inspections may be in the way of arborist climbing inspection within the canopy, root crown investigation and/or drill penetrating or Picus Sonic Tomograph ultrasound testing procedures to determine percentage of internal decay.
2	Trees that are structurally damaged. Have poor structure or weak & detrimental large stem inclusions capable of failure opposed to 2B. Tree also may be affected by extensive borer damage, fungal pathogens (wood rot) or viruses. Some symptoms may be reversible, remediated or controlled give appropriate management.		
2A	Tree damage specific to basal and/or root plate damage, or very shallow soils, or steep topography resulting in poor anchorage where condition may become problematic in near future / may include trees with included bark splits to ground level	4	Trees which appear specifically environmentally stressed by drought, poor soil or site conditions including pest or disease infestation(s). Symptoms may be reversible given appropriate management
2B	Defect specific to stem inclusions development (weak branch attachments) where the condition may not be immediately detrimental however, require annual to biannual monitoring with control to prevent stem failure by installing slings, cable or bracing. Tree may also contain multi stems or codominant twin stems	5	Trees that have become exposed or are subject to wind loading, or have tall forest form where exposure may result in windthrow or limb snap
		5A	Screen trees, trees or shrubs, that are routinely hedged, pruned or managed for height control
2C	Tree may contain minor wounds, pest or minor pathogen activity, altered from storm damaged to an extent that is not considered immediately detrimental - may also display average form. Likely to require close annual monitoring or minor corrective pruning	6	Trees may be typical for species type, of good form and visual condition for age class. May have suppressed one sided canopy, or are low risk trees
2D	Trees significantly altered by recent storm or over pruning events which may reduce retention values due to average form- or tree extensively pruned for power line clearance	7	VTA restricted by canopy or plant material vine or ivy covering tree parts, or site conditions which do not allow access- fences to neighbouring sites

iii) Retention Value (RV): Determined by structural condition: [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees containing faults that are likely to become problematic in the future, [4] trees that should be considered for removal due to poor or average condition.

1	High retention	2	Medium retention	3	Low retention	4	Consider removal
---	----------------	---	------------------	---	---------------	---	------------------

iv) U.L.E. categories Useful Life Expectancy (after Barrell 1996, modified by the author). A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. U.L.E. assessments are not static but may be modified as dictated by changes in trees health and environment.

1. Long U.L.E. - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.
2. Medium U.L.E. - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.
3. Short U.L.E. - Trees appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk assuming reasonable maintenance.
4. Very short - Removal- Trees which should be scheduled for removal within the very short term or as specified within this report.
5. Small, young or regularly pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

APPENDIX- D: Tree Assessment Schedule

Refer Appendix- C Tree retention value Checklist

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification				Trees with low retention value: due to senescence, are significantly environmentally stressed, have developing defects, are NSW Weedwise listed or are LGA *exempt non-prescribed trees								
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DSH (mm)	SRZ NRZ (m)	Age	Vigour (health)	Condition (structure)	LS	VTA	RV	ULE	Comments CV = Council verge tree NT = Neighbouring tree
1 CV	<i>Eucalyptus scoparia</i> Wallangatta White Gum	9 x 4	250	2 3	ESM	Fair	Poor	4	4-2	3	4	Significantly environmentally stressed, decline in canopy, large diameter dead wood, large open wound from ground level to 2.2m E side= structurally defective tree of low retention value
<p><i>Design & impact summary: Structurally defective tree at edge of main road should be considered for removal. Proposed new works of upgraded public pathway with pathway located on existing pathway footprint within the SRZ. New SRZ & NRZ occupancy appears of a Negligible (0%) TPZ encroachment where demolition of existing footpath within SRZ may likely disrupt tree anchorage. Based on poor structural condition and works within the SRZ tree removal is recommended</i></p>												
2 CV	<i>Callistemon viminalis</i> Bottle Brush	8 x 5	450at base	2.4 5.4	M	Good	Fair / Poor	4-3	2-2D	3	3	Four (4x) stems at near ground level all with branch bark inclusion faults at base, STH stem removed modifying form, has one sided canopy biomass-WST, canopy exposure subject to wind snap= low retention value
<p><i>Design & impact summary: Proposed new footpath setback at or near 2.5m outside the SRZ with new pathway work disturbance of Moderate (10-<20%) NRZ incursion at or near 14% having a manageable NRZ disturbance. Given manageable NRZ disturbance the tree is capable of being managed in accordance with standard practices outlined within Section 2.3 General tree protection requirements, specific to: no excavation within the SRZ, demolition & any excavation within the NRZ to be supervised & certified by an appointed site arborist.</i></p>												
3 CV	<i>Eucalyptus sideroxylon</i> Red Ironbark	14 x 9	350	2.3 4.2	ESM	Good	Fair / Good	3	2C	2	1	Narrow canopy form, lower trunk skewed at 3m, past central limb snap at 9m with epicormic end shoots
<p><i>Design & impact summary: Proposed new footpath setback at or near 2.2m being just within the SRZ with new pathway work disturbance of Moderate (10-<20%) NRZ incursion at or near 17.3% encroachment. Given pathway construction impact and works just within the SRZ all excavations to be conducted manually by hand being supervised & certified by an appointed site arborist, pathway to be constructed on top of ground level without compaction to protect underlying tree roots, no access or excavation within the SRZ should occur without prior arborist advice & certification.</i></p>												
4 CV	Dead tree	9 x 5	250	2 -	-	-	-	6	1	4	4	Dead tree, no obvious habitat values
<p><i>Design & impact summary: Not plotted within design documentation. Design proposes a Negligible (0%) new SRZ encroachment with proposed pathway upgrade adjacent the SRZ indicating anu excavation or pathway upgrade works would likely disrupt tree anchorage. Given the tree is a dead tree the tree should be considered for removal.</i></p>												

Refer Appendix- C Tree retention value Checklist

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification				Trees with low retention value: due to senescence, are significantly environmentally stressed, have developing defects, are NSW Weedwise listed or are LGA *exempt non-prescribed trees								
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DSH (mm)	SRZ NRZ (m)	Age	Vigour (health)	Condition (structure)	LS	VTA	RV	ULE	Comments CV = Council verge tree NT = Neighbouring tree
5 CV	<i>Eucalyptus scoparia</i> Wallangatta White Gum	13 x 11	450, 250	2.8 8.4	SM	Good	Good	3	2C	2	1	Twin stems at 1m, minor past pruning cuts N side, canopy 4m in site at 4m^
<p><i>Design & impact summary: Proposed driveway access is located outside the SRZ having a Minor (<10%) / 3.6% NRZ encroachment. Additional works of public pathway is located within the SRZ having at or near 10.7% TPZ coverage and Substation at or near 12.6% [Plan 110-009]. Excluding pathway coverage, the hardstand with TPZ is of a Moderate (10-<20%) NRZ incursion at or near 16.2% encroachment indicating tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no excavation within the SRZ without project arborist advice & certification, public pathway to be of tree sensitive design, constructed on top of ground level without excavation cut or compaction within the TPZ and specifically the SRZ. All excavation and ground-based disturbance works within the NRZ to be supervised & certified by an appointed site arborist. Any additional Substation electrical service route Plans are to be reviewed by appointed project arborist for further advice.</i></p>												
6 CV	<i>Corymbia maculata</i> Spotted Gum	20 x 15	900	3.2 10.8	SM	Good	Fair / Good	2	2C	2	1	4x stems at 2.4m, minor vehicle impact damage S side at 2.2m, past limb snap sections in lower branch scaffolds NTH, canopy 7m in site at 5m^
<p><i>Design & impact summary: The proposed building footprint has Negligible (0%) NRZ encroachment with proposed public pathway having a Minor (<10%) NRZ encroachment with SRZ occupancy being at or near 1.8m from the tree. In general, with Minor (<10%) disturbance tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no excavation within the SRZ without project arborist advice & certification, public pathway to be of tree sensitive design, constructed on top of ground level without excavation cut or compaction within the TPZ and specifically the SRZ.</i></p>												
7 CV	<i>Eucalyptus robusta</i> Mahogany	5 x 3.5	250	2 3	ESM	Poor	Poor	4	4-2	3	3	Requires fruit for correct ID, environmentally stressed with excessive epicormic shoot development throughout, stunted form, open wound at 3m E side with decay and pathogen activity- above wound / stem section dead= low retention value
<p><i>Design & impact summary: Design location of proposed public pathway necessitates tree removal [Plan 110-009], where given poor tree condition, tree should be considered for removal due to the trees low retention value.</i></p>												
8 CV	<i>Lophostemon confertus</i> Brush Box	12 x 8	400	2.4 4.8	ESM	Good	Fair / Good	3	2B	2	1	Suppressed canopy form S side, multi stems at 2m, upper branch scaffold twin at 4.5m with minor stem inclusion development.
<p><i>Design & impact summary: Proposed building footprint of Negligible (0%) NRZ encroachment with proposed public pathway having a manageable Moderate (10-<20%) NRZ incursion at or near 17.5% occupancy with SRZ encroachment where tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no excavation within the SRZ without project arborist advice & certification, public pathway to be of tree sensitive design, constructed on top of ground level without excavation cut or compaction within the TPZ and specifically the SRZ.</i></p>												

Refer Appendix- C Tree retention value Checklist

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification				Trees with low retention value: due to senescence, are significantly environmentally stressed, have developing defects, are NSW Weedwise listed or are LGA *exempt non-prescribed trees								
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DSH (mm)	SRZ NRZ (m)	Age	Vigour (health)	Condition (structure)	LS	VTA	RV	ULE	Comments CV = Council verge tree NT = Neighbouring tree
9 CV	<i>Lophostemon confertus</i> Brush Box	12 x 9	350, 300	2.7 7.8	ESM	Good	Fair / Good	3	2B	2	1	Twin stems at 1m with minor stem inclusion development, canopy 4m in site at 3.5m [^]
<p><i>Design & impact summary: Proposed building footprint of Negligible (0%) NRZ encroachment with proposed public pathway and paver stand having an estimated Moderate to High (20-25%) TPZ incursion at or near 23.17% occupancy with SRZ encroachment. Having building footprint outside the SRZ the tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no excavation within the SRZ without project arborist advice & certification, public pathway and paver stand shown in Plan 110-009 to be of tree sensitive design, constructed on top of ground level without excavation cut or compaction within the TPZ and specifically the SRZ. All Civil works plans to be reviewed and endorsed by appointed project arborist prior to installation.</i></p>												
10 NT	<i>Schefflera actinophylla</i> Umbrella Tree	8 x 8	750at base	2.8 9	M	Good	Fair / Good	4	2B-7	2	2	Restricted visual inspection, above visual parts appear in good order with minor stem inclusion development evident, canopy 3.5m in site at 4m [^]
<p><i>Design & impact summary: Trees would likely require removal for neighbouring property development works. Based on site development works the proposed basement and building footprint is of Moderate (10-<20%) NRZ incursion at or near 18.4% encroachment without SRZ occupancy. Given species type and Moderate (<20%) encroachment tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no works or excavation within the SRZ without project arborist advice & certification, excavations within the TPZ to be supervised & certified by an appointed site arborist, all existing levels within the TPZ to be maintained.</i></p>												
11 NT	<i>Schefflera actinophylla</i> Umbrella Tree	7 x 5	600at base	2.7 7.2	M	Good	Fair / Good	4	2B-7	2	2	Restricted visual inspection, above visual parts appear in good order with minor stem inclusion development evident, canopy 3m in site at 3.5m [^]
<p><i>Design & impact summary: Trees would likely require removal for neighbouring property development works. Proposed basement and building footprint of Minor (<10%) NRZ encroachment without SRZ occupancy indicating tree is capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no works or excavation within the SRZ without project arborist advice & certification, all existing levels within the TPZ within the site to remain, no excavation within the SRZ without project arborist advice & certification.</i></p>												
12x5 NT	<i>Syagrus romanzoffiana</i> Cocos Palm	8 x 6	250	- 4	SM	Good	Good	4	6-7	1	2	Restricted visual inspection, above visual parts appear in good order, 5x palms spanning 8m along boundary
<p><i>Design & impact summary: Trees would likely require removal for neighbouring property development works. Proposed basement and building footprint of Negligible (0%) NRZ encroachment indicating palms are capable of being managed in accordance with Section 2.3 General tree protection requirements, specific to: no works or excavation within the SRZ without project arborist advice & certification, all existing levels within the TPZ within the site to remain.</i></p>												

Refer Appendix- C Tree retention value Checklist

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification				Trees with low retention value: due to senescence, are significantly environmentally stressed, have developing defects, are NSW Weedwise listed or are LGA *exempt non-prescribed trees								
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DSH (mm)	SRZ	Age	Vigour (health)	Condition (structure)	LS	VTA	RV	ULE	Comments CV = Council verge tree NT = Neighbouring tree
				NRZ (m)								
13	Eucalyptus tereticornis Forest Red Gum	22 x 16	1100	3.5	M	Good	Fair / Good	2	2B-2C-7	2	1	Main twin stems at 3.5m codominant, suppressed canopy form WST side, large diameter dead wood, protective fencing restricting access, past demolition within SRZ & TPZ, typical for species type in age class, canopy in site 9m N & E at 6m^
				13.2								
<p><i>Design & impact summary: Proposed tree removal. New basement & building footprint [Plan 110-009] propose a Moderate to Low (10-15%) NRZ incursion at or near 12.4% without SRZ occupancy with increased impact occurring by ground level earthworks, Public Domain and Civil design within the SRZ & TPZ. Based on the location of the proposed public pathway including roadside alterations within the SRZ a significant or High-level of impact occurs by the design proposal where the impact of works requires the tree to be removed to accommodate the design proposal as shown within Landscape Plan L-401.</i></p>												
14	Eucalyptus tereticornis Forest Red Gum	24 x 18	1100	3.5	M	Good	Fair / Good	2	2C-4-7	2	1	Canopy slightly environmentally stressed, slight low foliage volume, broad form, large diameter dead wood, minor limb snap sections evident, multi stems at 5m (x5), potential central cavity N side, minor stem wounds at 7m, suppressed canopy form E side, protective fencing restricting access, past demolition within SRZ & TPZ, typical for species type in age class, canopy in site 12m N, NNW at 9m^
				13.2								
<p><i>Design & impact summary: Proposed tree removal. New basement & building footprint [Plan 110-009] propose a Moderate (10-<20%) NRZ incursion at or near 18.3% encroachment without SRZ occupancy with increased impact occurring by ground level earthworks, Public Domain and Civil design within the SRZ & TPZ. Based on the design proposal and location of Public Domain works a High-level of impact or natural soil changes occur by the design proposal where the design proposal and impact of works requires the tree to be removed as shown within Landscape Plan L-401.</i></p>												

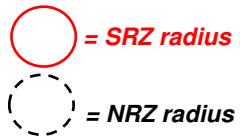
Refer Appendix- C Tree retention value Checklist

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification					Trees with low retention value: due to senescence, are significantly environmentally stressed, have developing defects, are NSW Weedwise listed or are LGA *exempt non-prescribed trees							
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DSH (mm)	SRZ	Age	Vigour (health)	Condition (structure)	LS	VTA	RV	ULE	Comments CV = Council verge tree NT = Neighbouring tree
				NRZ (m)								
15	<i>Eucalyptus saligna</i> Sydney Blue Gum	21 x 16	750	3	SM	Good	Fair	2	2-3	3	<2	Twin stems at 8.5m with large open cavity below junction E side= benefit from further investigations, suppressed canopy form NW, biomass STH, poor branch taper on lower branch scaffolds to 14m S side, potential minor wound at 15m EST, past demolition within SRZ & TPZ, canopy extension EST side at 8m at 9m^, STH side canopy 6m in site at 9m^
				9								
<p><i>Design & impact summary: New basement excavation cut and structural building footprint of Minor (<10%) NRZ & TPZ encroachment without SRZ occupancy. Extent of Bulk Earthworks is unclear with design Plan 110-007 showing Civil (footpath) and Landscape design having an estimated Significant (>35%) SRZ & NRZ occupancy indicating the tree may not tolerate the design proposal, disturbance and landscape design occupancy. Based on Minor NRZ occupancy for the basement & building footprint the tree is capable of being managed in accordance with standard practices outlined within Section 2.3 General tree protection requirements. Based on an established tree, construction access impacts & disturbance, landscape and site changes within the SRZ & TPZ the tree is unlikely to withstand the proposed design. Mitigating impacts could consist of: no access or excavation within the SRZ, all existing levels within the TPZ to remain, project arborist to review all final Civil design plans with a large, fenced tree protection zone installed and certified by appointed project arborist. The proposal should consider reducing the proposed public access area, no works within the SRZ and increasing natural deep soil.</i></p>												
16	<i>Eucalyptus saligna</i> Sydney Blue Gum	21 x 16	1100	3.5	SM	Good	Good	2	2C	2	1	suppressed canopy form STH side biomass NW, mid branch scaffolds horizontal form, some with poor branch taper, minor kino wound stain at 5m W side junction, past demolition within SRZ & TPZ, canopy extension NTH side 9m at 5m^
				13.2								
<p><i>Design & impact summary: As with T15 above: New basement excavation cut and structural building footprint of Minor (<10%) NRZ & TPZ encroachment without SRZ occupancy. Extent of Bulk Earthworks is unclear with design Plan 110-007 showing Civil (footpath) and Landscape design having an estimated Significant (>35%) SRZ & NRZ occupancy indicating the tree may not tolerate the design proposal, disturbance and landscape design occupancy. Based on Minor NRZ occupancy for the basement & building footprint the tree is capable of being managed in accordance with standard practices outlined within Section 2.3 General tree protection requirements. Based on an established tree, construction access impacts & disturbance, landscape and site changes within the SRZ & TPZ the tree is unlikely to withstand the proposed design. Mitigating impacts could consist of: no access or excavation within the SRZ, all existing levels within the TPZ to remain, project arborist to review all final Civil design plans with a large, fenced tree protection zone installed and certified by appointed project arborist. The proposal should consider reducing the proposed public access area, no works within the SRZ and increasing natural deep soil.</i></p>												

APPENDIX- E: Tree Location Plan



APPENDIX- F: Tree Management Plan Sheet 1 of 2

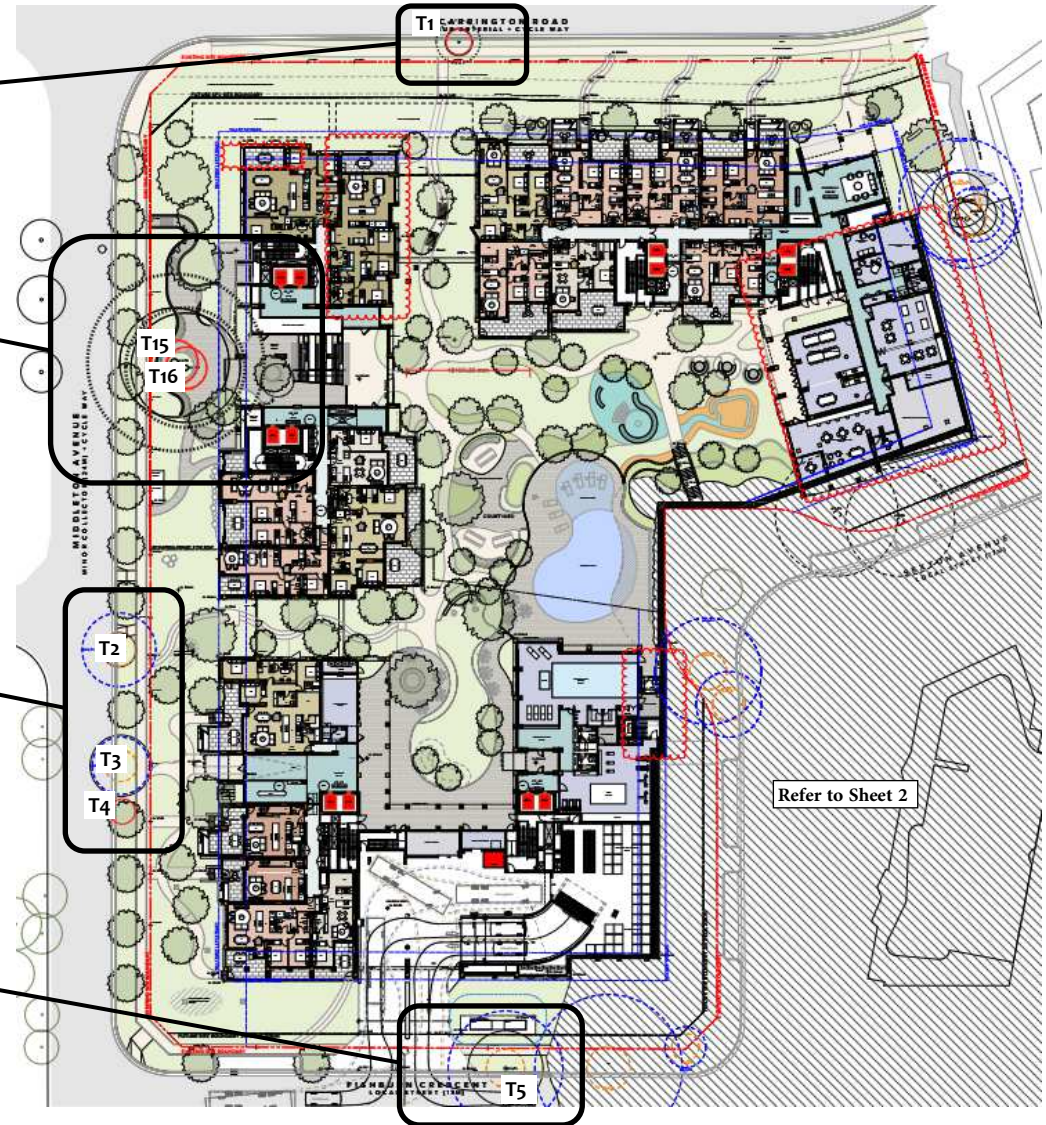


T1: Consider removal or arborist supervision for any works within the 2m SRZ

T15 & 16: Install site specific arborist approved tree protection fencing forming a TPZ at:
 Basement excavation stage:
T15 = 7m radius to boundary
T16 = 10m radius to boundary.
 Construction stage:
 TPZ to be specified and certified by appointed project arborist.
Note 1: No works or access within inner TPZ without project arborist advice & certification

T2 & 3: Install or project arborist to certify site specific arborist approved timber beam trunk protection.
Note 1: Pathway works within NRZ to be supervised & certified by an appointed site arborist
Note 2: No excavation or works within SRZ without project arborist advice & certification

T5: Install or project arborist to certify site specific arborist approved timber beam trunk protection.
Note 1: Driveway, Substation & Pathway works within NRZ to be supervised & certified by an appointed site arborist
Note 2: No excavation or works within SRZ without project arborist advice & certification



Tree Management Plan Sheet 2 of 2

