City of Greater Geelong, Statutory Planning - Date Received 24/09/2026

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Arboricultural Impact Assessment

Location:

3 Torquay Road, Belmont

Report Commissioned by:

Srikanth Adusumalli

Author:

Lachlan Scott

Grad. Cert. Arb.

Arbkey ref: 26-09-08TorquayBelmont.docx

Date submitted: September 11, 2026

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1 Introduction

Arbkey has been engaged by Srikanth Adusumalli to provide an Arboricultural Impact Assessment for trees likely to be affected by a proposed development at 3 Torquay Road, Belmont. Arboricultural Impact Assessments are a procedure for determining the viability of trees at the design and review stage of a project. For the report arbkey has:

- Identified and assessed the trees, providing their location, species, dimensions, useful life expectancy and health and structural condition.
- Allocated each tree an arboricultural value, indicating its merit for retention throughout nearby disturbance.
- Calculated the size of the Notional Root Zone (NRZ) in accordance with Australian Standard 4970, Protection of Trees on Development Sites.
- Calculated and provided comment regarding the impact of the proposed development to the trees NRZs and assessed the suitability for retention of all trees against the current development plans.
- Provided recommendations to protect any trees through the proposed developments.

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2 Site Details

The subject site is a single occupancy residential property featuring a house building, rear garage and surrounding mostly grassed yards (Figure 1). Trees are not a major feature of the site or the surrounds; however, small and mid-sized trees are a feature of the area adjacent to the site's rear fence.



Figure 1: Subject site

2.1 Development Proposal

Installation of two (2) additional dwellings within the rear yard is proposed.

2.2 Planning and Policy Context

The subject site is located within General Residential Zone - Schedule 4 of the Belmont Planning Scheme (DTP 2026). The vegetation protection related planning or policy controls for the site and how they affect the assessed trees has been provided in Table 1.

Table 1: Vegetation controls at site

Planning/Policy Control	Overview of control	Trees affected
52.37 Canopy Trees	A permit is required to remove, destroy or lop a tree within a residential zone that has: • a height of more than 5 metres above ground level; and • a trunk circumference of more than 0.5 metres, measured at 1.4 metres above ground level; and • a canopy diameter of at least 4 metres. Where a dwelling exists on a lot, trees further than 6m from the front boundary and 4.5m from the rear boundary are considered exempt	Tree ID 2, 3

Due to their ownership, any trees within adjacent third-party owned property must remain viable throughout works at the subject site unless under agreement with the tree's respective owner. Modification of trees in adjacent property may also be subject to permit approval.

2.3 Site Map

A site map detailing existing conditions and tree locations has been provided in Appendix 1: Site Map

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3 Methodology

On the 10 September 2026, Lachlan Scott undertook inspection of trees greater than 3m in height located at, or with notional root zones (AS4970 2025) likely to intersect the property at, 3 Torquay Road, Belmont. The following information was collected for the trees:

- Tree Species
- Tree Location
- Height (m)
- Crown Spread (m)
- Diameter at Standard Height (DSH) at 1.4m above ground level (cm)
- Diameter at Base (DAB) at just above the root flare (cm)
- Health
- Structure
- Significance
- Photographs of tree

Only a ground based visual inspection was undertaken of all trees according to the principles of Visual Tree Assessment and tree hazard assessment described in Harris, Clark and Matheny (1999) and Mattheck and Breloer (1994).

Tree location has been derived using a feature survey provided by the client or if not present aligned using an RTK corrected GNSS receiver.

Height was measured on site using an impulse laser accurate to +/- 30cm. Crown spread values or drawings are indicative of crown size only, not shape or form.

A diameter tape was used to measure DSH. To prevent trespass, DSH has been estimated on adjacent sites.

Health, Structure and Significance are qualitative values derived from visual indicators and the authors experience and qualifications.

Encroachment of NRZs by the development has been calculated using GIS software.

Full data collection definitions are available in Appendix 6: Data Definitions.

3.1 Documents Reviewed

Table 2: Documents reviewed to assist in the compilation of this report

Document Name	DWG/Document #	Author	Document Description	Date compiled/drawn
20260504-3 TORQUAY RD, BELMONT (1)	AX33	Architectural Excellence	Site Plans	10 April 2026

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4 Observations

4.1 Tree Details

Five (5) trees were assessed, all on the site itself (Table 3). Full details of the assessed trees have been provided in Appendix 2: Tree Details.

Table 3: Count of assessed species and their respective species origin

Genus Species	Common Name	Species Origin	Count of Trees	Tree IDs
Abelia sp.	Abelia	Exotic	1	1
Callistemon viminalis	Weeping Bottle Brush	Australian Native	1	2
Lagerstroemia indica	Crepe Myrtle	Exotic	1	5
Nerium oleander	Oleander	Exotic	1	4
Pittosporum undulatum	Sweet Pittosporum	Australian Native	1	3

5 Discussion

5.1 Arboricultural Value

All the assessed trees have been attributed an arboricultural value (Table 4). Arboricultural value is a calculated rating indicating the arboricultural merit of the tree for retention through any nearby disturbance. It is a qualitative combination of the trees ULE and significance values. Trees of higher arboricultural value should be prioritised for retention through works that may impact trees. Conversely, trees of low or no arboricultural value can often be removed to facilitate a development with little or no effect on wider landscape value.

Table 4: Overview of arboricultural value

Arboricultural Value	Count	Tree IDs
Medium	1	2
Low	4	1, 3, 4, 5

5.2 Notional Root Zone (NRZ) and Structural Root Zone (SRZ)

AS4970 (2025) specifies areas drawn radially from each tree's stem which indicate the area required for its stability (SRZ) and viability (NRZ) throughout nearby disturbance such as development. NRZ and SRZ details for all trees has been supplied in Appendix 3: NRZ and SRZ Details. Further information on NRZs and SRZs has provided in Appendix 7: Structural Root Zone and Notional Root Zone Overview

5.3 Arboricultural Impact, NRZ Encroachment and Viability

5.3.1 Tree removal

Four (4) trees are proposed for removal under the current development plans (Table 5). Permit approval is required for the removal of two (2) of these trees, Trees 2 and 3.

Table 5: Trees proposed for removal, arboricultural value, and permit requirements.

Tree ID	*Genus Species*	Common Name	Arboricultural Value	Height (m)	Total DSH (cm)
1	*Abelia sp.*	Abelia	Low	3	5
2	*Callistemon viminalis*	Weeping Bottle Brush	Medium	7	36.12
3	*Pittosporum undulatum*	Sweet Pittosporum	Low	5	27
4	*Nerium oleander*	Oleander	Low	4	13.49

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5.3.2 Impact of design on trees to be retained

To assess the viability of the trees proposed for retention throughout the design's implementation, their NRZ and SRZ has been calculated and mapped as per AS4970 (2025). Where a development's footprint overlaps a NRZ it is termed 'encroachment' within AS4970 (2025). AS4970 (2005) categorises NRZ encroachment into:

- Minor (<= 10% NRZ encroachment)
    - Minor NRZ encroachment is unlikely to cause a significant impact to tree health or longevity and is considered generally acceptable. Trees with 'Minor' NRZ encroachment would remain viable throughout the implementation of the proposed design without the implementation of encroachment mitigation measures.
- Moderate (>10% and <= 20% NRZ encroachment)
    - Moderate NRZ encroachment is considered tolerable providing that an arborist demonstrates, usually through desktop analysis and/or recommendations of construction controls, that the tree would remain viable throughout the NRZ encroachment.
- Major (>20% NRZ encroachment)
    - Major NRZ encroachment is considered generally intolerable. To manage these trees throughout the development either:
        - an alternative design must be explored with the design team, or
        - a detailed investigation and/or justifications must be undertaken/supplied by an arborist that demonstrates that the tree would remain viable throughout the major NRZ encroachment.

One (1) of the trees proposed for retention has a NRZ encroached by the proposed development's footprint (Table 6).

Table 6: Trees with NRZ encroached by the design footprint.

Tree ID	Genus Species	Common Name	NRZ Encroachment (%)	SRZ Encroachment?	Encroachment Classification
5	*Lagerstroemia indica*	Crepe Myrtle	54.28	Yes	Major

5.3.3 NRZ, SRZ and Encroachment Map

Maps detailing the NRZ, SRZ and Encroachment have been provided in Appendix 4: NRZ, SRZ and Encroachment Map.

5.3.4 Mitigation measures

Tree 5, a semi-mature Crepe Myrtle (*Lagerstroemia indica*), has a NRZ majorly encroached by a proposed driveway and fence. If the driveway and fence is installed sensitively, Tree 5 would remain viable throughout the proposal. Within the NRZ of Tree 5:

- The proposed fence posts must be manually excavated and realigned to avoid damage to roots larger than 30mm in diameter.
- The proposed driveway and its subgrade must be built at the existing grade with only minor hand levelling of a maximum of 70mm in profile permitted.

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6 Conclusions and Recommendations

Installation of two (2) additional dwellings within the rear yard is currently proposed at 3 Torquay Road, Belmont. Arbkey has been engaged to assess the impact of the development on the trees at or adjacent to the site. Five (5) trees were assessed, all on the site itself. Four (4) of these trees are proposed for removal under the development plans. Permit approval is required for the removal of two (2) of these trees, Trees 2 and 3.

To assess the viability of the trees proposed for retention throughout the design's implementation, their notional root zone (NRZ) and structural root zone (SRZ) has been calculated and mapped as per AS4970 (2025). Where a development's footprint overlaps a NRZ it is termed 'encroachment' within AS4970 (2025). One (1) of the trees has a NRZ encroached by the proposed design footprint.

Table 7: Overview of trees with NRZ encroached by the design footprint.

Encroachment Classification (AS4970 2025)	Count	Tree ID
Major (>20% Encroachment) Generally Intolerable	1	5

Tree 5, a semi-mature Crepe Myrtle (*Lagerstroemia indica*), has a NRZ majorly encroached by a proposed driveway and fence. If the driveway and fence is installed sensitively, Tree 5 would remain viable throughout the proposal. Within the NRZ of Tree 5:

- The proposed fence posts must be manually excavated and realigned to avoid damage to roots larger than 30mm in diameter.
- The proposed driveway and its subgrade must be built at the existing grade with only minor hand levelling of a maximum of 70mm in profile permitted.

It is recommended that:

- Trees that are unable to be retained through the development are removed prior to the commencement of construction but after the approval of final plans by the relevant authority and tree-owners.

7 References

AS 4373, 2007, Australian Standard, Pruning Amenity Trees, 2nd Edition Standards Australia

AS 4970, 2025, Australian Standard, Protection of Trees on Development Sites, Standards Australia

DTP 2026, Vicplan, Department of Transport and Planning, https://mapshare.vic.gov.au/vicplan/

Harris, R.W., Clark, J.R. & Matheny, N.P., 1999, Arboriculture; Integrated management of landscape trees, shrubs, and vines, Prentice Hall, Upper Saddle River, New Jersey

IACA 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia

Mattheck, C. and Breloer, H. 1994, The body language of trees: a handbook for failure analysis, London: HMSO

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8 Appendix 1: Site Map



Figure 2: Site Map – Existing Condition

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9 Appendix 2: Tree Details

Table 8: Details of assessed trees

Tree ID	*Genus Species*	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
1	*Abelia sp.*	Abelia	Exotic	3	2	5 [2, 2, 2, 3, 2]	7	Fair	Fair	Mature	5 to 15	Low
2	*Callistemon viminalis*	Weeping Bottle Brush	Australian Native	7	4	36.12 [27, 24]	37	Good	Fair	Mature	5 to 15	Medium
3	*Pittosporum undulatum*	Sweet Pittosporum	Australian Native	5	4	27	28	Good	Fair	Mature	5 to 15	Low
4	*Nerium oleander*	Oleander	Exotic	4	2	13.49 [6, 6, 5, 6, 7]	18	Fair	Fair	Mature	5 to 15	Low
5	*Lagerstroemia indica*	Crepe Myrtle	Exotic	3	3	14.49 [8, 6, 7, 6, 5]	18	Good	Fair	Semi-mature	>40	Low

10 Appendix 3: NRZ and SRZ Details

Table 9: NRZ and SRZ details of assessed trees (AS4970 2025)

Tree ID	*Genus Species*	Common Name	SRZ radius (m) AS4970	NRZ radius (m) AS4970	NRZ Area AS 4970 (m2)
1	*Abelia sp.*	Abelia	1.5	2	12.566
2	*Callistemon viminalis*	Weeping Bottle Brush	2.18	4.33	58.901
3	*Pittosporum undulatum*	Sweet Pittosporum	1.94	3.24	32.979
4	*Nerium oleander*	Oleander	1.61	2	12.566
5	*Lagerstroemia indica*	Crepe Myrtle	1.61	2	12.566

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11 Appendix 4: NRZ, SRZ and Encroachment Map

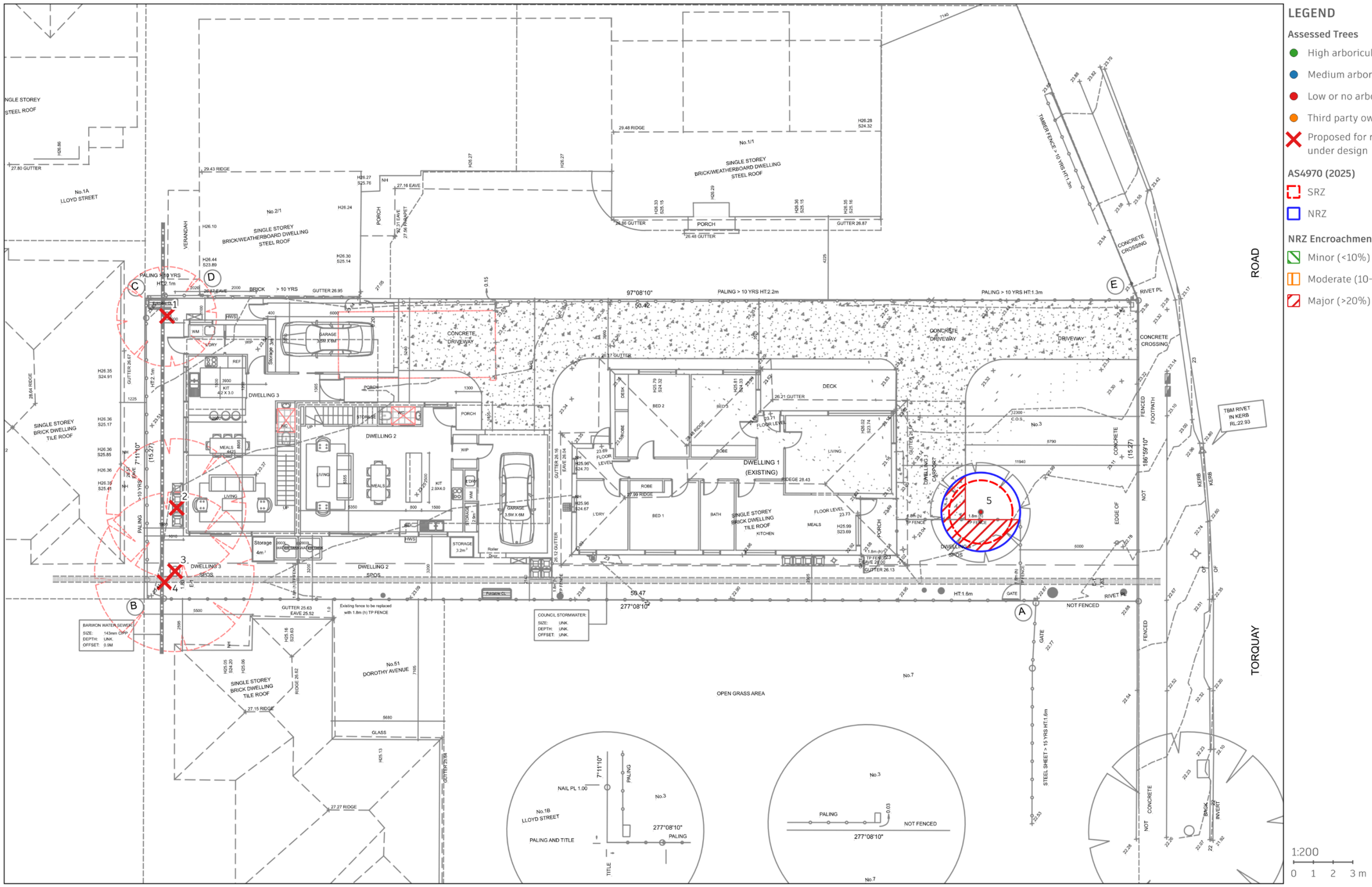


Figure 3: NRZ, SRZ and Encroachment Map

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12 Appendix 5: Tree Photos

Tree ID: 1



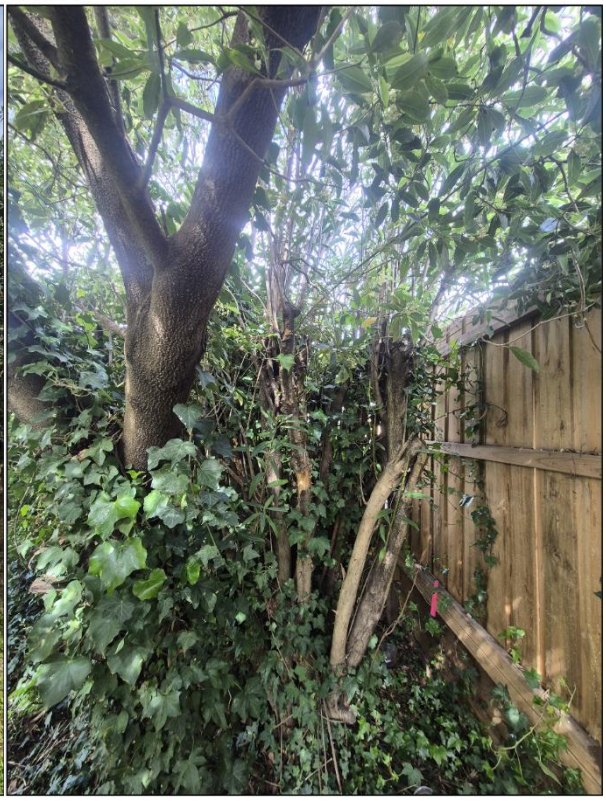
Tree ID: 2



Tree ID: 3



Tree ID: 4



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Tree ID: 5



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13 Appendix 6: Data Definitions

DSH (Diameter at Standard Height) is measured at 1.4 m above ground level or calculated from the total stem area if the tree was multi-stemmed at 1.4m above ground level in accordance with AS 4970 (2025).

DAB (Diameter at Base) is measured just above the root collar of a tree in accordance with AS 4970 (2025)

Health summarises qualitative observations of canopy density, overall vigour and vitality made in the field:

- Good - Canopy is visually dense with less than 10% dieback and shows no, or only very minor nutrient deficiencies, pest and disease presence or stress–induced epicormic growth.
- Fair - Canopy is of average density, consists of between 10-30% dieback and shows a minor, or occasionally moderate, level of nutrient deficiency, pest and disease presence or stress-induced epicormic growth.
- Poor - Canopy is visually sparse, consists of more than 30% dieback and typically has significant nutrient deficiency, pest and disease presence or stress induced epicormic growth.
- Dead – No indication the tree is alive

Structure summarises qualitative observations of tree structure and stability made in the field:

- Good - The tree's form is optimal for the species. Typically trees of 'Good' structure have no or only very minor trunk leans or canopy asymmetry. These trees have parts that are not structurally compromised by decay, cracks, or other structural faults. Structural failure of these trees is only likely only under strong and unusual weather events
- Fair - The tree's structure includes minor structural defects that do not typically fail in light or moderate weather events. Typically trees of 'Fair' structure have minor trunk leans or slightly asymmetric canopies. These trees are likely to have parts that are partly compromised by decay or structural defects such as included bark.
- Poor - The tree's structure includes major structural defects. Failure of these trees is considered possible under light or moderate weather events. Typically trees of 'Poor' structure have major trunk leans or heavily asymmetric canopies. These trees are likely to have parts that are heavily compromised by decay or structural defects such as included bark.

Maturity summarises the life stage of the tree.

- Juvenile – The tree is in approximately the first 10% of its expected lifespan in its current environment
- Semi-mature – Tree is 10%-20% through its expected lifespan in its current environment and has not yet reached its mature dimensions.
- Mature – The tree is through 20%-90% of its expected lifespan in its current environment.
- Over-mature – The tree is through approximately 90% of its expected lifespan in its current environment

ULE (Useful Life Expectancy) indicates the anticipated remaining years of lifespan of the tree in its existing surroundings. The tree's lifespan is the time that it will continue to provide amenity value without undue risk or hazard and with a reasonable amount of maintenance.

Significance indicates the importance a tree may have on a respective site. The following descriptors are used to derive this value (adapted from IACA 2010):

High -

- Tree is good condition and good vigour
- The tree has a form typical for the species
- The tree is a remnant specimen or is rare or uncommon in the local area or of botanical interest or substantial age
- The tree is listed as a heritage item or threatened species or listed on a municipal significant tree register
- The tree is visually prominent and visible from a considerable distance when viewed from most directions due to its size and scale. The tree makes a positive contribution to the local amenity.
- The tree supports social or cultural sentiments or spiritual associations or has commemorative values
- The tree is appropriate to the site conditions

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Medium -

- The tree is in fair condition and good or low vigour
- The tree has form typical or atypical of the species
- The tree is a planted locally indigenous taxa or a common species within the area.
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from a public space. The tree provides a moderate contribution to the amenity and character of the local area
- The tree is often partially restricted by above or below ground influences and/or resources.

Low –

- The is in fair condition and good or low vigour
- The tree has form atypical of the species.
- The tree is not visible or is partly visible from surrounding properties due to obstructions.
- The tree provides a minor contribution or has a negative impact on landscape amenity or character of the local area.
- The tree is a juvenile specimen that can easily be replaced.
- The trees growth is severely restricted by above or below ground influences and/or resources.
- The tree has a feature that has potential to become structurally unsound.
- The tree is a listed as a noxious or environmental weed under state, federal or municipal policy

Dead/Irreversible Decline -

- The tree is structurally unsound or unstable
- The tree is dead or in irreversible decline

Third Party Ownership

- The tree is located on adjoining land to the assessment.

A tree is to meet several or all the criteria in a category to be classified in that group

Arboricultural Value is a calculated value indicating the merit of the tree for retention through any nearby developments. It is a qualitative combination of the trees ULE and Significance Values (Table 10).

Table 10: Matrix for the calculation of Arboricultural Value

		Significance Value				
		High	**Medium**	**Low**	**Dead/Irreversible Decline**	**Third Party Ownership**
ULE	**>40 years**	High	Medium	Low	Low	Third Party Ownership
	15-40 years	High	Medium	Low	Low	Third Party Ownership
	5-15 years	High	Medium	Low	None	Third Party Ownership
	<5 years	Medium	Low	None	None	Third Party Ownership
	0 years	Low	None	None	None	Third Party Ownership

- High –Trees attributed a 'High' arboricultural value are generally of strong visual amenity and significant in the landscape. The utmost level of consideration should be given for the retention of these trees throughout development activities and/or nearby disturbance
- Medium – Trees attributed a 'Medium' arboricultural value are of moderate amenity value and have been attributed some value in the landscape. Trees attributed a 'Medium' arboricultural value should be retained and designed around during developments or nearby disturbance. If retention is not possible for these trees, removal and replacement can be often considered as an acceptable compromise.
- Low – Trees attributed a Low arboricultural value are of poor arboricultural merit. Removal and replacement is an acceptable compromise if designing around these trees is not possible.
- None – Trees attributed an arboricultural value of none have no arboricultural merit. Removal is usually acceptable or required for these trees.
- Third Party Ownership – The tree is located on adjacent land to the assessment. It is assumed that the owner of the tree attributes it a High arboricultural value and requires its retention in the landscape.

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14 Appendix 7: Structural Root Zone and Notional Root Zone Overview

14.1 Structural Root Zone (SRZ)

The SRZ is an indication of the area surrounding the base of a tree that is required for its stability. AS 4970 (2025) provides a method to calculate the SRZ of trees: The SRZ is calculated as

$$(DAB \times 50)^{0.42} \times 0.64$$

For grass like trees such as palms or tree ferns; SRZs are not calculated.

14.2 Notional Root Zone (NRZ)

The NRZ is an indication of the area surrounding the base of a tree that is required for its viability. AS 4970 (2025) provides a method for calculating the standard area of NRZ's. For all broadleaf trees, the radius of the NRZ is calculated as:

$$12 * DSH$$

For grass like trees such as palms or tree ferns; NRZs are calculated as 2m in radius.

Dead trees are attributed a NRZ of the same size as their SRZ as only their stability can be protected and not their vigour

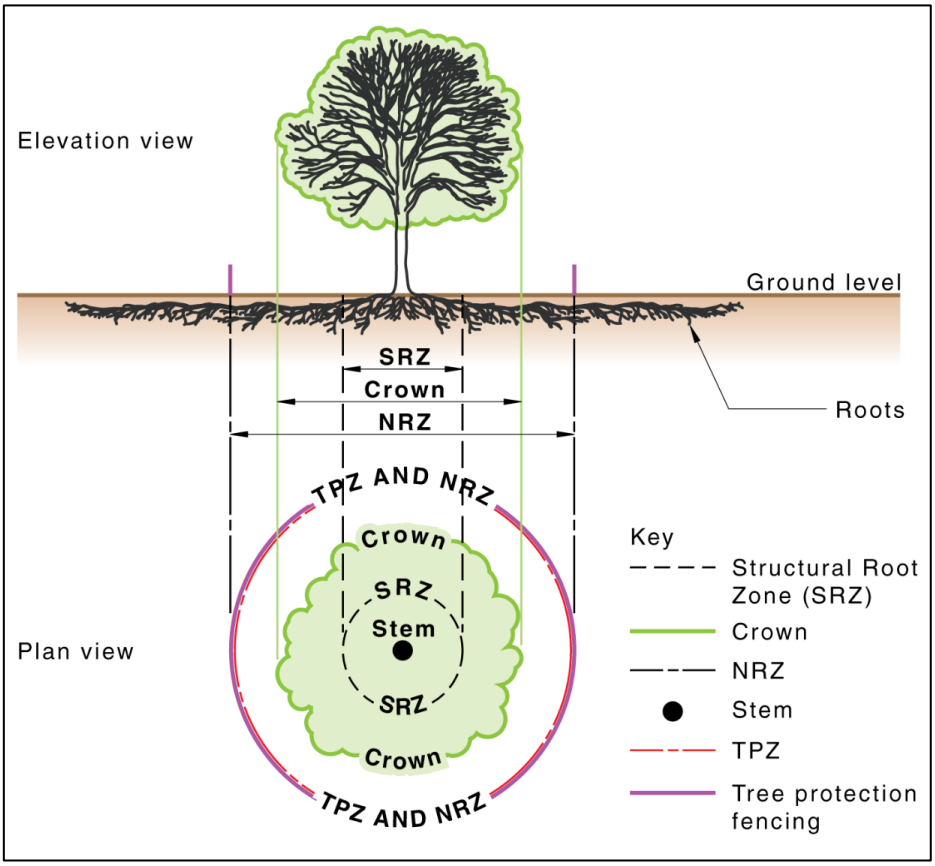


Figure 4: Diagram of NRZ and SRZ (AS 4970 2025)