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Arboricultural Impact Assessment

Location:

135 Taits Road, Barwon Heads

Report Commissioned by:

[redacted]

Author:

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1 Introduction

Arbkey has been engaged by Anita and Paul Raff to provide an Arboricultural Impact Assessment for trees likely to be affected by a proposed development at 135 Taits Road, Barwon Heads. 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.

2 Site Details

The subject site is a ~12200m2 property featuring a central dwelling and shed, southern grazing area and a border of gardens and trees (Figure 1).

Figure 1: Subject site frontage.

2.1 Development Proposal

Demolition of the existing buildings and installation of a dwelling, shed and tennis court is proposed.

2.2 Planning and Policy Context

The subject site is located within Farming Zone of the Greater Geelong Planning Scheme (DTP 2026). The vegetation protection related planning or policy controls for the site has been provided in Table 1.

Table 1: Vegetation controls at site

Planning/Policy Control	Overview of control
Significant Landscape Overlay (SLO16)	A permit is required to remove, destroy or lop vegetation unless the vegetation: • Has a height of less than 6 metres above ground level, a trunk diameter of less than 0.4 metres measured at 1.4 metres above ground level, and a canopy diameter of less than 4 metres; or • Has been planted as part of a windbreak, plantation, orchard or horticulture; or • Is identified as a weed species in the Advisory List of Environmental Weeds in Victoria
52.17 Native Vegetation	A permit is required to remove or destroy non-planted Victorian native vegetation. A list of exemptions applies

Trees within 10m of an existing dwelling, or 1m of an existing fence, constructed prior to September 2009 are exempt from planning scheme controls due to the site's location within a Bushfire Prone Area (DTP 2026)

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

3 Methodology

On the 6 February 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, 135 Taits Road, Barwon Heads. 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 trees within the northern section of the property, adjacent to the proposed development were assessed.

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
135 TAITS_TP SET-BHUNTER DESIGN	2022-020	bhdesign	Site Plans	2 December 2025

4 Observations

4.1 Tree Details

83 trees were assessed, 65 on the site itself and 18 within adjacent third-party managed property (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
Melaleuca armillaris	Giant Honey Myrtle	Australian Native	22	3, 5, 14, 15, 16, 19, 21, 22, 23, 24, 25, 26, 28, 51, 52, 53, 63, 64, 65, 66, 67, 78
Leptospermum laevigatum	Coast Tea-tree	Indigenous	6	11, 74, 75, 76, 79, 81
Hakea drupacea	Sweet Hakea	Australian Native	5	47, 55, 56, 59, 60
Eucalyptus leucoxylon	Yellow Gum	Australian Native	4	4, 46, 49, 50
Callistemon viminalis	Weeping Bottle Brush	Australian Native	4	12, 33, 37, 61
Eucalyptus cladocalyx	Sugar Gum	Australian Native	4	1, 6, 39, 42
Mixed Species			38	-

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.

Trees attributed an arboricultural value of 'Third Party Ownership' are 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.

Table 4: Overview of arboricultural value

Arboricultural Value	Count	Tree IDs
High	3	10, 29, 46
Medium	12	13, 18, 27, 39, 42, 43, 44, 45, 50, 53, 69, 71
Low	43	7, 8, 12, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 47, 49, 51, 52, 55, 56, 59, 60, 61, 62, 64, 65, 66, 67, 68, 70, 72, 83
None	7	17, 38, 48, 54, 57, 58, 63
Third Party Ownership	18	1, 2, 3, 4, 5, 6, 9, 11, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82

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

18 trees are proposed for removal under the current development plans (Table 5). Permit approval not required for the removal of these trees.

Table 5: Trees proposed for removal and arboricultural value.

Tree ID	*Genus Species*	Common Name	Arboricultural Value	Height (m)	Total DSH (cm)	Planning Permit required
28	*Melaleuca armillaris*	Giant Honey Myrtle	Low	5	26.15	
29	*Eucalyptus camaldulensis*	River Red Gum	High	11	59.2	Yes
32	*Olea europaea*	European Olive	Low	3	5	
33	*Callistemon viminalis*	Weeping Bottle Brush	Low	5	20.52	
34	*Banksia integrifolia*	Coast Banksia	Low	5	19.85	
35	*Malus xdomestica*	Apple	Low	3	10.54	
36	*Callistemon linearis*	Narrow-leaved Bottlebrush	Low	3	8.12	
37	*Callistemon viminalis*	Weeping Bottle Brush	Low	3	4	
38	*Callistemon salignus*	Willow Bottle Brush	None	3	4	
40	*Schinus areira*	Peppercorn Tree	Low	3	10	
41	*Callistemon linearis*	Narrow-leaved Bottlebrush	Low	3	6.4	
59	*Hakea drupacea*	Sweet Hakea	Low	5	9.22	
60	*Hakea drupacea*	Sweet Hakea	Low	5	14	
61	*Callistemon viminalis*	Weeping Bottle Brush	Low	3	4	
62	*Melaleuca styphelioides*	Prickly Paperbark	Low	5	10	
63	*Melaleuca armillaris*	Giant Honey Myrtle	None	4	16	
70	*Cotoneaster sp.*	Cotoneaster	Low	4	15.65	
72	*Phoenix canariensis*	Canary Island Date Palm	Low	3	12	

Tree 29, a 'High' arboricultural value River Red Gum, is considered exempt from section 52.17 of the planning scheme at the site, under clause 52.17-7, as it would be 'destroyed'; ie have a NRZ encroached by more than 10%, by construction of the proposed dwelling at the site.

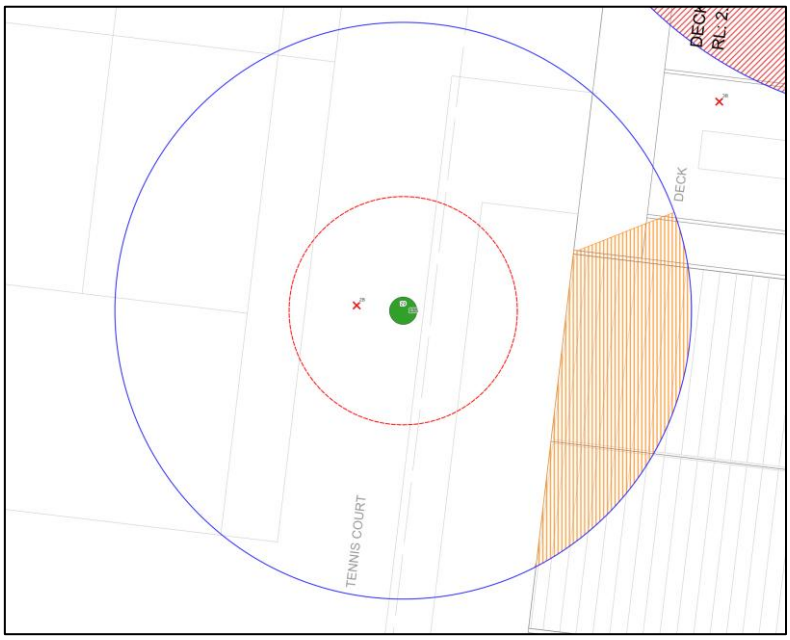


Figure 2: ~13% encroachment of Tree 29's NRZ by proposed dwelling.

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.

Nine (9) of the trees proposed for retention have NRZ encroached by the proposed development's footprint.

Table 6: Overview of trees with NRZ encroached by the design footprint.

Encroachment Classification (AS4970 2025)	Count	Tree ID
Minor (<=10% Encroachment) Generally Acceptable	2	6, 73
Moderate (10% - 20% Encroachment) Generally Tolerable with Arborist Review	1	54
Major (>20% Encroachment) Generally Intolerable	6	10, 39, 42, 43, 46, 53

Table 7: Trees with NRZ encroached by the design footprint.

Tree ID	*Genus Species*	NRZ Encroachment (%)	SRZ Encroachment?	Encroachment Classification
6	*Eucalyptus cladocalyx*	0.75	No	Minor
10	*Eucalyptus ovata*	33.87	Yes	Major
39	*Eucalyptus cladocalyx*	69.54	Yes	Major
42	*Eucalyptus cladocalyx*	44.46	Yes	Major
43	*Eucalyptus globulus*	28.87	Yes	Major
46	*Eucalyptus leucoxylon*	30.25	Yes	Major
53	*Melaleuca armillaris*	42.55	Yes	Major
54	*Eucalyptus cinerea*	12.25	No	Moderate
73	*Eucalyptus botryoides*	7.17	No	Minor

The remaining trees proposed for retention do not have NRZ encroached by the design footprint and would remain viable throughout the design's implementation.

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

5.3.4.1 Trees 10, 42, 43, 46 and 53

Trees 10, 42, 43, 46 and 53 have NRZ majorly encroached by the proposed gravel driveway. To maintain the viability of these trees throughout the driveway's installation, the driveway must be installed entirely at the existing soil grade, with only minor hand levelling permitted where within the NRZ of these trees. If this mitigation is implemented, Trees 10, 42, 43, 46 and 53 would remain viable throughout the driveway's installation.

5.3.4.2 Tree 39

Tree 39, a 'Medium' arboricultural value Sugar Gum (*Eucalyptus cladocalyx*), has a NRZ majorly encroached by the proposed pool and alfresco area. Considering the extent of the encroachment, this tree would not remain viable if the current plans were installed and its removal would be necessitated. No permit is required for the removal of this tree as it is within 10m of the site's existing dwelling and is exempt from the applicable planning provisions at the site.

Figure 3: Tree 39 would not remain viable if the proposal was installed and its removal would be necessitated.

5.3.4.3 Tree 54

Tree 54, a 'No' arboricultural value Mealy Stringybark (*Eucalyptus cinerea*), has a NRZ moderately encroached by a proposed fence. Considering the relatively low NRZ encroachment (<15%), the viability of this tree would not be adversely affected by the proposed works.

6 Conclusions and Recommendations

Demolition of the existing buildings and installation of a dwelling, shed and tennis court is currently proposed at 135 Taits Road, Barwon Heads. Arbkey has been engaged to assess the impact of the development on the trees at or adjacent to the site. 83 trees were assessed, 65 on the site and 18 within adjacent property. 18 of these trees are proposed for removal under the development plans. Permit approval is not required for the removal of these trees.

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). Nine (9) of the trees proposed for retention have NRZ encroached by the proposed design footprint.

Table 8: Overview of trees with NRZ encroached by the design footprint.

Encroachment Classification (AS4970 2025)	Count	Tree ID
Minor (<=10% Encroachment) Generally Acceptable	2	6, 73
Moderate (10% - 20% Encroachment) Generally Tolerable with Arborist Review	1	54
Major (>20% Encroachment) Generally Intolerable	6	10, 39, 42, 43, 46, 53

Trees 10, 42, 43, 46 and 53 have NRZ majorly encroached by the proposed gravel driveway. To maintain the viability of these trees throughout the driveway's installation, the driveway must be installed entirely at the existing soil grade, with only minor hand levelling permitted where within the NRZ of these trees. If this mitigation is implemented, Trees 10, 42, 43, 46 and 53 would remain viable throughout the driveway's installation.

Tree 39, a 'Medium' arboricultural value Sugar Gum (*Eucalyptus cladocalyx*), has a NRZ majorly encroached by the proposed pool and alfresco area. Considering the extent of the encroachment, this tree would not remain viable if the current plans were installed and its removal would be necessitated. No permit is required for the removal of this tree as it is within 10m of the site's existing dwelling and is exempt from the applicable planning provisions at the site.

Tree 54, a 'No' arboricultural value Mealy Stringybark (*Eucalyptus cinerea*), has a NRZ moderately encroached by a proposed fence. Considering the relatively low NRZ encroachment (<15%), the viability of this tree would not be adversely affected by the proposed works.

The remaining trees proposed for retention do not have NRZ encroached by the design footprint and would remain viable throughout the design's implementation. 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.
- Prior to the commencement of any construction or demolition activities, a Tree Protection Specification (TPS) and Tree Protection Plan (TPP) in accordance with AS4970 (2025) is prepared outlining the procedure for protecting any impacted trees throughout the implementation of the endorsed design.

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

8 Appendix 1: Site Map

Figure 4: Site Map – Existing Condition

9 Appendix 2: Tree Details

Table 9: 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	Comments
1	*Eucalyptus cladocalyx*	Sugar Gum	Australian Native	7	7	38	45	Fair	Fair	Mature	15 to 40	Third Party Ownership	
2	*Eucalyptus botryoides*	Southern Mahogany	Australian Native	7	4	20	30	Fair	Fair	Semi-mature	15 to 40	Third Party Ownership	
3	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	3	3	18	24	Fair	Fair	Mature	5 to 15	Third Party Ownership	
4	*Eucalyptus leucoxylon*	Yellow Gum	Australian Native	8	6	32	36	Fair	Fair	Mature	5 to 15	Third Party Ownership	
5	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	3	4	35.16 [28, 16, 14]	35	Good	Fair	Mature	5 to 15	Third Party Ownership	
6	*Eucalyptus cladocalyx*	Sugar Gum	Australian Native	7	9	42.45 [29, 31]	45	Fair	Fair	Mature	5 to 15	Third Party Ownership	
7	*Acacia dealbata*	Silver Wattle	Indigenous	3	2	5	7	Good	Good	Immature	15 to 40	Low	
8	*Acacia dealbata*	Silver Wattle	Indigenous	3	1	4	5	Good	Good	Immature	15 to 40	Low	
9	*Acacia dealbata*	Silver Wattle	Indigenous	4	2	7.81 [6, 5]	8	Good	Fair	Immature	15 to 40	Third Party Ownership	
10	*Eucalyptus ovata*	Swamp Gum	Indigenous	6	6	48	55	Good	Fair	Mature	15 to 40	High	Pruned under power lines
11	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	3	4	14.7 [9, 6, 5, 5, 7]	18	Fair	Fair	Semi-mature	15 to 40	Third Party Ownership	
12	*Callistemon viminalis*	Weeping Bottle Brush	Australian Native	3	2	7.81 [6, 5]	8	Good	Fair	Semi-mature	15 to 40	Low	
13	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	9	6	51	58	Fair	Fair	Mature	15 to 40	Medium	
14	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	6	32.56 [24, 22]	40	Good	Fair	Mature	5 to 15	Low	
15	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	4	29.58 [17, 19, 15]	34	Good	Fair	Mature	5 to 15	Low	
16	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	4	18	20	Fair	Fair	Mature	5 to 15	Low	
17	*Acacia saligna*	Western Australian Golden Wattle	Australian Native	3	2	8	10	Poor	Fair	Semi-mature	<5	None	
18	*Eucalyptus cosmophylla*	Cup Gum	Australian Native	6	5	39.96 [34, 21]	44	Fair	Fair	Mature	15 to 40	Medium	

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	Comments
19	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	7	5	33.02 [27, 19]	34	Fair	Fair	Mature	5 to 15	Low	
20	*Eucalyptus cosmophylla*	Cup Gum	Australian Native	5	4	24	25	Fair	Fair	Semi-mature	15 to 40	Low	
21	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	4	24	28	Fair	Fair	Mature	5 to 15	Low	
22	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	5	26.63 [22, 15]	28	Fair	Fair	Mature	5 to 15	Low	
23	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	3	18	20	Fair	Fair	Mature	5 to 15	Low	
24	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	4	28.51 [15, 13, 13, 13, 9]	34	Fair	Fair	Mature	5 to 15	Low	
25	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	3	20.42 [14, 11, 10]	26	Fair	Fair	Mature	5 to 15	Low	
26	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	6	27.5 [17, 15, 11, 11]	27	Fair	Fair	Mature	5 to 15	Low	
27	*Eucalyptus gomphocephala*	Tuart	Australian Native	15	7	55	66	Good	Fair	Mature	15 to 40	Medium	
28	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	4	26.15 [15, 13, 11, 13]	27	Fair	Fair	Mature	5 to 15	Low	
29	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	11	8	59.2 [47, 36]	68	Fair	Good	Mature	>40	High	
30	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	5	3	13.6 [8, 11]	18	Fair	Fair	Semi-mature	15 to 40	Low	
31	*Olea europaea*	European Olive	Exotic	3	4	12.85 [7, 7, 7, 3, 3]	20	Good	Fair	Semi-mature	>40	Low	
32	*Olea europaea*	European Olive	Exotic	3	1	5	6	Good	Fair	Immature	>40	Low	
33	*Callistemon viminalis*	Weeping Bottle Brush	Australian Native	5	3	20.52 [14, 15]	21	Good	Fair	Mature	5 to 15	Low	
34	*Banksia integrifolia*	Coast Banksia	Indigenous	5	3	19.85 [15, 13]	24	Fair	Fair	Semi-mature	15 to 40	Low	In planted row
35	*Malus xdomestica*	Apple	Exotic	3	2	10.54 [5, 5, 5, 6]	12	Good	Fair	Mature	5 to 15	Low	
36	*Callistemon linearis*	Narrow-leaved Bottlebrush	Australian Native	3	2	8.12 [4, 5, 4, 3]	9	Fair	Fair	Mature	5 to 15	Low	
37	*Callistemon viminalis*	Weeping Bottle Brush	Australian Native	3	2	4	6	Fair	Fair	Semi-mature	5 to 15	Low	

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	Comments
38	*Callistemon salignus*	Willow Bottle Brush	Australian Native	3	2	4	6	Fair	Poor	Semi-mature	<5	None	
39	*Eucalyptus cladocalyx*	Sugar Gum	Australian Native	15	11	81.6 [27, 77]	85	Fair	Fair	Mature	5 to 15	Medium	Cavity from previous stem failure at 1.5m. Some deadwood throughout canopy. Self lionstailed canopy
40	*Schinus areira*	Peppercorn Tree	Exotic	3	4	10 [8, 6]	13	Fair	Fair	Semi-mature	5 to 15	Low	
41	*Callistemon linearis*	Narrow-leaved Bottlebrush	Australian Native	3	2	6.4 [5, 4]	8	Fair	Fair	Mature	5 to 15	Low	
42	*Eucalyptus cladocalyx*	Sugar Gum	Australian Native	8	4	24	28	Fair	Good	Semi-mature	15 to 40	Medium	
43	*Eucalyptus globulus*	Blue Gum	Australian Native	15	5	37	42	Good	Good	Semi-mature	>40	Medium	
44	*Eucalyptus gomphocephala*	Tuart	Australian Native	14	5	54	59	Fair	Fair	Mature	15 to 40	Medium	
45	*Acacia melanoxylon*	Blackwood	Indigenous	6	3	18	21	Good	Fair	Semi-mature	15 to 40	Medium	
46	*Eucalyptus leucoxylon*	Yellow Gum	Australian Native	13	9	62.94 [44, 45]	68	Good	Fair	Mature	>40	High	Subsp ballerinensis
47	*Hakea drupacea*	Sweet Hakea	Australian Native	5	4	21.91 [13, 9, 9, 10, 7]	21	Fair	Fair	Mature	5 to 15	Low	
48	*Bursaria spinosa*	Sweet Bursaria	Indigenous	3	2	5	7	Poor	Fair	Semi-mature	<5	None	
49	*Eucalyptus leucoxylon*	Yellow Gum	Australian Native	6	3	20	24	Fair	Fair	Semi-mature	15 to 40	Low	
50	*Eucalyptus leucoxylon*	Yellow Gum	Australian Native	6	4	26	29	Good	Fair	Semi-mature	15 to 40	Medium	
51	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	5	4	28.14 [14, 15, 13, 11, 9]	31	Good	Fair	Mature	5 to 15	Low	
52	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	7	4	30	34	Fair	Fair	Mature	5 to 15	Low	
53	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	13	9	55.23 [41, 37]	57	Good	Fair	Mature	15 to 40	Medium	
54	*Eucalyptus cinerea*	Mealy Stringybark	Australian Native	9	4	32.65 [21, 25]	33	Poor	Poor	Mature	0	None	Decay in main union. Almost dead
55	*Hakea drupacea*	Sweet Hakea	Australian Native	4	3	8.77 [6, 4, 4, 3]	9	Fair	Fair	Mature	5 to 15	Low	

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	Comments
56	*Hakea drupacea*	Sweet Hakea	Australian Native	4	3	10.82 [9, 6]	13	Fair	Fair	Mature	5 to 15	Low	
57	*Eucalyptus globulus*	Blue Gum	Australian Native	9	4	25.63 [16, 16, 9, 8]	26	Poor	Poor	Mature	<5	None	Topped at 1m
58	*Eucalyptus globulus*	Blue Gum	Australian Native	8	4	34.03 [16, 15, 15, 14, 16]	42	Poor	Poor	Mature	<5	None	Topped at 1m
59	*Hakea drupacea*	Sweet Hakea	Australian Native	5	2	9.22 [7, 6]	10	Fair	Fair	Semi-mature	5 to 15	Low	
60	*Hakea drupacea*	Sweet Hakea	Australian Native	5	3	14	16	Fair	Fair	Semi-mature	5 to 15	Low	
61	*Callistemon viminalis*	Weeping Bottle Brush	Australian Native	3	2	4	5	Good	Fair	Semi-mature	15 to 40	Low	
62	*Melaleuca styphelioides*	Prickly Paperbark	Australian Native	5	2	10	13	Good	Fair	Semi-mature	15 to 40	Low	
63	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	2	16	18	Poor	Fair	Semi-mature	<5	None	
64	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	3	16.64 [14, 9]	18	Good	Fair	Semi-mature	5 to 15	Low	
65	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	6	5	29.98 [13, 14, 13, 14, 13]	32	Good	Fair	Mature	5 to 15	Low	
66	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	6	4	33	36	Good	Fair	Mature	5 to 15	Low	
67	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	6	6	45.44 [28, 25, 20, 16]	46	Good	Fair	Mature	5 to 15	Low	
68	*Melaleuca ericifolia*	Swamp Paperbark	Australian Native	3	2	8	10	Fair	Fair	Semi-mature	5 to 15	Low	
69	*Eucalyptus sideroxylon*	Red Ironbark	Australian Native	11	9	57.38 [28, 45, 22]	58	Fair	Fair	Mature	15 to 40	Medium	
70	*Cotoneaster sp.*	Cotoneaster	Exotic	4	4	15.65 [9, 10, 8]	16	Good	Fair	Mature	5 to 15	Low	Not well located on survey
71	*Banksia integrifolia*	Coast Banksia	Indigenous	6	4	22	25	Fair	Fair	Mature	5 to 15	Medium	Canopy in decline
72	*Phoenix canariensis*	Canary Island Date Palm	Exotic	3	3	12	40	Good	Good	Semi-mature	15 to 40	Low	
73	*Eucalyptus botryoides*	Southern Mahogany	Australian Native	17	13	90.61 [61, 67]	94	Good	Fair	Mature	15 to 40	Third Party Ownership	

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	Comments
74	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	4	2	10	14	Fair	Fair	Semi-mature	5 to 15	Third Party Ownership	
75	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	4	3	13.42 [12, 6]	15	Fair	Fair	Semi-mature	5 to 15	Third Party Ownership	
76	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	3	2	7	10	Fair	Fair	Semi-mature	5 to 15	Third Party Ownership	
77	*Acacia paradoxa*	Kangaroo Wattle	Indigenous	3	5	17.64 [9, 9, 8, 7, 6]	18	Fair	Fair	Mature	5 to 15	Third Party Ownership	
78	*Melaleuca armillaris*	Giant Honey Myrtle	Australian Native	4	4	20.12 [18, 9]	21	Fair	Fair	Mature	5 to 15	Third Party Ownership	
79	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	4	3	12.37 [6, 6, 9]	13	Fair	Fair	Mature	5 to 15	Third Party Ownership	
80	*Eucalyptus botryoides*	Southern Mahogany	Australian Native	5	3	49.15 [24, 26, 22, 22, 14]	50	Fair	Poor	Mature	<5	Third Party Ownership	
81	*Leptospermum laevigatum*	Coast Tea-tree	Indigenous	4	3	10.68 [7, 7, 4]	11	Good	Fair	Semi-mature	15 to 40	Third Party Ownership	
82	*Acacia longifolia*	Sallow Wattle	Australian Native	4	3	8	6	Good	Fair	Semi-mature	5 to 15	Third Party Ownership	
83	*Acacia longifolia*	Sallow Wattle	Australian Native	5	3	14.21 [11, 9]	15	Fair	Fair	Semi-mature	5 to 15	Low	

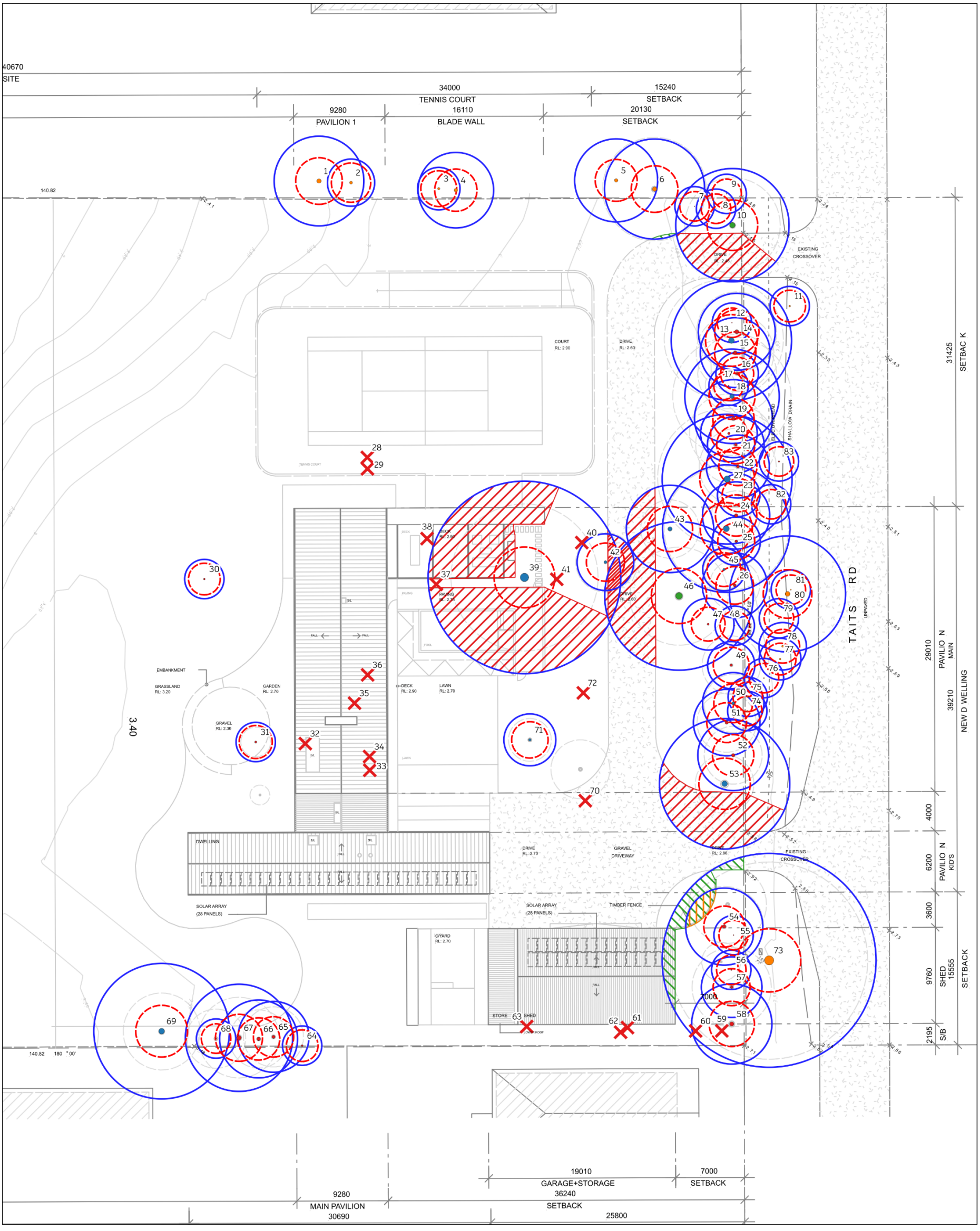
10 Appendix 3: NRZ and SRZ Details

Table 10: 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	*Eucalyptus cladocalyx*	Sugar Gum	2.37	4.56	65.325
2	*Eucalyptus botryoides*	Southern Mahogany	2	2.4	18.096
3	*Melaleuca armillaris*	Giant Honey Myrtle	1.82	2.16	14.657
4	*Eucalyptus leucoxylon*	Yellow Gum	2.15	3.84	46.325
5	*Melaleuca armillaris*	Giant Honey Myrtle	2.13	4.22	55.947
6	*Eucalyptus cladocalyx*	Sugar Gum	2.37	5.09	81.393
7	*Acacia dealbata*	Silver Wattle	1.5	2	12.566
8	*Acacia dealbata*	Silver Wattle	1.5	2	12.566
9	*Acacia dealbata*	Silver Wattle	1.5	2	12.566
10	*Eucalyptus ovata*	Swamp Gum	2.57	5.76	104.231
11	*Leptospermum laevigatum*	Coast Tea-tree	1.61	2	12.566
12	*Callistemon viminalis*	Weeping Bottle Brush	1.5	2	12.566
13	*Eucalyptus camaldulensis*	River Red Gum	2.63	6.12	117.666
14	*Melaleuca armillaris*	Giant Honey Myrtle	2.25	3.91	48.029
15	*Melaleuca armillaris*	Giant Honey Myrtle	2.1	3.55	39.592
16	*Melaleuca armillaris*	Giant Honey Myrtle	1.68	2.16	14.657
17	*Acacia saligna*	Western Australian Golden Wattle	1.5	2	12.566
18	*Eucalyptus cosmophylla*	Cup Gum	2.34	4.8	72.382
19	*Melaleuca armillaris*	Giant Honey Myrtle	2.1	3.96	49.265
20	*Eucalyptus cosmophylla*	Cup Gum	1.85	2.88	26.058
21	*Melaleuca armillaris*	Giant Honey Myrtle	1.94	2.88	26.058
22	*Melaleuca armillaris*	Giant Honey Myrtle	1.94	3.2	32.17
23	*Melaleuca armillaris*	Giant Honey Myrtle	1.68	2.16	14.657
24	*Melaleuca armillaris*	Giant Honey Myrtle	2.1	3.42	36.745
25	*Melaleuca armillaris*	Giant Honey Myrtle	1.88	2.45	18.857
26	*Melaleuca armillaris*	Giant Honey Myrtle	1.91	3.3	34.212
27	*Eucalyptus gomphocephala*	Tuart	2.78	6.6	136.848
28	*Melaleuca armillaris*	Giant Honey Myrtle	1.91	3.14	30.975
29	*Eucalyptus camaldulensis*	River Red Gum	2.81	7.1	158.368
30	*Eucalyptus camaldulensis*	River Red Gum	1.61	2	12.566
31	*Olea europaea*	European Olive	1.68	2	12.566
32	*Olea europaea*	European Olive	1.5	2	12.566
33	*Callistemon viminalis*	Weeping Bottle Brush	1.72	2.46	19.012
34	*Banksia integrifolia*	Coast Banksia	1.82	2.38	17.795
35	*Malus xdomestica*	Apple	1.5	2	12.566
36	*Callistemon linearis*	Narrow-leaved Bottlebrush	1.5	2	12.566
37	*Callistemon viminalis*	Weeping Bottle Brush	1.5	2	12.566
38	*Callistemon salignus*	Willow Bottle Brush	1.5	2	12.566
39	*Eucalyptus cladocalyx*	Sugar Gum	3.09	9.79	301.103
40	*Schinus areira*	Peppercorn Tree	1.5	2	12.566
41	*Callistemon linearis*	Narrow-leaved Bottlebrush	1.5	2	12.566
42	*Eucalyptus cladocalyx*	Sugar Gum	1.94	2.88	26.058
43	*Eucalyptus globulus*	Blue Gum	2.3	4.44	61.932
44	*Eucalyptus gomphocephala*	Tuart	2.65	6.48	131.917
45	*Acacia melanoxylon*	Blackwood	1.72	2.16	14.657
46	*Eucalyptus leucoxylon*	Yellow Gum	2.81	7.55	179.079
47	*Hakea drupacea*	Sweet Hakea	1.72	2.63	21.73
48	*Bursaria spinosa*	Sweet Bursaria	1.5	2	12.566
49	*Eucalyptus leucoxylon*	Yellow Gum	1.82	2.4	18.096
50	*Eucalyptus leucoxylon*	Yellow Gum	1.97	3.12	30.582
51	*Melaleuca armillaris*	Giant Honey Myrtle	2.02	3.38	35.891
52	*Melaleuca armillaris*	Giant Honey Myrtle	2.1	3.6	40.715
53	*Melaleuca armillaris*	Giant Honey Myrtle	2.61	6.63	138.095
54	*Eucalyptus cinerea*	Mealy Stringybark	2.08	3.92	48.275
55	*Hakea drupacea*	Sweet Hakea	1.5	2	12.566

Tree ID	*Genus Species*	Common Name	SRZ radius (m) AS4970	NRZ radius (m) AS4970	NRZ Area AS 4970 (m2)
56	*Hakea drupacea*	Sweet Hakea	1.5	2	12.566
57	*Eucalyptus globulus*	Blue Gum	1.88	3.08	29.802
58	*Eucalyptus globulus*	Blue Gum	2.3	4.08	52.296
59	*Hakea drupacea*	Sweet Hakea	1.5	2	12.566
60	*Hakea drupacea*	Sweet Hakea	1.53	2	12.566
61	*Callistemon viminalis*	Weeping Bottle Brush	1.5	2	12.566
62	*Melaleuca styphelioides*	Prickly Paperbark	1.5	2	12.566
63	*Melaleuca armillaris*	Giant Honey Myrtle	1.61	2	12.566
64	*Melaleuca armillaris*	Giant Honey Myrtle	1.61	2	12.566
65	*Melaleuca armillaris*	Giant Honey Myrtle	2.05	3.6	40.715
66	*Melaleuca armillaris*	Giant Honey Myrtle	2.15	3.96	49.265
67	*Melaleuca armillaris*	Giant Honey Myrtle	2.39	5.45	93.313
68	*Melaleuca ericifolia*	Swamp Paperbark	1.5	2	12.566
69	*Eucalyptus sideroxylon*	Red Ironbark	2.63	6.89	149.138
70	*Cotoneaster sp.*	Cotoneaster	1.53	2	12.566
71	*Banksia integrifolia*	Coast Banksia	1.85	2.64	21.896
72	*Phoenix canariensis*	Canary Island Date Palm	0	2	12.566
73	*Eucalyptus botryoides*	Southern Mahogany	3.22	10.87	371.201
74	*Leptospermum laevigatum*	Coast Tea-tree	1.5	2	12.566
75	*Leptospermum laevigatum*	Coast Tea-tree	1.5	2	12.566
76	*Leptospermum laevigatum*	Coast Tea-tree	1.5	2	12.566
77	*Acacia paradoxa*	Kangaroo Wattle	1.61	2.12	14.12
78	*Melaleuca armillaris*	Giant Honey Myrtle	1.72	2.41	18.247
79	*Leptospermum laevigatum*	Coast Tea-tree	1.5	2	12.566
80	*Eucalyptus botryoides*	Southern Mahogany	2.47	5.9	109.359
81	*Leptospermum laevigatum*	Coast Tea-tree	1.5	2	12.566
82	*Acacia longifolia*	Sallow Wattle	1.5	2	12.566
83	*Acacia longifolia*	Sallow Wattle	1.5	2	12.566

11 Appendix 4: NRZ, SRZ and Encroachment Map



LEGEND

Assessed Trees
- High arboricultural value
- Medium arboricultural value
- Low or no arboricultural value
- Third party ownership
- Proposed for removal under design

AS4970 (2025)
- SRZ
- NRZ

NRZ Encroachment
- Minor (<10%)
- Moderate (10-20%)
- Major (>20%)

Figure 5: NRZ, SRZ and Encroachment Map

12 Appendix 5: Tree Photos

Tree ID: 1

Tree ID: 2

Tree ID: 3

Tree ID: 4

Tree ID: 5

Tree ID: 6

Tree ID: 7

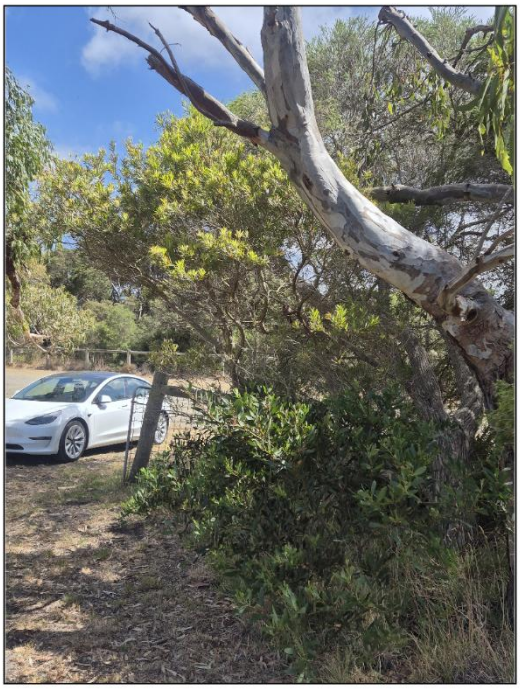
Tree ID: 8

Tree ID: 9

Tree ID: 10

Tree ID: 11

Tree ID: 12



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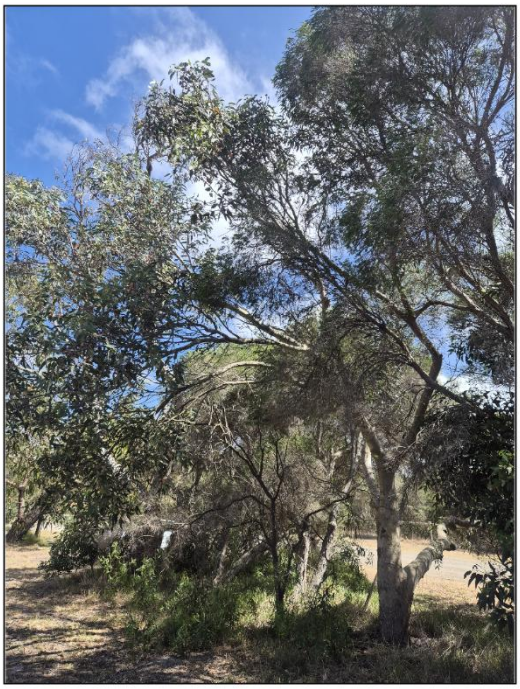
Tree ID: 14

Tree ID: 15

Tree ID: 16

Tree ID: 17

Tree ID: 18



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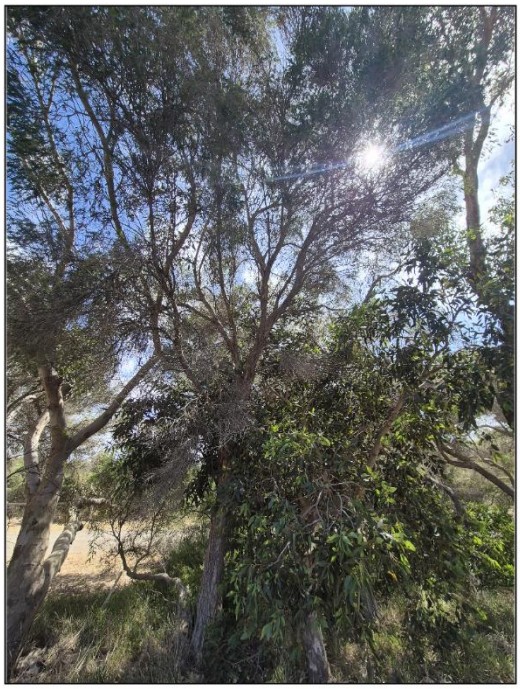

Tree ID: 20

Tree ID: 21

Tree ID: 22

Tree ID: 23

Tree ID: 24

Tree ID: 25

Tree ID: 26

Tree ID: 27

Tree ID: 28

Tree ID: 29

Tree ID: 30

Tree ID: 31

Tree ID: 32

Tree ID: 33

Tree ID: 34

Tree ID: 35

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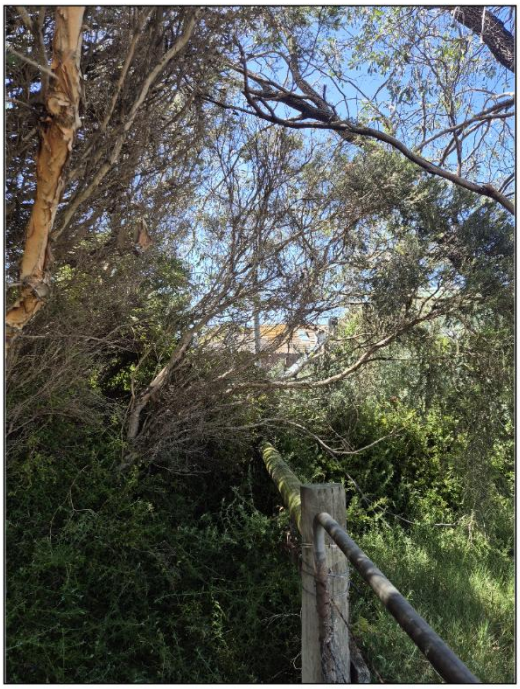
Tree ID: 65

Tree ID: 66

Tree ID: 67

Tree ID: 68



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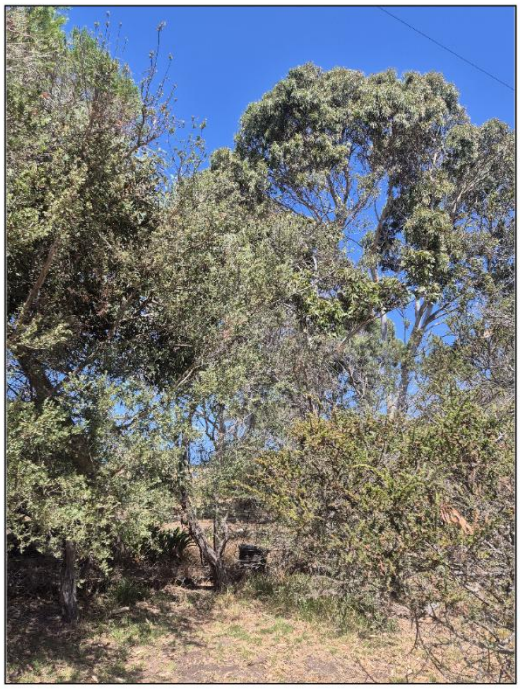
Tree ID: 71

Tree ID: 72

Tree ID: 73

Tree ID: 74

Tree ID: 75



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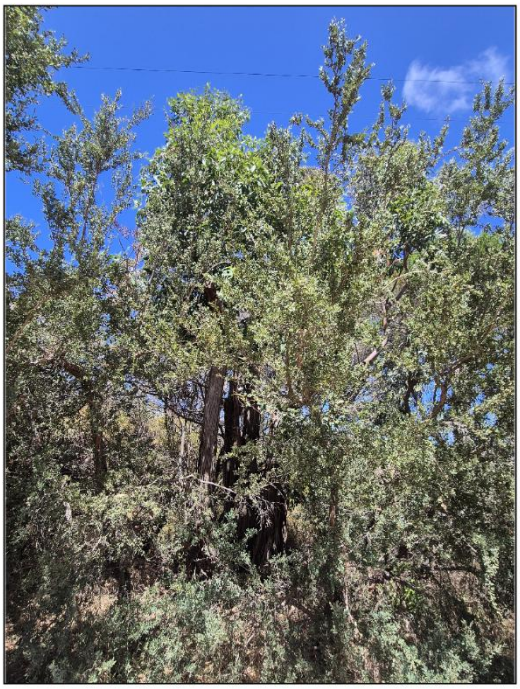
Tree ID: 77

Tree ID: 78

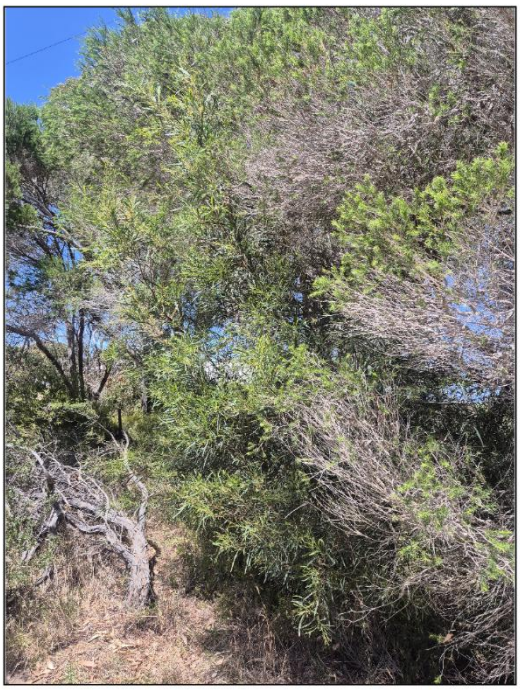
Tree ID: 79

Tree ID: 80



Tree ID: 81

Tree ID: 82



Tree ID: 83

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

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 11).

Table 11: 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.

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

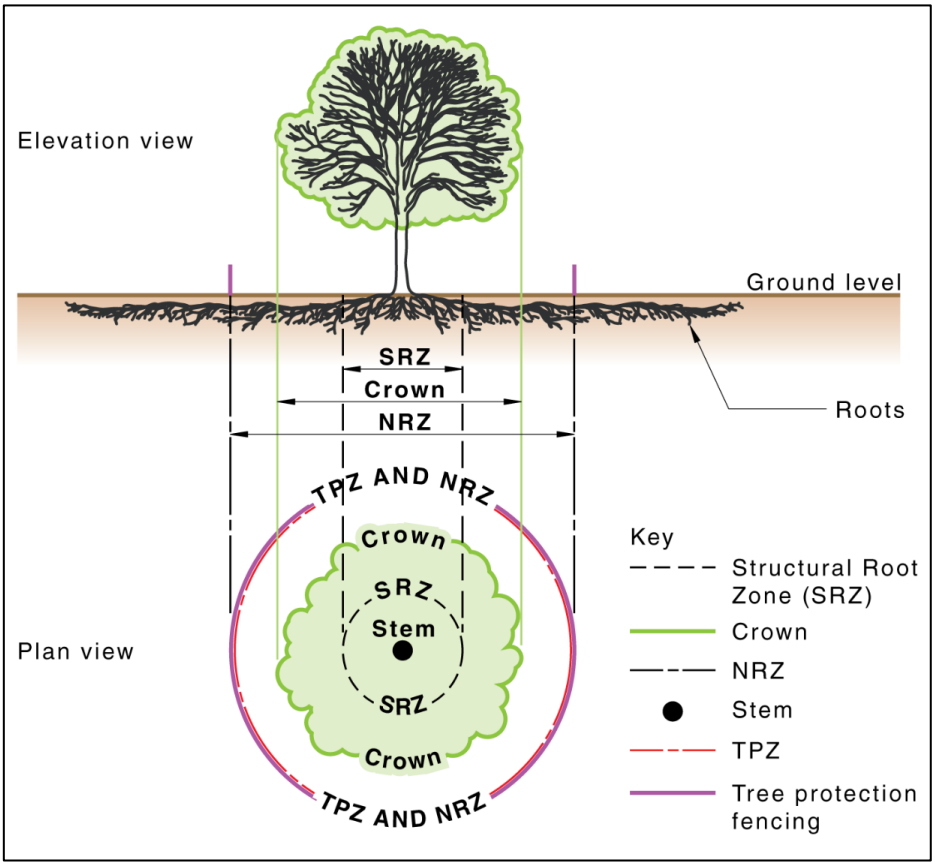


Figure 6: Diagram of NRZ and SRZ (AS 4970 2025)