Preliminary Tree Survey

Prepared for:

Everyone – A Division of Metricon

Site Address: 2 Tobruk St, Morwell, VIC

Trees Inspected: 02/08/2023

Version 1: 10/08/2023

Version 2: 10/01/2024

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Introduction

Evergreen Tree Consulting has been engaged by 'Everyone – A Division of Metricon Homes' to carry out a Preliminary Tree Survey at 2 Tobruk St, Morwell, in line with modern arboricultural practices and AS4970-2009 "Protection of Trees on Development Sites".

This report will include:

- Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) calculations
- Retention Values for the subject trees
- Comment on tree health and structure

Methodology

On the 3rd of August 2023, Scott Tappenden attended 2 Tobruk St, Morwell, to assess all significant trees within the site and within 5m of the boundary on abutting land and to undertake a Preliminary Tree Survey. No street trees were present around this site.

Tree height was estimated, and canopy spread was estimated using an average measurement from North – South and East – West.
Diameter was measured at a height of 1.4 metres above ground level.
The dimensions of trees located in neighbouring properties were estimated from the boundary fence.

The following tree data was collected:

- Tree number, tree genus, tree species & common name.
- Age class
- Diameter at Breast Height (DBH)
- Diameter Above Root Buttressing (DARB)
- Tree height and average canopy spread
- Tree health, form and structure
- Retention Value
- Useful Life Expectancy (ULE)
- Hazards & Permanent Targets

Inspections were carried out from ground level only.

Planning Controls

2 Tobruk St, Morwell, is located in the **Latrobe Council** and is subject to the following zones and overlays.

Planning Zone:

GENERAL RESIDENTIAL ZONE – SCHEDULE 1 (GRZ1)

Planning Overlays:

DESIGN AND DEVELOPMENT OVERLAY – SCHEDULE 11 (DDO11)

Description of the subject site

2 Tobruk St, Morwell is a vacant ‘L’ shape lot. The site contains planted canopy trees, shrubs and exotic landscape plantings from presumed previous land use. Multiple self-sown trees and shrubs have emerged and several environmental weeds were identified. Historic earthworks were observed. Two large battered site cuts stepping down from North to South were present. A significant ground level difference was observed along the North boundary where the ground level drops off to the South approximately 2-3 meters from the footpath height, approximately 5meters from the boundary.

- *Approximate property boundary shown in orange.*

Figure 1: Satellite image of 2 Tobruk St, Morwell . Source Nearmap.

Site Map

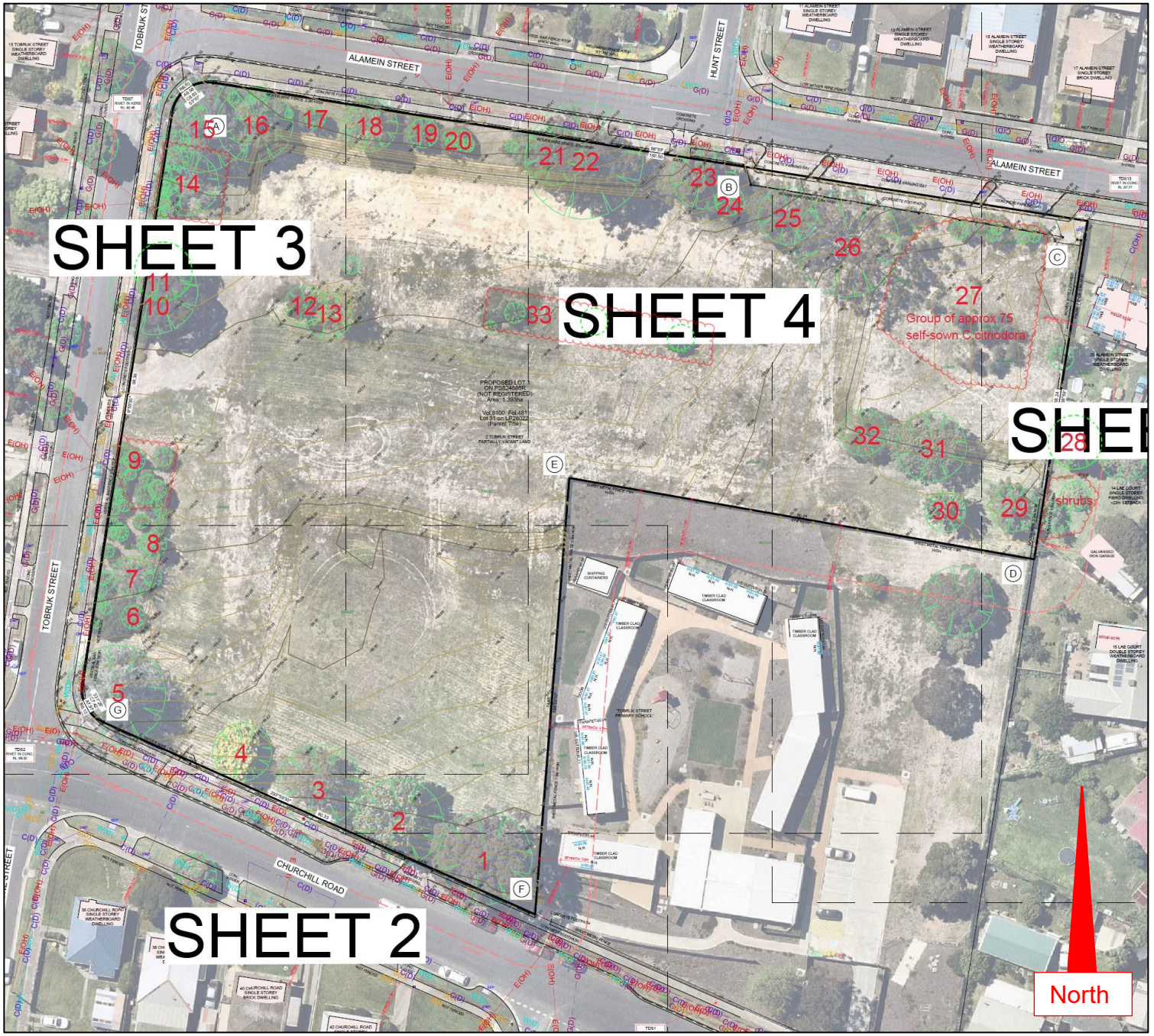


Figure 2: All assessed trees numbered on feature and level survey.

Discussion

A total of thirty-three trees have been assessed at 2 Tobruk St, Morwell and this includes four tree groups. One tree is located in a neighbouring property to the East (T28). No street trees are located around this property.

The site is a vacant lot and predominantly cleared. The remaining trees are mostly located around the perimeter with several small trees internally in the North-East corner. Several exotic trees which are likely left over from previous landscape plantings have also been included.

Regrowth and self-sown trees have been included. Many of these trees will develop into large trees if left unmanaged. This includes the following tree groups;

- A group of five small *Callistemons* (9) are growing on the far West boundary. This group and several other smaller shrubs nearby are all likely to have either self-sown or have been planted in previous landscaping.
- A large area of regrowth (27) of approximately 75 x *Corymbia citriodora* saplings. Some of which are approaching 5-7meters tall x 2m wide.
- A small dense group (20) on the North boundary containing six separate small trees growing in very close group. The smaller trees growing under the Hakea are likely to have self-sown here as birds' nest in the tree and disperse seeds below.

A fourth group of three small trees in the center of the site (33) are planted exotic landscaping species.

Environmental weed species has been identified within the site. The species identified is *Fraxinus angustifolia subsp. angustifolia* – Narrow Leaved Ash. This exotic species is a environmental weed species and should be removed from the site. The stumps should be poisoned to prevent regrowth. This species sets seed that spreads prolifically via wind and water and the seed can remain viable even after being submerged in water for extended periods. This species has been identified by its brown terminal bud cover and bunches of winged seed pods in the canopy.

The following trees have been identified as *Fraxinus angustifolia subsp. angustifolia* – Narrow Leaved Ash.

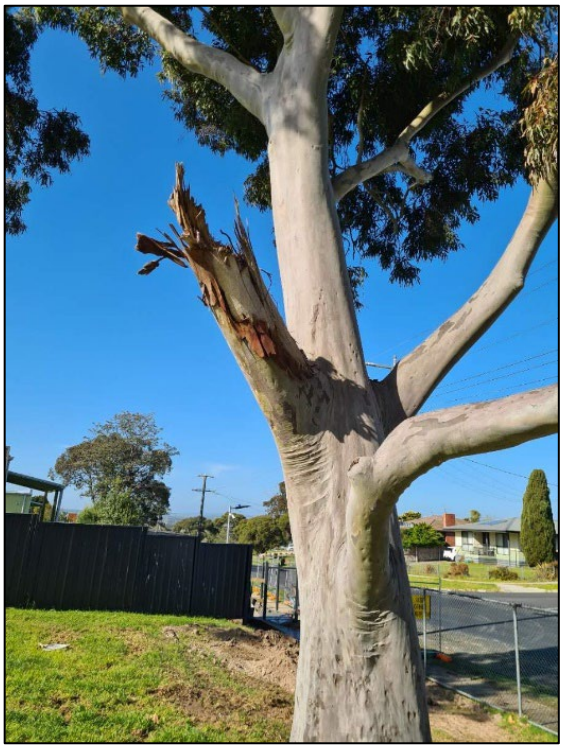
- 16, 17, 18, 19, 29, 31
- All 6 trees have Nil retention value and 0 years ULE.
- This is not an appropriate species to retain within a new development.

The following trees are growing in close proximity to overhead powerlines and poles. Some of these trees have been heavily modified as they have been cleared from electrical assets. The clearing of branches has created a degree of canopy bias away from the asset.

- South boundary: 1, 3, 5
- West boundary: 10, 11, 15
- North boundary: 22, 23

T1 (right) presented with a major failed branch on the North side. The failed branch is approximately 400mm in diameter and there is a significant broken stub remaining. The loss of this branch has left a large opening on the North side of the canopy and epicormic regrowth will need to be managed in the future. The broken stub should be pruned off.

Figure 3: T1 major failed branch.



T3 presented with two very large longitudinal cracks in the main trunk near ground level. The cracks are on the Southern face between ground level and approximately 2 meters. The North side has a deep hollow cavity at the base that has decayed into the base of the tree. The base of this tree up to 2.5meters was sounded with a mallet and returned a very hollow result in some areas. The targets within 1x tree height are the footpath, road, powerlines, power pole/transformer. The canopy presented in decline and dieback and deadwood was observed.

Figure 4: T3 Southern crack on trunk.

Figure 6: T3 Eastern crack on trunk.

Figure 5: T3 opening to hollow cavity at base.

T14 presented very poorly. Its structure has failed and the tree is in severe decline. A large broken section is laying on the ground next to the tree. Several self-sown Blackwoods are now growing around T14 and should be removed as well. T14 has nil retention value and 0 years ULE. The site would benefit from the removal of T14.

T21 (below) presented in poor condition due to its location directly under the canopy of a large native tree. T21 has been suppressed and the terminal leading stem has died back. There is a canopy bias to the South and West. Rain water or Slimeflux is exuding from a decayed branch stub and is staining the trunk. This has likely entered through the union or decayed wound above.

The potential mature size of this tree is approximately 15m x 15m. T21is not suitable for retention, it has nil retention value and 0 years ULE. The removal of T21 would also benefit T22 to the East.

Figure 7: T14, failed and declining.

Figure 8: T21, very poor location under T22.

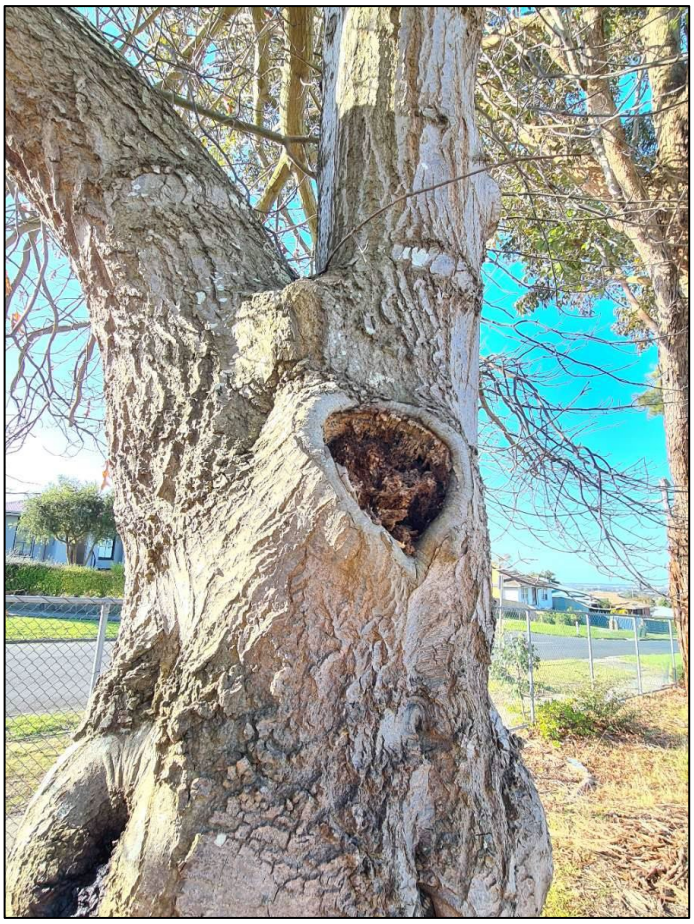


Figure 9: T21, decayed branch stubs.

T5 presented with poor form and poor structure. This large exotic tree is located poorly and is in close proximity to overhead powerlines on the South and West side and a power pole on the corner of the site. The canopy is wider than the available space and has been heavily modified to fit the space. A canopy bias to the North and East was observed. The main stem has bifurcated at approximately 5m from ground level. This bifurcation is very acute and potentially has included bark within the union. Pieces of internal deadwood up to approximately 75-100mm were observed. Several broken branches were visible from ground level. A large hanging dead branch is caught in the canopy on the North side. The canopy is sparse and open on the North and East side. T5 has low retention value due to its poor location next to infrastructure, poor structure and sparse canopy. The ULE is 5>10 years.

Figure 9: T5, Sparse canopy East side.

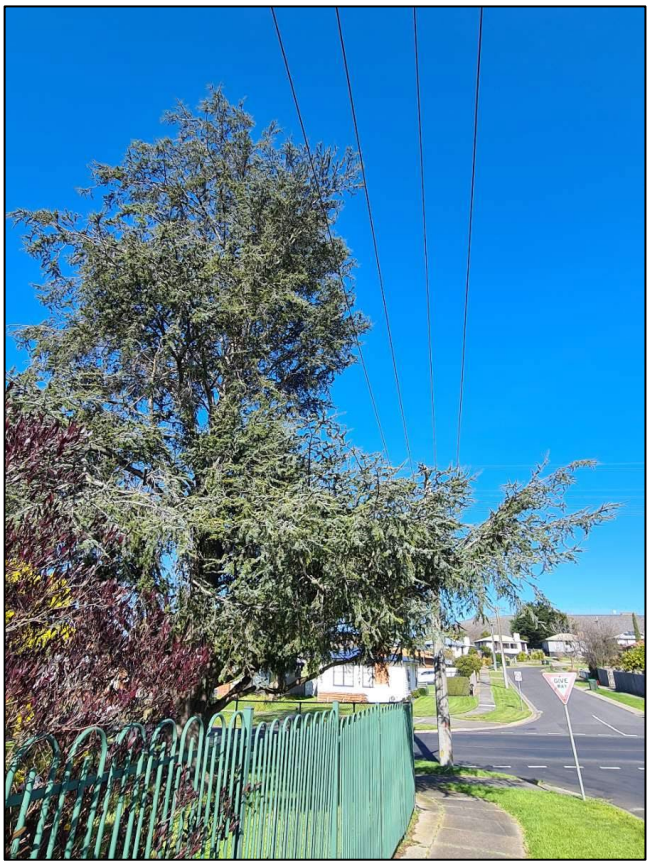


Figure 10: T5, lopping around powerlines.

The following 19 trees within the site are Australian native species:

- 1, 3, 6, 8, 9, 10, 11, 12, 14, 15, 20, 22, 23, 24, 25, 26, 27, 28, 32

No trees assessed were identified as indigenous to the local area.

The following 14 trees within the site are exotic species:

- 2, 4, 5, 7, 13, 16, 17, 18, 19, 21, 29, 30, 31, 33

Retention Value (RV):

- Eighteen trees have nil retention value:
  - 3, 6, 7, 9, 12, 13, 14, 16, 17, 18, 19, 21, 24, 27, 29, 31, 32, 33
- Seven trees have low retention value:
  - 4, 5, 8, 11, 20, 23, 30
- Seven trees have medium retention value:
  - 1, 2, 10, 15, 22, 25, 26
- One offsite tree located in the neighbouring property to the East is automatically appointed high retention value:
  - 28

Useful Life Expectancy (ULE):

- Fifteen trees have zero years ULE:
  - 7, 12, 13, 14, 16, 17, 18, 19, 21, 24, 27, 29, 31, 32, 33
- Four trees have less than 5-year ULE:
  - 3, 8, 9, 30
- Four trees have 5>10 years ULE:
  - 5, 6, 11, 20
- Four trees have 5>15 years ULE:
  - 4, 23, 26, 28
- Three trees have 10>20 years ULE:
  - 2, 10, 15
- Three trees have 15>40 years ULE:
  - 1, 22, 25

Conclusions

- A total of thirty-three trees have been assessed at 2 Tobruk St, Morwell and this includes four tree groups.
    - One tree is located in a neighbouring property to the East (T28).
    - No street trees are located around this property.
- The site is a vacant lot and predominantly cleared. The remaining trees are mostly located around the perimeter with several small trees internally in the North-East corner.
- Regrowth and self-sown trees have been identified. Many of these trees will develop into large trees if left unmanaged.
- Six trees have been identified as *Fraxinus angustifolia subsp. angustifolia* – Narrow Leaved Ash, an environmental weed species.
- The following 19 trees within the site are Australian native species:
    - 1, 3, 6, 8, 9, 10, 11, 12, 14, 15, 20, 22, 23, 24, 25, 26, 27, 28, 32
- No trees assessed were identified as indigenous to the local area.
- The following 14 trees within the site are exotic species:
    - 2, 4, 5, 7, 13, 16, 17, 18, 19, 21, 29, 30, 31, 33

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  - 3, 8, 9, 30
- Four trees have 5>10 years ULE:
  - 5, 6, 11, 20
- Four trees have 5>15 years ULE:
  - 4, 23, 26, 28
- Three trees have 10>20 years ULE:
  - 2, 10, 15
- Three trees have 15>40 years ULE:
  - 1, 22, 25

Recommendations

- Eighteen trees have nil retention value:
    - **3, 6, 7, 9, 12, 13, 14, 16, 17, 18, 19, 21, 24, 27, 29, 31, 32, 33**
    - The removal of these trees would benefit the site.
- Seven trees have low retention value:
    - **4, 5, 8, 11, 20, 23, 30**
    - These trees are not worthy of being a constraint to a proposed development design.
- Seven trees have medium retention value:
    - **1, 2, 10, 15, 22, 25, 26**
    - These trees should be retained, if possible, within a proposed development design and may be modified to allow for construction.
    - Development encroachments should not exceed 10% of the TPZ area and remain outside the SRZ.
- One offsite tree located in the neighbouring property to the East is automatically appointed high retention value:
    - **28**
    - The area of TPZ which enters the site must be protected throughout all stages of a proposed development within the site.
    - Development encroachments should not exceed 10% of the TPZ area and remain outside the SRZ.

Appendix 1: Tree Data

The following table shows all tree data collected during the assessment.

- Street trees and trees on neighbouring properties are shaded grey
- * = Multi stemmed tree
- Calculated D.B.H is for multi-stemmed trees only. $DBH = \sqrt{s1^2 + s2^2 + s3^2 + s4^2 + s5^2}$

Tree #	Botanical Name	Common Name	Age	Origin	D.B.H (cm)	Calculated D.B.H (cm)	D.A.R.B (cm)	Height (m)	Width (m)	Health	Form	Structure	Retention Value	U.L.E	Comments
1	*Corymbia maculata*	Spotted Gum	Mature	Native	91	91	108	16	15	Good	Fair	Fair	Medium	15 > 40 years	Powerlines footpath road in target area, significant limb failure north side approx. 400mm wide, major failed branch, cambium dyeing back to branch collar, multiple smaller broken branches north side approx. 150-200mm, broken and hanging branch south side, lopped away from powerlines south side, overhanging powerlines,
2	*Platanus x acerifolia*	London Plane	Mature	Exotic	62	62	67	12	12	Good	Fair	Fair	Medium	10 > 20 years	Next to powerlines footpath road, epicormics from lopped branches, 1 broken branch 100mm,
3	*Grevillea robusta*	Silky Oak	Mature	Native	75	75	120	13	10	Fair	Poor	Poor	Nil	< 5 years	Powerlines footpath and road to the South, canopy bias west and north, lopped away from lines, 2 large splits in base of trunk, very hollow base up to 2.5m sounded with hammer, large decayed cavity with opening on north side at ground level, canopy dieback, deadwood, cleared from lines and power pole,
4	*Ulmus glabra*	Golden Elm	Semi-Mature	Exotic	38	38	45	7	8	Fair	Good	Fair	Low	5 > 15 years	Codominant branches x 2 with poor attachments, 1 has very acute union and is laying over/crossing branches below, 1 branch with decayed wound on underside,

Tree #	Botanical Name	Common Name	Age	Origin	D.B.H (cm)	Calculated D.B.H (cm)	D.A.R.B (cm)	Height (m)	Width (m)	Health	Form	Structure	Retention Value	U.L.E	Comments
5	*Cedrus libani*	Lebanese Cedar	Over Mature	Exotic	98	98	104	16	17	Fair	Poor	Poor	Low	5 > 10 years	Very close to powerlines on south and west side, heavily modified to clear away from lines, footpath and road in target are, multiple broken branches hung up in canopy, sparse canopy, bifurcated from 5m with very acute main union, large branches growing vertically through canopy are crossing multiple branches, lopped branch stubs, poor location for size of tree, likely to be senescing, east side is very sparse,
6	*Acacia retinodes*	Silver Wattle	Mature	Native	15	15	17	4	6	Good	Fair	Poor	Nil	5 > 10 years	Multistemed large shrub form,
7	*Liquidambar styraciflua*	Liquidambar	Mature	Exotic	40*30	50	60	7	7	Poor	Very Poor	Failed	Nil	0 years	Multiple broken branches and dieback of main leader, poor main union, fungal brackets at base of tree, delaminating bark, dead cambium,
8	*Grevillea robusta*	Silky Oak	Semi-Mature	Native	22	22	29	7	4	Fair	Fair	Fair	Low	< 5 years	Self-sown, surrounded by dense shrubs
9	*Callistemon citrinus*	Bottlebrush	Mature	Native	15	15	20	5	4	Fair	Poor	Poor	Nil	< 5 years	Group of 5, Likely to have self-sown, all poor structure, cut back from footpath.
10	*Eucalyptus scoparia*	White Gum	Mature	Native	61	61	70	15	15	Good	Poor	Fair	Medium	10 > 20 years	Very close to powerlines, heavily modified canopy on west side, overhanging powerlines and footpath, dense epicormic regrowth from lopping, mature epicormics, major canopy bias east, poor location for size of tree, competing with *E.nicholii* to the north which is very close and growing through the canopy,
11	*Eucalyptus nicholii*	Narrow Leaved Black Peppermint	Mature	Native	50	50	61	12	5	Good	Poor	Fair	Low	5 > 10 years	Very poor location next to large tree and powerlines, competing for space, minor deadwood, exposed roots at base, leaning East,
12	*Callistemon citrinus*	Bottlebrush	Mature	Native	28*32 *34	54	72	6	7	Fair	Fair	Very Poor	Nil	0 years	Regrowth from lopped stems, stem wounds and decay, included main union, previously

Tree #	Botanical Name	Common Name	Age	Origin	D.B.H (cm)	Calculated D.B.H (cm)	D.A.R.B (cm)	Height (m)	Width (m)	Health	Form	Structure	Retention Value	U.L.E	Comments
															lopped at 2m, large failed branch west side,
13	*Gleditsia triacanthos*	Honey Locust	Mature	Exotic	27*23	35	40	8	8	Fair	Poor	Poor	Nil	0 years	Acute main union with included bark, canopy bias east, bifurcated,
14	*Acacia melanoxylon*	Blackwood	Over Mature	Native	29*46	54	57	6	6	Poor	Poor	Failed	Nil	0 years	Large failed branch on ground below, multiple branch failures in canopy, poor main unions, deadwood, dieback, multiple self-sown suckers growing around tree,
15	*Corymbia maculata*	Spotted Gum	Mature	Native	66	66	79	13	14	Fair	Poor	Fair	Medium	10 > 20 years	Very close to powerlines, modified canopy on west and north side, dense epicormic response internally, deadwood, crossing branches, self-sown Blackwoods below should be removed, 2 self-sown spotted gums below canopy are maturing and growing into canopy of t14, foliage cover on crown is sparse in areas,
16	*Fraxinus angustifolia*	Narrow Leaved Ash	Mature	Weed Species	38*33	50	70	9	9	Fair	Poor	Fair	Nil	0 years	Weed species, wound on trunk, multiple broken branch stubs, self-sowing around tree,
17	*Fraxinus angustifolia*	Narrow Leaved Ash	Semi-Mature	Weed Species	15	15	19	7	3	Fair	Fair	Fair	Nil	0 years	Weed species, trunk wound,
18	*Fraxinus angustifolia*	Narrow Leaved Ash	Mature	Weed Species	34*24	42	51	9	9	Fair	Fair	Fair	Nil	0 years	Weed species, broken branches x 2 south side, 1broken hanger in canopy
19	*Fraxinus angustifolia*	Narrow Leaved Ash	Semi-Mature	Weed Species	12*10* 8*7*7	20	24	6	5	Fair	Fair	Poor	Nil	0 years	Weed, likely to have self-sown, branch wounds x 4, poor location close to power pole,
20	*Hakea laurina*	Pin-Cushion Hakea	Mature	Native	12*10*8	18	21	5	4	Good	Poor	Poor	Low	5 > 10 years	Group of 4, Dense group mixed species, hakea is the largest, 2 small self-sown Blackwoods, 3 small self-sown paperbarks,
21	*Quercus palustris*	Pin Oak	Semi-Mature	Exotic	49	49	59	9	7	Fair	Very Poor	Poor	Nil	0 years	Lopped away from powerlines north side, growing under canopy of larger tree, lead has died back, codominant from 3m with poor union, water/Slimeflux leaking from decayed branch stub likely from codominant union above, very poor location for current and mature size, very

Tree #	Botanical Name	Common Name	Age	Origin	D.B.H (cm)	Calculated D.B.H (cm)	D.A.R.B (cm)	Height (m)	Width (m)	Health	Form	Structure	Retention Value	U.L.E	Comments
															decayed branch stubs low on south side, 2.5m from top of batter,
22	*Eucalyptus botryoides*	Southern Mahogany	Mature	Native	81	81	99	16	14	Good	Fair	Fair	Medium	15 > 40 years	Lopped away from powerlines north side, overhanging powerlines, epicormics internally are maturing, oak on west side is growing into canopy, 2.5m from batter, large exposed surface roots, large broken branch on ground east side, broken branches south,
23	*Casuarina cunninghamiana*	Sheoak	Mature	Native	63	63	86	13	11	Fair	Poor	Fair	Low	5 > 15 years	Very close to power pole and lines, lopped canopy north side, lopped branch stubs, deadwood, sparse south side, poor location for size
24	*Banksia integrifolia*	Coast Banksia	Mature	Native	29*35	45	70	8	6	Poor	Poor	Poor	Nil	0 years	Covered in thick ivy vines up to 4m, poor main union at ground level, competing for space and is suppressed by casuarina, vines are approx. 60mm,
25	*Corymbia citriodora*	Lemon Scented Gum	Mature	Native	49	49	65	12	10	Good	Fair	Fair	Medium	15 > 40 years	Deadwood, competing with neighbouring t24, small broken branches south side,
26	*Corymbia citriodora*	Lemon Scented Gum	Mature	Native	72	72	89	16	15	Fair	Poor	Fair	Medium	5 > 15 years	Sparse patchy canopy, dieback of tips in places, deadwood, open canopy, internal epicormic response, competing with t23, possibly starting to decline, historic root damage in srz, ground level has been battered on west side close to tree base, exposed surface roots north side, multiple self-sown trees nearby,
27	*Corymbia citriodora*	Lemon Scented Gum	Semi-Mature	Native	10	10	12	7	2	Good	Poor	Poor	Nil	0 years	Large group of approx. 75+ self-sown Corymbia citriodora, will become large trees if left to grow,
28	*Melaleuca styphelioides*	Prickly Leaved Paperbark	Mature	Native	30*30	42	60	9	9	Good	Fair	Fair	High - In Neighbouring Property	5 > 15 years	Offsite, bifurcated, not overhanging fence line, approx. 4.5m from fence
29	*Fraxinus angustifolia*	Narrow Leaved Ash	Mature	Weed Species	23*23	33	53	8	8	Fair	Fair	Poor	Nil	0 years	Weed, bifurcated, large rubber tire around base of tree,

Tree #	Botanical Name	Common Name	Age	Origin	D.B.H (cm)	Calculated D.B.H (cm)	D.A.R.B (cm)	Height (m)	Width (m)	Health	Form	Structure	Retention Value	U.L.E	Comments
30	*Pyrus calleryana*	Callery Pear	Mature	Exotic	29	29	34	8	7	Fair	Fair	Fair	Low	< 5 years	Broken branches, over extended branches with significant epicormic weight, epicormics maturing, suckers from base,
31	*Fraxinus angustifolia*	Narrow Leaved Ash	Mature	Weed Species	39*36	53	71	8	9	Fair	Fair	Poor	Nil	0 years	Weed, codominant l, large surface roots damaged on south side, minor deadwood,
32	*Acacia longifolia*	Golden Wattle	Over Mature	Native	20*25 *18	37	70	5	7	Fair	Poor	Failed	Nil	0 years	Failed at ground level, splitting, leaning East,
33	*Acer palmatum*	Japanese Maple	Over Mature	Exotic	17	17	29	4	6	Poor	Poor	Fair	Nil	0 years	Group of 3, Delaminating bark, dead cambium, dead branches, 2x weeping cherries in group,

Table 1: Tree Data

Appendix 2: TPZ & SRZ Calculations

The following table shows the TPZ and SRZ calculations for the 33 subject trees.

- All distances are measured from the center of the trunk
- Street trees and offsite/neighbouring trees are shaded grey

Tree #	I.D	TPZ radius (m)	SRZ radius (m)	Total TPZ Area (sqm)	Comments
1	*Corymbia maculata*	10.92	3.42	374.62	Onsite
2	*Platanus x acerifolia*	7.44	2.80	173.90	Onsite
3	*Grevillea robusta*	9.00	3.57	254.47	Onsite
4	*Ulmus glabra*	4.56	2.37	65.32	Onsite
5	*Cedrus libani*	11.76	3.36	434.47	Onsite
6	*Acacia retinodes*	2.00	1.57	12.57	Onsite
7	*Liquidambar styraciflua*	6.00	2.67	113.10	Onsite
8	*Grevillea robusta*	2.64	1.97	21.90	Onsite
9	*Callistemon citrinus*	2.00	1.68	12.57	Onsite
10	*Eucalyptus scoparia*	7.32	2.85	168.33	Onsite
11	*Eucalyptus nicholii*	6.00	2.69	113.10	Onsite
12	*Callistemon citrinus*	6.48	2.88	131.92	Onsite
13	*Gleditsia triacanthos*	4.20	2.25	55.42	Onsite
14	*Acacia melanoxylon*	6.48	2.61	131.92	Onsite
15	*Corymbia maculata*	7.92	3.00	197.06	Onsite
16	*Fraxinus angustifolia*	6.00	2.85	113.10	Onsite
17	*Fraxinus angustifolia*	2.00	1.65	12.57	Onsite
18	*Fraxinus angustifolia*	5.04	2.49	79.80	Onsite
19	*Fraxinus angustifolia*	2.40	1.82	18.10	Onsite
20	*Hakea laurina*	2.16	1.72	14.66	Onsite
21	*Quercus palustris*	5.88	2.65	108.62	Onsite

Tree #	I.D	TPZ radius (m)	SRZ radius (m)	Total TPZ Area (sqm)	Comments
22	*Eucalyptus botryoides*	9.72	3.30	296.81	Onsite
23	*Casuarina cunninghamiana*	7.56	3.11	179.55	Onsite
24	*Banksia integrifolia*	5.40	2.85	91.61	Onsite
25	*Corymbia citriodora*	5.88	2.76	108.62	Onsite
26	*Corymbia citriodora*	8.64	3.15	234.52	Onsite
27	*Corymbia citriodora*	2.00	1.36	12.57	Onsite
28	*Melaleuca styphelioides*	5.04	2.67	79.80	Offsite - Neighbouring Property
29	*Fraxinus angustifolia*	3.96	2.53	49.27	Onsite
30	*Pyrus calleryana*	3.48	2.10	38.05	Onsite
31	*Fraxinus angustifolia*	6.36	2.87	127.08	Onsite
32	*Acacia longifolia*	4.44	2.85	61.93	Onsite
33	*Acer palmatum*	2.04	1.97	13.07	Onsite

Table 2: TPZ & SRZ Calculations

Appendix 3: Tree Photos

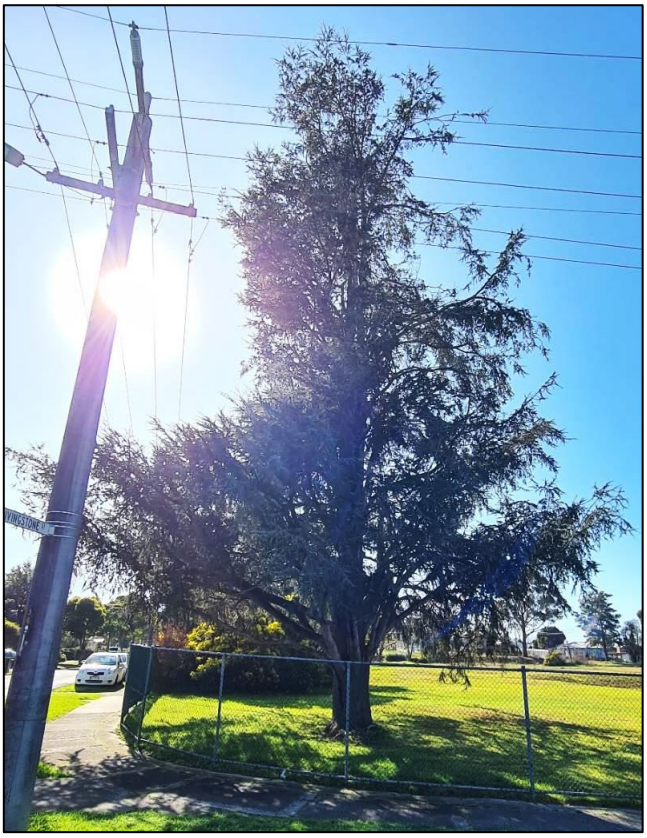
Tree #1

Tree #2

Tree #3

Tree #4

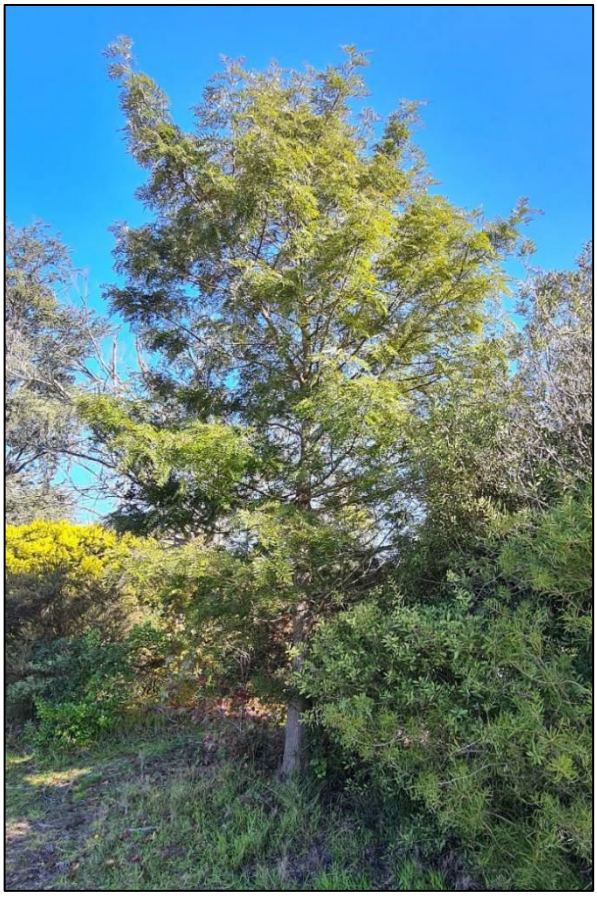
Tree #5



Tree #6

Tree #7

Tree #8



Tree #9 (Group)

Tree #10

Tree #11

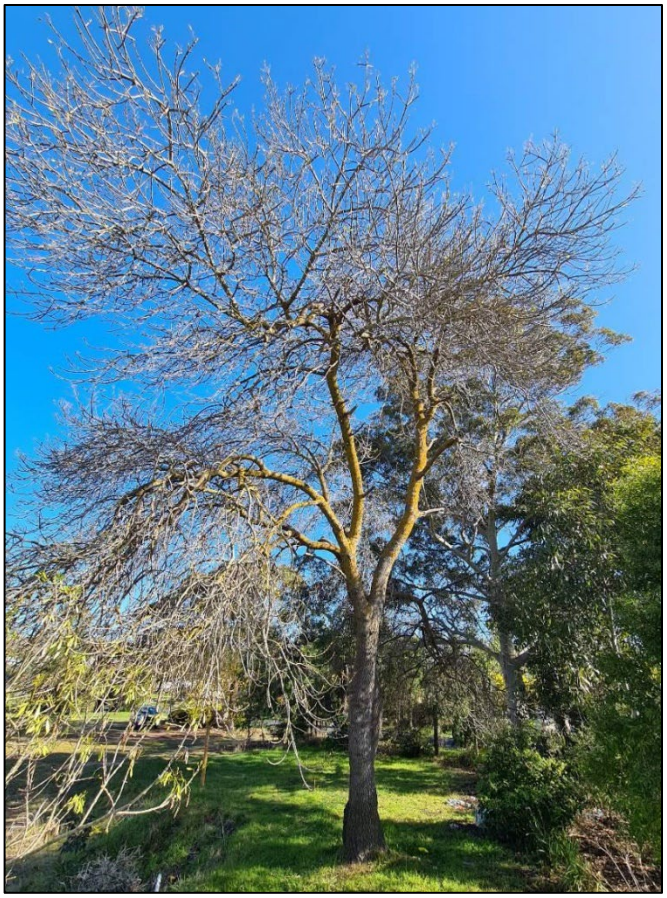
Tree #12

Tree #13

Tree #14

Tree #15

Tree #16



Tree #17

Tree #18

Tree #19

Tree #20 (Group)

Tree #21

Tree #22

Tree #23

Tree #24

Tree #25

Tree #26

Tree #27 (Group)

Tree #28

Tree #29

Tree #30

Tree #31

Tree #33.1 (1 of 3)

Tree #33.2 (2 of 3)

Tree #33.3 (3 of 3)

References

AS4970-2009 'The Protection of Trees on Development Sites'

Feature and Level Survey – TAYLORS

Nearmap – Satellite Imagery

'Native Trees & Shrubs of South Eastern Australia' – Leon Costermans

Beacon Ecological – Biodiversity Assessment (October 2023)

Glossary of Terms

Age Class

Juvenile	A Seedling or Sapling
Young	A tree that is actively growing and shows significant increases in annual growth. The duration and extent of the growth is dependent on the species and cultural conditions in which the tree is growing.
Semi-Mature	A tree that shows active annual growth and has not yet reached its genetic potential with regard to canopy height and width. The onset and duration of semi-maturity is dependent on the species and cultural conditions in which the tree is growing.
Mature	A tree that shows minor annual growth and has reached close to its maximum genetic potential. The onset and duration of maturity is dependent on the species and cultural conditions in which the tree is growing.
Senescent	A mature tree that is in physiological decline showing little or no annual growth. The onset of senescence is dependent on the species and cultural conditions in which the tree is growing.
Decline	A tree with reduced vigour or showing no signs of annual growth due to environmental stress, pathogenic or natural causes.

Calculated DBH
Used to calculate the total DBH for multi-stemmed trees only.
Formula used: $DBH = \sqrt{s1^2 + s2^2 + s3^2 + s4^2 + s5^2}$

Decurrent
Tree form which develops when the lateral branches grow as fast or faster than the terminal shoot. This results in a tree with a broad spreading form and multiple trunks.

Defect
An injury, growth pattern/habit, decay or other conditions that may reduce the tree's structural integrity or affect its health.

Diameter at Breast Height (DBH)
The trunk diameter measured at 1.4m above ground level determined from the circumference of the trunk divided by *pi* (π).

Diameter at Root Buttress (DARB)
The trunk diameter measured from the point at which the tree's root buttressing/flare initiates.

Dieback
The progressive death of shoots or roots starting at the extremities.

Dynamic Load
A force created by a moving load or a load that changes with time and/or motion.

Encroachment
An incursion into a tree's TPZ from a proposed development or existing structure or buildings.

Energy Production
The production of energy resulting from photosynthetic material that converts sunlight into carbohydrates and oxygen which is then used for tree growth, root development, root exudates for soil associates, reproduction, storage and defence.

Excurrent
Tree form which develops when a dominant leading shoot outgrows the lateral branches. This results in a narrow, cone-shaped crown with a clearly defined central trunk.

Form

Good	A tree with a typical canopy shape for its species.
Fair	A tree with a canopy presenting with signs of an altered shape such as a minor canopy bias, previous pruning or phototropic growth habit.
Poor	A tree with a significantly atypical or altered shape.

Health

Good	A tree that presents with a full, dense canopy, with no signs of pest or disease and strong vigour.
Fair	A tree which may show signs of reduced vigour with some small diameter deadwood. It may have some pest or disease damage that is not causing a significant impact to the tree.
Poor	A tree which may be in decline with little to no annual growth. Pests and disease may be widespread throughout the tree and/or die-back present, sparse canopy.
Very Poor	A tree in significant decline showing no annual growth. Large sections of die-back are present and is very unlikely to recover.
Dead	A tree with no signs of life and a completely dead canopy.

Load
A term used to indicate the magnitude of a force.

Lopping
The indiscriminate cutting of a tree to reduce its size. (Not regarded as an acceptable practice and does not comply with AS4373-2007 '*Pruning of Amenity Trees').*

Nutrient Uptake
The process in which a tree captures elements that are essential for growth.

Nutrients
Molecules that all organisms need to make energy, grow, develop and reproduce.

Origin

Indigenous	A species found in a specific region as a result of only natural process with no human intervention.
Native	A species found in a broader region or country.
Exotic	A species that is native to a country other than Australia.

Pathogen
A bacterium, virus or other microorganism that can cause disease or infection.

Percentage (%) Encroachment
The calculated level of encroachment into a tree's TPZ.

Primary Disorder
An initial, inhibiting or abnormal condition that impairs the performance of one or more vital functions of a tree.

Pruning
The process of removing branches or occasionally roots from a tree using approved arboricultural practices, to achieve a specified objective.

Secondary Disorder
A disorder that develops after a tree is stressed by a primary disorder.

Significance/Retention Value

High	A mature tree that contributes positively to a site due to its botanical, historical or local significance in combination with good physiological characteristics such as health, form, structure and future development. Significant efforts should be made to retain this tree and it should be considered for retention within a proposed development.
Medium	A semi-mature to mature tree which exhibits fair or good characteristics of health, structure or form and/or may provide some amenity value to the surrounding area or habitat value. Should be considered for retention if possible within a development design proposal and may be modified to allow for construction (eg: canopy pruning, root pruning etc).
Low	A tree that provides minimal contribution to the surrounding landscape and/or may be in poor or declining health. This tree may have a poor structure, poor form, be a noxious/poisonous or listed weed species or a combination of these characteristics. It may be in an inappropriate location. This tree is not worthy of being a constraint to a development design proposal.
Nil	A tree with no landscape significance and its retention is inappropriate. The removal of this tree would be of benefit to the landscape.

Signs
Objective physical evidence of a causal agent (eg: insect eggs, borer holes, frass).

Soil Compaction
The compression of soil resulting in reduced macropore space and soil volume. This restricts the infiltration of water through the soil profile, impedes the efficiency of nutrient and water uptake, restricts new root development and root exploration and impedes gaseous exchange between root cells and the atmosphere.

Static Load
A constant load exerted by a mass due to its weight.

Strain
The extent to which a material deforms under an applied force or stress.

Stress
A factor that negatively affects the health of a tree and stimulates a physiological response.

Structural Root Zone (SRZ)
The area around the base of a tree required for stability in the ground. Woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is normally circular with the trunk at its centre and is expressed by its radius in metres.
This zone considers a tree's structural stability only and not the root zone required to maintain vigour and long-term viability. (*AS4970-2009 Protection of Trees on Development Sites*).

Formula Used: SRZ radius = $(D \times 50)^{0.42} \times 0.64$

D = Trunk Diameter, in meters, measured above the root buttress.

Structure

Good	A tree with structure that is typical of its species with no defects such as decay, included bark, cracks, splits, tears outs. Generally, with a single defined trunk with secondary limbs presenting with good attachments.
Fair	A tree with minor defects in its canopy but is generally free of any significant structural issues. Pruning may be required to fix minor defects. Its canopy will mostly be symmetrical and typical of its species.
Poor	A tree presenting with 1 or more defects such as included bark, co-dominant stems, poor attachments and may also have an atypical or asymmetrical canopy. The defects may be able to be rectified with pruning.
Very Poor	A tree with significant defects related to its primary stem or secondary scaffold limbs that cannot be rectified with pruning or other measures. This removal of this tree may be required in the short term.

Hazardous	A tree with major defects that is likely to fail and should be removed as soon as possible.

Symptoms
Subjective reactions to a disease or disorder (eg: wilting, dieback, defoliation).

Tree Protection Zone (TPZ)
A specified area above and below ground and at a given distance from the centre of the trunk set aside for the protection of a trees roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. (*AS4970-2009 Protection of Trees on Development Sites*).

Formula Used: TPZ radius = DBH x 12

Useful Life Expectancy (ULE)

0 years	A dead, dying or dangerous tree with significant defects, poor health or requires removal in the short term.
<5 years	A poor example of the species that is in decline or will likely die or requires removal within 5 years.
5-10 years	A tree in fair condition that contributes to the amenity of the landscape in which it is growing, can be retained with a tolerable level of management.
10-20 years	A tree in fair-good condition that contributes to the amenity of the landscape in which it is growing and can be retained with an appropriate level of management.
>20 years	A healthy tree in good condition that will contribute to the amenity of the landscape in which it is growing for at least another 20 years with an appropriate level of management.

Vigour
The overall health, condition and resilience of a tree, reflected in the ability of the whole tree to grow.

Work(s)
Any physical activity in relation to land that is specified by the determining authority.

Wound Response
New wood developing in response to a wound.

Woundwood
Strong woody tissue that grows behind a callus which replaces it in that location. Woundwood closes wounds, then normal wood continues to form. After wounding, a callus forms around the margins of the wound. Woundwood forms later as the cells become lignified. It is not meristematic but is high in lignin.

END OF REPORT