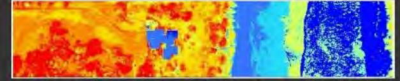




Land Capability Assessment
Biodiversity Survey
Drone Mapping & Survey
Bushfire Attack Level Assessment (BAL)
GIS Mapping & Analysis



Client: Star of the Sea Parish (Koroit)

Project: Tree Assessment Report for subdivision at 19 Queen Street, Koroit, 3282, Victoria.

Date: July 14, 2024.

Contact: Coast to Country Building Approvals

Landtech:



Figure 1 –Aerial view of subject lot tree assessment site.

Prepared by: Peter Austin trading as Landtech Consulting ABN: 4531 2192 419
BSc (Env.Sc), Grad Dip Env Health, Dip Horticulture, Dip VET, Cert IV TAE.
www.landtechconsulting.com.au



Document control

Assessment	Tree assessment report
Address	19 Queen Street, Koroit, 3282, Victoria.
Project number	193282
Report author	Peter Austin (Landtech Consulting)
Client	Star of the Sea Parish Koroit
Council	Moyne Shire Council

Acknowledgements

Copyright © Landtech Consulting

This document is subject to copyright and may only be used for the purposes for which it was commissioned. The use or copying of this document in whole or part without the permission of Landtech Consulting is an infringement of copyright.

Disclaimer

Although Landtech Consulting have taken all the necessary steps to ensure that an accurate document has been prepared, the company accepts no liability for any damages or loss incurred as a result of reliance placed upon the report and its contents.



Figure 2 – Subject lot in relation to the Koroit township (Source: Airbus 2024).

CONTENTS

1	SUMMARY.....	4
2	INTRODUCTION.....	6
3	SCOPE.....	7
4	METHODS.....	8
5	OBSERVATIONS.....	9
6	THE SUBJECT TREES.....	10
7	TREE RETENTION VALUES.....	11
8	DISCUSSION.....	13
9	RECOMMENDATIONS.....	15
APPENDIX 1 - TREE ASSESSMENT DATA.....		16
APPENDIX 2 - TREE TERMS EXPLAINED.....		20
APPENDIX 3 - TREE PROTECTION MEASURES.....		21
APPENDIX 4 - REPORT REFERENCES.....		23
APPENDIX 5 - TREE NUMBER MAP.....		24



Figure 3 - The subject site includes a selection of exotic and native trees all planted within and adjoining the lot (Trees 1-20 shown).



Figure 4 - Aged but planted roadside located Rough-barked Manna Gum specimen (Tree 3).

1. SUMMARY

Report objectives

Landtech Consulting was commissioned by Coast to Country Building Approvals to conduct a tree assessment with additional related requirements for 19 Queen Street, Koroit, 3282, Victoria.

Tree assessment is required to support potential future development proposals within the lot and assessment of the extent of any remnant vegetation to be impacted within the site.

The report will provide an information benchmark for future decision-making including the following:

1. Assessment of all existing trees in property and adjoining road reserves;
2. Confirmation of tree species, approximate tree age, whether the tree is remnant or has been planted;
3. Provision of indicative tree protection/structural root protection areas for all trees within property boundaries to assist in forming building envelopes;
4. Provision of indicative tree protection/structural root protection areas in relation to future crossover construction for trees in road reserves;
5. Advice on any recommendations to ensure that as many healthy trees are retained/maintained as possible through the development (indicative servicing/subdivision plans to be provided); and
6. Provision of advice on suitable species for new street trees to be planted as a result of subdivision; and potential for substantial landscaping in the reserve area.



Figure 5 – Overhead view of subject lot and surveyed tree numbers shown (see Appendix 5).

General information

- 1.1 The following Tree Assessment Report relates to all trees (102 subject trees) within the lot including all roadside adjoining areas at 19 Queen Street, Koroit, 3282, Victoria. The subject site was identified by Coast to Country Building Approvals as having trees that may be impacted by potential future subdivision development.
- 1.2 The project scope was to assess all subject trees for retention or removal to facilitate a potential future subdivision (and related building envelopes, fence infrastructure, and crossovers for each future lot access).
- 1.3 A site inspection and tree survey was carried out on 13 December 2023 where tree and site data was collected.
- 1.4 Tree retention values are based on a modified version of the British Standard *BS 5837-2012: Trees in Relation to Design, Demolition, and Construction*.
- 1.5 Tree & Root Protection Zone methods have been derived from Australian Standard *AS 4970-2009; Protection of Trees on Development Sites*.
- 1.6 Thirty-five (35) trees were found to be Category B, thirty-two (32) trees were found to be Category C, and thirty-five (35) trees were found to be Category U (in a location, of a structure, or condition, to not realistically retain, based on the proposed subdivision future lot usage).
- 1.7 As can be seen from the report, the subject area assessed includes many trees planted historically too close, and therefore have poor growth form, and should be thinned to maximise canopy and trunk development of retained specimens. Most of these trees can be optionally removed due to dieback, poor growth form, and in some cases unsafe structure, and not considered significant to the site.

Tree protection areas for all trees are shown in report maps and reported in the tree assessment data table (Appendix 1), with information provided on tree protection mechanisms in Appendix 3.



Figure 6 – Proposed plan overlaid depicting the extent of site trees surveyed.

2. INTRODUCTION

- 2.1 Landtech Consulting was engaged by Coast to Country Building Approvals to complete a tree assessment for a potential future subdivision to determine both tree origins (remnant/planted) information, retention value/life expectancy, and tree/root protection measures for retained/removed trees within the parent lot at 19 Queen Street, Koroit, 3282.
- 2.2 The lot is located within the south-eastern part of the Koroit township and proximal to Tower Hill State Game Reserve (over 400m south of the subject site) within a *General Residential Zone (GRZ)* multi-lot site, consisting of existing church infrastructure and open pasture, and perimeter-planted windbreak trees.

The existing trees plantation are a mix of native and exotic trees planted within multiple historic planting events as church infrastructure was added from approximately 75 years ago.

- 2.3 The report is required to support a planning permit to be submitted to Moyne Shire Council for a proposed future subdivision and subsequent lot preparation and development works.
- 2.4 Report findings are intended to provide information regarding the retaining and protection, or removal, of the existing trees within the potential impact areas. Report findings and recommendations are based on guidance provided by the applicable Australian Standard AS 4970-2009: Protection of Trees on Development Sites.
- 2.5 Observations and recommendations provided within this report are based on information provided by the report author's site visit.



Figure 7 – Subject site within surrounding residential-based lots and fringing grazing areas (Source: Airbus 2024).

3. SCOPE

- 3.1 Carry out a visual examination of all trees within the multi-lot site, road reserves, and potential impact zones and areas for development.
- 3.2 Inspect trees and their growing environment in the context of the proposed development.
- 3.3 Provide an objective appraisal of the potential impacted trees in relation to their species, estimated age, health, structural condition, and viability within the landscape.
- 3.4 Based on the findings of this investigation, provide independent recommendations on the retention value of the trees.
- 3.5 Nominate trees that can be retained or require removal to facilitate the development proposed.
- 3.6 Review the proposed development in the context of the Moyne Shire Council Planning Scheme.
- 3.7 If applicable, identify and reduce potential conflicts between potential impact trees and proposed site development by providing accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction.
- 3.8 Provide information on restricted activities within the area nominated for tree protection, as well as suitable construction methods to be adopted during construction.



Figure 8 – The proposed development site in 1947 that includes the existing church building (Source: Trove 2024).

4. METHODS

- 4.1 Data collection – Peter Austin carried out a site inspection of the subject trees on 13 December 2023.
- 4.2 The subject trees were inspected from ground level. Minor foliage samples were required to be taken. Drone imagery (DJI Mavic Multispectral) was captured to provide a mapping basis for this report.
- 4.3 Tree height and canopy width were estimated and have been provided to the nearest whole metre. Trunk diameter at breast height (DBH) was measured with a diameter tape and provided to the nearest centimetre. Root diameter/circumference protection areas were measured.
- 4.4 GPS coordinate data was collected for each tree using Trimble data collection equipment.



Figures 9-10 – The site includes fenceline plantings of both exotic and native plant species not spaced adequately influencing poor growth patterns (Trees 5-12 & Trees 20-30 shown).

5. OBSERVATIONS

- 5.1 The site is located 1.3km south-east of the Koroit township centre. The lot adjoins Anzac Avenue to the west, Anne Street to the south, Queen Street to the north, and Horne Street to the east.
- 5.2 The potential impacted trees are mostly within areas external to the north-west church yard and facilities; potentially proximal to required access crossovers and tree and root protection requirements of retained trees.
- 5.3 Site soils are likely to have been historically disturbed to a moderate extent due to prior site activity and land use, and potentially altered from natural profiles.



Figure 11 - .Subject site with site trees assessed depicted (and numbered).



Figures 12-13 - The site includes extensive fenceline shelter plantings combined with open exotic pasture.

6. THE SUBJECT TREES

- 6.1 One hundred and two (102) trees were inspected and are the subject of this report. Full inspection details are provided in *Appendix 1 – Tree Assessment Data*.
- 6.2 All of the 102 subject trees have been planted since 1947 (see *Figure 8*), including both exotic historic plantings and native tree usage plantings for windbreak and shelter. The site includes additional Australian native species particularly from the east and west coasts. The site's south-west corner includes one *Cupressus macrocarpa* and one *Pinus radiata* tree specimens aged (planted) approximately 85 years ago.
- 6.3 This assumption is based on observable tree age class differences and photographic imagery with most trees part of 'wave' plantings typically to commemorate church events.
- 6.4 The subject trees are detailed below and numbered for reference in *Appendix 1 - Tree Assessment Data*.



Figure 14 – Subject lot site feature map depicting the subject trees assessed.

7. TREE RETENTION VALUES

- 7.1 Determining retention values – Tree retention value has been determined based on a combination of tree attributes. Tree retention value is based on a modified version of the British Standard *BS 5837-2012: Trees in Relation to Design, Demolition, and Construction*. Attributes considered include tree health, structure and form, life expectancy, suitability of the tree in the context of the local landscape. Arboricultural, cultural, environmental, and heritage significance are also considered within the subcategories identified.
- 7.2 Collectively tree attributes are reviewed and used to categorise tree value in a development context with additional information provided in *Appendix 2 – Explanation of Tree Assessment Terms*.
- 7.3 Category A Trees (High Retention Value) – Typically trees in this category are of high quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years. No trees were determined to be Category A (High) Retention Value.
- 7.4 Category B Trees (Moderate Retention Value) – Typically trees in this category are of moderate quality with an estimated life expectancy of 15-25 years and prominent size dimensions that cannot readily be replaced within 10 years. Thirty-six (36) trees were determined to be Category B (Moderate) Retention Value.

The site contains a southern and eastern group of native and indigenous tree specimens planted in waves (based on tree age) for shelter, stock shade, and amenity values. It is suggested these trees should be retained or optionally removed. This cluster provides some local ecological value for common and mobile native and exotic fauna.

- 7.5 Category C Trees (Low Retention Value) – Typically trees in this category are of moderate quality with an estimated life expectancy of 5-15 years and are trees easily replaceable, may have poor health or structure and do not warrant design consideration.

Many native species (not indigenous to site) could optionally be removed if required for infrastructure developments as they offer reduced ecological value with many in various states of senescing and canopy dieback. Many of the specimens have been planted too close and have therefore not developed a sustainable structure. Thirty-one trees (31) were determined to be Category C (Low) Retention Value.

- 7.6 Category U Trees (Unsuitable for Retention) – Thirty-five (35) trees were found to be dead or in a location, of a structure, or condition, to not realistically be retained, based on the proposed future subject site usage.



Figures 15-16 – Two perspectives of the aged and retained Rough-barked Manna Gum specimen (*E.viminalis* ssp. *Cygnatensis*) (Tree 3 shown).



Figures 17-18 – Examples of existing trees with various structural issues due to poor spacing, location, and lack of maintenance.



Figures 19-21 – Further examples of un-maintained tree groupings within the site including reduced management of street trees adjoining the site.

8. DISCUSSION

8.1 The subject tree plantation has been planted between 25 and 85 years ago.

The shelterbelt-type perimeter plantings have occurred in planting waves consisting of typically commemorative plantings for additions to the church infrastructure.

Many trees have been planted too close with both canopy modifications and extensive thinning required to improve retained tree form, structure, and safety.

This it would suggest requires entire subject-lot perimeter tree thinning, with many of the specimens within potential subdivision access and infrastructure development corridors.

Many of the Rough-barked Manna Gums have windthrown and panic growth form from too-close planting contributing to dieback and unsafe limb and branch extensions.

Trees required to be removed for potential/future subdivision fencing and access requirements should include provision of tree protection zones of proximal retained trees where applicable.

8.2 TREE PROTECTION ZONES (TPZ) – All retained trees should have tree protection zones applied if in proposed/future development pathways and building development activities/impact corridors (see *Figure 24*).

8.3 The TPZ is defined as a specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown.

It is the area required to provide for the ongoing viability and stability of a tree to be retained where it is potentially subject to damage by development. The radius of the TPZ is calculated by multiplying its trunk DBH by 12. TPZ radius = DBH x 12 with DBH being nominally measured 1.4m from ground level.

8.4 The Structural Root Zone (SRZ) is the area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.

8.5 TPZ methods have been derived from Australian Standard AS 4970-2009; Protection of Trees on Development Sites.

8.6 Retention Values determined are based on a revised version of the British Standard *BS 5837-2012: Trees in Relation to Design, Demolition, and Construction*.

Attributes considered include tree health, structure and form, life expectancy, suitability of the tree in the context of the local landscape. Arboricultural, cultural, environmental, and heritage significance are also considered within the subcategories identified.

8.7 Under the Moyne Shire Planning Scheme Section 52.17 Native trees; a permit is required to remove, destroy, or lop native vegetation, including dead vegetation; with exemptions detailed in section 7 of the Clause.

All subject trees have been planted, so are not considered native (as defined under the Act) and exempt from the requirement for a permit under Clause 52.17.

8.8 Major and Minor TPZ encroachment – as per the Australian Standard AS 4970-2009; Protection of Trees on Development Sites, a major encroachment into the TPZ of any tree is considered to occur when it is beyond 10% of the total TPZ area. A minor encroachment is determined as being less than 10% of the total TPZ area.



Figure 22 – Trees to remove or retain with all of the sites tree’s planted up to 85 years ago and with the potential for removal.



Figure 23 – Tree condition map depicting variability within the plantation.

9. RECOMMENDATIONS

- 9.1 The trees surveyed in general require extensive thinning and canopy structure arboricultural works to enhance the retained aged native and exotic trees and mitigate unsafe tree senescence. The cost to complete such works will be considerable and stem from plantings that were poorly-spaced and never maintained.
- 9.2 Cessation of grazing must occur in the first instance to negate ongoing impacts to tree root areas.
- 9.3 Further determination of trees to remove should be made based on safety and subdivision infrastructure requirements.
- 9.4 Compliance reporting – tree protection measures applicable to the suggested protected trees should be monitored by those responsible for constructing the protective devices such as site subdivision/access/building manager.
- 9.5 Offset tree planting – The trees proposed for removal are not of the significance, heritage value, or ecological value to be offset. Future lot landscape works will include the planting of trees and shrubs as part of subdivision landscape plans typically required by Council.
- 9.6 Suggested replacement and/or enhancement street tree plantings shown to be suitable to the Kororoi soil and climatic environment includes the following, of which local specimens can be viewed on existing surrounding Kororoi streets:

- *Allocasuarina verticillata*
- *Banksia marginata*
- *Corymbia ficifolia*
- *Corymbia calophylla*
- *Callistemon Kings Park hybrid*
- *Elaeocarpus reticulatus*
- *Eucalyptus pauciflora Little Snowman*
- *Ficus platypoda*
- *Olea europaea*
- *Ulmus parvifolia*
- *Waterhousia florabunda*



Figure 24 – TPZ areas required for retained trees within and adjoining the site.

APPENDIX 1 – TREE ASSESSMENT DATA

Tree number	Botanical name	Tree age	Tree height	DBH	CBH	RC	CONDITION	Remnant Planted	TPZ	SRZ	Retain, Remove category
1	Populus sp.	75	18	0.6	2.1	2.7	good	planted	8.025477707	8.025477707	optional
2	Ulmus sp.	75	15	0.6	1.9	2.5	good	planted	7.261146497	7.261146497	optional
3	Eucalyptus viminalis ssp cygnatensis	75	22	1.24	3.9	5.8	good	planted	14.9044586	14.9044586	retain
4	Ulmus sp.	75	19	0.66	2.1	4.7	good	planted	8.025477707	8.025477707	optional
5	Populus sp.	75	14	0.44	1.4	2.9	good	planted	5.350318471	5.350318471	optional
6	Pinus radiata	85	17	0.98	3.1	4.2	good	planted	11.84713376	11.84713376	optional
7	Cupressus macrocarpa	85	17	0.98	3.1	4.2	good	planted	11.84713376	11.84713376	optional
8	Eucalyptus leucoxylyn	75	12	0.82	2.6	3.2	good	planted	9.936305732	9.936305732	optional
9	Eucalyptus leucoxylyn	75	12	0.82	2.6	3.2	good	planted	9.936305732	9.936305732	optional
10	Eucalyptus leucoxylyn	75	12	0.82	2.6	3.2	good	planted	9.936305732	9.936305732	optional
11	Eucalyptus leucoxylyn	75	10	0.44	1.4	1.7	dead	planted	5.350318471	5.350318471	remove
12	Eucalyptus leucoxylyn	75	12	0.82	2.6	3.2	good	planted	9.936305732	9.936305732	optional
13	Eucalyptus viminalis	75	15	1.01	3.2	4.5	good	planted	12.22929936	12.22929936	remove
14	Eucalyptus viminalis	75	12	0.73	2.3	2.9	senescing	planted	8.789808917	8.789808917	remove
15	Eucalyptus viminalis	75	12	0.73	2.3	2.9	senescing	planted	8.789808917	8.789808917	remove
16	Eucalyptus viminalis	75	12	0.73	2.3	2.9	senescing	planted	8.789808917	8.789808917	remove
17	Eucalyptus viminalis	75	12	0.73	2.3	2.9	dead	planted	8.789808917	8.789808917	remove
18	Eucalyptus viminalis	75	12	0.73	2.3	2.9	dead	planted	8.789808917	8.789808917	remove
19	Melaleuca armillaris	75	0	0	0	0	poor	planted	0	0	remove
20	Melaleuca armillaris	75	0	0	0	0	fair	planted	0	0	remove
21	Eucalyptus viminalis ssp cygnatensis	75	15	1.11	3.5	3.9	fair	planted	13.37579618	13.37579618	remove
22	Melaleuca armillaris	0	0	0	0	0	fair	planted	0	0	remove
23	Eucalyptus viminalis ssp cygnatensis	75	18	0.98	3.1	3.6	fair	planted	11.84713376	11.84713376	retain
24	Eucalyptus leucoxylyn	50	7	0.25	0.8	1	fair	planted	3.057324841	3.057324841	remove
25	Melaleuca armillaris	0	0	0	0	0	fair	planted	0	0	remove
26	Corymbia ficifolia	55	8	0.12	0.4	0.6	fair-good	planted	1.52866242	1.52866242	optional
27	Eucalyptus viminalis ssp cygnatensis	75	17	0.85	2.7	3	fair	planted	10.31847134	10.31847134	optional
28	Melaleuca armillaris	0	0	0	0	0	poor	planted	0	0	remove
29	Eucalyptus viminalis ssp cygnatensis	75	0	0.85	2.7	2.9	fair-good	planted	10.31847134	10.31847134	optional
30	Melaleuca armillaris	0	0	0	0	0	poor	planted	0	0	remove

31	Eucalyptus sp. Marlock	35	8	0.19	0.6	0.8	fair	planted	2.292993631	2.292993631	optional
32	Eucalyptus viminalis ssp cygnatensis	75	15	0.76	2.4	2.6	fair-good	planted	9.171974522	9.171974522	retain
33	Eucalyptus viminalis ssp cygnatensis	75	15	0.7	2.2	2.5	fair	planted	8.407643312	8.407643312	remove
34	Corymbia calophylla	35	8	0.25	0.8	0.9	fair-good	planted	3.057324841	3.057324841	optional
35	Eucalyptus viminalis ssp cygnatensis	75	15	0.54	1.7	1.9	fair-good	planted	6.496815287	6.496815287	retain
36	Eucalyptus leucoxylyn	0	0	0	0	0	poor	planted	0	0	remove
37	Eucalyptus viminalis ssp cygnatensis	75	18	0.6	1.9	2.3	fair-good	planted	7.261146497	7.261146497	retain
38	Eucalyptus viminalis ssp cygnatensis	75	19	1.11	3.5	4.2	fair-good	planted	13.37579618	13.37579618	retain
39	Eucalyptus viminalis ssp cygnatensis	75	18	0.47	1.5	2	good	planted	5.732484076	5.732484076	retain
40	Eucalyptus viminalis ssp cygnatensis	55	10	0	0	0	dead	planted	0	0	remove
41	Eucalyptus viminalis ssp cygnatensis	75	15	0	0	0	dead	planted	0	0	remove
42	Eucalyptus viminalis ssp cygnatensis	75	18	0.38	1.2	1.6	good	planted	4.585987261	4.585987261	retain
43	Eucalyptus viminalis ssp cygnatensis	0	0	0.44	1.4	1.7	good	planted	5.350318471	5.350318471	retain
44	Eucalyptus viminalis ssp cygnatensis	75	15	0.5	1.6	2	good	planted	6.114649682	6.114649682	retain
45	Eucalyptus viminalis ssp cygnatensis	75	15	0.47	1.5	1.8	fair	planted	5.732484076	5.732484076	retain
46	Eucalyptus leucoxylyn	0	0	0	0	0	poor	planted	0	0	remove
47	Eucalyptus viminalis ssp cygnatensis	75	18	0.6	1.9	2.3	fair-good	planted	7.261146497	7.261146497	retain
48	Eucalyptus globulus	75	12	0.35	1.1	1.3	fair	planted	4.203821656	4.203821656	optional
49	Eucalyptus viminalis ssp cygnatensis	75	17	0.57	1.8	2.1	fair	planted	6.878980892	6.878980892	optional
50	Eucalyptus ovata	75	15	0.44	1.4	1.8	fair	planted	5.350318471	5.350318471	optional
51	Eucalyptus globulus	75	16	0.5	1.6	1.9	fair	planted	6.114649682	6.114649682	optional
52	Eucalyptus leucoxylyn	0	0	0	0	0	poor	planted	0	0	remove
53	Eucalyptus viminalis ssp cygnatensis	75	16	0.66	2.1	2.4	fair-good	planted	8.025477707	8.025477707	retain
54	Eucalyptus globulus	75	19	0	0	0	poor	planted	0	0	remove
55	Acacia melanoxylon	0	0	0	0	0	dead	planted	0	0	remove
56	Eucalyptus viminalis ssp cygnatensis	0	0	0.31	1	1.3	fair	planted	3.821656051	3.821656051	optional

57	Eucalyptus viminalis ssp cygnatensis	75	17	0.66	2.1	2.4	good	planted	8.025477707	8.025477707	retain
58	Eucalyptus obliqua	0	0	0	0	0	poor	planted	0	0	remove
59	Eucalyptus viminalis ssp cygnatensis	75	18	1.01	3.2	4.1	good	planted	12.22929936	12.22929936	retain
60	Eucalyptus viminalis ssp cygnatensis	75	15	0.44	1.4	1.7	fair-good	planted	5.350318471	5.350318471	retain
61	Eucalyptus viminalis ssp cygnatensis	75	15	0.44	1.4	1.7	fair-good	planted	5.350318471	5.350318471	retain
62	Eucalyptus viminalis ssp cygnatensis	75	18	0.66	2.1	2.3	good	planted	8.025477707	8.025477707	retain
63	Eucalyptus viminalis ssp cygnatensis	75	17	0.5	1.6	1.9	fair-good	planted	6.114649682	6.114649682	retain
64	Eucalyptus viminalis ssp cygnatensis	75	19	0.47	1.5	1.7	good	planted	5.732484076	5.732484076	retain
65	Eucalyptus viminalis ssp cygnatensis	75	16	0.57	1.8	2.1	good	planted	6.878980892	6.878980892	retain
66	Eucalyptus viminalis ssp cygnatensis	75	18	0.89	2.8	3.2	good	planted	10.70063694	10.70063694	retain
67	Eucalyptus viminalis ssp cygnatensis	75	15	0	0	0	poor	planted	0	0	remove
68	Eucalyptus viminalis ssp cygnatensis	75	17	0.44	1.4	1.7	good	planted	5.350318471	5.350318471	retain
69	Eucalyptus viminalis ssp cygnatensis	75	19	0.5	1.6	1.9	fair-good	planted	6.114649682	6.114649682	retain
70	Eucalyptus viminalis ssp cygnatensis	75	18	0.5	1.6	1.9	fair-good	planted	6.114649682	6.114649682	retain
71	Eucalyptus viminalis ssp cygnatensis	75	19	0.54	1.7	2.1	fair-good	planted	6.496815287	6.496815287	remove
72	Eucalyptus viminalis ssp cygnatensis	75	17	0.6	1.9	2.2	dead	planted	7.261146497	7.261146497	remove
72	Eucalyptus viminalis ssp cygnatensis	75	19	0.47	1.5	1.7	good	planted	5.732484076	5.732484076	remove
73	Eucalyptus viminalis ssp cygnatensis	75	19	0.5	1.6	1.9	fair-good	planted	6.114649682	6.114649682	retain
74	Eucalyptus viminalis ssp cygnatensis	75	17	0.66	2.1	2.3	fair-good	planted	8.025477707	8.025477707	retain
75	Eucalyptus viminalis ssp cygnatensis	75	15	0.57	1.8	2.1	fair	planted	6.878980892	6.878980892	optional
76	Eucalyptus viminalis ssp cygnatensis	75	0	0.66	2.1	2.4	poor	planted	8.025477707	8.025477707	remove
77	Eucalyptus viminalis ssp cygnatensis	75	15	0.35	1.1	1.3	poor	planted	4.203821656	4.203821656	remove
78	Eucalyptus viminalis ssp cygnatensis	75	19	0.73	2.3	2.9	fair-good	planted	8.789808917	8.789808917	optional

79	Eucalyptus viminalis ssp cygnatensis	75	20	0.57	1.8	2.1	good	planted	6.878980892	6.878980892	retain
80	Eucalyptus viminalis ssp cygnatensis	75	17	0.57	1.8	2.3	fair-good	planted	6.878980892	6.878980892	retain
81	Eucalyptus viminalis ssp cygnatensis	75	15	0.35	1.1	1.5	poor	planted	4.203821656	4.203821656	remove
82	Eucalyptus viminalis ssp cygnatensis	75	15	0.54	1.7	2.1	fair-good	planted	6.496815287	6.496815287	optional
83	Corymbia calophylla	35	10	0.19	0.6	0.8	fair-good	planted	2.292993631	2.292993631	retain
84	Eucalyptus obliqua	55	16	0.44	1.4	1.7	fair-good	planted	5.350318471	5.350318471	retain
85	Eucalyptus obliqua	75	15	0.66	2.1	2.9	fair	planted	8.025477707	8.025477707	optional
86	Eucalyptus viminalis ssp cygnatensis	75	17	0.6	1.9	2.4	fair-good	planted	7.261146497	7.261146497	retain
87	Eucalyptus viminalis ssp cygnatensis	75	19	0.66	2.1	2.7	fair-good	planted	8.025477707	8.025477707	retain
88	Eucalyptus viminalis ssp cygnatensis	75	18	0.66	2.1	2.4	fair-good	planted	8.025477707	8.025477707	retain
89	Eucalyptus viminalis ssp cygnatensis	75	18	0.76	2.4	2.9	good	planted	9.171974522	9.171974522	retain
90	Eucalyptus viminalis ssp cygnatensis	75	18	0.73	2.3	2.6	fair-good	planted	8.789808917	8.789808917	retain
91	Eucalyptus leucoxylyn	0	0	0	0	0	poor	planted	0	0	remove
92	Meterosideros excelsa	40	5	0.09	0.3	1	dead	planted	1.146496815	1.146496815	remove
93	Meterosideros excelsa	40	5	0.12	0.4	1	fair	planted	1.52866242	1.52866242	optional
94	Meterosideros excelsa	40	5	0.19	0.6	1	fair	planted	2.292993631	2.292993631	remove
95	Meterosideros excelsa	40	5	0.19	0.6	1	fair	planted	2.292993631	2.292993631	remove
96	Meterosideros excelsa variegated	40	5	0.19	0.6	1	fair	planted	2.292993631	2.292993631	optional
97	Meterosideros excelsa	40	5	0.25	0.8	1	fair	planted	3.057324841	3.057324841	optional
98	Meterosideros excelsa	40	5	0.25	0.8	1	dead	planted	3.057324841	3.057324841	remove
99	Meterosideros excelsa	40	5	0.25	0.8	1	fair	planted	3.057324841	3.057324841	optional
100	Meterosideros excelsa variegated	40	5	0.19	0.6	1	fair	planted	2.292993631	2.292993631	remove
101	Meterosideros excelsa	40	5	0.25	0.8	1	fair-good	planted	3.057324841	3.057324841	optional

APPENDIX 2 – TREE TERMS EXPLAINED

Age: Refers to the life cycle of the tree.

Category	Description
Young	Newly planted tree not fully established may be capable of being transplanted or easily replaced.
Juvenile	Tree is small in terms of its potential physical size and has not reached its full reproductive ability.
Semi-mature	Tree in active growth phase of life cycle and has not yet attained an expected maximum physical size for its species and/or its location.
Mature	Tree has reached an expected maximum physical size for the species and/or location and is showing a reduction in the rate of seasonal extension growth.
Senescent	Tree is approaching the end of its life cycle and is exhibiting a reduction in vigour often evidenced by natural deterioration in health and structure.

Health: Summarises the health and vigour of the tree.

Category	Description
Excellent	Canopy full with dense foliage coverage throughout, leaves are entire and are of an excellent size and colour for the species with no visible pathogen damage. Excellent growth indicators, e.g. seasonal extension growth.
Good	Canopy full with minor variations in foliage density throughout, leaves are entire and are of good size and colour for the species with minimal or no visible pathogen damage. Good growth indicators.
Fair	Canopy with moderate variations in foliage density throughout, leaves not entire with reduced size and/or atypical in colour, moderate pathogen damage. Reduced growth indicators, visible amounts of deadwood/dieback, and epicormic growth.
Poor	Canopy density significantly reduced throughout, leaves are not entire, are significantly reduced in size and/or are discoloured, significant pathogen damage. Significant amounts of deadwood and/or epicormic growth, noticeable dieback of branch tips, possibly extensive.
Dead	No live plant material observed throughout the canopy, bark may be visibly delaminating from the trunk and/or branches.

Structure: Summarises the structure of the tree from roots to crown.

Category	Description
Good	Good form and branching habit. Minor structural defects that are insignificant and typical or common within the species. e.g. included bark, co-dominant stems. No fungal pathogens present. No visible wounds to the trunk and/or root plate.
Fair	Moderate structural defects present that impact longevity e.g. apical leaders sharing common union(s). Minor damage to structural roots. Small wounds present where decay could begin. No fungal pathogens present. A fair representation of the species.
Poor	Significant structural defects present that have a significant impact on longevity and result in a poor representation of the species e.g. Branch/stems with included bark with failure likely within 0–5 years. Wounding evident with cavities and/or decay present. Damage to structural roots.
Hazardous	Serious structural defects with failure determined to be imminent (<12 months). Defects may include active splits and/or partial branch or root plate failures. Tree requires immediate arboricultural works to alleviate the associated risk.

Useful Life Expectancy (ULE): Useful Life Expectancy refers to an expected period of time the tree can be retained within the landscape before its amenity value declines to a point where it may detract from the appearance of the landscape and/or becomes potentially hazardous to people and/or property. ULE values consider tree species, current age, health, structure and location. ULE values are based on the tree at the time of assessment and do not consider future changes to the tree's location and environment which may influence the ULE value.

Category:
0–5 Years
5–10 Years
10–20 Years
20–30 Years
30–50 Years
>50 Years

APPENDIX 3 – TREE PROTECTION MEASURES

Activities prohibited from the TPZ includes:

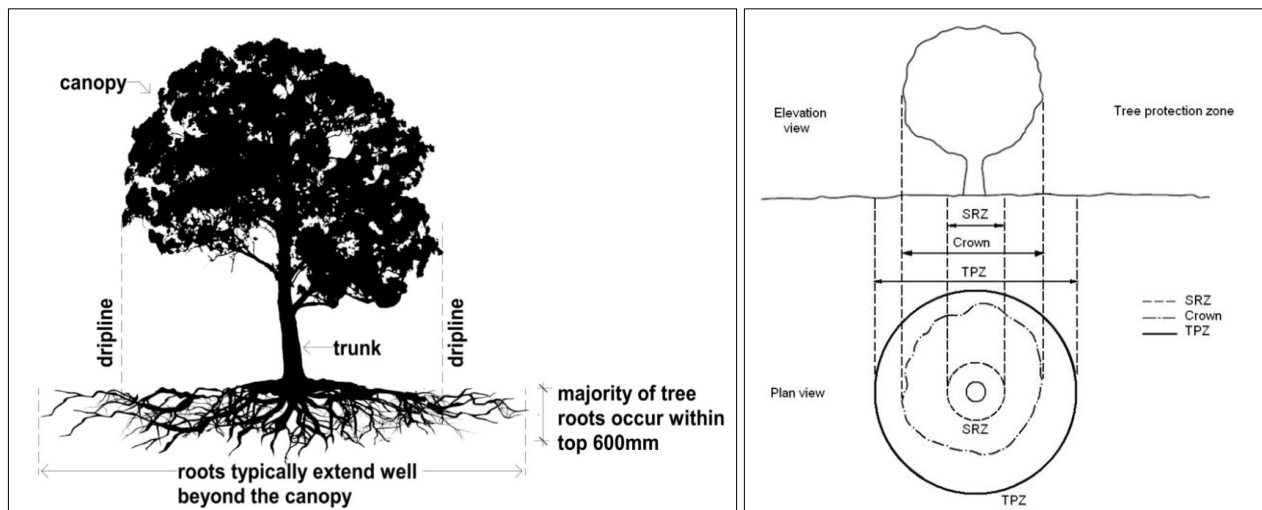
- machine excavation including trenching
- excavation for silt fencing
- removal of turf and topsoil
- storage/stacking of items
- preparation of chemicals (including cement products)
- vehicle and plant parking
- refuelling
- dumping of waste
- washing and cleaning of equipment
- placement of fill
- lighting of fires
- changing of soil levels
- temporary or permanent installation of utilities and signs
- physical damage to the tree

Protection measures

Tree protection measures include a range of activities and structures. The most common measure used to restrict access to a TPZ is the installation of protective fencing.

If protective fencing can't be installed, or must be temporarily removed, other tree protection measures must be used including:¹

- signage
- trunk and branch protection
- ground protection
- root protection during works within the TPZ
- Scaffolding



Figures 32-33 - Calculating TPZ's for construction activity sites.

¹ Standards Australia (2020) AS4970-2009; Pages 16-19; Accessed from: <https://www.standards.org.au/standards-catalogue/sa-snz/agriculture/ev-018/as-4970-2009>

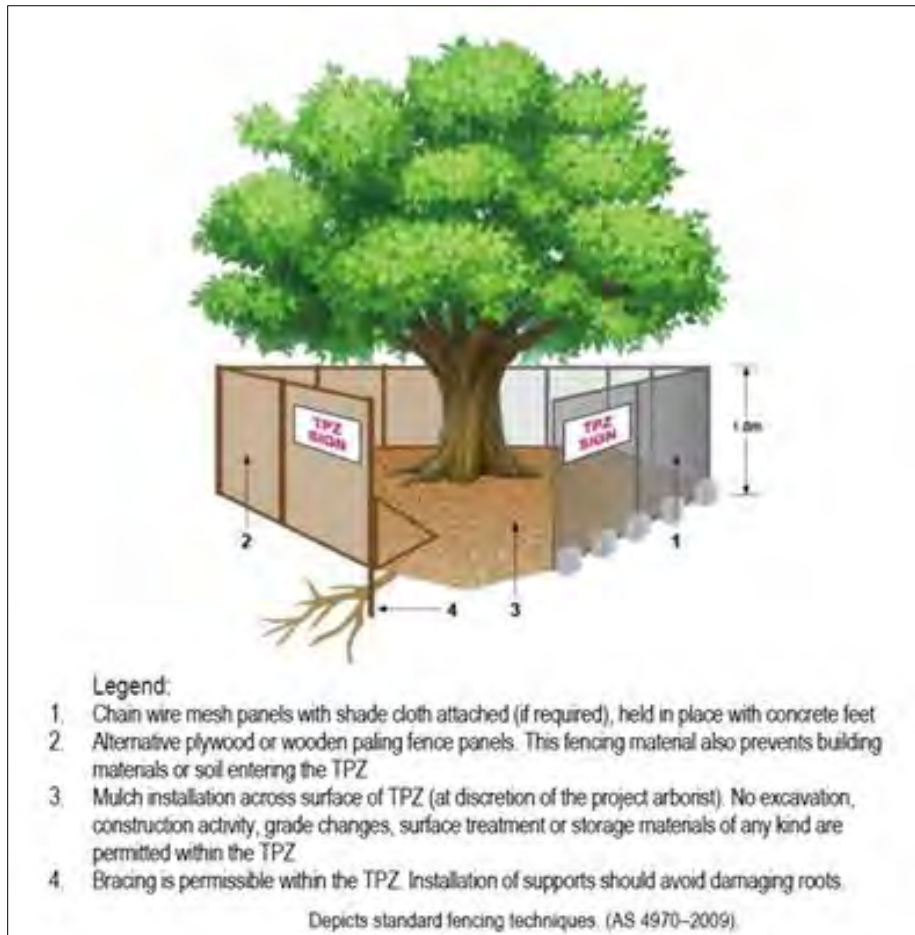
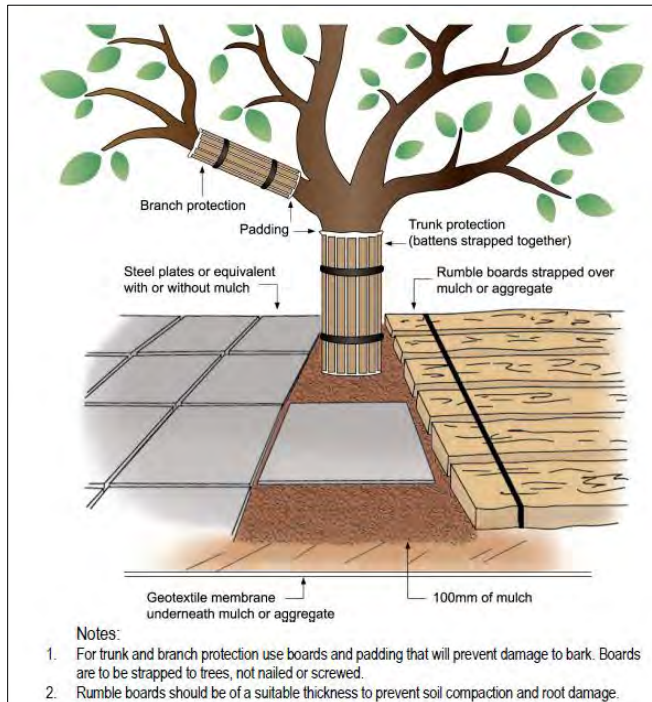


Figure 34 – Required tree protection zone fencing methods (Source: Arborsafe 2023).



Figures 35-36 – Trunk and root protection methods required within the tree protection zone (Source: Arborsafe 2023).

APPENDIX 4 – REPORT REFERENCES

- 1 Moyn Shire Council Planning Scheme 2023; Planning Policy Framework; Victorian State Government; Accessed from: https://www.moyn.vic.gov.au/files/assets/public/new-folder/c69/moyn-c69-002znmaps34_35_36-exhibition.pdf
- 2 Standards Australia, 2007; AS4373-2007; Pruning of Amenity Trees; Sydney; Standards Australia.
- 3 Standards Australia, 2009; AS4970; Protection of Trees on Development Sites; Sydney; Standards Australia.
- 4 The British Standards Institution 2012; BS5837-2012; Trees in relation to design, demolition, and construction; London, BSI Standards Limited.

APPENDIX 5 – TREE NUMBER MAP

