

Assessment of 3 *Eucalyptus camaldulensis*
located at
End of Curragh Moor Rd Carisbook

Condition Report
completed for

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1. Introduction

WM Environmental has been engaged to assess three mature Eucalyptus trees that may potentially be impacted by proposed construction works to develop a Levee bank through private land off Curragh Moors Rd, Carisbrook.

The Assessment is to include:

- the botanical name, diameter at a height of 1.4 metres, visual inspection of the trees;
- how encroachment to the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) will impact the future health of the tree; and
- recommendations regarding tree retention/damage mitigation measures/viability of subject trees.

2. Key Objectives

- Identify the tree species.
- Provide a rapid assessment of the health and structure of the trees.
- Calculation and Provision requirements for TPZ and SRZ.
- Provide recommendations for management, protection and/or necessary works within the context of proposed development.

3. Methodology

3.1 Site Inspection

On 25 November 2018, Wesley Martin, (Certificate IV Horticulture (Arboriculture); Dip. Ap. Sci. Forestry) carried out a ground inspection of three trees off Curragh Moors Rd, Carisbrook, Victoria. Observations of health and structure were recorded during the inspection. The rapid tree assessment was undertaken using the Visual Tree Assessment method described by Mattheck & Breloer (1999). The collection of rapid tree data is a quick inspection from a ground perspective of:

1. Species and common name;
2. overall tree health and any damage (limited to visual inspection);
3. approximate age;
4. recommended tree management.

The following data was collected:

- Botanical Name; Common Name
- Status of Health & Structure
- Diameter at Breast height in cm (DBH)
- Approximate height and Crown spread in metres

No sounding, aerial inspection, root excavation or tomographic investigations were undertaken.

3.2 Site Map

Fenced land accessed via Curragh Moor Rd, Carisbrook, VIC.



Image 1: Location Area Carisbrook Google Maps 2018



Image 2: Location of Tree 1, Tree 2, Tree 3 Google Maps 2018

3.3 Explanatory Notes for Data Collection

Tree Health summarises observations of tree health made in the field:

- Good – No significant pest or disease problems, expected growth rates, dense canopy, good leaf colour
- Fair – Minor pest or disease problems, average growth rates, canopy perhaps sparse in places, or some chlorosis.
- Poor – Serious pest or disease problems, poor growth rates, sparse canopy or major leaf discolouration.
- Dead- the tree is dead

Structure summarises observations of tree structure:

- Good – All forks sound, no major decay in limbs or trunk
- Fair – Some poor forks developing, or decay developing in limbs or trunk. Major failure unlikely
- Poor – Serious defects present, either poor forks, or decayed limbs or trunk. Failure likely

Landscape contribution High, Med, Low - summarises the significance of the tree in the landscape.

Comments summaries observations made at the time of inspection.

3.4 Definition Tree Protection Zone & Structural Root Zone

Definition as per AS, 2009: *AS 4970-2009 Protection of Trees on Development sites*:

A **Tree Protection Zone (TPZ)** is a specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained when it is potentially subject to damage by development.

A **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 are 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. The SRZ is for structural stability only. The larger TPZ allows for the root zone required for a tree's vigour and long term viability.

See Appendix A for TPZ diagram.

4. Tree Details

Common Name: Red Gum

Tree #	Species	DBH (cm)	Height metres	Age (aprox years)	Canopy Dimension radius	Health	Structure	Landscape Contribution	TPZ in metres	SRZ in metres
1	<i>Eucalyptus camaldulensis</i>	267	35	300+	15.5m	Very Good	Very Good	Very High	15	4.97
2	<i>Eucalyptus camaldulensis</i>	84;73	28	65+	8m	VG	G	Very High	9.12	2.95
3	<i>Eucalyptus camaldulensis</i> var. <i>obtus</i>	138	25	100+	12m	VG	VG	Very High	15	3.79



Figure 1: Tree 1 *Eucalyptus camaldulensis*



Figure 2: Tree 2 *Eucalyptus camaldulensis*



Figure 3: Tree 3 *E. camaldulensis* var *obtus*

5. Observations / Discussions

5.1 Site Conditions and Tree Habit

A common species to this region, these large *Eucalyptus camaldulensis* sp have grown in riverine conditions whether of permanent or seasonal water. On or near a creek line in open paddocks, at the time of inspection, activities that may impact the trees include sheep/cattle shade and grazing and or tractor ploughing close by.

5.2 Tree Structure and Health

These *E. camaldulensis* are in good health and demonstrate good structure.

A visual inspection from the ground perspective revealed expected signs of age ie: previous storm damage, habitat hollows. At the time of inspection, all damage or wounds had grown over adequately in all three trees and have not compromised tree structure and health moving forward.

This species is known to drop limbs and overall the trees have minimal dead wood. It is not deemed necessary to attend to these points given the current farm paddock location and low traffic (pedestrian and vehicular) incidence which poses a low risk to death or injury to persons.

Exclusion of the drop zone should be considered in context of any future development.

5.3 Factors affecting Tree Stability and Viability

The trees are situated in a proposed development area.

It is recommended that the total TPZ is maintained before, during and after any development.

Any encroachment to the TPZ or SRZ requires consideration of the following (*AS4970-2009 Protection of Trees on Development Sites - 3.3.4. TPZ Encroachment Considerations*):

- a) Location and distribution of the roots to be determined through non-destructive investigation methods (pneumatic, hydraulic, hand digging or ground penetrating radar).
- b) The potential loss of root mass resulting from the encroachment: number and size of roots.
- c) Tree species and tolerance to root disturbance.
- d) Age, vigour and size of the tree.
- e) Lean and stability of the tree. Note: Roots on the tension side are likely to be most important for supporting the tree and are likely to extend for a greater distance.
- f) Soil characteristics and volume, topography and drainage.
- g) The presence of existing or past structures or obstacles affecting root growth.
- h) Design factors.

6. Recommendations/Options

These trees are highly recommended for retention.

The ongoing health and growth of these trees in a development site is dependent a good TPZ and on no change in soil topography or compaction in the TPZ. In addition to a TPZ, it is recommended that the following occurs:

- Mulch the ground area within the TPZ.
- Exclude all activities from the TPZ has indicated in *AS4970-2009 Protection of Trees on Development Sites Section 4.2* (See Appendix B).
- Maintain TPZ with temporary fencing.
- Mulch the TPZ.
- Consider exclusion of TPZ during and after development to reduce the inherent risk of limb drop or any tree failure due to any future decline in health.

7. Conclusions

WM Environmental has been engaged by Goldfields Shire Council to assess the potential impact on trees in a proposed development site for a levee bank.

After inspection and data collection on 25 November 2018, the following conclusions are made:

- Data for three trees located in a farmers land off Curragh Moor Rd Carisbrook was collected.
- The trees are of significant landscape value, are in good health, display good structure and show signs of good health into the future.
- The data is limited to a rapid inspection from the ground perspective.
- The trees are in a proposed development site.
- Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) are defined as per *AS, 2009: AS 4970-2009 Protection of Trees on Development sites*.
- All three trees are recommended for retention with the following protection measures.
 - Define the TPZ before, during and after any development.
 - Maintain TPZ with temporary fencing.
 - Mulch the ground area within the TPZ.
 - Exclude all activities from the TPZ has indicated in *AS4970-2009 Protection of Trees on Development Sites Section 4.2* (See Appendix B).
 - Consider exclusion of TPZ during and after development to reduce the inherent risk of limb drop or any tree failure due to any future decline in health.
- The measurements for TPZ are included in **Table 4 Tree Details** of this report.

8. References

Australian Standard., 2007; AS 4373-2007 *Pruning of amenity trees*.

Australian Standard, 2009: AS 4970-2009 *Protection of Trees on Development Sites*.

Dunster, J., E. Thomas, S., Matheny. N., Lilly. S., 2013 *Tree Risk Assessment Manual*. International Society of Arboriculture (ISA) USA.

International Society of Arboriculture (ISA) *Basic Tree Risk Assessment Form*. USA.

Mattheck, C., Breloer, H., 1994 *The body language of Trees – a handbook for failure analysis*, UK: The Stationery Office.

Shigo, A. L., 1991, *Modern Arboriculture*, USA: Shigo and Trees, Ass.

Eucalyptus camaldulensis var. *obtusa*: https://www.anbg.gov.au/cpbr/cd-keys/euclid3/euclidsample/html/Eucalyptus_camaldulensis_var._obtusa.htm

9. Disclaimer and limit of observations

Disclaimer

The potential for a tree to be damaged during a storm exists regardless of its health and vigour. The strength & unusual direction of winds during storms is the dominant contributor to damage in trees. Neither of these can be controlled or prevented in all circumstances. The removal of the surrounding companion trees can often expose the remaining trees to prevailing winds and the elements. Replacement trees are recommended in all cases of removals in order to prevent the degradation of the area and to protect remaining trees. Replacement of trees in the middle of an avenue is often unsuccessful due to competition for light. Construction of planter pits or trenches may only be viable when constructed in long runs.

Conditions that bring about failure may occur over night i.e. storm event or they may form over a long period of time i.e. decay development. This report is based on a snap shot in time and only ongoing monitoring can hopefully foresee deterioration of a tree and allow remedial action to be taken to prevent injury or damage. The timing for re-inspection on individual trees is subjective and will vary however; an annual inspection is advisable for trees in senescent years.

Limit of Observations

There are many factors that may contribute to limb or total tree failure. Factors include, decay (in the trunk, crown or branch junctions), external damage to branches leading to decay, poor branch taper, included bark, root rot / decay. Not all these symptoms are visible i.e. internal decay; of these some external symptoms may indicate the presence of dead internal wood but not the existence or extent of decay.

Healthy timber may also contain breaks in continuity of growth caused by insect damage or poor pruning practices over many years previous. Trees do not heal; they simply box in the damaged area (CODIT Compartmentalisation of Decay in Trees) and continue to expand in girth, completely disguising the fact that the branch or trunk has a hollow or decayed section. Having said this, not all areas of decay, past or present suggests a point of failure.

APPENDIX A – DIAGRAM OF THE TREE PROTECTION ZONE

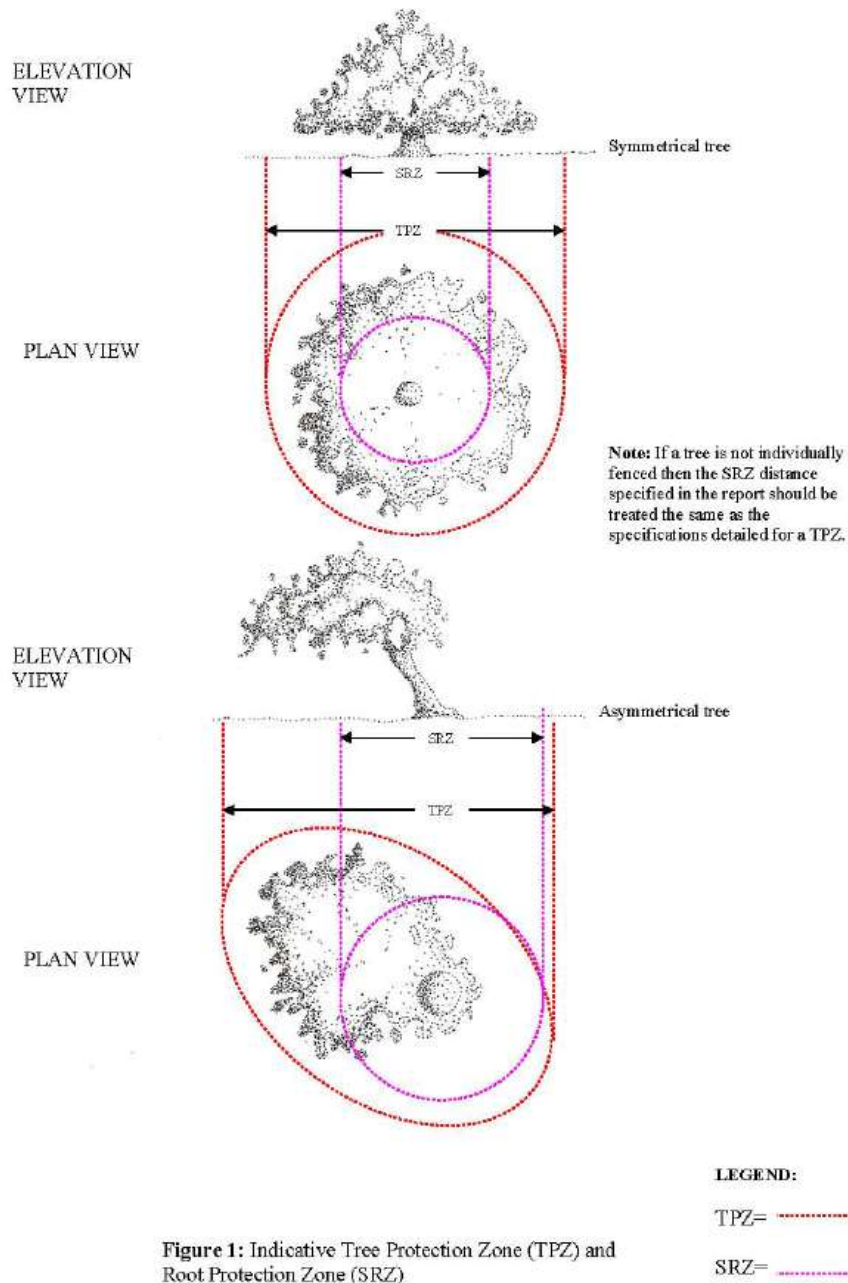


Figure 1: Indicative Tree Protection Zone (TPZ) and Root Protection Zone (SRZ)
 Drawn: P. Vezgoff ©

APPENDIX B – ACTIVITIES RESTRICTED IN THE TREE PROTECTION ZONE

Australian Standard, 2009: AS 4970-2009 Protection of Trees on Development Sites

Section 4.2

Activities generally excluded from the TPZ include but are not limited to –

- (a) machine excavation including trenching;
- (b) excavation for silt fencing;
- (c) cultivation;
- (d) storage;
- (e) preparation of chemicals, including preparation of cement products;
- (f) parking of vehicles and plant;
- (g) refuelling;
- (h) dumping of waste;
- (i) wash down and cleaning of equipment;
- (j) placement of fill;
- (k) lighting of fires;
- (l) soil level changes;
- (m) temporary or permanent installation of utilities and signs, and
- (n) physical damage to the tree.