



Arboricultural Assessment and Report

River Red Gum trees Kororoit Creek, Melton East PSP

Prepared for Victorian Planning Authority

Prepared by Bruce Callander –
Senior Consulting Arborist
Tree Logic Pty. Ltd.

5 May 2023

Tree Logic Ref. 012805

Contents

1 Executive Summary 3

Objectives 3

Summary 3

2 Method 5

3 Tree Permit Requirements 6

4 Observations 8

5 Tree Protection Zones 12

6 Design review and Tree impact assessment 13

7 Conclusion. 17

Appendix 1: Tree Assessment Data: River Red Gums_Kororoit Creek_Melton East PSP 20

Appendix 2A: Tree Location Plan: River Red Gums_Kororoit Creek_Melton East PSP – Existing Conditions. 21

Tree pictures 22

Appendix 3: Arboricultural Descriptors (June 2018)..... 46

Appendix 4: Tree protection zones..... 53

Disclaimer 59

Tree report_012805_RRG_Kororoit Creek_Melton East PSP-

File No.	Version	Author	Issue date	Edits	Issued by.
012805	V1	Bruce Callander	5/05/2023	Preliminary tree report	BC



1 Executive Summary

Objectives

Tree Logic was engaged by Victorian Planning Authority (VPA) to undertake an arboricultural assessment and prepare a preliminary arboricultural report for River Red Gum (*Eucalyptus camaldulensis*) trees associated with Kororoit Creek as part of the Melton East Precinct Structure Plan (PSP).

The primary objectives of the arboricultural report include;

- Ascertain the species and origin of the subject remaining trees and provide information including dimensions, health, structural condition and the arboricultural value of the trees.
- Determine appropriate tree protection zone dimensions compliant with Australian Standard AS4970 'Protection of trees on development sites'
- Identify if trees are subject to permit and / or offset requirement under various planning overlays.
- Identify potential tree impacts associated with proposed works and offer recommendations regarding the management of trees, including any tree protection modification or additional requirements for trees required to be retained.

Summary

1. Two hundred and thirty (230) tree features were assessed along the site including two hundred and twenty-seven (227) trees and three (3) tree groups comprising 20 small sapling River Red Gums.
2. Approximately eight (8) different species were recorded with River Red Gum trees making up 95% of the assessed tree population along the creek line. Refer to Section 4.
3. Each tree feature was attributed an arboricultural rating which reflects the retention value of the trees.
 - Fifty (50) trees were attributed an arboricultural rating of High, being a large and prominent tree that displays good condition and have a moderate to long useful life expectancy (ULE)
 - Forty-five (45) trees attributed an arboricultural rating of Moderate A, being maturing trees in Fair or better condition with a moderate to long ULE.
 - Fifty-five (55) trees rated Moderate B, being middle of the range, typical of the species and worthy of retention.
 - Fifty-one (51) trees rated Moderate C, being either trees of small size or being maturing trees displaying accumulated deficiencies that are tending towards becoming of Low arboricultural value.

- Twenty-five (25) tree features were attributed an arboricultural rating of Low, displaying symptoms of decline and / or structural deficiencies or being either defective, dead, becoming hazardous or a weed species.

Refer to Section 4 for trees sorted by Arboricultural Rating.

4. Within the Melton City Council Planning Scheme, threatened vegetation, flora and fauna species are protected by the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 and the Victorian Flora and Fauna Guarantee Act 1988.
5. The sites fall within the Melton City Council planning scheme. They are zoned for Urban Growth Zone (UGZ), Urban Floodway Zone (UFZ) and Rural Conservation Zone (RCZ).
6. Specific tree protection, permit and offset conditions apply under various environmental planning overlays that cover the subject site.
 - Under the Environmental Significant Overlay – Schedule 2 (ESO2), a permit is required to remove, destroy or lop native vegetation including dead vegetation.
 - Under the Environmental Significant Overlay – Schedule 5 (ESO5), a permit is not required to remove, destroy or lop any vegetation, including dead vegetation in which the vegetation is a plant proclaimed as a weed under the Catchment and Land Protection Act 1994.
 - Under Clause 52.17 - Native Vegetation, naturally occurring trees native to Victoria are subject to permit and offset requirements if they were proposed to be removed.
 - Refer to Section 3 for trees sorted by Permit requirements.
7. This report provides preliminary advise in terms of the nature and arboricultural / retention value of the trees within the Kororoit Creek line to inform future development of the Melton East PSP and potential future bridge crossing sites. At this stage there is no requirement to review any designs or provide an impact assessment.



2 Method

- 2.1 A site inspection was carried out on Tuesday, April 18th, 2023, during mild conditions by Bruce Callander, Senior Consultant Arborist (Dip Hort. Cert 5 Arb. NMIT, TRAQ trained and qualified), Harry Webb (MSc. Bot, Grad. Cert. Arb) and Thiet Nguyen (Masters of Forestry).
- 2.2 Tree locations were recorded on mobile field computers equipped with GIS software, feature survey plans with tree point data, property cadastral data, GPS and geo-referenced aerial imagery.
- 2.3 Observations were made of the assessed trees to determine the species, age category, and condition with measurements taken to establish tree crown height (measured with a height meter) and crown width (paced) and trunk dimensions (measured 1.4 metres above ground level with a diameter tape unless otherwise stated).
- 2.4 Tree features were recorded as groups where the vegetation comprised close grown trees of same or similar species, age, size and condition and the canopy formed an amorphous mass. Tree groups were generally either saplings recruiting beneath the canopies of maturing River Red Gum trees or were groups of weeds or weed infested trees and that could not be accessed and did not warrant inspection of the individual component trees. Where there were more significant canopy trees within the tree group, these were generally recorded as separate trees.
- 2.5 Dead trees were also recorded based on requirements to obtain a permit to remove standing dead native trees with a trunk diameter greater than 40cm at 1.3m above ground level under Native Vegetation – Clause 52.17.
- 2.6 Assessment details of individual trees are listed in Appendix 1 and a copy of the tree location plan can be seen in Appendix 2.
Descriptors used in the assessment can be seen in Appendix 3.
- 2.7 Photographs of trees and the environs were taken for further reference when preparing the report.
- 2.8 Each of the assessed trees was attributed an 'Arboricultural Rating'. The arboricultural rating correlates the combination of tree condition factors (health and structure) with tree amenity value. Definitions of arboricultural ratings can be seen in Appendix 3.
- 2.9 The assessed trees have been allocated tree protection zones (TPZ). The Australian Standard, AS 4970-2009, has been used as a guide in the allocation of TPZs for the assessed trees. This method provides a TPZ that addresses both the stability and growing requirements of a tree. TPZ distances are measured as a radius, from the centre of the trunk at (or near) ground level. All TPZ measurements for are provided in Appendix 1.

Documents reviewed:

- Planning Property reports for River Red Gums_Kororoit Creek_Melton East PSP 3175. Department of Planning & Community Development, dated 26/5/2022
- Environmental Significance Overlay - Schedule 2 (ESO2)
- Environmental Significance Overlay - Schedule 5 (ESO5)
- Lidar data and drone aerial imagery of the sites provided by VPA.

3 Tree Permit Requirements

3.1 The study area is located within the Melton Council Planning Scheme and is within the Urban Growth Zone (UGZ). Overlays that apply to the study area include

3.2 Environmental Significance Overlay (ESO). Under the ESO a permit is required to remove, destroy or lop any vegetation, including dead vegetation unless it is planted vegetation or specified in a schedule to the overlay.

- Environmental Significance Overlay - Schedule 2 (ESO2). No additional specific tree controls apply.
- Environmental Significance Overlay - Schedule 5 (ESO5). Under ESO5 a permit is not required to remove, destroy or lop any vegetation, including dead vegetation:
 - Where the vegetation is non-native.
 - Where the vegetation is a plant proclaimed as a weed under the Catchment and Land Protection 1994.
 - Where the vegetation has been planted or grown for aesthetic or amenity purposes, including agroforestry (the simultaneous and substantial production of forest and other agricultural products from the same land unit), shelter belts, woodlots, street trees, gardens or the like.

This exemption does not apply if public funding was provided to assist in planting or managing the vegetation for conservation purposes and the terms of the funding did not anticipate removal or harvesting of the vegetation.

3.3 Native Vegetation - Clause 52.17. Under the Clause 52.17 a permit is required to remove, destroy or lop native vegetation (naturally occurring vegetation native to Victoria), including dead native vegetation. This does not apply:

- to a standing dead tree with a trunk diameter of 40 centimetres or less at a height of 1.3 metres above ground level.
- Native vegetation that is to be removed, destroyed or lopped that was either planted or grown as a result of direct seeding.

- This exemption does not apply to native vegetation planted or managed with public funding for the purpose of land protection or enhancing biodiversity unless the removal, destruction or lopping of the native vegetation is in accordance with written permission of the agency (or its successor) that provided the funding.

3.4 Heritage Overlay (HO) and Heritage Overlay Schedule 119 (HO119 - House at 107-121 Water Reserve Road) close to the study area.

- No tree controls apply under any of these Heritage Overlay site, though the TPZs of some trees may extend to or be present within the HO zone.

Refer to **Error! Reference source not found.2** for the spatial extent of the overlays.

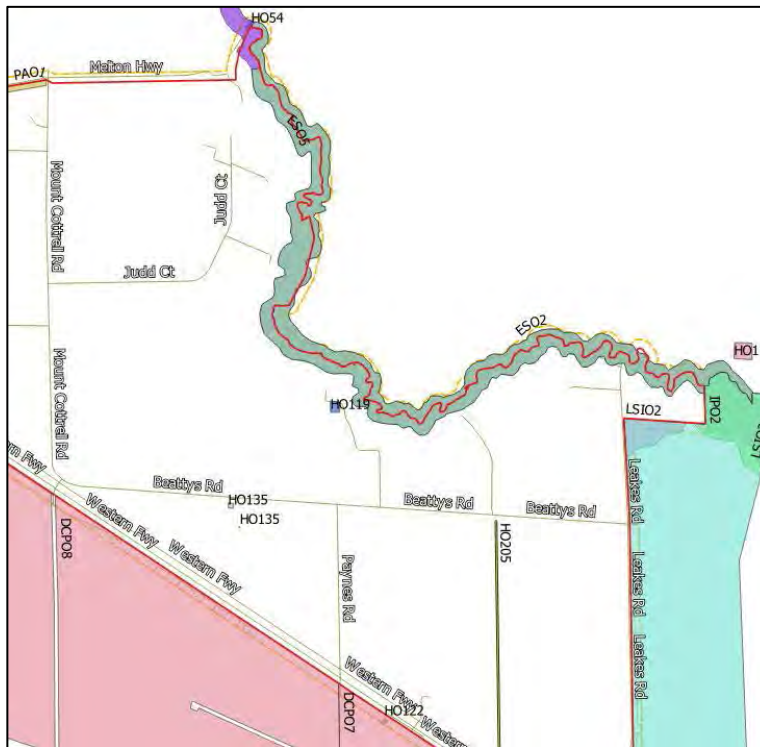


Figure 1: Spatial extent of ESO2, ESO5 and HO 119 within the study area (red line)

3.5 Table 1 below indicates the number of tree features that trigger permits.

Table 1: Tree features sorted by Permit triggers

Permit	Count	Tree / Group numbers
ESO 2&5, 52.17	219	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 53, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 223, 224, 225, 226, 227, Grp 1, Grp 2, Grp 3
52.17	2	49, 52
Exempt - planted	4	30, 57, 81, 93
Exempt - weed	5	14, 142, 168, 181, 222
Total	230	

4 Observations

4.1 The subject study area comprises two (2) defined sections of the Kororoit Creek in Grangefield as part of the Melton East PSP. The subject sites are parts of established semi-rural sites with a history of grazing and crop raising.

Established residential dwellings with various access driveways / tracks and sheds exist on higher ground above the escarpment that falls down to the creek line. The Kororoit Creek line meanders through a gorge that sits some 10-15 metres below the surrounding plains.

4.2 The River Red Gum trees within the creek line appear to be relatively sheltered from prevailing winds that the surrounding plains are exposed to.

- However, erosion from flood waters has undermined the root zone of some River Red Gum trees in places where the creek narrows or changes direction. Despite this, some trees appear to have developed a dimorphic like root system at varying levels and depths as well as lower limbs that appear to have adapted to becoming structurally supporting roots within the eroded creek bed.

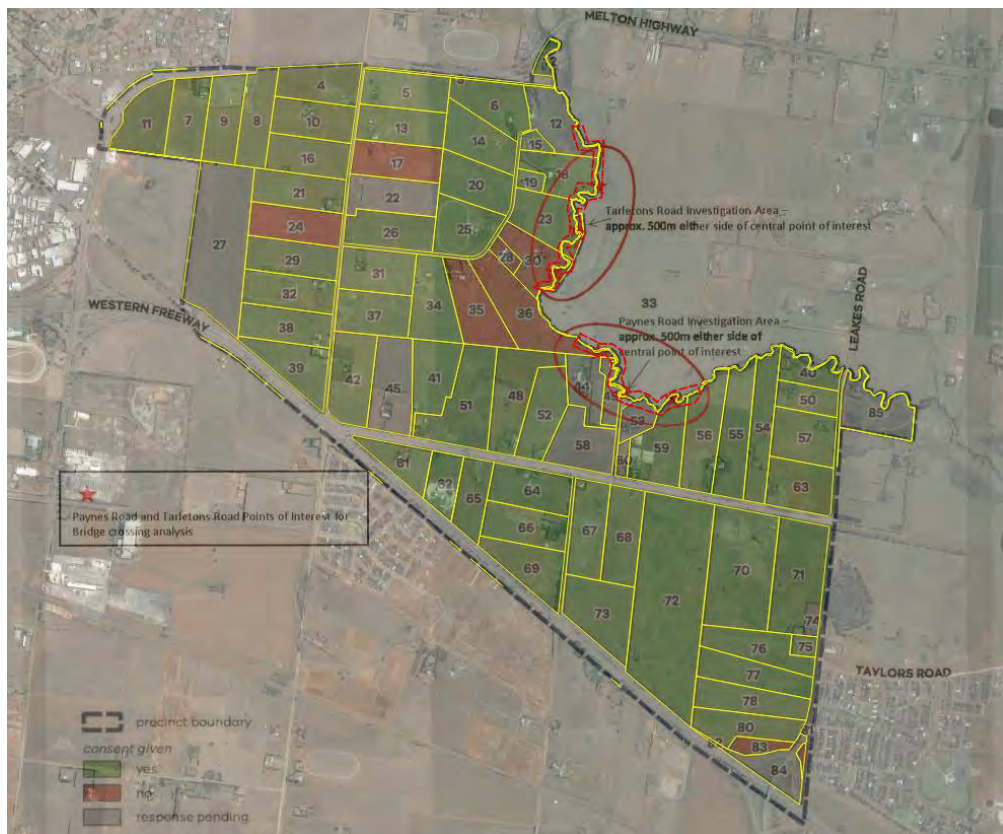


Plate 1. The Red dashed line indicates study areas along the Kororoit Creek within the Melton East PSP. (Google map imagery – dated 27/4/2023).

4.3 Trees have been numbered in sequence, commencing within the site at the north then working toward the south along the creek.

4.4 Land owners of the properties identified as parcels 30 and 36 on the western side of the creek have specified that consultants are not to access their properties. Hence, the trees within these sections of the creek line were observed from the best available vantage point on the eastern side of the creek where necessary. As such trees 26 trees were not accessed comprising trees 105, 106, 107, 115, 118, 120, 121, 125, 127, 130, 132, 133, 134, 136, 141, 143, 144, 145, 146, 147, 148, 149, 153, 155, 159 and Group 1.

4.5 **Tree population**

Two hundred and thirty (230) tree features were recorded in total comprising two hundred and twenty seven (227) individual trees and three (3) tree groups comprising 20 small River Red Gum saplings.

Eight (8) different species were identified during the tree survey.

Refer to Table 2 for most prevalent species and origins recorded.

<i>Table 2: Botanic name</i>	Common Name	Origin	No of trees
<i>Eucalyptus camaldulensis</i>	River Red Gum	Indigenous	218
<i>Eucalyptus microcarpa</i>	Grey Box	Indigenous	1
<i>Schinus areira</i>	Peppercorn Tree	Exotic evergreen	5
<i>Eucalyptus melliodora</i>	Yellow Box	Victorian native	2
<i>Eucalyptus cladocalyx</i>	Sugar Gum	Australian native	1
<i>Acacia implexa</i>	Lightwood	Victorian native	1
<i>Acacia melanoxylon</i>	Blackwood	Victorian native	1
<i>Salix babylonica</i> var. <i>pekinensis</i> 'Tortuosa'	Tortured Willow	Exotic deciduous	1

4.6 **Tree Origin**

Based on observations of species diversity, age class and general spatial arrangement within various sections of the site it is apparent that 95% of the subject trees are naturally occurring indigenous River Red Gum or Grey Box trees. The remainder are introduced specimens planted for visual and amenity screening, garden and amenity or self-sown weed trees. Refer to Table 3 for a summary of the origins of the species recorded.

Table 3: Species origins

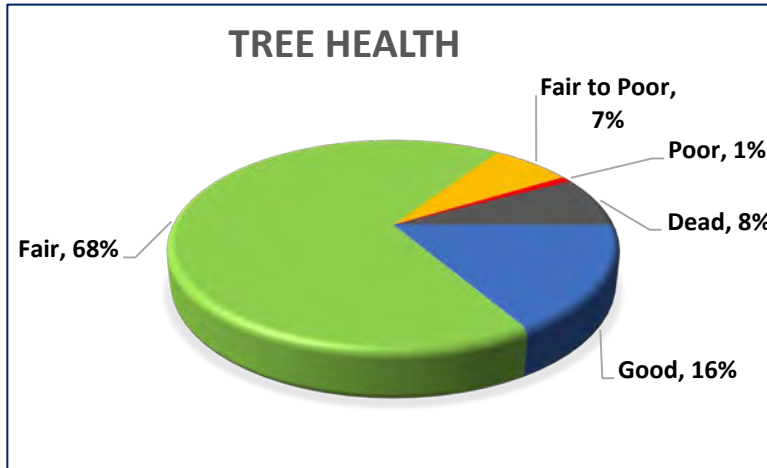
Tree Origin	Total	% of trees
Indigenous	219	95.2%
Exotic evergreen	5	2.2%
Victorian native	4	1.7%
Australian native	1	0.4%
Exotic deciduous	1	0.4%

4.7 **Tree health** was assessed based on foliage colour, size and density as well as shoot initiation and elongation where possible.

- 38 trees displayed Good health condition.
- 156 tree features displayed Fair health condition.

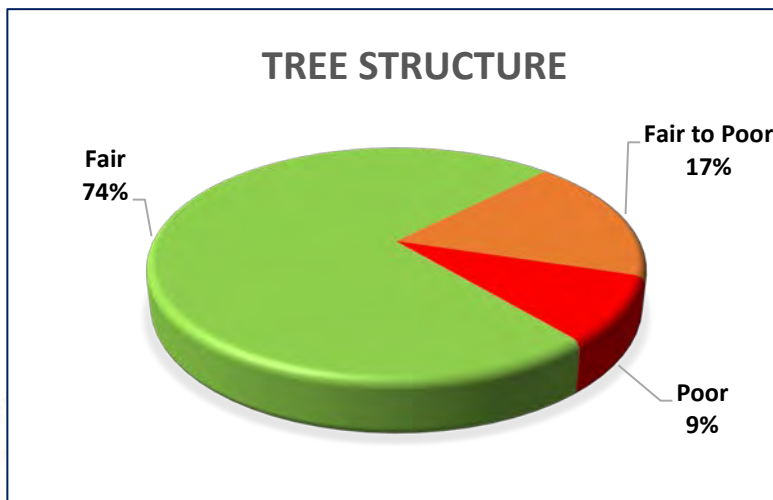
- 16 trees displayed Fair to Poor health condition.
- 2 trees displayed Poor health condition.
- 18 trees were dead stags or stumps.
- Refer to Figure 1 over page for assessed tree population sorted by Health

Figure 1: Tree Health



4.8 **Tree structure** was assessed for structural defects and deficiencies, likelihood of failures and risk to potential targets.

- 165 tree features displayed Fair and acceptable structural condition. Such trees still warrant periodic inspection and may require arboricultural pruning or management.
- 40 trees displayed Fair to Poor structure associated with deadwood, crown bias, co-dominant stems, acute forks, over-weighted limbs or hollows or wounds.
- 21 trees displayed Poor structure being either dead, decayed or the root-zone being undermined by erosion.
- Refer to Figure 2 for assessed tree population sorted by Structure.
- Figure 2: Tree structure



4.9 Arboricultural Rating

The assessed trees were attributed an arboricultural rating. This rating relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value.

It should be noted that the arboricultural rating is different to the conservation / ecological values placed on trees by other professions.

- Refer to Table 4 for tree numbers sorted by Arboricultural rating

Table 4: Arboricultural rating	Total	Tree Numbers
High	50	5, 13, 17, 19, 21, 22, 31, 32, 33, 36, 38, 40, 41, 43, 44, 45, 46, 48, 49, 51, 53, 56, 60, 63, 80, 97, 100, 102, 104, 107, 111, 118, 124, 127, 131, 146, 150, 162, 171, 184, 185, 186, 189, 191, 195, 196, 198, 199, 203, 206
Moderate A	46	11, 12, 24, 29, 35, 39, 50, 54, 62, 64, 65, 69, 71, 91, 92, 98, 101, 103, 112, 115, 128, 129, 130, 135, 140, 144, 145, 148, 149, 153, 157, 159, 163, 188, 190, 197, 200, 201, 202, 207, 210, 211, 215, 218, 219, 227
Moderate B	56	1, 14, 20, 23, 37, 42, 47, 55, 57, 66, 67, 68, 70, 73, 74, 75, 76, 78, 79, 87, 93, 108, 125, 132, 138, 142, 154, 155, 156, 158, 161, 164, 165, 166, 167, 168, 170, 172, 173, 174, 175, 180, 183, 192, 193, 194, 209, 213, 217, 220, 221, 223, 224, 225, 226, Grp 1
Moderate C	53	2, 3, 4, 6, 7, 8, 10, 15, 16, 18, 25, 27, 28, 72, 81, 82, 84, 85, 88, 89, 96, 99, 109, 110, 113, 114, 116, 117, 121, 122, 123, 126, 136, 137, 139, 141, 143, 147, 151, 152, 160, 177, 178, 179, 181, 182, 187, 204, 212, 216, 222, Grp 2, Grp 3
Low	25	9, 26, 30, 34, 52, 58, 59, 61, 77, 83, 86, 90, 94, 95, 105, 106, 119, 120, 133, 134, 169, 176, 205, 208, 214
Total	230	

- Trees rated High and Moderate A are generally prominent trees that display fair and typical condition with medium to long useful life expectancy.
- Trees rated Moderate B are generally typical of the species growing in this area under prevailing conditions and are deemed suitable to retain in conjunction with development where possible.
- Trees rated Moderate C are either established smaller trees of Fair condition or maturing trees that might be accumulating deficiencies and trending towards becoming of Low arboricultural value.
- Trees attributed an arboricultural rating of Low are generally not considered worthy of being a constraint on reasonable design intent and outcome delivery due to either health and / or structural deficiencies, being a suckering specimen or being woody weed species.

4.10 At least 26 of the trees displayed clear evidence of habitat hollows but it is likely many more trees contained habitat qualities including decayed spouts in old dead stubs, slabs of bark, hollows in forks and unions as well as potentially above and below ground nesting sites. It is beyond the scope of the arboricultural assessment to provide more detail other than to acknowledge that the River Red Gum population within the Kororoit Creek study area represents resource of shelter, food sources and habitat for a wide range of animals and plant communities that would be of high value, despite the effects of erosion and historic clearing and grazing.

5 Tree Protection Zones

The Tree Protection Zones (TPZs) provided for each tree in the Tree Assessment Table in Appendix 1 are calculated using the formula provided in the Australian Standard AS4970 where the Radial TPZ = Trunk diameter (DBH) measured at 1.4m above grade and multiplied by 12. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The method for calculating, applying and managing the tree protection zone is described in Appendix 4.

The TPZ forms an area around a tree or group of trees that addresses both the stability and growing requirements of a tree in which excavation or filling, vehicle movements, installation of underground services and other construction activities are either excluded or controlled.

Minor encroachment, up to 10% of the TPZ area, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the TPZ. Encroachment greater than 10% is considered major encroachment under AS4970 and is only permissible if it can be demonstrated that after such encroachment the tree would remain viable. Refer to Figure 2A and 2B.

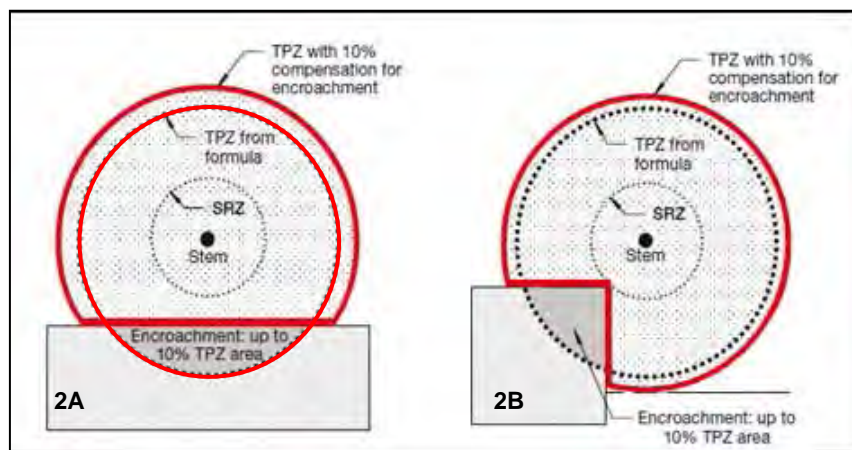


Figure 2: 2A & 2B - Examples of minor encroachment into a TPZ.

Extract from: AS4970-2009, Appendix D, pg. 30 of 32

The Structural Root Zone (SRZ) provided for each tree has been calculated using the method provided in AS4970. The SRZ is the area in which the larger woody roots required for tree stability are found close to the trunk and which then generally taper rapidly. This is the minimum area recommended to maintain tree stability but does not reflect the area required to sustain tree health. No works should occur within the SRZ radius as tree stability could be compromised.

The TPZs for all trees to be retained must be transferred and overlaid on all design plans.

All TPZ measurements are provided in the tree assessment data in Appendix 1 and displayed on the tree location plan in Appendix 2. See Appendix 4 for TPZ establishment guidelines.



6 Design review and Tree impact assessment

6.1 The pre – development arboricultural inspection report provides planners and designers with information on whether trees are worthy or not of being a constraint on the proposed repurposing of the site.

It also provides a basis on which to identify when and where potential impacts to trees will occur from various design elements and evaluates the possible severity of the impact during the design phase of any site redevelopment.

Trees grow in a delicate balance with their environment and any changes to that balance must be minimised if a tree is to remain in a healthy state and fulfil its potential.

It is rarely possible to repair stressed and injured trees, so damage needs to be avoided during all stages of development and construction.

Tree protection cannot be achieved without a proactive approach. The planning and design stages of any construction project can be instrumental and determine the success of tree preservation.

The hierarchy of principles for tree protection are:

- Avoid damage to the subject trees
- Minimise damage to the subject trees
- Replace the subject trees and improve the landscape (as a last resort).

6.2 At the time of preparing the arboricultural report there were no plans provided for review. It is understood that the precinct structure plan is being developed and two (2) potential bridge crossings are under consideration to link the Melton East Precinct to the Warrensbrook Precinct.

6.3 In the absence of specific site design plans, it is not appropriate to speculate on which trees are most appropriate for retention beyond the general guidance provided by the arboricultural ratings attributed to each tree feature.

Retention suitability will be dependent on the proposed landscape setting in which trees are intended to be retained. The following recommendations are provided for consideration in the design process.

- On the basis of future site safety and potential amenity, preference should be given to retaining trees the indigenous River Red Gum trees along the creek. These should be retained as a relatively undisturbed patch of vegetation.
- Trees attributed an arboricultural rating of Moderate A and B would be considered more significant to the site and more appropriate to retain over trees attributed a rating of Moderate C.
- Trees of Low or Very Low arboricultural value are generally not considered to be worthy of being a constraint on reasonable design intent and outcomes.

- Small trees of Low arboricultural value that are otherwise in reasonable condition (Fair-poor or better Health and /or Structure) may offer a potential established tree resource, even if only as an interim measure.
- Low and Very Low rated trees with health or structural deficiencies (Poor or worse Health and/or Structure) should generally be considered for removal based on sound arboricultural opinion

6.4 On this basis the following design considerations and recommendations are provided.

- Retention suitability will ultimately be dependent on the proposed landscape setting in which trees are intended to be retained.
- Additional design considerations should be applied when considering the retention and protection of maturing River Red Gum trees due to the potentially large size, old age and the possibility of branch or limb failure in varying weather conditions.
- While River Red Gum trees may have a reputation for limb shedding, there is no compelling evidence that this is likely to occur with the tree observed on site, especially since they exist down in the creek valley below the prevailing winds that move over the exposed plains.
- All trees may shed branches or limbs, but certainly the older trees become, the more deficiencies and defects can accumulate over time associated with pest & disease, storm damage, man-made changes to the growing environment, hard landscape and competition for resources such as nutrients, water, soil volume and ambient light.
Because of the great age that River Red Gum trees can endure to, they may be more susceptible to branch failure because of their age and accumulated deficiencies.
- When planning to retain maturing River Red Gum trees, the full TPZ protection must be allocated and appropriately protected. No built form should be situated beneath the canopy of the tree. Indeed, no seating, park furniture or other infrastructure likely to attract people to linger beneath the tree should be located beneath the tree crown and should be placed at least 1 metre beyond the canopy dripline.
Similar principles should also be applied to other maturing tree specimens of other species.

6.5 Any trees that are to be retained in the vicinity of any proposed works will require Tree Protection Zones to be established prior to commencing any works onsite including demolition, bulk earthworks, trenching, construction, landscaping activity, delivery and storage of materials or placement of site sheds.

6.6 Tree protection must be incorporated into the design and appropriate construction controls, fencing and management practices must be implemented prior to commencing any construction related activity, including demolition, bulk earthworks construction of gantries, etc.

- The tree protection zones for all trees to be retained within the site must be clearly shown on all design drawings and plans with appropriate notations so that all staff and contractors are aware of the responsibility to protect trees throughout the design, development and delivery of the project.

6.7 The TPZ fencing must be in the form of either temporary fencing panels with concrete block feet and locked together, water filled barriers with locking pins installed or similar exclusion fencing options. Refer to Figure 1 for fencing example. TPZ fencing must be sufficiently robust to withstand knocks and bumps from plant and machinery, delivery vehicles, storage of materials and dumping of spoil.

- Appropriate signage stating ‘Tree protection Zone- No access’ is to be fixed to the fencing to alert people as to importance of the tree protection zone. Refer to Figure 1 for signage example.



Figure 1. Above left - Example of TPZ fencing above right -Example of TPZ signage.

- Regardless of which TPZ exclusion fencing option is selected, the TPZ fence must effectively provide an exclusion barrier to entry to the TPZ, prevent vehicles, plant or equipment traversing the TPZ and dumping or stockpiling of spoil or materials. It must be sturdy and withstand winds and construction impacts. The protection fence may only be moved with approval of the project arborist or relevant authority. Other root zone protection methods must be incorporated if the TPZ area needs to be entered or traversed.

6.8 The following activities must be excluded from or controlled within the Tree Protection Zones (TPZ) unless otherwise approved by the relevant authority or the Project Arborist.

- Machine excavation (including trenching) for continuous strip footings or installation of underground services or road base
- Alteration of soil levels including placement of fill
- Storage of wastes or materials (including fuels, oils or chemicals)
- Preparation of or cleaning of any cement products
- Storage and or parking of vehicles or any plant/machinery within TPZ
- Washing down of equipment
- Installation of utilities

- Physical damage of any kind to the tree (including direct attachment of anything into the tree)
 - Soil cultivation
- 6.9 No form of excavation for trenching for installation of underground services is permitted within the nominated TPZ areas for any retained trees without prior consultation with the council and / or site arborist, to avoid severing roots that could be vital to the stability and continued sustainability of the retained trees.
- Trenching for the installation of any and all underground services must be designed to avoid encroaching the TPZ of any retained trees.
 - If it is unavoidable that an underground service must pass through a defined TPZ, the service must be installed via directional boring at a minimum depth of 750mm to the top of the bore head.
All entry and exit points for the boring must be located beyond the TPZ radius.
 - Lubricants or waste water from the boring process must not be permitted to enter or contaminate the soils within the TPZ.
- 6.10 Temporary facilities and site sheds may be established on existing hard stand if already present within a TPZ providing there is no physical impacts to the trees and no requirement to penetrate the surface within the TPZ for installation of footings or underground services. Access / egress to these facilities must not encroach or compact the native soil within the TPZ.
- Refer to Appendix 1 for all tree data, Appendix 2 for tree location and TPZ maps and Appendix 3 for Tree Descriptors.



7 Conclusion.

- 7.1 In summary, two hundred and thirty (230) tree features were assessed on site including two hundred and twenty-seven (227) trees and three (3) tree groups made up of 20 small River Red Gum saplings.
- 7.2 Indigenous River Red Gum trees represent 95% of the trees along the Kororoit Creek within the defined tree study areas.
Refer to Table 2 at Section 4.4 for indication of species diversity and Table 3 for Species sorted by Origin.
- 7.3 Specific tree protection, permit and offset conditions apply under various environmental planning overlays that cover the subject sites including;
- Under the Environmental Significant Overlay – Schedule 2 (ESO2), a permit is required to remove, destroy or lop native vegetation including dead vegetation.
 - Under the Environmental Significant Overlay – Schedule 5 (ESO5), a permit is not required to remove, destroy or lop any vegetation, including dead vegetation in which the vegetation is a plant proclaimed as a weed under the Catchment and Land Protection Act 1994.
 - Under Clause 52.17 - Native Vegetation, naturally occurring trees native to Victoria are subject to permit and offset requirements if they were proposed to be removed.

Refer to column titled Permit in tree assessment data tables in Appendix 1 and Table 1 at Section 3.5 for trees sorted by Permit requirement.

- 7.4 The trees generally displayed health and structure conditions considered to be typical for these species and age growing in this area under prevailing conditions.
Refer to Sections 4.6 and 4.7.
- 7.5 Each tree feature was attributed an arboricultural rating which reflects the retention value of the trees.
- Fifty (50) trees were attributed an arboricultural rating of High, being prominent features of the landscape that displayed better than typical condition and had moderate to long useful life expectancy (ULE).
 - One hundred and fifty-five (155) trees were attributed a Moderate arboricultural rating including,
 - Forty-six (46) trees attributed an arboricultural rating of Moderate A being prominent trees displaying fair and typical condition with medium to long useful life expectancy.
 - Fifty-six (56) trees rated Moderate B, being middle of the range and typical of the species worthy of retention.
 - Fifty-three (53) trees rated Moderate C, being of either small size or displaying accumulated deficiencies that are tending towards becoming of Low arboricultural value.

- Twenty-five (25) tree were attributed an arboricultural rating of Low, being either dead stumps or dead stags with habitat hollows, or displaying symptoms of decline and structural deficiencies.

Refer to Table 4 - Section 4.8 for tree numbers sorted by arboricultural rating.

- 7.6 The preliminary tree assessment report provides information on the tree population associated with the site, its arboricultural value and the appropriate tree protection zones required to preserve trees in conjunction with future site redevelopment.
- 7.7 At the time of preparing the arboricultural report there were no plans provided for review. It is understood that the precinct structure plan is being developed and two (2) potential bridge crossings are under consideration to link the Melton East Precinct to the Warrensbrook Precinct.
- 7.8 In the absence of specific site design plans, it is not appropriate to speculate on which trees are most appropriate for retention beyond the general guidance provided by the arboricultural ratings attributed to each tree feature.
- Retention suitability will be dependent on the proposed landscape setting in which trees are intended to be retained. The following recommendations are provided for consideration in the design process.
- 7.9 On the basis of future site safety and potential amenity, preference should be given to retaining trees the indigenous River Red Gum trees along the creek. These should be retained as a relatively undisturbed patch of vegetation.
- 7.10 Ultimately, tree retention suitability will be dependent on the proposed landscape setting in which trees are intended to be retained.
- On the basis of future site safety and potential amenity, preference should be given to retaining trees of High and Moderate arboricultural value in built areas, or areas of increased target potential.
- Trees attributed an arboricultural rating of Moderate A and B would be considered more significant to the site and more appropriate to retain over trees attributed a rating of Moderate C.
- 7.11 Refer to Appendix 1 for all Tree Assessment Data and Appendix 2 for Tree Location and TPZ mapping.
- 7.12 Tree protection must be incorporated into the design and appropriate construction controls, fencing and management practices must be implemented prior to commencing any construction related activity, including demolition, bulk earthworks or construction of gantries, retaining walls etc.
- Refer to Section 6 and Appendix 4 for recommendations in relation to tree retention and protection that should be adopted to inform the design process and construction management plans going forward.

7.13 Tree condition can change quickly in response to environmental conditions or altered landscape conditions. Retained trees should be re-inspected on a 3-5 year basis or following any locally damaging weather events and appropriate remedial works undertaken as required.

I am available to answer any questions arising from this report.

No part of this report is to be re produced unless in full.

Signed



Bruce Callander

Senior Consultant Arborist

TreeLogic P/L

E: bruce.callander@treelogic.com.au

T: 03 9870 7700 Mob: 0425 872 007

References and bibliography:

Australian Standard (4970-2009) Protection of Trees on development sites. Standards Australia, Sydney NSW Australia

Harris, R.W, Clark, J.R. & Matheny, N.P. (2004), *Arboriculture: Integrated Management of Landscape trees, shrubs and vines*, Prentice Hall, New Jersey.

Clark, J.R. & Matheny, N.P (1998), *Trees and Development: A technical guide to preservation of trees during land development*. ISA, Champaign, Illinois.

Standards Australia (2007), Australian Standard (4373-2007) - Pruning of Amenity trees, Standards Australia, Homebush.



Appendix 1: Tree Assessment Data: River Red Gums_Kororoit Creek_Melton East PSP

Refer to following 8 pages

Key: DBH = Diameter measured in centimetres at breast height (1.4m up trunk) unless otherwise indicated.

Arb. Rating = Arboricultural Rating. ULE = Useful Life Expectancy.

TPZ = Tree protection zone in radial metres. TPZ radius applies from centre of trunk.

SRZ = Structural root zone in radial metres. SRZ can be supplied on request

ULE = Useful Life Expectancy (Estimated)

Definition of the descriptor categories used in the assessment can be seen in Appendix 3.



treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
1	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	35	10	10		Good	Fair	Mod.B	>40 y	ESO 2&5, 52.17	4.2	2.4	1	Accessed
2	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	30	12	10		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3.6	2.3	1	Accessed
3	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	30	10	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3.6	2.3	1	Accessed
4	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	25	10	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3	2.1	1	Accessed
5	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	15	20	Water's edge, habitat hollows.	Fair	Fair	High	>40 y	ESO 2&5, 52.17	14.4	3.9	1	Accessed
6	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	35	12	7		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	4.2	2.3	1	Accessed
7	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	6	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	1	Accessed
8	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	25	10	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3	2	1	Accessed
9	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	15	5	4		Fair to Poor	Fair to Poor	Low	21-40 y	ESO 2&5, 52.17	2	2	1	Accessed
10	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	30	10	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3.6	2.1	1	Accessed
11	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	135	15	20	Water's edge, bee hive, deadwood >50mm, habitat hollows.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	15	4	1	Accessed
12	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	105	13	18	Trunk wounds. Chainsaw damage.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	12.6	3.6	1	Accessed
13	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	70	15	16		Good	Fair	High	>40 y	ESO 2&5, 52.17	8.4	3.1	1	Accessed
14	<i>Schinus areira</i>	Peppercorn Tree	Early-mature	Exotic evergreen	50	12	12	Weedy species.	Fair	Fair	Mod.B	11-20 y	Exempt - weed	6	3	1	Accessed
15	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	5	7		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	1	Accessed
16	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	25	10	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	3	2.1	1	Accessed
17	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110	12	21		Good	Fair	High	>40 y	ESO 2&5, 52.17	13.2	3.8	1	Accessed
18	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	45	8	7	Trunk cavity, habitat hollows, trunk decay.	Fair to Poor	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	5.4	2.8	1	Accessed
19	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	70	13	16		Fair	Fair	High	>40 y	ESO 2&5, 52.17	8.4	3.1	1	Accessed
20	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	95	11	12	Deadwood >50mm, suppressed.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	11.4	3.5	1	Accessed
21	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	105	12	22	Habitat hollows.	Good	Fair	High	>40 y	ESO 2&5, 52.17	12.6	3.6	1	Accessed
22	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	125	12	16		Fair	Fair	High	>40 y	ESO 2&5, 52.17	15	3.8	1	Accessed
23	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	40	10	12		Good	Fair	Mod.B	>40 y	ESO 2&5, 52.17	4.8	2.6	1	Accessed
24	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	70	14	16		Fair	Fair	Mod.A	>40 y	ESO 2&5, 52.17	8.4	3.1	1	Accessed
25	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	7	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2.4	2	1	Accessed
26	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	14	5	4		Fair to Poor	Fair to Poor	Low	21-40 y	ESO 2&5, 52.17	2	2	1	Accessed
27	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	7	2		Fair	Fair to Poor	Mod.C	21-40 y	ESO 2&5, 52.17	2.4	2	1	Accessed
28	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	14,12	7	2		Fair	Fair to Poor	Mod.C	21-40 y	ESO 2&5, 52.17	2.2	2	1	Accessed
29	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	9	14	Water's edge, habitat hollows, trunk decay.	Fair	Fair to Poor	Mod.A	21-40 y	ESO 2&5, 52.17	10.8	3.4	1	Accessed
30	<i>Salix babylonica</i> var. <i>pekinensis</i> 'Tortuosa'	Tortured Willow	Maturing	Exotic deciduous	55	9	14	Weedy species.	Fair to Poor	Fair to Poor	Low	11-20 y	Exempt - planted	7	3	1	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
31	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	14	18		Fair	Fair	High	>40 y	ESO 2&5, 52.17	10.8	3.5	1	Accessed
32	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	9	17		Good	Fair	High	>40 y	ESO 2&5, 52.17	10.8	3.5	1	Accessed
33	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	127	9	21	Habitat hollows, past limb failure.	Good	Fair	High	>40 y	ESO 2&5, 52.17	15	4	1	Accessed
34	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	40	8	6	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	5	2	1	Accessed
35	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110	11	17	Habitat hollows, past limb failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	13.2	3.6	1	Accessed
36	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	14	24	Habitat hollows.	Good	Fair	High	>40 y	ESO 2&5, 52.17	14.4	3.8	1	Accessed
37	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85	8	10	Habitat hollows, past stem failure, trunk decay.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	10.2	3.3	1	Accessed
38	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	111	12	22		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	13.3	3.7	1	Accessed
39	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	152	10	20	Habitat hollows, past limb failure, tip dieback.	Fair to Poor	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	15	4.2	1	Accessed
40	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	147	10	21	Habitat hollows.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	4.1	1	Accessed
41	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	125	10	18	Habitat hollows.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	4	1,2	Accessed
42	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	55	7	13	Habitat hollows, suppressed.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	6.6	3.1	1,2	Accessed
43	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	130	15	22		Good	Fair	High	>40 y	ESO 2&5, 52.17	15	3.9	2	Accessed
44	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	98	13	18	Bee hive.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	11.8	3.5	2	Accessed
45	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	145	14	20	Habitat hollows.	Fair	Fair	High	>40 y	ESO 2&5, 52.17	15	3.9	2	Accessed
46	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	139	15	24	Bee hive, habitat hollows, past limb failure.	Fair	Fair	High	>40 y	ESO 2&5, 52.17	15	4	2	Accessed
47	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	14	12	Water's edge, previous failures. Exposed buttress.	Fair to Poor	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	9.6	3.1	2	Accessed
48	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	13	19	Water's edge, past limb failure.	Good	Fair	High	>40 y	ESO 2&5, 52.17	10.8	3.4	2	Accessed
49	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	95	14	24	Neighbour's tree.	Good	Fair	High	>40 y	52.17	11.4	3.3	2	Accessed
50	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	109	10	18	Basal wounds, burnt.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	13.1	3.6	2	Accessed
51	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110,90	10	24	Neighbour's tree. Two trunks.	Good	Fair	High	>40 y	ESO 2&5, 52.17	15	4.1	2	Accessed
52	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	45	6	6	Dead stag.	Dead	Poor	Low	<1 y	52.17	5	2	2	Accessed
53	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90,90	12	18	Deadwood >50mm, neighbour's tree, trunk wounds.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	3.7	2	Accessed
54	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	115	11	12	Basal wounds, basal cavity, neighbour's tree.	Good	Fair to Poor	Mod.A	21-40 y	ESO 2&5, 52.17	13.8	3.7	2	Accessed
55	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	50	11	12		Good	Fair	Mod.B	>40 y	ESO 2&5, 52.17	6	2.8	2	Accessed
56	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	148	14	21		Good	Fair	High	>40 y	ESO 2&5, 52.17	15	4.2	2	Accessed
57	<i>Eucalyptus melliodora</i>	Yellow Box	Semi-mature	Victorian native	38	13	10		Fair	Fair	Mod.B	>40 y	Exempt - planted	5	2	2	Accessed
58	<i>Eucalyptus microcarpa</i>	Grey Box	Semi-mature	Indigenous	14	6	4		Fair to Poor	Fair to Poor	Low	21-40 y	ESO 2&5, 52.17	2	2	2	Accessed
59	<i>Acacia implexa</i>	Lightwood	Maturing	Victorian native	18	7	6		Fair	Fair	Low	11-20 y	ESO 2&5, 52.17	2	2	2	Accessed
60	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	147	13	22	Waters edge, deadwood >50mm, over-extended limbs developing-.	Good	Fair	High	>40 y	ESO 2&5, 52.17	15	4	2	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
61	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	75	2	1	Dead burnt stump.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	9	3	2	Accessed
62	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	125	14	21	Water's edge, habitat hollows, past limb failure.	Fair to Poor	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	15	3.9	2	Accessed
63	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	140	10	14	Water edge, exposed roots, past limb failure, trunk hollows. Low canopy.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	4	2	Accessed
64	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	77	9	17	Partly suppressed - crown bias, over-extended limbs developing-. West.	Fair	Fair	Mod.A	>40 y	ESO 2&5, 52.17	9.2	3.1	2	Accessed
65	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	112	15	14	Leaning trunk, past limb failure. Lean to Sth.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	13.4	3.7	2	Accessed
66	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	146	10	20	Trunk cavity, habitat hollows, past limb failure.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	15	4.2	2,3	Accessed
67	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	135	9	14	Deadwood >50mm, habitat hollows, leaning trunk, crown bias w.	Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	15	3.8	3	Accessed
68	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	105	8	13	Past limb failure, partly suppressed - crown bias sth.	Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	12.6	3.5	3	Accessed
69	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	129	14	21	Over-extended limbs.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	15	3.8	3	Accessed
70	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	24	8	6		Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	2.9	2	3	Accessed
71	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	95	13	20	Habitat hollows, incipient decay, past limb failure, over-extended limbs developing-. NW.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	11.4	3.4	3	Accessed
72	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	16	5	4	Self-sown.	Poor	Poor	Mod.C	11-20 y	ESO 2&5, 52.17	2	2	3	Accessed
73	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	65	8	13	Waters edge, habitat hollows, trunk decay.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	7.8	2.9	3	Accessed
74	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	10	16	Not accessed-In creek line w debris & failed trees.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	9.6	3.2	3	Accessed
75	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	10	14	Waters edge, leaning trunk, over-extended limbs developing-. Nth. Lower trunk obscured by flood debris to 2.5m.	Good	Fair	Mod.B	>40 y	ESO 2&5, 52.17	14.4	3.7	3	Accessed
76	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85,85	11	15	Waters edge, incipient decay, limb wounds, past limb failure, over-extended limbs developing-. West.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	14.4	3.9	3	Accessed
77	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	76	2	4	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	9	3	3	Accessed
78	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	17	5	4		Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	2	2	3	Accessed
79	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	70	13	8	Water edge, exposed roots, past branch failure.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	8.4	3.2	3	Accessed
80	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80, 60, 45	13	16	Water edge, past branch failure.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	13.2	3.6	3	Accessed
81	<i>Eucalyptus cladocalyx</i>	Sugar Gum	Semi-mature	Australian native	20	13	6		Fair	Fair	Mod.C	21-40 y	Exempt - planted	2.4	2	3	Accessed
82	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	6	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	3	Accessed
83	<i>Acacia melanoxylon</i>	Blackwood	Maturing	Victorian native	30	8	6		Fair	Fair	Low	11-20 y	ESO 2&5, 52.17	4	2	3	Accessed
84	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	5	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	3	Accessed
85	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	4	3	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	0	2	3	Accessed
86	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	55	7	2	Dead.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	7	3	3	Accessed
87	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	40, 30	9	10	Water edge, exposed roots. Regrow from basal.	Fair	Fair to Poor	Mod.B	11-20 y	ESO 2&5, 52.17	6	2.7	3	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
88	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	10	6	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	3	Accessed
89	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	5	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	3	Accessed
90	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	40	3	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	5	2	3	Accessed
91	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	12	14	Water edge, past limb failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.6	3.2	3	Accessed
92	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85	12	14	Water edge.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.2	3.3	3	Accessed
93	<i>Eucalyptus melliodora</i>	Yellow Box	Semi-mature	Victorian native	20	9	4		Fair	Fair	Mod.B	>40 y	Exempt - planted	2	2	3	Accessed
94	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	50	3	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	6	3	3	Accessed
95	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	55	5	2	Dead.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	7	3	3	Accessed
96	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	9	13	Tip dieback.	Fair to Poor	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	9.6	3.2	3	Accessed
97	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85	11	16		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.2	3.3	3	Accessed
98	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	75	13	12	Water edge, exposed roots, past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9	3.2	3	Accessed
99	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	15	5	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	3	Accessed
100	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	100	10	18		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	12	3.7	3	Accessed
101	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110	14	14	Water edge, exposed roots, past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	13.2	3.7	3	Accessed
102	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	115	14	16	Past limb failure.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	13.8	3.7	3	Accessed
103	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	13	10	Water edge, exposed roots, neighbour's tree.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.6	3.2	3,4	Accessed
104	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	125	13	18	Water edge, deadwood >50mm, past branch failure.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	3.8	4	Accessed
105	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50	5	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	6	3	4	No access
106	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	70	5	4	Dead.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	8	3	4	No access
107	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	95	14	17		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	11.4	3.4	4	No access
108	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50	10	10		Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	6	2.7	4	Accessed
109	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	6	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
110	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	4	3	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	0	2	4	Accessed
111	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	10	18	Exposed roots. 1/2 in water.	Good	Fair	High	>40 y	ESO 2&5, 52.17	14.4	3.8	4	Accessed
112	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	78	13	11	Deadwood, past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.4	3.1	4	Accessed
113	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	9	4	4	Self-sown.	Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
114	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	10	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
115	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	60,33	9	18	Over-extended limbs developing. Sth.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	8.2	3.1	4	No access
116	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	10	4	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
117	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	15	7	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	4	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
118	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	12	17	Deadwood, exposed roots, past branch failure.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.8	3.3	4	No access
119	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	130	10	8		Dead	Poor	Low	<1 y	ESO 2&5, 52.17	15	3.9	4	Accessed
120	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	85	6	4	Dead - Habitat stump.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	10	3	4	No access
121	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	14	4	4	Self-sown.	Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	4	No access
122	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	5	6		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	2	2	4	Accessed
123	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	12	5	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
124	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	89	12	12	Past branch failure. Tree in the middle of the creek.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.7	3.2	4	Accessed
125	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85,65	10	12	Habitat hollows, trunk decay, trunk wounds.	Fair	Poor	Mod.B	11-20 y	ESO 2&5, 52.17	12.8	3.6	4	No access
126	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	11	3	4	Self-sown. Asymmetric to Sth.	Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	4	Accessed
127	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	11	16	Neighbour's tree.	Good	Fair	High	>40 y	ESO 2&5, 52.17	9.6	3.2	4	No access
128	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80,45	8	14	Habitat hollows, lost main leader, past stem failure. Hollow at base.	Fair	Fair to Poor	Mod.A	21-40 y	ESO 2&5, 52.17	11	3.6	4	Accessed
129	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	9	12		Fair	Fair	Mod.A	>40 y	ESO 2&5, 52.17	9.6	3.2	4	Accessed
130	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	70	10	12	Neighbour's tree.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	8.4	3.1	4	No access
131	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	12	17	Water edge, leaning trunk.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.8	3.3	5	Accessed
132	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	55	12	8		Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	6.6	2.8	5	No access
133	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	40	5	2	Dead.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	5	2	5	No access
134	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	40	4	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	5	2	5	No access
135	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	12	13	Past powerline clearance. Low canopy twd the north.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.8	3.5	5	Accessed
136	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	35	10	8	Water edge.	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.17	4.2	2.3	5	No access
137	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	30	10	6	Chlorotic foliage.	Fair to Poor	Fair	Mod.C	21-40 y	ESO 2&5, 52.17	3.6	2.3	5	Accessed
138	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	40	11	5		Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	4.8	2.5	5	Accessed
139	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	25	7	6	Water edge, suppressed.	Fair to Poor	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	3	2.1	5	Accessed
140	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	12	15	Water edge, chlorotic foliage, exposed roots.	Fair to Poor	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.8	3.3	5	Accessed
141	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	25	12	12	Regrow from basal.	Fair	Fair to Poor	Mod.C	21-40 y	ESO 2&5, 52.17	3	2.1	5	No access
142	<i>Schinus areira</i>	Peppercorn Tree	Maturing	Exotic evergreen	50, 30, 10	12	10		Fair	Fair	Mod.B	11-20 y	Exempt - weed	7.1	2.7	5	Accessed
143	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	30	8	6	Water edge, suppressed.	Fair	Fair to Poor	Mod.C	21-40 y	ESO 2&5, 52.17	3.6	2.3	5	No access
144	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	60	12	10	Water edge, exposed roots, leaning trunk.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7.2	2.8	5	No access
145	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50	10	10	Water edge, exposed roots, leaning trunk.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	6	2.7	5	No access
146	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	55, 30, 30	13	14		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	8.3	2.9	5	No access
147	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	35	10	6	Water edge, exposed roots, reduced foliage density.	Fair to Poor	Fair	Mod.C	11-20 y	ESO 2&5, 52.17	4.2	2.4	5	No access

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
148	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	75	14	12	Past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9	3.1	5	No access
149	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50, 30	12	8	Water edge, exposed roots, past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7	3	5	No access
150	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	12	16		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.8	3.5	5	Accessed
151	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	10	2	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	5	Accessed
152	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	12	4	2		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	5	Accessed
153	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	15	14	Not accessed, waters edge, deadwood >50mm, trunk wounds.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.8	3.3	5	No access
154	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	70	11	13	Waters edge, basal wounds. Trunk extends west over creek.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	8.4	3.1	5	Accessed
155	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	60	11	13	Waters edge, past limb failure.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	7.2	3.3	5	No access
156	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	54	6	13	Waters edge, abnormal lean. Trunk extends west over creek.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	6.5	2.8	5	Accessed
157	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	45	9	11	Waters edge.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	5.4	2.6	5,6	Accessed
158	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	35	7	8	Waters edge, partly suppressed - crown bias se.	Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	4.2	2.3	5,6	Accessed
159	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	14	21	Not accessed, waters edge, deadwood >50mm.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	14.4	3.8	5,6	No access
160	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	27	6	6	Leaning trunk. Trunk extending west over creek.	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.17	3.2	2.1	5,6	Accessed
161	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	38	9	9	Abnormal lean. Trunk extending west over creek.	Fair	Fair to Poor	Mod.B	>40 y	ESO 2&5, 52.17	4.6	2.3	5,6	Accessed
162	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	75	14	20	Waters edge, deadwood >50mm. Remove wire constriction on trunk.	Good	Fair	High	>40 y	ESO 2&5, 52.17	9	3.1	5,6	Accessed
163	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90,95	13	16	Waters edge, deadwood >50mm. ~85cm trunk extending west over creek.	Good	Fair	Mod.A	>40 y	ESO 2&5, 52.17	15	3.8	6	Accessed
164	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	40	8	8	Waters edge, partly suppressed - crown bias se.	Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	4.8	2.4	6	Accessed
165	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	65	9	9	Past limb failure, crown bias south, growing in rock at creek crossing.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	7.8	3	5,6	Accessed
166	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	55	8	10	Basal wounds.	Good	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	6.6	2.8	5,6	Accessed
167	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	82	8	12	Waters edge, undermined by floods.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	9.8	3.2	5,6	Accessed
168	<i>Schinus areira</i>	Peppercorn Tree	Early-mature	Exotic evergreen	38	6	8	Woody weed sp	Fair	Fair	Mod.B	21-40 y	Exempt - weed	4.6	2.4	5,6	Accessed
169	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	75	6	8	Dead stag. Habitat hollows & bees.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	9	3	5,6	Accessed
170	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110	16	14	Waters edge, exposed roots, undermined by floods. Trunk extends Nth over creek.	Good	Fair to Poor	Mod.B	11-20 y	ESO 2&5, 52.17	13.2	3.7	5,6	Accessed
171	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	179	12	21	Deadwood >50mm, past limb failure, over-extended limbs developing-. Sth.	Good	Fair	High	>40 y	ESO 2&5, 52.17	15	4.2	6	Accessed
172	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	104	9	14	Exposed roots, undermined by floods, over-extended limbs developing-. West, in creekline, trunk leaning SE.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	12.5	3.7	6	Accessed
173	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	65	8	11	Waters edge, flush cut, incipient decay, trunk wounds.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	7.8	2.9	6	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
174	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	48	5	10	Waters edge, collapsed, exposed roots. Fallen into creek, growing on.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	5.8	2.8	6	Accessed
175	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	59	8	10	Waters edge. Tree collapsed into creek under weight of other collapsed tree, growing up again, large trunks washed up against base.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	7.1	2.9	6	Accessed
176	<i>Eucalyptus camaldulensis</i>	River Red Gum	Over-mature	Indigenous	55	3	1	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	7	3	6	Accessed
177	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	75	7	12	Waters edge, exposed roots, undermined by floods. Trunk extends W over creek.	Fair	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	9	3.1	6	Accessed
178	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	100	10	12	Exposed roots, undermined by floods, incipient decay, past limb failure, trunk wounds.	Fair	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	12	3.4	5,6	Accessed
179	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	105	11	11	Deadwood >50mm, past stem failure, weed infested.	Fair to Poor	Fair to Poor	Mod.C	21-40 y	ESO 2&5, 52.17	12.6	3.3	6	Accessed
180	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	130	11	20	Waters edge, exposed roots. Undermined by floods.	Fair	Fair to Poor	Mod.B	11-20 y	ESO 2&5, 52.17	15	4.1	6	Accessed
181	<i>Schinus areira</i>	Peppercorn Tree	Semi-mature	Exotic evergreen	21	5	6	Woody weed sp	Fair	Fair	Mod.C	21-40 y	Exempt - weed	2.5	1.9	6	Accessed
182	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	30	5	7	Waters edge, exposed roots. Undermined by floods.	Good	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	3.6	2.2	6	Accessed
183	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	47	7	10	Abnormal lean. Trunk extends Nth over creek.	Good	Fair to Poor	Mod.B	>40 y	ESO 2&5, 52.17	5.6	2.8	6	Accessed
184	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	66	15	16		Good	Fair	High	>40 y	ESO 2&5, 52.17	7.9	3.1	6	Accessed
185	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	130	15	12	Water edge, bee hive.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	3.9	6	Accessed
186	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	30, 30, 20	8	12	Regrown from basal.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	5.6	3.3	6	Accessed
187	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	9	6	Water edge, epicormic shoots, exposed roots, reduced foliage density, trunk decay.	Fair to Poor	Fair to Poor	Mod.C	11-20 y	ESO 2&5, 52.17	9.6	3.3	6	Accessed
188	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	13	13	Water edge, bee hive, exposed roots, past branch failure, trunk wounds.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.8	3.4	6	Accessed
189	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	14	14		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.8	3.5	6	Accessed
190	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50, 40	9	14	Water edge, exposed roots. IMG6806.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7.7	3	6	Accessed
191	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	110	14	14		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	13.2	3.7	6	Accessed
192	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	60, 50	10	12	Water edge, leaning trunk, trunk decay, trunk hollows.	Fair	Fair to Poor	Mod.B	11-20 y	ESO 2&5, 52.17	9.4	3.2	6	Accessed
193	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	37	8	8		Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	4.4	2.3	6	Accessed
194	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	50	10	8		Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	6	2.7	6,7	Accessed
195	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	132	10	12		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	3.8	6,7	Accessed
196	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	120	15	15	Water edge.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	14.4	3.8	6,7	Accessed
197	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	60, 50	12	16	Water edge, bee hive, exposed roots. IMG6807.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.4	3	7	Accessed
198	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90, 30	14	16	Bee hive, exposed roots.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	11.4	3.6	7	Accessed
199	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90	13	16		Fair	Fair	High	21-40 y	ESO 2&5, 52.17	10.8	3.4	7	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
200	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	13	10	Water edge, past limb failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.6	3.7	7	Accessed
201	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85	9	14	Past branch failure. Canopy is made up from young branches.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	10.2	3.2	7	Accessed
202	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	75	7	10	Water edge, basal decay, exposed roots.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9	3.2	7	Accessed
203	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	135	9	16	Deadwood >50mm, past branch failure.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	3.9	7,8	Accessed
204	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	5	5	4		Fair	Fair	Mod.C	>40 y	ESO 2&5, 52.17	1	2	7,8	Accessed
205	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	70	5	4	Water edge, epicormic crown, exposed roots, past limb failure, trunk cavity, trunk hollows.	Poor	Poor	Low	1-5 y	ESO 2&5, 52.17	8.4	2.9	8	Accessed
206	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	145	14	22	Co-dominant stems, past branch failure, trunk wounds.	Fair	Fair	High	21-40 y	ESO 2&5, 52.17	15	4.1	8	Accessed
207	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	83	15	12	Dead wood, Past branch failure	Good	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.9	3.2	8	Accessed
208	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	50	6	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	6	3	8	Accessed
209	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	40, 35	8	11	Water edge, leaning trunk.	Fair	Fair to Poor	Mod.B	21-40 y	ESO 2&5, 52.17	6.4	2.5	8	Accessed
210	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	11	11	Past branch failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.6	3.2	8	Accessed
211	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	80	14	13	Trunk wounds.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	9.6	3.2	8	Accessed
212	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	20	6	6	Water edge, leaning trunk.	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.17	2.4	2	8	Accessed
213	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	75	9	12	Water edge, trunk cavity, trunk hollows.	Fair	Fair	Mod.B	11-20 y	ESO 2&5, 52.17	9	3	8	Accessed
214	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	55	3	2	Dead stag.	Dead	Poor	Low	<1 y	ESO 2&5, 52.17	7	3	8	Accessed
215	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	65	9	15		Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7.8	2.9	8	Accessed
216	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	22,11	5	7	Prostrate stem.	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.17	3	2.2	8	Accessed
217	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	19,19	7	6		Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	3.2	2.2	8	Accessed
218	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	66	9	12		Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7.9	2.9	8	Accessed
219	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	60	9	12	Habitat hollows, past stem failure.	Fair	Fair	Mod.A	21-40 y	ESO 2&5, 52.17	7.2	3.1	8	Accessed
220	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	75	7	11	Waters edge, exposed roots, undermined by floods.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	9	3.2	8	Accessed
221	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	89	7	15	Flood debris up against trunk.	Fair	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	10.7	3.6	8	Accessed
222	<i>Schinus areira</i>	Peppercorn Tree	Early-mature	Exotic evergreen	50	5	8	Minor dieback, woody weed sp	Fair to Poor	Fair	Mod.C	11-20 y	Exempt - weed	6	2.5	8	Accessed
223	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	44	8	10	Trunk extends Sth over creek.	Fair	Fair to Poor	Mod.B	11-20 y	ESO 2&5, 52.17	5.3	2.5	8	Accessed
224	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	90,80	7	15	Past branch failure, weed infested.	Good	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	14.4	3.6	8	Accessed
225	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	85	10	13	Deadwood >50mm, trunk wounds, weed infested.	Good	Fair	Mod.B	21-40 y	ESO 2&5, 52.17	10.2	3.4	8	Accessed
226	<i>Eucalyptus camaldulensis</i>	River Red Gum	Early-mature	Indigenous	37,18	8	10		Good	Fair	Mod.B	>40 y	ESO 2&5, 52.17	4.9	2.5	8	Accessed
227	<i>Eucalyptus camaldulensis</i>	River Red Gum	Maturing	Indigenous	95	9	10	Habitat hollows, past stem failure.	Fair	Fair to Poor	Mod.A	21-40 y	ESO 2&5, 52.17	11.4	3.4	8	Accessed

treeid	species	comm_name	age_class	origin_typ	dbh_cm	height_m	width_m	comments	health	structure	arb_rating	ule_yrs	Permit	tpz_rad_m	srz_rad_m	Map_id	Access
Grp 1	<i>Eucalyptus camaldulensis</i>	River Red Gum	Semi-mature	Indigenous	19	6	5	Group of 7 small trees	Fair	Fair	Mod.B	>40 y	ESO 2&5, 52.17	2.3	3	4	No access
Grp 2	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	8	4	3	Group of 8 sapling trees	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.18	2	2	4	Accessed
Grp 3	<i>Eucalyptus camaldulensis</i>	River Red Gum	Young	Indigenous	5	4	3	Group of 5 sapling trees	Fair	Fair	Mod.C	21-40 y	ESO 2&5, 52.19	2	2	6,7	Accessed

Appendix 2: Tree Location Plan: River Red Gums_Kororoit Creek_Melton East PSP

Refer to following 8 pages.



LEGEND

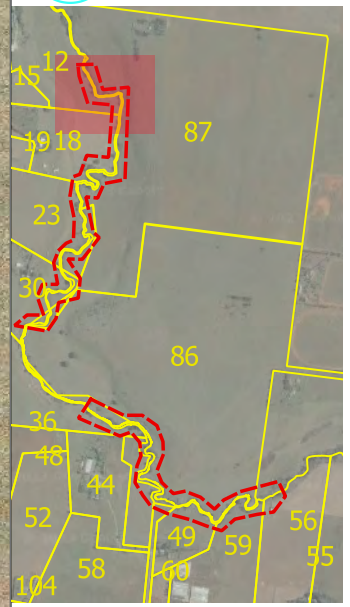
Trees by Arb. rating

- High
- Mod-A
- Mod-B
- Mod-C
- Low

Tree Investigation area

PSP Parcels / Nos

Tree Protection Zone
Structural Root Zone



APPENDIX 2
TREE LOCATIONS AND PROTECTION ZONES

MAP NO. 1 / 8

PROJECT
Kororoit Creek-Melton East PSP
River Red Gum study

CLIENT	TL REF.
Victorian Planning Authority	12805
	DATE
	2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55



TREELOGIC PTY LTD 4 / 21 Eugene Tee
ABN: 95 080 021 610 Ringwood, VIC
TEL: 1300 656 926 Australia 3134



LEGEND

Trees by Arb. rating

- High
- Mod-A
- Mod-B
- Low

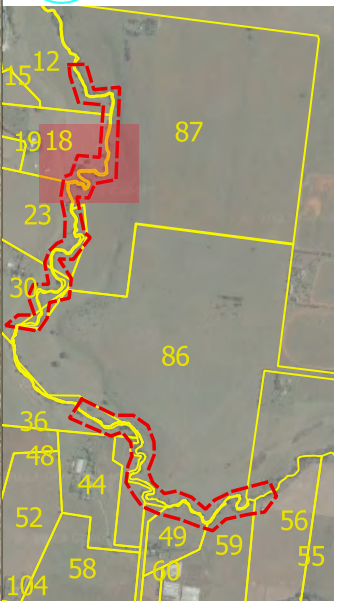
+

Creek Crossing Points

Tree Investigation area

PSP Parcels / Nos

Tree Protection Zone
Structural Root Zone



APPENDIX 2
TREE LOCATIONS AND
PROTECTION ZONES

MAP NO. 2 / 8

PROJECT
Kororoit Creek-Melton East PSP
River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55



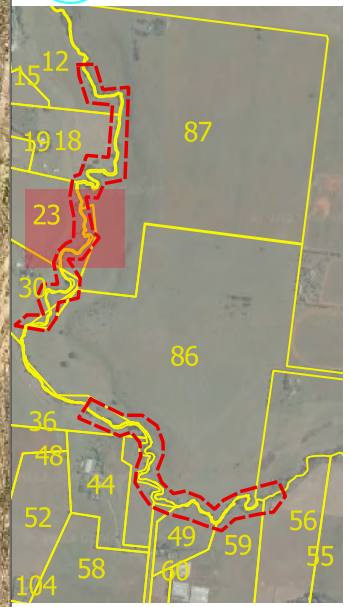
TREELOGIC PTY LTD 4 / 21 Eugene Tce
ABN: 95 080 021 610 Ringwood, VIC
TEL: 1300 656 926 Australia 3134





LEGEND

- Trees by Arb. rating
 - High
 - Mod-A
 - Mod-B
 - Mod-C
 - Low
- ✚ Creek Crossing Points
- Tree Investigation area
- Tree Protection Zones
- Structural Root Zone



APPENDIX 2
TREE LOCATIONS AND PROTECTION ZONES
MAP NO. 3 / 8

PROJECT
 Kororoit Creek-Melton East PSP
 River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
 Tree locations are approximate

COORDINATE REFERENCE SYSTEM
 EPSG:28355 | GDA 94 MGA Zone 55



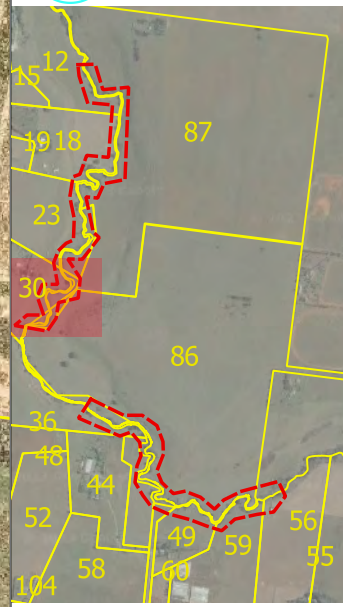
TREELOGIC PTY LTD 4 / 21 Eugene Tee
 ABN: 95 080 021 610 Ringwood, VIC
 TEL: 1300 656 926 Australia 3134





LEGEND

- Trees by Arb. rating
- High
 - Mod-A
 - Mod-B
 - Mod-C
 - Low
- Mod-B
 - Mod-C
- ✚ Tree Protection Points
 - Structural Root Zone
 - Tree Investigation area



APPENDIX 2
TREE LOCATIONS AND PROTECTION ZONES
MAP NO. 4 / 8

PROJECT
 Kororoit Creek-Melton East PSP
 River Red Gum study

CLIENT	TL REF.
Victorian Planning Authority	12805
	DATE
	2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
 Tree locations are approximate

COORDINATE REFERENCE SYSTEM
 EPSG:28355 | GDA 94 MGA Zone 55



TREELOGIC PTY LTD 4 / 21 Eugene Tce
 ABN: 95 080 021 610 Ringwood, VIC
 TEL: 1300 656 926 Australia 3134



LEGEND

Trees by Arb. rating

- High
- Mod-A
- Mod-B
- Mod-C
- Low

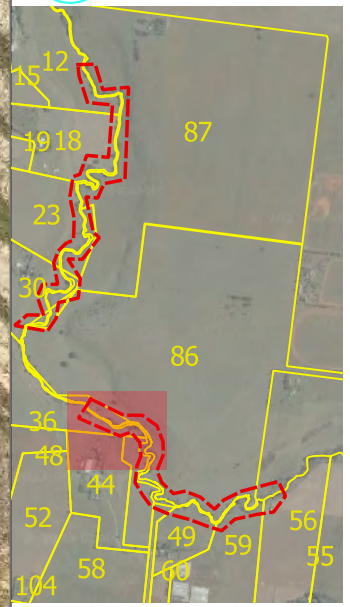
+

Creek Crossing Points

Tree Investigation area

Tree Protection Zones

Structural Root Zone



APPENDIX 2
TREE LOCATIONS AND PROTECTION ZONES

MAP NO. 5 / 8

PROJECT
Kororoit Creek-Melton East PSP
River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55



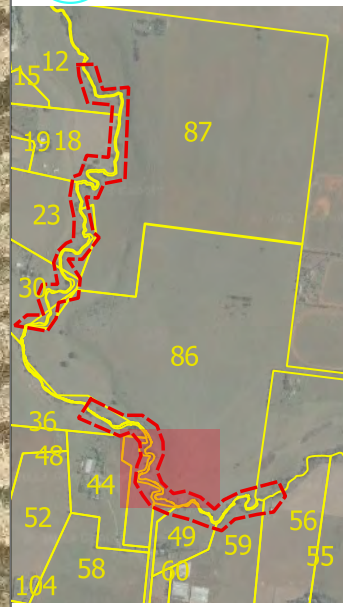
TREELOGIC PTY LTD 4 / 21 Eugene Tee
ABN: 95 080 021 610 Ringwood, VIC
TEL: 1300 656 926 Australia 3134





LEGEND

- Trees by Arb. rating
- High
 - Mod-A
 - Mod-B
 - Mod-C
 - Low
 - Mod-C
 - + Creek Crossing Points
 - Tree Protection Zone area
 - Structural Root Zone
 - PSP Parcels / Nos



**APPENDIX 2
TREE LOCATIONS AND
PROTECTION ZONES
MAP NO. 6 / 8**

PROJECT
Kororoit Creek-Melton East PSP
River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55



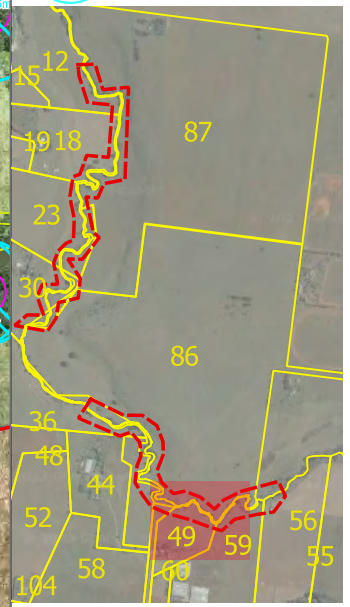
TREELOGIC PTY LTD 4 / 21 Eugene Tce
 Ringwood, VIC
 ABN: 95 080 021 610
 TEL: 1300 656 926 Australia 3134





LEGEND

- Trees by Arb. rating
- High
 - Mod-A
 - Mod-B
 - Mod-C
 - Mod-C
 - + Creek Crossing Points
 - Tree Investigation area
 - Tree Protection Zone
 - Structural Root Zone



APPENDIX 2
TREE LOCATIONS AND
PROTECTION ZONES
MAP NO. 7 / 8

PROJECT
 Kororoit Creek-Melton East PSP
 River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
 Tree locations are approximate

COORDINATE REFERENCE SYSTEM
 EPSG:28355 | GDA 94 MGA Zone 55



TREELOGIC PTY LTD 4 / 21 Eugene Tce
 ABN: 95 080 021 610 Ringwood, VIC
 TEL: 1300 656 926 Australia 3134



LEGEND

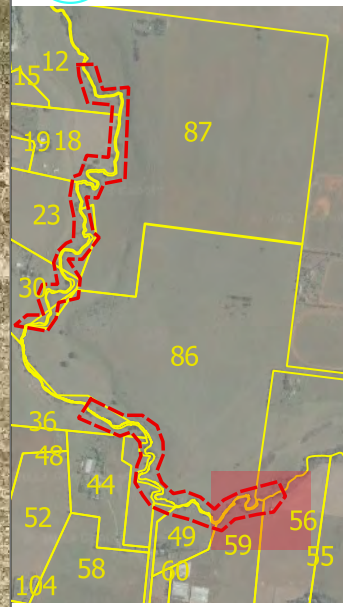
Trees by Arb. rating

- High
- Mod-A
- Mod-B
- Mod-C
- Low

Tree Investigation area

PSP Parcels / Nos

Tree Protection Zone
Structural Root Zone



APPENDIX 2 TREE LOCATIONS AND PROTECTION ZONES

MAP NO. 8 / 8

PROJECT
Kororoit Creek-Melton East PSP
River Red Gum study

CLIENT Victorian Planning Authority	TL REF. 12805
	DATE 2023-05-05

DATA SOURCES

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55



TREELOGIC PTY LTD 4 / 21 Eugene Tee
ABN: 95 080 021 610 Ringwood, VIC
TEL: 1300 656 926 Australia 3134



Sample Tree pictures

Tree ID: 21. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Habitat hollows.
DBH: 105 cm. TPZ rad 12.6 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree ID: 22. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High.
DBH: 125 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree ID: 29. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water's edge, habitat hollows, trunk decay.
DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree ID: 31. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High.
DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree ID: 32. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High.
DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree ID: 33. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Habitat hollows, past limb failure.
DBH: 127 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 1



Tree report_012805_RRG_Kororoit Creek_Melton East PSP Kororoit Creek_Melton East PSP

Tree ID: 39. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Habitat hollows, past limb failure, tip dieback. DBH: 152 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 1



Tree ID: 47. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Water's edge, previous failures. Exposed buttress. DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 41. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Habitat hollows. DBH: 125 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 1,2



Tree ID: 48. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Water's edge, past limb failure. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 45. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Habitat hollows. DBH: 145 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 49. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Neighbour's tree. DBH: 95 cm. TPZ rad 11.4 m radius. Permit req'ment: 52.17. Map ref: 2



Tree ID: 51. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Neighbour's tree. Two trunks. DBH: 110,90 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 57. *Eucalyptus melliodora* (Yellow Box), Semi-mature, Victorian native. Arb. Rating: Mod.B. DBH: 38 cm. TPZ rad 5 m radius. Permit req'ment: Exempt - planted. Map ref: 2



Tree ID: 60. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Waters edge, deadwood >50mm, over-extended limbs developing-. DBH: 147 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 61. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low. Dead burnt stump. DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 64. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Partly suppressed - crown bias, over-extended limbs developing-. West. DBH: 77 cm. TPZ rad 9.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 2



Tree ID: 65. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Leaning trunk, past limb failure. Lean to Sth.
 DBH: 112 cm. TPZ rad 13.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 2



Tree ID: 67. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Deadwood >50mm, habitat hollows, leaning trunk, crown bias w.
 DBH: 135 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



Tree ID: 66. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Trunk cavity, habitat hollows, past limb failure.
 DBH: 146 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 2,3



Tree ID: 68. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Past limb failure, partly suppressed - crown bias sth.
 DBH: 105 cm. TPZ rad 12.6 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



Tree ID: 69. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Over-extended limbs.
 DBH: 129 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



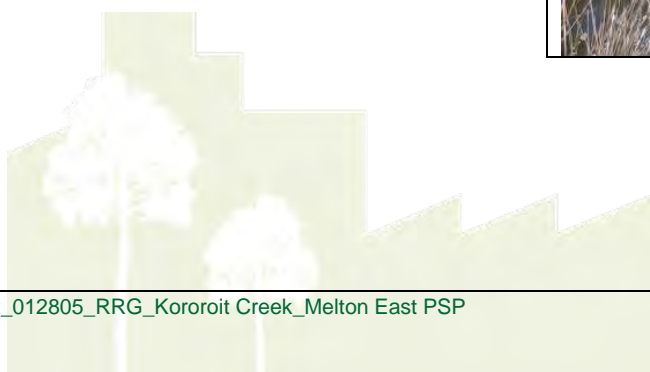
Tree ID: 70. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.B.
 DBH: 24 cm. TPZ rad 2.9 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



Tree ID: 71. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Habitat hollows, incipient decay, past limb failure, over-extended limbs developing-. NW.
 DBH: 95 cm. TPZ rad 11.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



Tree ID: 73. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, habitat hollows, trunk decay.
 DBH: 65 cm. TPZ rad 7.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 3



Tree ID: 74. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Not accessed-In creek line w debris & failed trees.
DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 3



Tree ID: 75. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, leaning trunk, over-extended limbs developing-. Nth. Lower trunk obscured by flood debris to 2.5m.
DBH: 120 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 3



Tree ID: 76. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, incipient decay, limb wounds, past limb failure, over-extended limbs developing-. West.
DBH: 85,85 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17.
Map ref: 3



Tree ID: 77. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low. Dead stag.
DBH: 76 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 3



Tree ID: 78. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.B. DBH: 17 cm. TPZ rad 2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 3



Tree ID: 111. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Exposed roots. 1/2 in water. DBH: 120 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 115. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Over-extended limbs developing-. Sth. DBH: 60,33 cm. TPZ rad 8.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 101. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, exposed roots, past branch failure. DBH: 110 cm. TPZ rad 13.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 3



Tree ID: 119. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low.
 DBH: 130 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 4



Tree ID: 122. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.C.
 DBH: 20 cm. TPZ rad 2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 120. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low. Dead - Habitat stump.
 DBH: 85 cm. TPZ rad 10 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 124. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Past branch failure. Tree in the middle of the creek.
 DBH: 89 cm. TPZ rad 10.7 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 126. *Eucalyptus camaldulensis* (River Red Gum), Young, Indigenous. Arb. Rating: Mod.C. Self-sown. Asymmetric to Sih. DBH: 11 cm. TPZ rad 1 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 129. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 130. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Neighbour's tree. DBH: 70 cm. TPZ rad 8.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 4



Tree ID: 138. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. DBH: 40 cm. TPZ rad 4.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 140. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, chlorotic foliage, exposed roots. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 145. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, exposed roots, leaning trunk. DBH: 50 cm. TPZ rad 6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



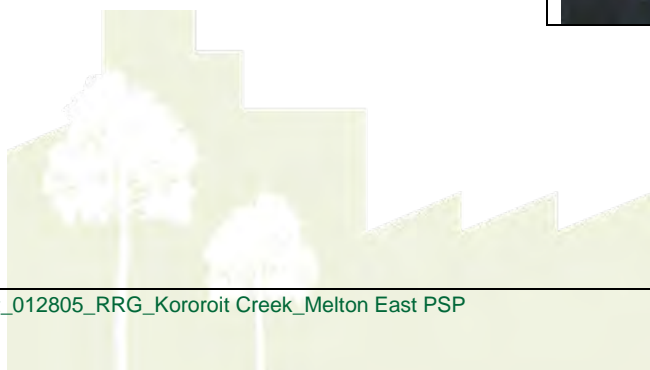
Tree ID: 148. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Past branch failure. DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 146. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. DBH: 55, 30, 30 cm. TPZ rad 8.3 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 149. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, exposed roots, past branch failure. DBH: 50, 30 cm. TPZ rad 7 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree report_012805_RRG_Kororoit Creek_Melton East PSP Kororoit Creek_Melton East PSP

Tree ID: 150. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 154. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, basal wounds. Trunk extends west over creek. DBH: 70 cm. TPZ rad 8.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 153. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Not accessed, waters edge, deadwood >50mm, trunk wounds. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 155. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, past limb failure. DBH: 60 cm. TPZ rad 7.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5



Tree ID: 156. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, abnormal lean. Trunk extends west over creek.
 DBH: 54 cm. TPZ rad 6.5 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5



Tree ID: 158. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, partly suppressed - crown bias se.
 DBH: 35 cm. TPZ rad 4.2 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 157. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.A. Waters edge.
 DBH: 45 cm. TPZ rad 5.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 159. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Not accessed, waters edge, deadwood >50mm.
 DBH: 120 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 160. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.C. Leaning trunk. Trunk extending west over creek.
DBH: 27 cm. TPZ rad 3.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 162. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Waters edge, deadwood >50mm. Remove wire constriction on trunk.
DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 161. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Abnormal lean. Trunk extending west over creek.
DBH: 38 cm. TPZ rad 4.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 163. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Waters edge, deadwood >50mm. ~85cm trunk extending west over creek.
DBH: 90,95 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 164. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, partly suppressed - crown bias se.
 DBH: 40 cm. TPZ rad 4.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 6



Tree ID: 166. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Basal wounds.
 DBH: 55 cm. TPZ rad 6.6 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 165. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Past limb failure, crown bias south, growing in rock at creek crossing.
 DBH: 65 cm. TPZ rad 7.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 167. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, undermined by floods.
 DBH: 82 cm. TPZ rad 9.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 5,6



Tree ID: 168. *Schinus areira* (Peppercorn Tree), Early-mature, Exotic evergreen. Arb. Rating: Mod.B. Woody weed sp
DBH: 38 cm. TPZ rad 4.6 m radius. Permit req'ment: Exempt - weed. Map ref: 5,6



Tree ID: 170. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, exposed roots, undermined by floods. Trunk extends Nth over creek.
DBH: 110 cm. TPZ rad 13.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 169. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low. Dead stag. Habitat hollows & bees.
DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 171. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Deadwood >50mm, past limb failure, over-extended limbs developing-. Sth.
DBH: 179 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 172. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Exposed roots, undermined by floods, over-extended limbs developing-. West, in creekline, trunk leaning SE.
DBH: 104 cm. TPZ rad 12.5 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 173. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, flush cut, incipient decay, trunk wounds.
 DBH: 65 cm. TPZ rad 7.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 6



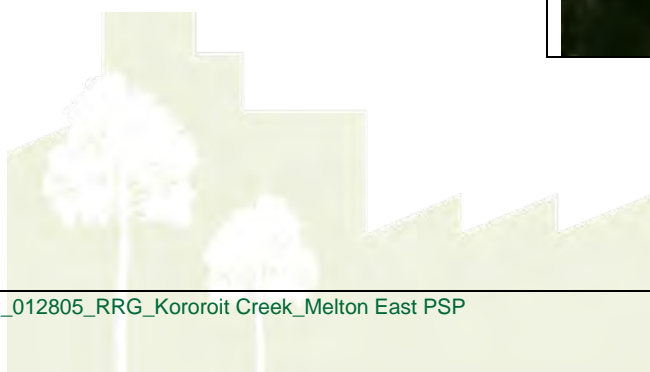
Tree ID: 175. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge. Tree collapsed into creek under weight of other collapsed tree, growing up again, large trunks washed up against base.
 DBH: 59 cm. TPZ rad 7.1 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 6



Tree ID: 174. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Waters edge, collapsed, exposed roots. Fallen into creek, growing on.
 DBH: 48 cm. TPZ rad 5.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 6



Tree ID: 176. *Eucalyptus camaldulensis* (River Red Gum), Over-mature, Indigenous. Arb. Rating: Low. Dead stag.
 DBH: 55 cm. TPZ rad 7 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 177. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.C. Waters edge, exposed roots, undermined by floods. Trunk extends W over creek.
DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 179. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.C. Deadwood >50mm, past stem failure, weed infested.
DBH: 105 cm. TPZ rad 12.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 178. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.C. Exposed roots, undermined by floods, incipient decay, past limb failure, trunk wounds.
DBH: 100 cm. TPZ rad 12 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 5,6



Tree ID: 180. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, exposed roots. Undermined by floods.
DBH: 130 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 181. *Schinus areira* (Peppercorn Tree), Semi-mature, Exotic evergreen. Arb. Rating: Mod.C. Woody weed sp
 DBH: 21 cm. TPZ rad 2.5 m radius. Permit req'ment: Exempt - weed. Map ref: 6



Tree ID: 183. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Abnormal lean. Trunk extends Nth over creek.
 DBH: 47 cm. TPZ rad 5.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 182. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.C. Waters edge, exposed roots. Undermined by floods.
 DBH: 30 cm. TPZ rad 3.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 184. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High.
 DBH: 66 cm. TPZ rad 7.9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 185. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Water edge, bee hive. DBH: 130 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 188. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, bee hive, exposed roots, past branch failure, trunk wounds. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 189. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 186. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Regrown from basal. DBH: 30, 30, 20 cm. TPZ rad 5.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 195. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. DBH: 132 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6,7



Tree ID: 187. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.C. Water edge, epicormic shoots, exposed roots, reduced foliage density, trunk decay. DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 6



Tree ID: 196. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Water edge.
 DBH: 120 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 6,7



Tree ID: 198. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Bee hive, exposed roots.
 DBH: 90, 30 cm. TPZ rad 11.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 7



Tree ID: 199. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High.
 DBH: 90 cm. TPZ rad 10.8 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 7



Tree ID: 197. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, bee hive, exposed roots. IMG6807.
 DBH: 60, 50 cm. TPZ rad 9.4 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 7



Tree ID: 200. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, past limb failure. DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 7



Tree ID: 202. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Water edge, basal decay, exposed roots. DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 7



Tree ID: 201. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Past branch failure. Canopy is made up from young branches. DBH: 85 cm. TPZ rad 10.2 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 7



Tree ID: 203. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: High. Deadwood >50mm, past branch failure. DBH: 135 cm. TPZ rad 15 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 7,8



Tree ID: 205. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Low. Water edge, epicormic crown, exposed roots, past limb failure, trunk cavity, trunk hollows. DBH: 70 cm. TPZ rad 8.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 212. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.C. Water edge, leaning trunk. DBH: 20 cm. TPZ rad 2.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 211. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.A. Trunk wounds. DBH: 80 cm. TPZ rad 9.6 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 213. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.B. Water edge, trunk cavity, trunk hollows. DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 220. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Waters edge, exposed roots, undermined by floods.
DBH: 75 cm. TPZ rad 9 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 222. *Schinus areira* (Peppercorn Tree), Early-mature, Exotic evergreen. Arb. Rating: Mod.C. Minor dieback, woody weed sp
DBH: 50 cm. TPZ rad 6 m radius. Permit req'ment: Exempt - weed. Map ref: 8



Tree ID: 221. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Flood debris up against trunk.
DBH: 89 cm. TPZ rad 10.7 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 223. *Eucalyptus camaldulensis* (River Red Gum), Early-mature, Indigenous. Arb. Rating: Mod.B. Trunk extends Sth over creek.
DBH: 44 cm. TPZ rad 5.3 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



Tree ID: 224. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Past branch failure, weed infested.
DBH: 90,80 cm. TPZ rad 14.4 m radius. Permit req'ment: ESO 2&5, 52.17. Map ref: 8



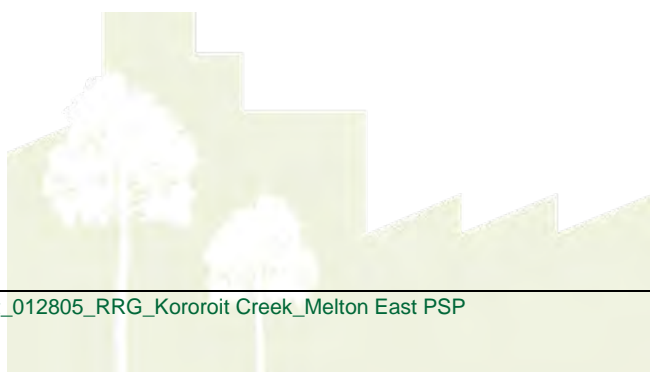
Tree ID: 225. *Eucalyptus camaldulensis* (River Red Gum), Maturing, Indigenous. Arb. Rating: Mod.B. Deadwood >50mm, trunk wounds, weed infested.
 DBH: 85 cm. TPZ rad 10.2 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 8



Tree ID: Grp 1. *Eucalyptus camaldulensis* (River Red Gum), Semi-mature, Indigenous. Arb. Rating: Mod.B. Group of 7 small trees
 DBH: 19 cm. TPZ rad 2.3 m radius. Permit req'ment: ESO 2&5, 52.17.
 Map ref: 4



Tree ID: Grp 2. *Eucalyptus camaldulensis* (River Red Gum), Young, Indigenous. Arb. Rating: Mod.C. Group of 8 sapling trees
 DBH: 8 cm. TPZ rad 2 m radius. Permit req'ment: ESO 2&5, 52.18. Map ref: 4



Appendix 3: Arboricultural Descriptors (June 2018)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.

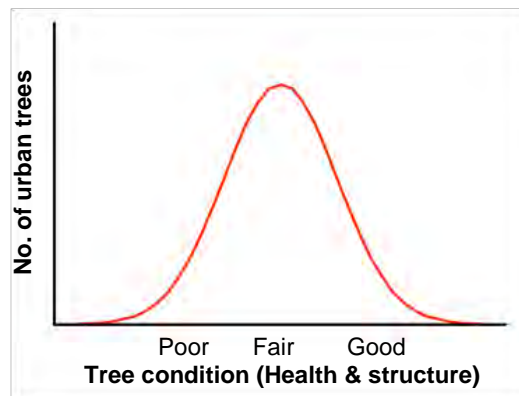


Diagram 1: Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon
Exotic Palm	Occurs outside of Australia. Woody monocotyledon

4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard AS 4970-2009 *Protection of trees on development sites*. Measurements undertaken using foresters tape or builders tape.

Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

6. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. > 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

7. Health

Assesses various attributes to describe the overall health and vigour of the tree.

Health Category	Vigour, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical vigour. >80% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vigour	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds
Poor	Minimal - declining	Excessive, large and/or prominent amount & size of dead wood	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline
Dead	N/A	N/A	N/A	N/A

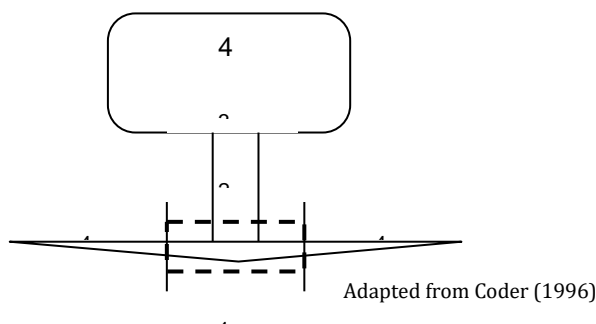
8. Structure

Assesses principal components of tree structure (Diagram 2).

Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

Diagram 2: Tree structure zones

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots



The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will take into account the combination of likelihood of failure and impact, including the perceived importance of the target(s). See table over page.

Structure Category	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
Good	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
Fair	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
Fair to Poor	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence.	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
Poor	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
Very Poor	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

Useful life expectancy

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It would enable tree managers to develop long-term plans for the eventual removal and replacement of existing trees in the public realm. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the trees positive contribution to the urban landscape.

Within an urban landscape context, particularly in relation to street trees, it could be considered a point where the costs to maintain the asset (tree) outweigh the benefits the tree is returning.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs). See table over page.

Useful Life Expectancy category	Typical characteristics
<1 year (No remaining ULE)	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1-5 years (Transitory, Brief)	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Tree may be over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6-10 years (Short)	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management inputs.
11-20 years (Moderate)	Tree not showing symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). Tree may be over-mature and beginning to senesce. Potential for infrastructure conflicts regardless of management inputs.
21-40 years (Moderately long)	Trees displaying normal growth characteristics but vigour is likely to be reduced (bud development, extension growth etc.). Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.
>40 years (Long)	Generally juvenile and semi-mature trees exhibiting normal growth characteristics within adequate spaces to sustain growth, such as in parks or open space. Could also pertain to maturing, long-lived trees. Tree well suited to the site with negligible potential for infrastructure conflicts.

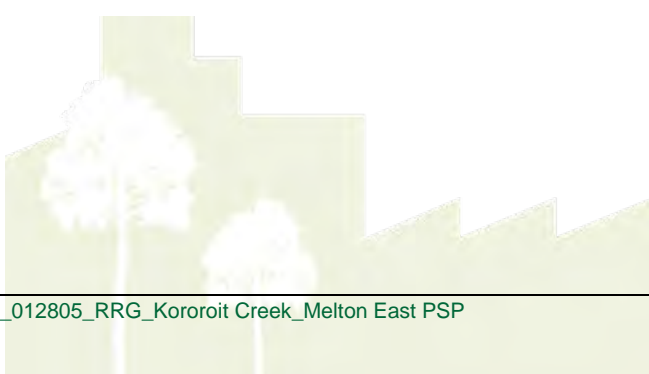
Note that ULE may change for a tree dependent on the prevailing climatic conditions, which can either increase or decrease, or sudden changes to a tree's growing environment creating an acute stress.

The ULE may not be applicable for trees that are manipulated, such as topiary, or grown for specific horticultural purposes, such as fruit trees.

There may be instances where remedial tree maintenance could be extend a tree's ULE.

9. Arboricultural Rating

Relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are taken into account. See table over page.



Arboricultural rating Category	Description
High	<p>Tree of high quality in good to fair condition; good vigour. Generally a prominent arboricultural/landscape feature. Particularly good example of the species; rare or uncommon. Tree may have significant conservation or other cultural value.</p> <p>These trees have the potential to be a medium- to long-term components of the landscape (moderately long to long ULE) if managed appropriately.</p> <p>Retention of these trees is highly desirable.</p>
Moderate	<p><i>General -</i></p> <p>Tree of moderate quality, in fair or better condition. Tree may have a condition, and or structural problem that will respond to arboricultural treatment.</p> <p>These trees have the potential to be a moderate- to long-term component of the landscape (moderate to long ULE) if managed appropriately. Retention of these trees is generally desirable. The following sub-categories relate predominately to age and size and amenity.</p>
	<p>A. Moderate to large, maturing tree. Contributes to the landscape character. Tree may have conservation or other cultural value.</p>
	<p>B. Moderate sized, established tree, > 50% of attainable age/size. Contributes to the landscape character.</p> <p>Maturing tree with amenity value but with identified deficiencies</p>
	<p>C. Small and/or semi-mature tree, established, >5 years in the location. May not be a dominant canopy. No special qualities.</p> <p>Maturing tree, accumulating deficiencies, trending towards being of Low arboricultural value.</p>
Low	<p>Unremarkable tree of low quality or little amenity value. Tree in either poor health or with poor structure or a combination. Short to transitory useful life expectancy.</p> <p>Tree is not significant because of either its size or age, such as young trees with a stem diameter below 15 cm. Trees regularly pruned to restrict size. These trees are easily replaceable.</p> <p>Tree (species) is functionally inappropriate to specific location and would be expected to be problematic if retained.</p> <p>Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.</p>
Very Low	<p>Trees of low quality with an estimated remaining life expectancy of less than 5 years.</p> <p>Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree would be expected in the short term.</p> <p>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. Tree infected with pathogens of significance to either the health or safety of the tree or other adjacent trees.</p> <p>Tree whose retention would not be viable after the removal of adjacent trees (includes trees that have developed in close spaced groups and would not be expected to acclimatise to severe alterations to surrounding environment – removal of adjacent shelter trees).</p> <p>Tree has a detrimental effect on the environment, for example, the tree is a recognised environmental woody weed with potential to spread into waterways or natural areas.</p> <p>Unremarkable tree of no material landscape, conservation or other cultural value.</p>

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criterion is designed to highlight other considerations that may influence the future management of such trees.

Significance	Description
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.
Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees. Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.
Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve. Remnant Indigenous vegetation that contribute to biological diversity

Bibliography:

Coder, K D. (1996) Construction damage assessments: trees and sites, University of Georgia, USA

Hitchmough, J.D. (1994) Urban landscape management, Inkata Press, Australia

Gooding, R.F., Ingram, J.B., Urban, J.R., Bloch, L.B., Steigerwaldt, W.M, Harris, R.W. and Allen, E.N. (2000) Guide for plant appraisal, 9th edition, International society of Arboriculture, USA

Pollard, A. H. (1974) Introductory statistics: a service course, Pergamon Press Australia, Australia.

Standards Australia (2009) Australian Standard AS 4970-2009 Protection of trees on development sites.

Appendix 4: Tree protection zones.

Tree logic Pty. Ltd. © 2015

Introduction

In order to sustain trees on a development site consideration must be given to the establishment of tree protection zones.

The physical dimensions of tree protection zones can sometimes be difficult to define. The projection of a tree's crown can provide a guide but is by no means the definitive measure. The unpredictable nature of roots and their growth, differences between species and their tolerances, and observable and hidden changes to the trees growing environment, as a result of development, are variables that must be considered.

Most vigorous, broad canopied trees survive well if the area within the drip-line of the canopy is protected. Fine root density is usually greater beneath the canopy than beyond (Gilman, 1997). If few to no roots over 3cm in diameter are encountered and severed during excavation the tree will probably tolerate the impact and root loss. A healthy tree can sustain a loss of between 30% and 50% of absorbing roots (Harris, Clark, Matheny, 1999), however encroachment into the structural root system of a tree may be problematic.

The structural root system of a tree is responsible for ensuring the stability of the entire tree structure in the ground. A tree could not sustain loss of structural root system and be expected to survive let alone stand up to average annual wind loads upon the crown.

Allocation of tree protection zone (TPZ)

The method of allocating a TPZ to a particular tree will be influenced by site factors, the tree species, its age and developed form.

Once it has been established, through an arboricultural assessment, which trees and tree groups are to be retained, the next step will require careful management through the development process to minimise any impacts on the designated trees. The successful retention of trees on any particular site will require the commitment and understanding of all parties involved in the development process. The most important activity, after determining the trees that will be retained is the implementation of a TPZ.

The intention of tree protection zones is to:

- mitigate tree hazards;
- provide adequate root space to sustain the health and aesthetics of the tree into the future;
- minimise changes to the trees growing environment, which is particularly important for mature specimens;
- minimise physical damage to the root system, canopy and trunk; and
- define the physical alignment of the tree protection fencing

Tree protection

The most important consideration for the successful retention of trees is to allow appropriate above and below ground space for the trees to continue to grow. This requires the allocation of tree protection zones for retained trees.

The Australian Standard AS 4970-2009 Protection of trees on development sites has been used as a guide in the allocation of TPZs for the assessed trees.

The TPZ for individual trees is calculated based on trunk (stem) diameter (DBH), measured at 1.4 metres up from ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses both the stability and growing requirements of a tree. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The minimum TPZ should be not less than 2m and the maximum no more than 15m radius. The TPZ of palms should be not less than 1.0m outside the crown projection.

Encroachment into the TPZ is permissible under certain circumstances though is dependent on both site conditions and tree characteristics. Minor encroachment, up to 10% of the TPZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the TPZ. Examples are provided in Diagram 1. Encroachment greater than 10% is considered major encroachment under AS4970-2009 and is only permissible if it can be demonstrated that after such encroachment the tree would remain viable.

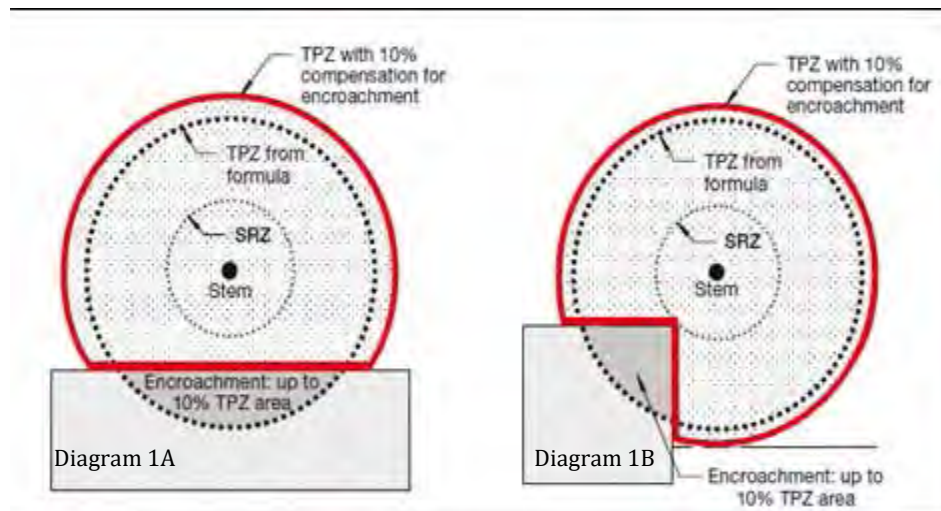


Diagram 1: Examples of minor encroachment into a TPZ.

(Extract from: AS4970-2009, Appendix D, p30 of 32)

The 10% encroachment on one side equates to approximately $\frac{1}{3}$ radial distance. Tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard surfaces and buildings may have inhibited the development of a symmetrically radiating root system.

Existing infrastructure around some trees may be within the TPZ or root plate radius. The roots of some trees may have grown in response to the site conditions and therefore if existing hard surfaces and building alignments are utilised in new designs the impacts on the trees should be minimal. The most reliable way to estimate root disturbance is to find out where the roots are in relation to the demolition, excavation or construction works that will take place (Matheny & Clark, 1998). Exploratory excavation prior to commencement of construction can help establish the extent of the root system and where it may be appropriate to excavate or build.

The TPZ should also give consideration to the canopy and overall form of the tree. If the canopy requires severe pruning in order to accommodate a building and in the process the form of the tree is diminished it may be worthwhile considering altering the design or removing the tree.

General tree protection guidelines

The most important factors are:

- Prior to construction works the trees nominated for tree works should be pruned to remove larger dead wood. Pruning works may also identify other tree hazards that require remedial works.
- Installation of tree protection fencing. Once the tree protection zones have been determined the next step is to mulch the zone with woodchip and erect tree protection fencing. This must be completed prior to any materials being brought on-site, erection of temporary site facilities or demolition/earth works. The protection fencing must be sturdy and withstand winds and construction impacts. The protection fence should only be moved with approval of the site supervisor. Other root zone protection methods can be incorporated if the TPZ area needs to be traversed.
- Appropriate signage is to be fixed to the fencing to alert people as to importance of the tree protection zone.
- The importance of tree preservation must be communicated to all relevant parties involved with the site.
- Inspection of trees during excavation works.

TPZ fencing

TPZ fencing must be in the form of either temporary fencing panels with concrete block feet and locked together or water filled barriers with locking pins installed. TPZ fencing must be sufficiently robust to withstand knocks and bumps from plant and machinery, delivery vehicles, storage of materials and dumping of spoil.

- Appropriate signage stating 'Tree protection Zone- No access' is to be fixed to the fencing to alert people as to importance of the tree protection zone.

Refer to Figure 1 for fencing example.



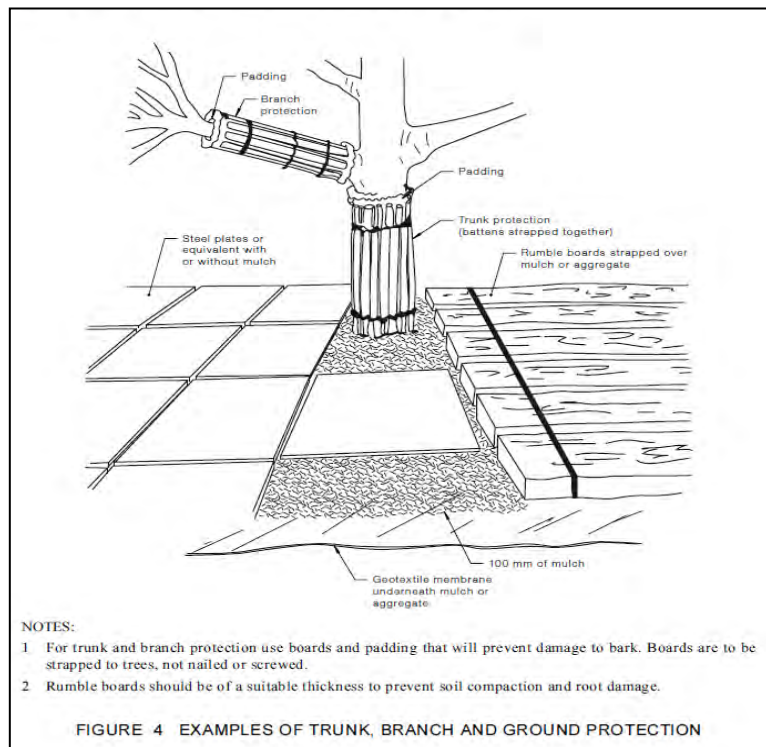
Figure 1. Above left - Example of TPZ fencing above right -Example of TPZ signage.

Ground buffering

Where works are required to be undertaken within the Tree root zone without penetration of the surface, ground buffering and trunk and limb protection must be provided to minimise the potential for soil to become compacted and avoid potential for impact wounds to occur to surface roots, trunk or limbs.

Refer to Diagram 2 below.

Diagram 2: Examples of ground buffering and trunk and limb protection.



(Extract from: AS4970-2009, Appendix D, pg17)

Exploratory excavation

The most reliable way to estimate root disturbance is to find out where the roots are in relation to the demolition, excavation or construction works that will take place (Matheny & Clark, 1998).

Exploratory excavation prior to commencement of construction can help establish the extent of the root system and where it may be appropriate to excavate or build. This also allows management decisions to be made and allows time for redesign works if required.

Any exploratory excavation within the allocated TPZ is to be undertaken with due care of the roots. Minor exploration is possible with hand tools. More extensive exploration may require the use of high pressure water or air excavation techniques. Either hydraulic or pneumatic excavation techniques will safely expose tree roots; both have specific benefits dependent on the situation and soil type. An arborist is to be consulted on which system is best suited for the site conditions.

Substantial roots are to be exposed and left intact.

Once roots are exposed decisions can be made regarding the management of the tree. Decisions will be dependent on the tree species, its condition, its age, its relative tolerance to root loss, and the amount of root system exposed and requiring pruning.

Other alternative measures to encroaching the TPZ may include boring or tunnelling.

How to determine the diameter of a substantial root

The size of a substantial root will vary according to the distance of the exposed root to the trunk of the tree. The further away from the trunk of a tree that a root is, the less significant the root is likely to be to the tree's health and stability.

The determination of what is a substantial root is often difficult because the form, depth and spread of roots will vary between species and sites. However, because smaller roots are connected to larger roots in a framework, there can be no doubt that if larger roots are severed, the smaller roots attached to them will die. Therefore, the larger the root, the more significant it may be.

Gilman (1997) suggests that trees may contain 4-11 major lateral roots and that the five largest lateral roots account (act as a conduit) for 75% of the total root system.

These large lateral roots quickly taper within a distance to the tree, this distance is identified as the Structural Root Zone (SRZ). Within the SRZ distance, all roots and the soil surrounding the roots are deemed significant.

No root or soil disturbance is permitted within the SRZ.

In the area outside the SRZ the tree may tolerate the loss of one or a number of roots. The table below indicates the size of tree roots, outside the SRZ that would be deemed substantial for various tree heights. The assessment of combined root loss within the TPZ would need to be undertaken by an arborist on an individual basis because the location of the tree, its condition and environment would need to be assessed.

Table 1: Estimated significant root sizes outside SRZ

Height of tree	Diameter of root
Less than 5m	≥ 30mm
Between 5m - 15m	≥ 50mm
More than 15m	≥ 70mm

References

- Bernatzky, A. 1978. *Tree Ecology and Preservation*. New York: Elsevier Publishing.
- British Standard 5837. 1991. *Guide for Trees in relation to construction*. British Standards Institute.
- Gilman, E. F. 1997. *Trees for Urban and Suburban Landscapes*. Delmar.
- Harris, R. W, Clark J.R. & Matheny N.P. 1999. *Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines, Third Edition*. Prentice - Hall, New Jersey.
- Helliwell, D. R. 1985. *Trees on Development Sites*. Arboricultural Association UK.
- Matheny, N. & Clark, J. R. 1998. *Trees and development – A technical guide to preservation of trees during land development*. International Society of Arboriculture, Publishers.
- Mattheck, C. & Breloer, H. 1994. *The Body Language of Trees* HMSO
- Mattheck C. 2002. *Tree Mechanics*, Forschungszentrum Karlsruhe GMBH
- Tattar, T. A. 1989. *Diseases of Shade Trees*, 2nd ed. San Diego: Academic Press.
- Watson, G. W. & Himelick, E. B. 1997. *Principals and Practices of Planting Trees and Shrubs*. International Society of Arboriculture.

Construction Guidelines

The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the retained trees.

- The Tree Protection Zone (TPZ) is fenced and clearly marked at all times. The actual fence specifications should be a minimum of 1.2 - 1.5 metres of chain mesh or like fence with 1.8 meter posts (e.g. treated pine or star pickets) or like support every 3-4 metres and a top line of high visibility plastic hazard tape. The posts should be strong enough to sustain knocks from on site excavation equipment. This fence will deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Note: There are many different variations on the construction type and material used for TPZ fences, suffice to say that the fence should satisfy the responsible authority.
- Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project. Members of the project team need to interact with each other to minimise the impacts to the trees, either through design decisions or construction practices. The importance of tree preservation must be communicated to all relevant parties involved with the site.
- The consultant arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.
- A layer of organic mulch (woodchips) to a depth of no more than 100mm should be placed over the root systems within the TPZ of trees, which are to be retained so as to assist with moisture retention and to reduce the impact of compaction.
- No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.
- Where machinery is required to operate inside the TPZ it must be a small skid drive machine (i.e Dingo or similar) operating only forwards and backwards in a radial direction facing the tree trunk and not altering direction whilst inside the TPZ to avoid damaging, compacting or scuffing the roots.
- Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the root zone of any tree.
- Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.
- Supplementary watering should be provided to all trees through any dry periods during and after the construction process. Proper watering is the most important maintenance task in terms of successfully retaining the designated trees. The areas under the canopy drip lines should be mulched with woodchip to a depth of no more than 100mm. The mulch will help maintain soil moisture levels. Testing with a soil probe in a number of locations around the tree will help ascertain soil moisture levels and requirements to irrigate. Water needs to be applied slowly to avoid runoff. A daily watering with 5 litres of water for every 30 mm of trunk calliper may provide the most even soil moisture level for roots (Watson & Himelick, 1997), however light frequent irrigations should be avoided. Irrigation should wet the entire root zone and be allowed to dry out prior to another application. Watering should continue from October until April.

Disclaimer

Tree Logic Pty. Ltd.
Unit 4, 21 Eugene Terrace
Ringwood Vic 3134

RE: Arboricultural Consultancy

Copyright notice

©Tree Logic May-23. All rights reserved, except as expressly provided otherwise in this publication.

Although Tree Logic Pty Ltd (ACN 080 021 610) (**Tree Logic**) uses all due care and skill in providing you the information made available in this Report, to the extent permitted by law Tree Logic otherwise excludes all warranties of any kind, either expressed or implied.

To the extent permitted by law, you agree that Tree Logic is not liable to you or any other person or entity for any loss or damage caused or alleged to have been caused (including loss or damage resulting from negligence), either directly or indirectly, by your use of the information (including by way of example, arboricultural advice) made available to you in this report. Without limiting this disclaimer, in no event will Tree Logic be liable to you for any lost revenue or profits, or for special, indirect, consequential or incidental damage (however caused and regardless of the theory of liability) arising out of or related to your use of that information, even if Tree Logic has been advised of the possibility of such loss or damage.

This disclaimer is governed by the law in force in the State of Victoria, Australia.

Reliance

This Report is addressed to you and may not be distributed to, or used or relied on by, another person without the prior written consent of Tree Logic. Tree Logic accepts no liability to any other person, entity or organisation with respect to the content of this Report unless that person, entity or organisation has first agreed in writing to the terms upon which this Report may be relied on by that other person, entity or organisation.

Report Assumptions

The following qualifications and assumptions apply to the Report:

- Any legal description provided to Tree Logic is assumed to be correct. Any titles and ownerships to any property are assumed to be correct. No responsibility is assumed for matters outside of Tree Logic's control.
- Tree Logic assumes that any property or project is not in violation of any applicable codes, ordinances, statutes or other local, state or federal government regulations.
- Tree Logic shall take care to obtain all information from reliable sources. All data shall be verified insofar as possible; however Tree Logic can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under Tree Logic's control.
- No Tree Logic employee or contractor shall be required to give testimony or to attend court by reason of the Report unless subpoenaed or subsequent contractual arrangements are made, including payment of an additional fee for such services.
- Loss of the report or alteration of any part of the report not undertaken by Tree Logic invalidates the entire Report and shall not be relied upon by any party.
- The Report and any values expressed therein represent the opinion of Tree Logic's consultant and Tree Logic's fee is in no way conditional upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
- Sketches, diagrams, graphs and photographs used in the Report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural drawings, reports or surveys.
- Unless expressed otherwise: i) Information contained in the Report will cover those items that were outlined in the project brief or that were examined during the assessment and reflect the condition of those items at the time of inspection; and ii) The inspection is limited to visual examination of accessible components without dissection, excavation or probing unless otherwise stipulated.
- There is no warranty or guarantee, expressed or implied by Tree Logic, that the problems or deficiencies of the plants or site in question may not arise in the future.
- All instructions (verbal or written) that define the scope of the Report have been included in the Report and all documents and other materials that the Tree Logic consultant has been instructed to consider or to take into account in preparing the Report have been included or listed within the Report.
- The Report is strictly limited to the matters stated in it and does not apply by implication to any other matters.
- To the writer's knowledge all facts, matter and all assumptions upon which the Report proceeds have been stated within the body of the report and all opinion contained within the report will be fully researched and referenced and any such opinion not duly researched is based upon the writer's experience and observations.