Greenwood Consulting P/L

[redacted]

For

Macquarie Corporate Holdings Pty Ltd

Site location

1120 Thompsons Road
Cranbourne West

Report type

Arboricultural
Construction Impact Assessment

Prepared by

Daniel van Kollenburg
Dip. App. Sci. (Hort)
Grad. Cert. Arboriculture

Tuesday, 3 August 2021

Ref: 6045 210803 CIR KLM Evans Cranbourne West 280 Rd

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1. Summary

This report was commissioned by Ms. Jessica Mulligan of KLM Spatial on behalf of Macquarie Corporate Holdings Pty Ltd to assess the condition of forty-three trees located on or adjacent to 1120 Thompsons Road, Cranbourne West and to evaluate the impacts on these trees arising from the proposed installation of electrical cable.

Of those trees assessed:

- Fourteen trees are of high retention value.
- Eleven trees are of moderate retention value.
- Fourteen trees are of very low to low retention value.
- Four trees are recommended for removal based on the assessment of their health and/or structure.

All of the assessed trees are to be removed to install the electrical cable and to provide vehicle access to a battery that is proposed on the adjoining property.

2. Document control

File reference	File type	Modifications	Date
6045 210707	*CIR*	Original document. Construction impact assessment for forty-five trees.	07/07/2021
6045 210716	*CIR*	Changes to address on title page. Additional site information added to Section 11.	16/07/2021
6045 210803	*CIR*	Removal of any reference to trees outside of works zone (formerly Trees 3 and 4).	03/08/2021

3. Introduction

This report was commissioned by Ms. Jessica Mulligan of KLM Spatial on behalf of Macquarie Corporate Holdings Pty Ltd to assess the condition of forty-three trees located on or adjacent to 1120 Thompsons Road, Cranbourne West and to evaluate the impacts on these trees arising from the proposed development on this site.

Specifically the report addresses the following issues:

- The health and structural condition of the trees.
- The suitability of these trees for retention on the site in light of the proposed development.
- The impact of the development on these trees.
- Recommendations for the protection of these trees.

This report is based, in part, on the plans provided and the accuracy of these plans is assumed. Inaccuracies in the plans provided may invalidate all or parts of this report.

The location of services within the site is not known and the possible impact of any services installation on the retained trees at this site is not included within this report.

The site was inspected by Dan van Kollenburg of this office on Wednesday, 28 June 2021.

4. Documents reviewed

The following documents were reviewed in the preparation of this report.

Date	Title	Author	Company
21/06/2021	Cable Site Plan (Sheet 1 of 2)	Not stated	KLM Spatial
21/06/2021	Cable Site Plan (Sheet 2 of 2).	Not stated	KLM Spatial

5. Scope

Only those trees as specified by Ms. Jessica Mulligan of KLM Spatial were assessed as part of this report. All other trees are outside of the works area and those areas offset either side of the proposed cable location.

6. Site context

This site is located within a Urban Growth Zone – Schedule 1 (UGZ1) and a Farming Zone _ Schedule 2 (FZ2) within the municipal area of Casey.

There are no town planning overlays attached to the subject site affecting vegetation.

7. Notes

1. The column label "**ID"** is used in all the tables throughout this report. This refers to the tree identification number and to the tree numbering found on the "Site plan". This number is the same as the **"Tree ID"** found in the "Tree data" section of the report.
2. Trees 3, 4 and 39 were not shown on the survey provided.
    a. These trees have been added to the enclosed site plans based on measurements of their location taken in the field from surveyed trees.
    b. The location of these trees and the estimation of construction impact for these trees are approximate only.

8. Methodology

Each tree was assessed using the Visual Tree Assessment (VTA), as devised by Claus Mattheck. The assessment consists of 3 stages and compares the tree being inspected to a notionally healthy, vigorous and defect free tree.

The 3 stages of VTA are

1. Visual inspection of the tree for defect symptoms and overall vitality. If there are no signs of any problems the assessment is concluded.
2. If a defect is suspected on the basis of the symptoms, the presence or absence of that defect must be confirmed by thorough examination.
3. If the defect is confirmed, it must be quantified and the strength of the remaining part of the tree evaluated.

It should be noted that a visual tree assessment is visual only. The quantification and evaluation (stage 3) may be beyond the scope of a visual inspection and require further investigation including a separate climbing assessment.

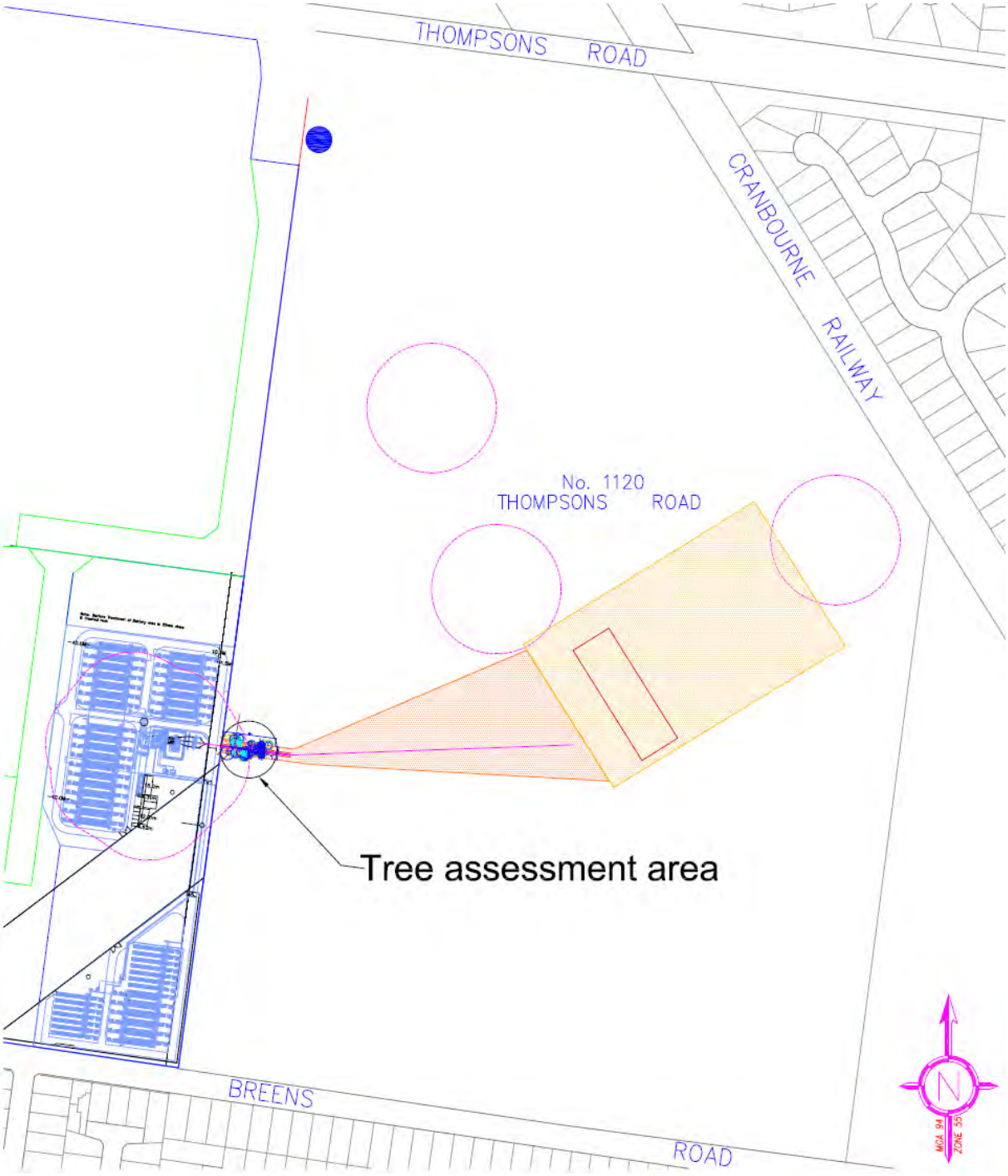
Tree heights were measured using a laser range finder (TruPulse 360).

Trunk diameter (DBH) was measured using a surveyor's diameter tape at 1.4 m above ground level.

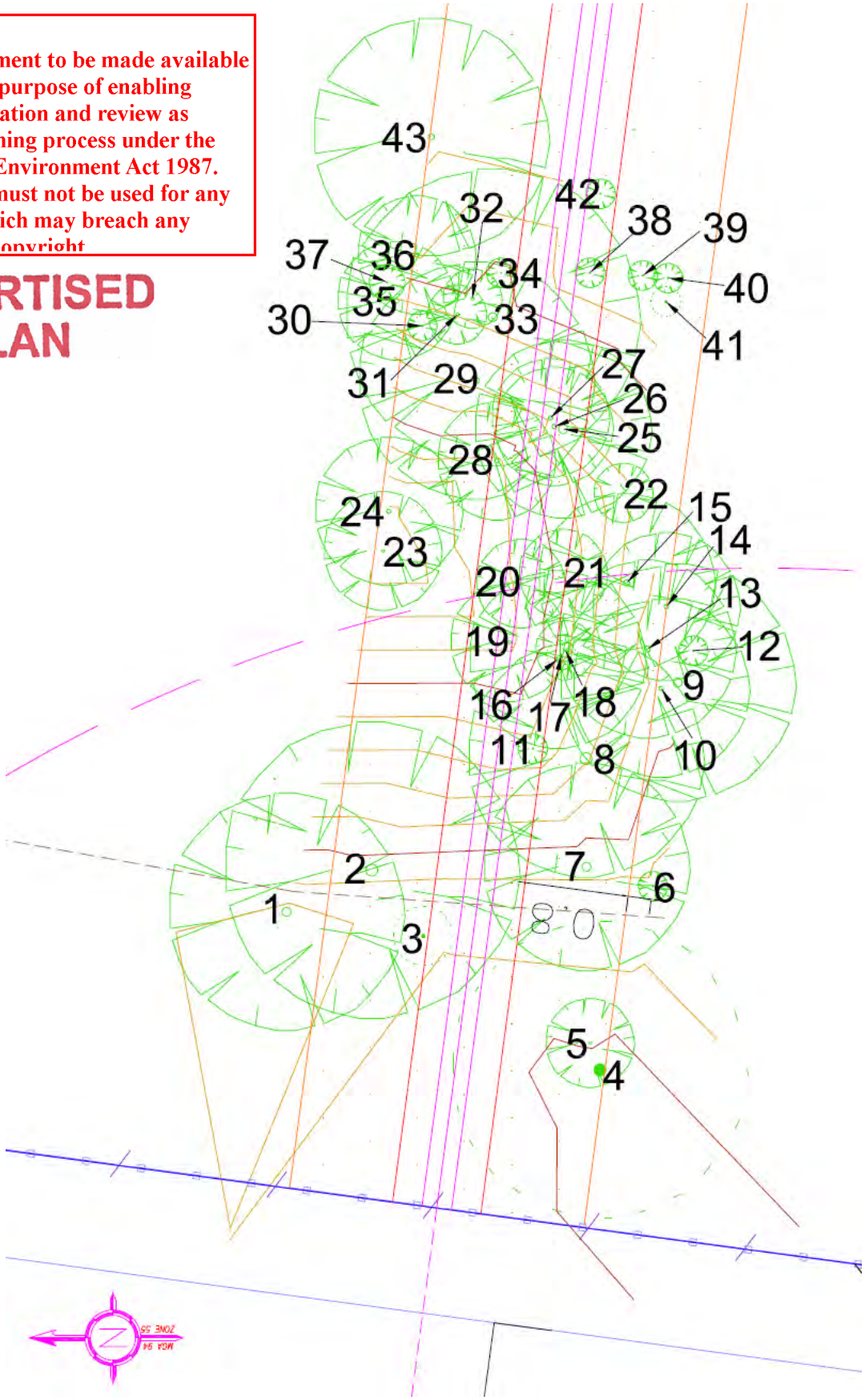
If a tree could not be accessed, the height and DBH were estimated.

The photography used in this report was captured using a Fujifilm Finepix HS 20 Digital camera.

9. Site plan



9.1. Stie plan – Tree detail



10. Tree summary data

This table contains a summary of data pertaining to all trees shown and numbered on the enclosed feature and levels survey.

Underlined and italicised species names have not been assessed. Generally these trees are <5m tall, not found or stumps. The construction impact values are blank for these records.

1. **Retention value**: The retention value of the tree to the site.
    a. Tree number and species name are **Bold** for High and Very high values trees.
2. **Retained?:** Indicates whether the tree is proposed to be retained on the site.
3. **Construction impact:** Indicates the impact of the proposed development on the tree.
    a. **None:** Works do not intrude onto the tree's TPZ.
    b. **Low:** Construction intrusion is less than 10% of TPZ and contiguous area exists to compensate for any loss.
    c. **Moderate:** Construction intrusion exceeds 10% of TPZ but construction methods or other factors make tree retention possible.
    d. **High:** Construction intrusion is excessive and tree retention is generally considered not possible within the development as currently proposed.
    e. **Blank:** The tree has not been assessed.
4. **Location:** Whether the tree is located on the site or adjacent to the site.
    a. **Site:** the tree is located on the site.
    b. **Off site:** the tree is located on land adjoining the site.
        i. Trees in this category should generally be preserved without significant impact.

ID:	Genus / Species:	Retention Value:	Retained?:	Construction Impact:	Location:	SRZ:	TPZ:	Height (m) / Trunk circ (cm):
1	**Eucalyptus camaldulensis**	High	Removed	High	Site	2	3.5	12/91
10	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2	8/47
11	Acacia implexa	Low	Removed	High	Site	1.5	2	4/13
12	Acacia paradoxa	Very low	Removed	High	Site	1.5	2	2/22
13	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.6	2.4	11/63
14	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2	11/47
15	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.7	2.6	11/69
16	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	11/50
17	Acacia sp.	Remove.	Removed	High	Site	1.5	2	5/31
18	Eucalyptus camaldulensis	Low	Removed	High	Site	1.5	2	9/31
19	Eucalyptus camaldulensis	Low	Removed	High	Site	1.5	2	7/38
2	**Eucalyptus camaldulensis**	High	Removed	High	Site	2.1	4	12/104
20	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	8/38
21	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	8/38
22	Acacia paradoxa	Low	Removed	High	Site	1.5	2	3/38

ID:	Genus / Species:	Retention Value:	Retained?:	Construction Impact:	Location:	SRZ:	TPZ:	Height (m) / Trunk circ (cm):
23	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	8/41
24	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.6	2.5	13/66
25	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2	11/53
26	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2	11/50
27	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2	10/47
28	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.8	2.9	12/75
29	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.5	2.3	12/60
3	Acacia sp.	Remove.	Removed	High	Site	1.5	2	5/38
30	Eucalyptus camaldulensis	Low	Removed	High	Site	1.5	2	7/28
31	Eucalyptus camaldulensis	Low	Removed	High	Site	1.5	2	11/53
32	Eucalyptus camaldulensis	Low	Removed	High	Site	1.5	2	10/41
33	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.9	3.2	12/85
34	Acacia paradoxa	Very low	Removed	High	Site	1.5	2	2/28
35	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	13/53
36	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	11/47
37	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	10/41
38	Acacia paradoxa	Very low	Removed	High	Site	1.5	2	2/28
39	Acacia paradoxa	Very low	Removed	High	Site	1.5	2	2/28
4	Acacia sp.	Remove.	Removed	High	Site	2.5	5.3	8/138
40	Kunzea ericoides	Low	Removed	High	Site	1.5	2	3/25
41	Leptospermum sp.	Remove.	Removed	High	Site	1.5	2	3/22
42	Kunzea ericoides	Low	Removed	High	Site	1.5	2	3/28
43	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.7	2.8	11/72
5	Eucalyptus camaldulensis	Moderate	Removed	High	Site	1.5	2	7/38
6	Acacia paradoxa	Low	Removed	High	Site	1.5	2	2/22
7	**Eucalyptus camaldulensis**	High	Removed	High	Site	2.2	4.2	19/110
8	**Eucalyptus camaldulensis**	High	Removed	High	Site	2	3.6	12/94
9	**Eucalyptus camaldulensis**	High	Removed	High	Site	1.8	3	10/79

Total number of tree/s referred to in this report(Total): 43

11. Proposed development

The assessed trees are located along the western boundary of 1120 Thompsons Road. These trees were planted on a man-made mound for the purpose of screening the facility from the adjoining properties.

A cable is proposed through the assessed trees. The cable will connect batteries to the power station on 1120 Thompsons Road. The trench for the cable will be one metre wide and 1.5 metres deep. A 10-metre clearance zone is required for vehicle access in the area of the cable. The vehicle access area will be 10 metres wide, measured at 5 metres either side of the centre of the trench required to install the cable. All vegetation as shown on the enclosed site plans is to be removed as part of the proposed works (except Trees 3 and 4).

The location of the cable and vehicle access track was chosen because it the most efficient route to the proposed battery and will avoid more densely vegetated areas along the western property boundary of 1120 Thompsons Road.

This report identifies those trees located within or near to the 10-metre clearance zone.

12. Construction impact

The following trees are regarded as being suitable for retention and are located within close proximity to elements of the proposed development. The successful retention of those trees that are proposed to be retained may require additional care and the adoption of the following recommendations.

Note: ***Construction Proximity*** of 0.1 indicates construction over or immediately adjacent to the tree.

ID	Genus / species	DBH	SRZ	TPZ	TPZ	ConP	Ret Value	Retained?
The following 39 tree/s are shown as Removed on the plans provided.								
1	*Eucalyptus camaldulensis*	29	2	3.5	= TPZ	1.3	High	Removed
10	*Eucalyptus camaldulensis*	15	1.5	2.0	= TPZ	0.2	High	Removed
11	*Acacia implexa*	4	1.5	2.0	= TPZ	0.1	Low	Removed
12	*Acacia paradoxa*	7	1.5	2.0	= TPZ	1.1	Very low	Removed
13	*Eucalyptus camaldulensis*	20	1.6	2.4	= TPZ	0.1	High	Removed
14	*Eucalyptus camaldulensis*	15	1.5	2.0	= TPZ	0.1	High	Removed
15	*Eucalyptus camaldulensis*	22	1.7	2.6	= TPZ	0.1	High	Removed
16	*Eucalyptus camaldulensis*	16	1.5	2.0	= TPZ	0.1	Moderate	Removed
18	*Eucalyptus camaldulensis*	10	1.5	2.0	= TPZ	0.1	Low	Removed
19	*Eucalyptus camaldulensis*	12	1.5	2.0	= TPZ	0.1	Low	Removed
2	*Eucalyptus camaldulensis*	33	2.1	4.0	= TPZ	0.1	High	Removed
20	*Eucalyptus camaldulensis*	12	1.5	2.0	= TPZ	0.1	Moderate	Removed
21	*Eucalyptus camaldulensis*	12	1.5	2.0	= TPZ	0.1	Moderate	Removed
22	*Acacia paradoxa*	12	1.5	2.0	= TPZ	0.1	Low	Removed
23	*Eucalyptus camaldulensis*	13	1.5	2.0	= TPZ	0.1	Moderate	Removed
24	*Eucalyptus camaldulensis*	21	1.6	2.5	= TPZ	0.1	Moderate	Removed
25	*Eucalyptus camaldulensis*	17	1.5	2.0	= TPZ	0.1	High	Removed
26	*Eucalyptus camaldulensis*	16	1.5	2.0	= TPZ	0.1	High	Removed
27	*Eucalyptus camaldulensis*	15	1.5	2.0	= TPZ	0.1	High	Removed
28	*Eucalyptus camaldulensis*	24	1.8	2.9	= TPZ	0.1	High	Removed
29	*Eucalyptus camaldulensis*	19	1.5	2.3	= TPZ	0.	High	Removed

*Continued next page.

ID	Genus / species	DBH	SRZ	TPZ	TPZ	ConP	Ret Value	Retained?
30	*Eucalyptus camaldulensis*	9	1.5	2.0	= TPZ	0.1	Low	Removed
31	*Eucalyptus camaldulensis*	17	1.5	2.0	= TPZ	0.1	Low	Removed
32	*Eucalyptus camaldulensis*	13	1.5	2.0	= TPZ	0.1	Low	Removed
33	*Eucalyptus camaldulensis*	27	1.9	3.2	= TPZ	0.1	Moderate	Removed
34	*Acacia paradoxa*	9	1.5	2.0	= TPZ	0.1	Very low	Removed
35	*Eucalyptus camaldulensis*	17	1.5	2.0	= TPZ	0.1	Moderate	Removed
36	*Eucalyptus camaldulensis*	15	1.5	2.0	= TPZ	0.1	Moderate	Removed
37	*Eucalyptus camaldulensis*	13	1.5	2.0	= TPZ	0.1	Moderate	Removed
38	*Acacia paradoxa*	9	1.5	2.0	= TPZ	0.1	Very low	Removed
39	*Acacia paradoxa*	9	1.5	2.0	= TPZ	0.1	Very low	Removed
40	*Kunzea ericoides*	8	1.5	2.0	= TPZ	0.1	Low	Removed
42	*Kunzea ericoides*	9	1.5	2.0	= TPZ	0.1	Low	Removed
43	*Eucalyptus camaldulensis*	23	1.7	2.8	= TPZ	0.1	Moderate	Removed
5	*Eucalyptus camaldulensis*	12	1.5	2.0	= TPZ	0.1	Moderate	Removed
6	*Acacia paradoxa*	7	1.5	2.0	= TPZ	0.8	Low	Removed
7	*Eucalyptus camaldulensis*	35	2.2	4.2	= TPZ	0.1	High	Removed
8	*Eucalyptus camaldulensis*	30	2	3.6	= TPZ	0.1	High	Removed
9	*Eucalyptus camaldulensis*	25	1.8	3.0	= TPZ	0.7	High	Removed

SRZ: Structural Root Zone. TPZ: Tree Protection Zone. mTPZ: Tree Protection Zone.(Canopy) ConP: Construction Proximity.

Number of trees in this section (total): 39

All trees located in the 10-metre-wide clearance zone are to be removed as part of the proposed development. Six trees are located outside of the clearance zone, and it is unlikely these trees can be retained as the proposed works will occupy more than 10% of the Tree Protection Zones of these trees.

13. Recommendations

The following recommendations should be adopted to ensure the successful retention of those trees that are proposed to be retained.

1. The stumps of those trees that are located on the edge of the vegetation clearance zone should not be pulled out with an excavator to prevent damage to the roots of those trees located outside of the vegetation clearance zone.
2. All works should be confined to the vegetation clearance zone.
3. A qualified arborist should mark up all trees to be removed if the vegetation removal is permitted.

14. Trees shown as removed

The following trees are shown as removed on the plans provided.

ID	Genus / species	Common name	ULE	Ret value
The retention value for the following 14 tree/s is High				
1	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
10	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
13	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
14	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
15	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
2	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
25	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
26	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
27	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
28	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
29	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
7	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
8	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
9	*Eucalyptus camaldulensis*	River Red Gum	> 60	High
The retention value for the following 11 tree/s is Moderate				
16	*Eucalyptus camaldulensis*	River Red Gum	15 - 30	Moderate
20	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
21	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
23	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
24	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
33	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Moderate
35	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Moderate
36	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Moderate
37	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
43	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Moderate
5	*Eucalyptus camaldulensis*	River Red Gum	> 60	Moderate
The retention value for the following 10 tree/s is Low				
11	*Acacia implexa*	Lightwood	5 - 15	Low
18	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Low
19	*Eucalyptus camaldulensis*	River Red Gum	15 - 30	Low
22	*Acacia paradoxa*	Kangaroo Wattle	5 - 15	Low
30	*Eucalyptus camaldulensis*	River Red Gum	5 - 15	Low
31	*Eucalyptus camaldulensis*	River Red Gum	30 - 60	Low
32	*Eucalyptus camaldulensis*	River Red Gum	15 - 30	Low
40	*Kunzea ericoides*	Burgan	15 - 30	Low
42	*Kunzea ericoides*	Burgan	15 - 30	Low
6	*Acacia paradoxa*	Kangaroo Wattle	5 - 15	Low
The retention value for the following 4 tree/s is Very low				
12	*Acacia paradoxa*	Kangaroo Wattle	1 - 5	Very low
34	*Acacia paradoxa*	Kangaroo Wattle	5 - 15	Very low
38	*Acacia paradoxa*	Kangaroo Wattle	1 - 5	Very low
39	*Acacia paradoxa*	Kangaroo Wattle	1 - 5	Very low

*Continued next page.

ID	Genus / species	Common name	ULE	Ret value
The retention value for the following 4 tree/s is Remove.				
17	*Acacia sp.*	Wattle	0	Remove.
3	*Acacia sp.*	Wattle	0	Remove.
4	*Acacia sp.*	Wattle	0	Remove.
41	*Leptospermum sp.*	Tea Tree	0	Remove.
Number of tree/s in this section (Total): 43				

15. Species origin

The origin of the tree species found on the site is set out below.

ID	Genus / species	Health	Structure	ULE	Form	Ret value
The following 39 trees are of Melbourne origin						
1	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
10	*Eucalyptus camaldulensis*	Good	Fair	> 60	Fair	High
11	*Acacia implexa*	Fair	Good	5 - 15	Fair	Low
12	*Acacia paradoxa*	Poor	Fair	1 - 5	Poor	Very low
13	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
14	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
15	*Eucalyptus camaldulensis*	Good	Fair	> 60	Good	High
16	*Eucalyptus camaldulensis*	Fair	Good	15 - 30	Good	Moderate
18	*Eucalyptus camaldulensis*	Good	Good	30 - 60	Good	Low
19	*Eucalyptus camaldulensis*	Fair	Fair	15 - 30	Fair	Low
2	*Eucalyptus camaldulensis*	Good	Fair	> 60	Good	High
20	*Eucalyptus camaldulensis*	Good	Fair	> 60	Good	Moderate
21	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	Moderate
22	*Acacia paradoxa*	Good	Fair	5 - 15	Fair	Low
23	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	Moderate
24	*Eucalyptus camaldulensis*	Fair	Fair	> 60	Good	Moderate
25	*Eucalyptus camaldulensis*	Good	Fair	> 60	Good	High
26	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
27	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
28	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
29	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
30	*Eucalyptus camaldulensis*	Fair	Good	5 - 15	Fair	Low
31	*Eucalyptus camaldulensis*	Good	Good	30 - 60	Good	Low
32	*Eucalyptus camaldulensis*	Fair	Good	15 - 30	Fair	Low
33	*Eucalyptus camaldulensis*	Good	Fair	30 - 60	Fair	Moderate
34	*Acacia paradoxa*	Fair	Fair	5 - 15	Fair	Very low
35	*Eucalyptus camaldulensis*	Good	Good	30 - 60	Good	Moderate
36	*Eucalyptus camaldulensis*	Good	Good	30 - 60	Good	Moderate
37	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	Moderate
38	*Acacia paradoxa*	Poor	Fair	1 - 5	Poor	Very low
39	*Acacia paradoxa*	Poor	Fair	1 - 5	Poor	Very low
40	*Kunzea ericoides*	Good	Fair	15 - 30	Fair	Low
42	*Kunzea ericoides*	Good	Good	15 - 30	Good	Low
43	*Eucalyptus camaldulensis*	Good	Fair	30 - 60	Fair	Moderate
5	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	Moderate
6	*Acacia paradoxa*	Fair	Fair	5 - 15	Fair	Low
7	*Eucalyptus camaldulensis*	Good	Fair	> 60	Good	High
8	*Eucalyptus camaldulensis*	Good	Good	> 60	Good	High
9	*Eucalyptus camaldulensis*	Good	Fair	> 60	Fair	High

*Continued next page.

ID	Genus / species	Health	Structure	ULE	Form	Ret value
The following 4 trees are of Australian origin						
17	*Acacia sp.*	Dead	Very poor	0	Very poor	Remove.
3	*Acacia sp.*	Dead	Poor	0	Very poor	Remove.
4	*Acacia sp.*	Dead	Poor	0	Very poor	Remove.
41	*Leptospermum sp.*	Dead	Fair	0	Very poor	Remove.
There are 43 trees in this section (total).						

16. Trees recommended for removal

The following trees are recommended for removal generally on the basis of poor, or worse, health and/or structure.

ID	Genus / species	Common name	ULE	Reason:	Ret value
The following 4 tree/s are shown as Removed on the plans provided.					
3	*Acacia sp.*	Wattle	0	Health ULE.	Remove.
4	*Acacia sp.*	Wattle	0	Health ULE.	Remove.
17	*Acacia sp.*	Wattle	0	Health ULE.	Remove.
41	*Leptospermum sp.*	Tea Tree	0	Health ULE.	Remove.
Number of tree/s in this section (Total): 4					

17. Weed species

No arboreal weed species were assessed on this site.

18. References

Coder, K.D 1996, Construction Damage Assessments, University of Georgia http://www.forestry.uga.edu/warnell/service/library/for96-039a/index.html

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19. Appendix 1 - Tree protection guidelines

The following tree protection guidelines should be observed as appropriate. Where it is not possible to comply with these recommendations alternative arrangements should be decided with a qualified arborist.

1. A site specific Tree Protection Report should be commissioned prior to the commencement of construction to guide construction activity around any retained trees on or adjacent to the site.
2. Clearly marked as being retained on the site to avoid confusion during the tree removal phase.
3. The stumps of removed trees should be ground out rather than pulled to avoid injury to adjacent trees.
4. Construction specifications should include the plan location of those trees that are to be retained.
5. Penalties should be included in the construction specifications for damage to trees that are to be retained.
6. The trees to be retained should be enclosed with a 1.8 meter high chain link fence supported on steel posts driven 0.6 meters into the ground.

    6.1. Tree protection fencing should be established as shown.

        6.1.1. If tree protection fencing is not detailed in the report it should enclose, at a minimum, the entire **Structural Root Zone** and as much of the **Tree Protection Zone** as possible.

    6.2. Access should be provided by a single gate that should be kept locked at all times except when required for tree inspection or maintenance.

    6.3. Tree protection fencing should be installed following the removal of trees and prior to any other works being commenced.

    6.4. The area inside the fence should be mulched to a depth of 0.15 meters with general arboricultural wood chip mulch or similar.

7. Where construction clearance is required and areas of the Tree Protection Zone cannot be fenced the ground in these areas should be protected from compaction with **Ground Protection.**

   7.1. **Ground Protection** can consist of any constructed platform that prevents point loads on the soil within the Tree Protection Zone. These could include:

      7.1.1. Industrial pallets joined together to form a platform.

      7.1.2. 12 mm plywood joined together to form a platform.

      7.1.3. Planks of timber joined together to form a platform.

   7.2. **Ground Protection** should be constructed with sufficient strength to allow it to survive the entire construction process.

   7.3. **Ground Protection** should be installed following the removal of trees and prior to any other works being commenced.

8. Excavation within the **Structural Root Zone** should be avoided unless absolutely necessary.

   8.1. Any excavation within the **Structural Root Zone** should be performed by hand.

   8.2. Any excavation within or tunnelling under the **Structural Root Zone** should be supervised by a qualified arborist.

   8.3. Any roots encountered from the retained trees should be pruned carefully and cleanly, preferably back to a branch root.

   8.4. Before any roots are pruned the effect of such pruning on the health and structural stability of the tree should be evaluated by a qualified arborist.

9. Excavation within the **Tree Protection Zone** should be avoided where possible.

   9.1. Any excavation within the **Tree Protection Zone** should be performed carefully to minimise root injury.

   9.2. Any roots encountered from the retained trees should be pruned carefully and cleanly, preferably back to a branch root.

   9.3. Before any excavation occurs the effect of such excavation on the health and structural stability of the tree should be evaluated by a qualified arborist.

10. Concrete and other washout or waste disposal areas should be kept well away from trees to be retained.

11. Where automatic irrigation systems are installed the amount of irrigation that is applied should be checked against the requirements of the existing trees on the site.

12. Any pruning works that are required to facilitate construction should be performed by a qualified arborist.

Adapted from Harris, Clark and Matheny (2004)

20. Appendix 2 - Tree data

Note: Where **Retention value** = "**Remove**" only the arboricultural attributes of the tree (i.e. health, structure and ULE) are considered. Other factors that may affect the decision to retain or remove the tree are not considered.

- Where the **'Construction Proximity'** is larger than the **'Tree Protection Zone (TPZ)'** it is probable that the development will have **no significant impact on the health and longevity** of the tree.
- Where the '**Construction Proximity'** is larger than the '**Structural Root Zone (SRZ)'** it is probable that the development will have **no significant impact on the stability** of the tree.
- The following information should be read in conjunction with the **'Explanation of Terms'** and the **'Glossary / Notes'** sections found later in this report.

SRZ (m):	AS 4970-2009 Protection of trees on development sites. (Radius)	Total Number of trees
TPZ (m):	AS 4970-2009 Protection of trees on development sites (Radius)	43
mTPZ (m):	Modification to TPZ as required to protect canopy	
Construction Proximity:	0.1 indicates construction over or immediately adjacent to the tree	

Tree ID: 1

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Good
Width (m):	8	**Health:**	Good
DBH (cm):	29 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

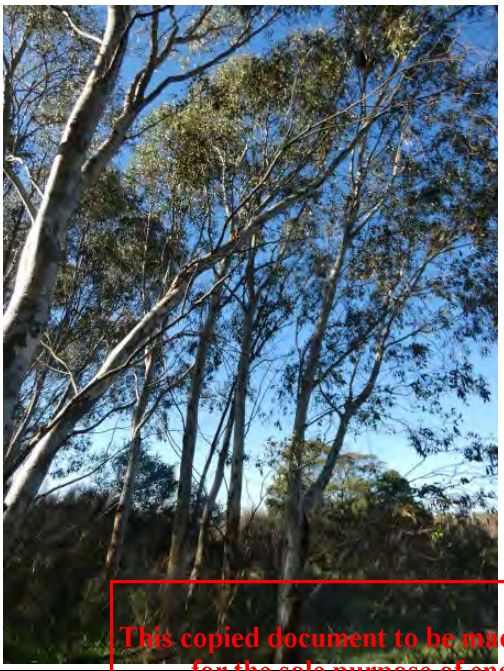
Works Required: N/A.

SRZ (m): 2 **Works priority:** N/A

TPZ (m): 3.5 ***Construction Proximity: 1.3***

mTPZ (m) = TPZ

Tree ID: 10



Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	8	**Structure**	Fair
Width (m):	2	**Health:**	Good
DBH (cm):	15 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Fair

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): 1.5 **Works priority:** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.2***

mTPZ (m) = TPZ

Tree ID: 11

Genus / species: *Acacia implexa*

Evergreen Lightwood

Height (m):	4	**Structure**	Good
Width (m):	2	**Health:**	Fair
DBH (cm):	4 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	5 - 15
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 12

Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	2	**Structure**	Fair
Width (m):	3	**Health:**	Poor
DBH (cm):	7 Estimated	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	1 - 5
Retained?:	Removed	**Form:**	Poor

Retention Value: Very low

Removal / retention reason: N/A.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***1.1***

mTPZ (m) ***= TPZ***

Tree ID: 13

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	20 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): ***1.6*** ***Works priority:*** N/A

TPZ (m): ***2.4*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 14

Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	15 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 15

Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	11	**Structure**	Fair
Width (m):	4	**Health:**	Good
DBH (cm):	22 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.7*** ***Works priority:*** N/A
TPZ (m): ***2.6*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 16

Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	3	**Health:**	Fair
DBH (cm):	16 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	15 - 30
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 17

Genus / species: *Acacia sp.*

Evergreen Wattle

Height (m):	5	**Structure**	Very poor
Width (m):	2	**Health:**	Dead
DBH (cm):	10 Measured	**Maturity:**	Immature
Origin:	Australian	**ULE (years)**	0
Retained?:	Removed	**Form:**	Very poor

Retention Value: Remove.

Removal / retention reason: Health ULE.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** Very low

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 18

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	9	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	10 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Good

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 19

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	7	**Structure**	Fair
Width (m):	1	**Health:**	Fair
DBH (cm):	12 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	15 - 30
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 2

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Fair
Width (m):	7	**Health:**	Good
DBH (cm):	33 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): ***2.1*** ***Works priority:*** N/A

TPZ (m): ***4.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 20

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	8	**Structure**	Fair
Width (m):	2	**Health:**	Good
DBH (cm):	12 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 21

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	8	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	12 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

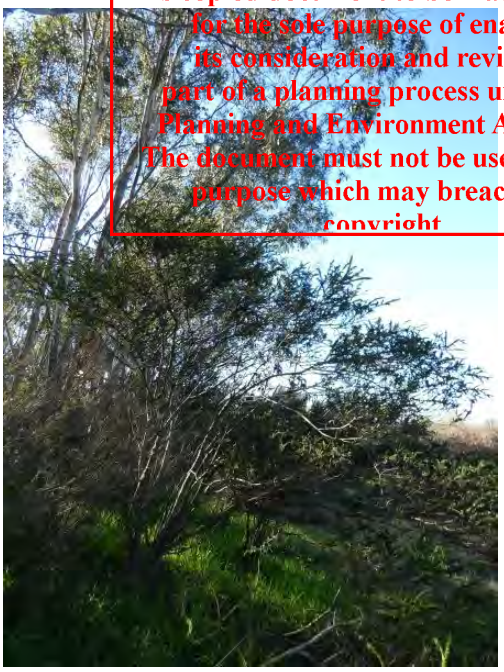
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 22



Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	3	**Structure**	Fair
Width (m):	4	**Health:**	Good
DBH (cm):	12 Estimated	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	5 - 15
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 23

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	8	**Structure**	Good
Width (m):	3	**Health:**	Good
DBH (cm):	13 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 24

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	13	**Structure**	Fair
Width (m):	5	**Health:**	Fair
DBH (cm):	21 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.6*** **Works priority:** N/A

TPZ (m): ***2.5*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 25

Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	11	**Structure**	Fair
Width (m):	3	**Health:**	Good
DBH (cm):	17 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 26

Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	16 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 27

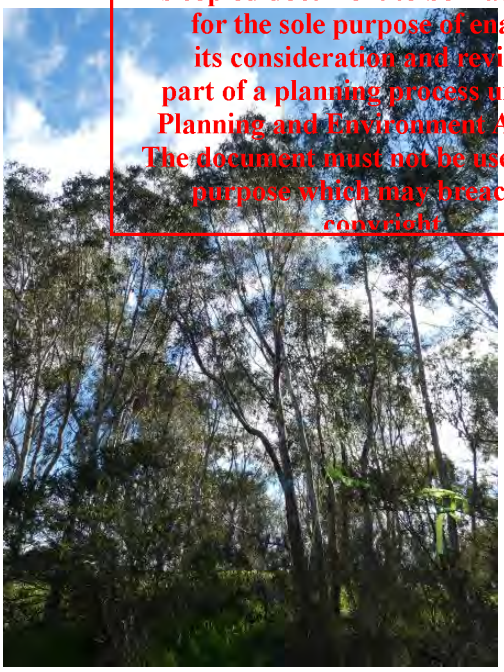
Genus / species: *Eucalyptus camaldulensis*
Evergreen River Red Gum

Height (m):	10	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	15 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High
Removal / retention reason: N/A.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***1.5*** **Works priority:** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***
mTPZ (m) ***= TPZ***

Tree ID: 28



Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Good
Width (m):	5	**Health:**	Good
DBH (cm):	24 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): ***1.8*** ***Works priority:*** N/A

TPZ (m): ***2.9*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 29

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Good
Width (m):	7	**Health:**	Good
DBH (cm):	19 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.3*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 3

Genus / species: *Acacia sp.*

Evergreen Wattle

Height (m):	5	**Structure**	Poor
Width (m):	2	**Health:**	Dead
DBH (cm):	12 Measured	**Maturity:**	Immature
Origin:	Australian	**ULE (years)**	0
Retained?:	Removed	**Form:**	Very poor

Retention Value: Remove.

Removal / retention reason: Health ULE.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** Very low

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 30

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	7	**Structure**	Good
Width (m):	1	**Health:**	Fair
DBH (cm):	9 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	5 - 15
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 31

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	17 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Good

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 32

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	10	**Structure**	Good
Width (m):	1	**Health:**	Fair
DBH (cm):	13 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	15 - 30
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 33

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Fair
Width (m):	7	**Health:**	Good
DBH (cm):	27 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Fair

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): 1.9 ***Works priority:*** N/A

TPZ (m): 3.2 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 34

Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	2	**Structure**	Fair
Width (m):	3	**Health:**	Fair
DBH (cm):	9 Estimated	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	5 - 15
Retained?:	Removed	**Form:**	Fair

Retention Value: Very low

Removal / retention reason: N/A.

Amenity value: Very low

Works Required: N/A.

SRZ (m): 1.5 ***Works priority:*** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 35

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	13	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	17 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Moderate

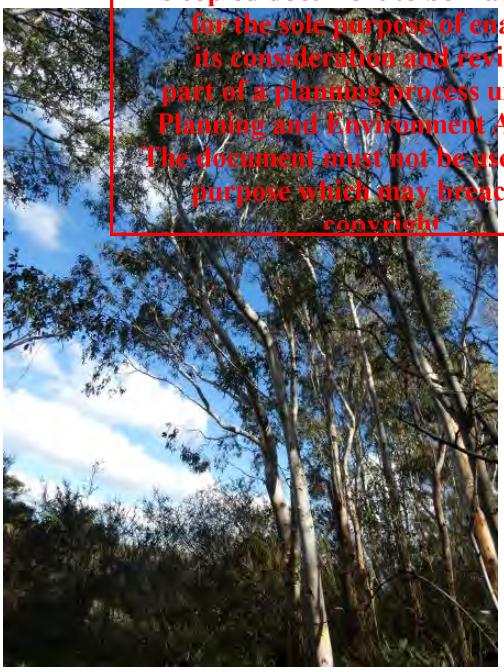
Works Required: N/A.

SRZ (m): 1.5 ***Works priority:*** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 36



Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	11	**Structure**	Good
Width (m):	3	**Health:**	Good
DBH (cm):	15 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): 1.5 ***Works priority:*** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 37

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	10	**Structure**	Good
Width (m):	3	**Health:**	Good
DBH (cm):	13 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): 1.5 ***Works priority:*** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 38

Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	2	**Structure**	Fair
Width (m):	3	**Health:**	Poor
DBH (cm):	9 Estimated	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	1 - 5
Retained?:	Removed	**Form:**	Poor

Retention Value: Very low

Removal / retention reason: N/A.

Amenity value: Very low

Works Required: N/A.

SRZ (m): 1.5 ***Works priority:*** N/A

TPZ (m): 2.0 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 39

Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	2	**Structure**	Fair
Width (m):	2	**Health:**	Poor
DBH (cm):	9 Estimated	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	1 - 5
Retained?:	Removed	**Form:**	Poor

Retention Value: Very low

Removal / retention reason: N/A.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 4

Genus / species: *Acacia sp.*

Evergreen Wattle

Height (m):	8	**Structure**	Poor
Width (m):	9	**Health:**	Dead
DBH (cm):	44 Measured	**Maturity:**	Mature
Origin:	Australian	**ULE (years)**	0
Retained?:	Removed	**Form:**	Very poor

Retention Value: Remove.

Removal / retention reason: Health ULE.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***2.5*** ***Works priority:*** Low

TPZ (m): ***5.3*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 40

Genus / species: *Kunzea ericoides*

Evergreen Burgan

Height (m):	3	**Structure**	Fair
Width (m):	2	**Health:**	Good
DBH (cm):	8 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	15 - 30
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 41

Genus / species: *Leptospermum sp.*

Evergreen Tea Tree

Height (m):	3	**Structure**	Fair
Width (m):	1	**Health:**	Dead
DBH (cm):	7 Measured	**Maturity:**	Mature
Origin:	Australian	**ULE (years)**	0
Retained?:	Removed	**Form:**	Very poor

Retention Value: Remove.

Removal / retention reason: Health ULE.

Amenity value: Very low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 42

Genus / species: *Kunzea ericoides*

Evergreen Burgan

Height (m):	3	**Structure**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	9 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	15 - 30
Retained?:	Removed	**Form:**	Good

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

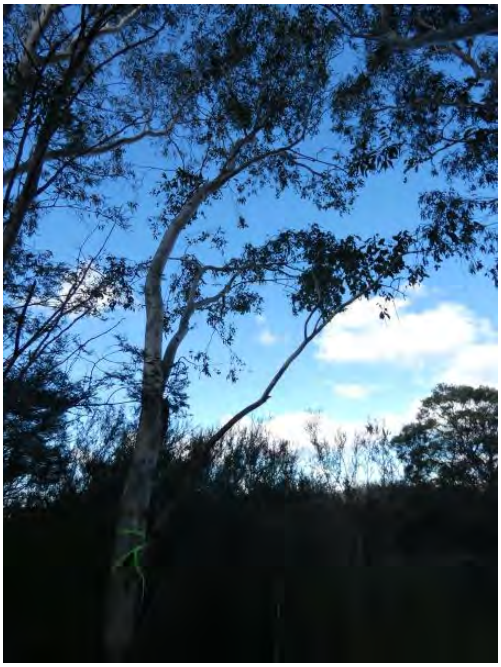
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 43



Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	11	**Structure**	Fair
Width (m):	7	**Health:**	Good
DBH (cm):	23 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	30 - 60
Retained?:	Removed	**Form:**	Fair

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Moderate

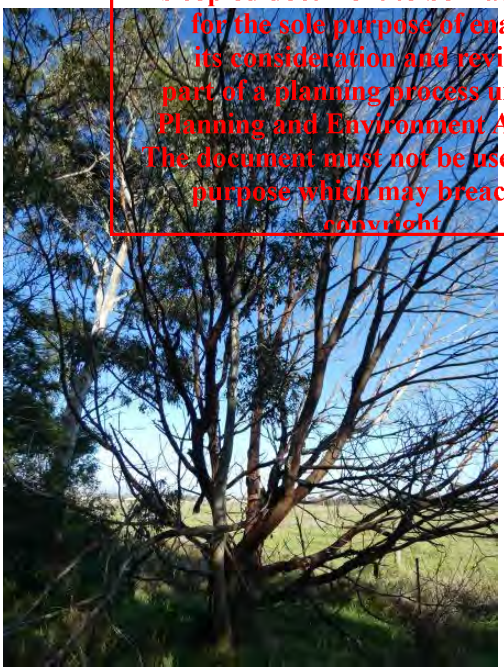
Works Required: N/A.

SRZ (m): ***1.7*** ***Works priority:*** N/A

TPZ (m): ***2.8*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 5



Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	7	**Structure**	Good
Width (m):	1	**Health:**	Good
DBH (cm):	12 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 6

Genus / species: *Acacia paradoxa*

Evergreen Kangaroo Wattle

Height (m):	2	**Structure**	Fair
Width (m):	2	**Health:**	Fair
DBH (cm):	7 Estimated	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	5 - 15
Retained?:	Removed	**Form:**	Fair

Retention Value: Low

Removal / retention reason: N/A.

Amenity value: Low

Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A

TPZ (m): ***2.0*** ***Construction Proximity:*** ***0.8***

mTPZ (m) ***= TPZ***

Tree ID: 7

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	19	**Structure**	Fair
Width (m):	8	**Health:**	Good
DBH (cm):	35 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): ***2.2*** ***Works priority:*** N/A

TPZ (m): ***4.2*** ***Construction Proximity:*** ***0.1***

mTPZ (m) ***= TPZ***

Tree ID: 8

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	12	**Structure**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	30 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Good

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): 2 **Works priority:** N/A

TPZ (m): 3.6 ***Construction Proximity: 0.1***

mTPZ (m) = TPZ

Tree ID: 9

Genus / species: *Eucalyptus camaldulensis*

Evergreen River Red Gum

Height (m):	10	**Structure**	Fair
Width (m):	4	**Health:**	Good
DBH (cm):	25 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years)**	> 60
Retained?:	Removed	**Form:**	Fair

Retention Value: High

Removal / retention reason: N/A.

Amenity value: Moderate

Works Required: N/A.

SRZ (m): 1.8 **Works priority:** N/A

TPZ (m): 3.0 ***Construction Proximity: 0.7***

mTPZ (m) = TPZ

21. Appendix 3 – Arboricultural information

The following sections are presented to provide an introduction to the process of tree root system protection. A trees root system is the critical element to be protected during the development process and if the trees roots are adequately protected then the rest of the tree will generally survive without significant injury.

21.1. Root plate estimation

One of the primary purposes of this report is to estimate the impact of the development on the trees on this site. This is mainly achieved by estimating the extent of the root plate area of the trees that are proposed to be retained and the proportion of this area that is likely to be excised or affected during the construction process.

In this report two elements of the tree root area are described. These are:

21.1.1. Structural Root Zone

This is an estimate of the radius that is likely to encompass the major scaffold roots of the tree. These roots are critical to anchoring the tree and damage to these roots will increase the risk of entire tree failure (i.e. uprooting). This radius is based on AS 4970-2009.

21.1.2. Tree Protection Zone

This is an estimate of the radius that is likely to encompass enough of the smaller absorbing roots to allow the tree to obtain sufficient nutrients and water to allow it to survive in the long term. This is radius is based on AS 4970-2009 and is based on the size of the tree.

Estimation of the likely root plate radius for both methods are based on the DBH (Diameter at Breast Height) of each tree. This is usually measured but where the tree is inaccessible or has numerous trunks a visual estimation may be used. Whether the DBH is estimated or measured is noted within the ”Tree Data” section of the report.

The two elements of each trees’ root zone is transposed over the site survey and building footprint and the degree of root injury is calculated from this.

21.2. Tree rooting patterns

Contrary to common belief, trees usually have a broad flat plate of roots that may extend 1.5 – 3 times the radius of the canopy (Harris, Matheny & Clark, 1999; Coder, 1996; Hitchmough, 1994). Relatively few trees have deep roots and Harris, Matheny and Clark (2004) note that most tree roots will be found in the top 1.0 metre of the soil profile.

While the models used to approximate the size of tree root plates assume a uniformly radial root system, in highly disturbed urban soils root systems often develop in a highly asymmetric manner (Matheny & Clarke, 2004). This may require the modification of the models used where it is likely that the root system is asymmetric.

21.3. Construction impacts

Construction in the vicinity of trees can have several negative impacts on their health, longevity and structural stability. Harris, Matheny and Clark (2004) note that some level of tree root injury or root zone change is almost inevitable during construction around trees and maintain that the goal of tree preservation is to reduce the injury or change to a level that will enable the long term preservation of the retained trees.

Negative impacts can include:

- Root severance from trenching and grading activities. Damage to the transport and absorbing root system may deprive the tree of the ability to absorb nutrients and water and damage to the structural scaffold roots that support the tree may result in instability and uprooting. Depending on the percentage of the root plate affected and proximity to the tree, the affects can range from minor degradation of health through to total root plate failure (i.e. uprooting).
- Compaction and root injury. Most trees require a well aerated and friable soil to allow normal physiological processes to occur and to allow root growth. Soil compaction from pedestrian or vehicular traffic can result in direct injury to the roots, indirect injury through soil drainage changes, reduced soil aeration or decreased soil penetrability. If severe enough soil compaction can lead to a rapid decline in many tree species and may eventually result in instability and uprooting.
- Changes in drainage patterns. Changes in drainage patterns may result from hard surfacing, trenching, land shaping and other construction activities. These can result in either drought stress or waterlogging, both of which can cause a rapid decline in trees and may result in instability and uprooting.

22. Appendix 4 - AS 4970 *-2009*

This report generally conforms to *AS 4970 – 2009 Protection of Trees on Development Sites* except in the following areas.

1. AS 4970 notes that the project arborist should verify the accuracy of feature survey for the subject site.
    a. This is generally not feasible and the feature survey is taken as being an accurate representation of the features of the site.
    b. However if trees are found on the site that are not represented in the feature survey then these trees will be added to the report plans based on a visual estimation of their location.
        i. Accordingly the location of these trees may not be sufficiently accurate for the purposes of the report.
        ii. The location of these trees should verified by a qualified surveyor where appropriate.
2. *AS 4970-2009 Protection of Trees on Development Sites* makes no differentiation between the Tree Protection Zone (TPZ) derived from the trees DBH and the modified TPZ derived from the trees canopy where it extends past the DBH derived TPZ. As the two forms of TPZ are independent a differentiation between the two forms of TPZ needs to be made. In this report:
    a. "TPZ" refers to the DBH derived Tree Protection Zone (12 x DBH) and "mTPZ" pertains to the TPZ where it is modified to account for a canopy that extends beyond the DBH derived TPZ.
    b. The modified Tree Protection Zone (mTPZ) for all trees is taken as being identical to the Tree Protection Zone (TPZ) except where the canopy of the tree extends beyond the TPZ. Where this is the case the TPZ is shown on the site plans and any tree canopy impacts are addressed as required within the report. Otherwise the mTPZ is recorded within this report as "= TPZ".

23. Appendix 5 - Explanation of terms

The assessment of Health, Structure, Condition, U.L.E. (Useful Life Expectancy), Origin, Maturity, Form and Retention value are based on the following definitions. In the case of health and structure these definitions encompass only the more common indicators for these assessments. Other indicators not included in these definitions may lead to the ascribing of a particular health or structure category.

23.1. Origin

The notation of "Origin" is based on the following categories.

Category	Description
Melbourne	Native to the greater Melbourne metropolitan area as defined by Flora of Melbourne (S. G. A. P. M., 1991).
Victorian	Native to Victoria but not the greater Melbourne Metropolitan area.
Australian	Native to Australia but not Victoria.
Exotic	Not native to Australia.

23.2. Maturity

The notation of "Maturity" is based on the following categories.

Category	Description
Immature	Less than 20% of the life expectancy for that tree.
Mature	20 – 80% of the life expectancy for that tree.
Over mature	> 80% of the life expectancy for that tree.

23.3. Works required

The works required listed in this report are of a general nature only and should be reviewed following the completion of any works on the site.

Where a tree is recommended for removal (Recommendation) it is not listed in the Works required section of the report.

23.4. Priority

The priority accorded particular works is based on a projected increased site usage following the completion of a development on the site. The priority is of a general nature only and should be reviewed following the completion of any works on the site.

"Priority" is based on the following categories.

Category	Description
➢ **N/A.**	No tree works are required
➢ **Very low**	Tree works are optional and could be performed at any time..
➢ **Low**	Works should be performed within five years.
➢ **Moderate**	Works should be performed within 3 years.
➢ **High**	Works should be performed within 12 months.
➢ **Urgent**	Works should be performed immediately.

23.5. Retention value (RV)

The Retention value ascribed to each tree in this report is not definitive and should be used as a guide only. Many factors influence the comparative value of a tree and a number of these factors are outside the scope of arboricultural assessment. These factors cannot therefore be addressed in a single rating system.

Retention value is comprised of two parts. These are the Amenity Value of the tree rated as Very Low to Very high and the Useful Life Expectancy (ULE) of the tree.

The Amenity Value of the tree relates to the contribution of the tree to the aesthetic amenity of the area. The primary determinants of amenity value are tree health, size and form.

The Amenity Value is then modified by the ULE of the tree with short ULE values reducing the RV of the tree and long ULE values increasing the RV of the tree.

Trees that are listed on a register of heritage or significant trees are not accommodated within this rating system as these values are often independent from the arboricultural attributes of the tree. Heritage and significant trees may be ascribed a very low retention value despite their listing on any register. Where known, any heritage or significant register listing it will be noted in the report.

RV is assessed on each tree as a single entity. The value of a group of trees is not considered in this context and each tree within the group will be assessed as an individual.

Amenity value is based on the following categories and is ascribed an Amenity Value Value (AVV) ranging from 2 - 10.

Category	Example	AVV
➢ **Very high**	Generally a very large tree that exhibits excellent health and/or form or a tree that is listed on a heritage or significant tree register.	10
➢ **High**	Generally a large tree that exhibits good health and/or form.	8
➢ **Medium**	Generally a medium tree that exhibits good health and/or form. May be a large tree that exhibits fair health and/or form.	6
➢ **Low**	Generally a small tree that exhibits good health and/or form. May be a large or medium tree that exhibits fair or poor health and/or form.	4
➢ **Very low**	Generally a small tree that exhibits poor health and/or form. May be a large or medium tree that exhibits poor, or worse, health and/or form.	2

U.L.E. is based on the following categories each of which have a modifier (ULEM) ranging from 0 – 12.

Category	Example	ULEM
➢ **0**	The tree is dead or almost dead or constitutes an immediate and unacceptable hazard.	0
➢ **0 – 5**	The tree is unlikely to provide useful amenity for longer than 5 years. The tree is in serious decline, poses an unacceptable hazard and/or requires a level of maintenance disproportionate with its' value.	4
➢ **5 – 15**	The tree is unlikely to provide useful amenity for longer than 15 years. The tree may be in serious decline, be a very short lived species, present a moderately elevated hazard and/or require high levels of maintenance.	7
➢ **15 – 30**	The tree is unlikely to provide useful amenity for longer than 30 years.	10

	The tree may be in moderate decline, a short lived species, present a slightly elevated hazard and/or require moderate levels of maintenance.	
➢ **30 – 60**	The tree is likely to provide useful amenity for up to 60 years. The tree may be in fair to good condition, have a moderate life-span, present a low to moderate level of hazard and/or require moderate levels of maintenance.	11
➢ **> 60**	The tree is likely to provide useful amenity for greater than 60 years. The tree may be in good to excellent condition, a long lived species, present a low level of hazard and/or require low levels of maintenance.	12

RV is then derived from the multiplication of AVV by ULEM and the resulting score is categorised as Very high to Very low.

Category	Example	RV value
➢ **Very high**	Every effort should be made to preserve trees in this category	96 - 120
➢ **High**	These trees should be retained if at all possible	72 - 95
➢ **Moderate**	These trees should be retained if they do not overly constrain development on the site.	48 - 71
➢ **Low**	These trees should not create a material constraint on development of the site. These trees should be removed where they conflict with development of the site.	24 - 47
➢ **Very low**	Generally a small tree that exhibits poor health and/or form. May be a large or medium tree that exhibits poor, or worse, health and/or form. These trees should generally be removed.	1 – 23
➢ **Remove**	These trees are not suitable for retention within the site and are recommended to be removed.	0

23.6. Health

Pertains to the health and growth potential of the tree.

The notation of "Health" is based on the following categories.

Category	Example
➢ **Good**	Crown full, with good foliage density. Foliage is entire with average colour, minimal or no pathogen damage. Above average growth indicators such as extension growth, leaf size and canopy density. Little or no canopy die-back. Generally no dead wood on the perimeter of the canopy. Good wound wood development. **Tree exhibits above average health and no works are required.**
➢ **Fair**	Tree may have more than 30% dead wood, or may have minor canopy dieback. Foliage density may be slightly below average for the species. Foliage colour may be slightly lower than average and some discolouration may be present. Typical growth indicators, e.g. extension growth, leaf size, canopy density for species in location. Average wound wood development. **The tree exhibits below average health and remedial works may be employed to improve health.**
➢ **Poor**	Tree may have more than 30% dead wood and canopy die back may be present. Leaves may be discoloured and/or distorted, often small, and excessive epicormic growth may be present. Pathogens and/or stress agents may be present that could lead, or are leading to, the decline of tree. Poor wound wood development. **The tree exhibits low health and remedial works or removal may be required.**
➢ **Very poor**	The tree has more than 30% dead wood. Extensive canopy die back is present. Canopy is very sparse. Pathogens and/or stress agents are present that are leading to the decline of the tree. Very poor wound wood development. **The tree exhibits very low health and remedial works or removal are required.**
➢ **Dead**	**Tree is dead and generally should be removed.**

23.7. Structure

Pertains to the physical structure of the tree including the main scaffold branches and roots. Structure includes those attributes that may influence the probability of major trunk, root or limb failure.

The notation of "Structure" is based on the following categories.

Category	Example
➢ **Good**	The tree has a well-defined and balanced crown. Branch unions appear to be strong with no defects evident in the trunk or the branches. The tree is unlikely to suffer trunk or branch failure under normal conditions. **The tree is considered a good example of the species with a well-developed form.**
➢ **Fair**	The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance and some branch unions may exhibit minor structural faults or have the potential to create faults. If the tree is single trunked, this may be on a slight lean or be exhibiting minor defects. **These defects are not likely to result in catastrophic trunk or branch failure although some branch failure may occur under normal conditions.**
➢ **Poor**	The tree has significant problems in the structure of the scaffold limbs or trunk. It may be lop-sided or have few branches on one side or have large gaps in the crown. Large branches may be rubbing or crossing over. Branch unions may be poor, and faults at the point of attachment or along the branches may be evident. The tree may have a substantial lean. The tree may have suffered significant root damage. The tree may have some degree of basal or trunk damage. **These defects may predispose the tree to major trunk or branch failure.**
➢ **Very poor**	The tree has some very significant problems in the structure of the crown. It may be lop-sided or have few branches on one side or have large gaps in the crown. Branches may be rubbing or crossing over and causing damage to each other. Branch unions may be poor, and faults at the point of attachment or along the branches may be evident. The tree may have a substantial lean. The tree may have suffered major root damage. The tree may have extensive basal or trunk damage. **These defects are likely to predispose the tree to trunk or scaffold limb failure.**

23.8. U.L.E. (Useful Life Expectancy)

U.L.E. pertains to the span of time that the tree might reasonably be expected to provide useful amenity value with an acceptable level of safety at an acceptable cost. Depending on the situation, available financial resources and other factors, two identical trees may be accorded different longevity ratings.

The notation of U.L.E. is based on the following categories.

Category	Example
➢ **0**	The tree is dead or almost dead or constitutes an immediate and unacceptable hazard. **The tree should generally be removed unless other considerations require its' retention.**
➢ **0 – 5**	The tree is unlikely to provide useful amenity for longer than 5 years. The tree is in serious decline, poses an unacceptable hazard and/or requires a level of maintenance disproportionate with its' value. **The tree should generally be removed unless other considerations require its' retention.**
➢ **5 – 15**	The tree is unlikely to provide useful amenity for longer than 15 years. The tree may be in serious decline, be a very short lived species, present a moderately elevated hazard and/or require high levels of maintenance. **The tree could be retained or removed depending on the situation.**
➢ **15 – 25**	The tree is unlikely to provide useful amenity for longer than 25 years. The tree may be in moderate decline, be a short lived species, present a slightly elevated hazard and/or require moderate levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**
➢ **25 – 50**	The tree is likely to provide useful amenity for up to 50 years. The tree may be in fair to good condition, have a moderate life-span, present a low to moderate level of hazard and/or require moderate levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**
➢ **> 50**	The tree is likely to provide useful amenity for greater than 50 years. The tree may be in good to excellent condition, a long lived species, present a low level of hazard and/or require low levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**

24. Form

The notation of “Form” pertains to the aesthetic qualities of the trees live canopy. Generally good form is indicative of a symmetrical, well-balanced canopy although this is dependent on the particular species. Some species naturally develop an asymmetric canopy and in this case a highly irregular canopy might be described as good.

The form of a tree is considered assuming that the tree stands in isolation from any surrounding trees. This may mean that a group of trees that exhibit good form as a group, may be described as having poor form as individuals.

The notation of “Form” is based on the following categories.

Category	Example
➢ **Very good**	An outstanding specimen of that species. Generally a very evenly balanced and symmetrical canopy with no deformation. If the development of that species is naturally irregular then an outstanding specimen of that species.
➢ **Good**	A good specimen of that species. Generally a well balanced and symmetrical canopy with minor deformation. If the development of that species is naturally irregular then a good specimen of that species.
➢ **Fair**	An average specimen of that species. Generally a balanced canopy with some minor to moderate asymmetry. If the development of that species is naturally irregular then an average specimen of that species.
➢ **Poor**	A below average specimen of that species. Generally a moderate to high degree of asymmetry. If the development of that species is naturally irregular then a poor specimen of that species.
➢ **Very poor**	A very poor specimen of that species. Generally a high to extreme degree of asymmetry. If the development of that species is naturally irregular then a very poor specimen of that species.

25. Glossary / notes

Tree Protection Zone (TPZ)	Is based on AS 4970-2009 *Protection of trees on development sites* and defines the soil volume that is likely to be required to encompass enough of the trees absorbing root system to ensure the long term survival of the tree. The radius specified as the TPZ is an estimate of the minimum distance from the tree that excavation or other activities that might result in root damage should occur to avoid negative impacts on the health and longevity of the tree. AS 4970 states that intrusion of up to 10% of the surface area of the TPZ may occur without further assessment or analysis.
Structural Root Zone (SRZ)	Is based on AS 4970-2009 (Protection of trees on development sites) and defines the likely spread of the trees scaffold root system. These roots are the primary anchoring roots for the tree and damage to these roots may render the tree liable to uprooting. SRZ is based on measurement of the trunk above the root flair (AS 4970) However in this report SRZ is based on the measured or estimated DBH and there should be taken as an estimate only. Additional measurement may be required if construction near the SRZ is expected to occur.
Modified Tree Protection Zone (mTPZ)	Is based on the TPZ and includes any requirement to protect the above ground parts of the tree that project beyond the TPZ. However generally the mTPZ will be equal to the TPZ. TPZ extension beyond the TPZ to protect the tree canopy will be shown on the site plan but will not be reflected in the TPZ radius measurements quoted in this report.
DBH (Diameter at Breast Height)	Is the diameter of the tree at approximately 1.4 meters above ground level. Where a trunk is divided at or near 1.4 meters above ground the DBH is generally measured at the narrowest point of the trunk between ground level and 1.4 meters. Alternatively, where a higher level of accuracy is required with multi stemmed trees, DBH is derived from the combined cross sectional area of all trunks. The DBH of all accessible trees is measured unless otherwise stated in the Tree Data section of this report. The DBH of trees on adjoining properties is measured where access can be readily gained to the property, otherwise it is estimated.
Measured	Indicates whether the DBH has been measured or estimated. DBH may be estimated for small low value multi stem trees or trees that are inaccessible.
Retained?	Indicates whether the tree is shown as being removed or retained on the plans provided. This is generally derived from the site plans provided but the removal or retention of trees might be communicated by other means.

Recommendation reason	Pertains to the reason that removal or retention or other works are recommended. Other than trees on adjoining properties or road reserves a reason for retention is usually not given. In this case N/A is used.
Height & width	Tree height is generally measured for moderate, high and very high value trees and is measured with an Impulse Laser infrared range finder. The height of low and very low value trees is usually estimated. Canopy width is estimated unless otherwise stated.
Genus / species	The identification of trees is based on accessible visual characteristics and given that key identifying features are often not available at the time of assessment the accuracy of identification is not guaranteed. Where the species of any tree is not known, **sp.** is used.

26. Practice Note VCAT 2 — Expert Evidence

26.1. Name & address of consultant

Daniel van Kollenburg of 2 Webbs Road, Ferny Creek, Victoria, 3786.

26.2. Qualifications & experience

Daniel van Kollenburg has the following qualifications and experience:

- Diploma of Applied Science (Horticulture).
- Over 12 years experience in arboriculture.
  - 2.5 years as a contract climber with a range of companies.
  - 10 years as a consulting arborist.

26.3. Area of expertise

Daniel van Kollenburg provides specialist technical advice in the field of arboriculture. This includes the provision of technical expertise relating to problem diagnosis, management programs, tree appraisal and valuation and the relationship between trees and built structures.

26.4. Expertise to report

Daniel van Kollenburg has, by training, education, experience and research, considerable knowledge relating to the care, maintenance and management of trees in a wide variety of contexts.

Significant areas of operation and expertise include the provision of tree and built structure conflict reports, hazard assessment, tree condition appraisal and broad scale tree inventories.

Considerable effort is expended in research to remain current with the latest advances in all areas relating to tree care.

26.5. Declaration

“I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from the Tribunal.”

27. Assumptions & limiting conditions

1. R. Greenwood Consulting Pty Ltd (herein after referred to as Greenwood Consulting) contracts with you on the basis that you promise that all legal information which you provide, including land title and ownership of other property, are correct. Greenwood Consulting is not responsible for verifying or ascertaining any of these issues.
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8. Sketches, diagrams, graphs and photographs in this report are intended as visual aids, are not to scale unless stated to be so, and must not be construed as engineering or architectural reports or as surveys.
9. Unless expressly stated otherwise:
   - 9.1. The information in this report covers only those items which were examined and reflects the condition of those items at the time of the inspection.
   - 9.2. Our inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, express or implied, that even if they were not present during our inspection, problems or defects in plants or property examined may not arise in the future.
10. This agreement supersedes all prior discussions and representations between Greenwood Consulting and the client on the subject, and is the entire agreement and understanding between us.

Yours sincerely,

[redacted]