

Greenwood Consulting ^{P/L}

Address: PO Box 130 Emerald Vic 3782
Phone: (03) 5968 6626
Fax: (03) 8669 4302
Mobile: 0419 581 058
Email: roger.g@rgc.net.au
A.B.N. 54 170 171 876
Web: www.rgc.net.au



For

Darul Ulum College of Victoria

Site location

17 Baird Street, Fawkner

Report type

Arboricultural Construction Impact Assessment

Prepared by

Peter Bourke

AQF Cert. III. Arb.
Dip. Arb.

Friday, 24 February 2017

Ref: 4188 170224 CIR Darul Ulum College Baird Fawkner 17 St.Docx

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Table of contents

1. Summary4
 1.1. Methodology 4
2. Document control5
3. Introduction.....5
4. Documents reviewed5
5. Scope6
6. Site context.....6
7. Notes6
8. Site plan - Existing7
9. Site plan - Proposed8
10. Tree summary data9
11. Construction impact 11
 11.1. Trees 34 & 35..... 11
12. Recommendations 13
 12.1. Trees 34 & 35..... 13
13. Trees shown as removed 14
14. Trees recommended for removal 14
15. Works required..... 14
16. References..... 15
17. Appendix 1 - Tree protection guidelines 15
18. Appendix 2 - Tree data 17
19. Appendix 3 – Arboricultural information 25
 19.1. Root plate estimation 25
 19.1.1. Structural Root Zone..... 25
 19.1.2. Tree Protection Zone 25
 19.2. Tree rooting patterns 25
 19.3. Construction impacts..... 26
20. Appendix 4 - AS 4970 -2009 27
21. Appendix 5 - Explanation of terms 28
 21.1. Origin 28
 21.2. Maturity 28
 21.3. Works required 28
 21.4. Priority 29
 21.5. Retention value (RV) 29
 21.6. Health 32
 21.7. Structure 33

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

21.8.	U.L.E. (Useful Life Expectancy)	34
22.	Form	35
23.	Glossary / notes.....	36
24.	Practice Note VCAT 2 — Expert Evidence	38
24.1.	Name & address of consultant	38
24.2.	Qualifications & experience.....	38
24.3.	Area of expertise	38
24.4.	Expertise to report.....	38
24.5.	Declaration	38
25.	Assumptions & limiting conditions	39

ADVERTISED PLAN

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

1. Summary

This report was commissioned by Mr. Mohamed Aboothahir of Darul Ulum College of Victoria to assess the condition of 35 trees located on site at 17 Baird Street, Fawkner and to evaluate the impacts on these trees arising from the proposed development on this site.

Of the 35 trees assessed at this site:

1. Tree 34 is of low retention value and Tree 35 is of moderate retention value.
 - a. These trees will incur a moderate impact from the proposed development however existing conditions and construction methodologies are likely to enable these trees to remain viable.
2. Nineteen (19) trees (1 – 17, 31 & 33) are shown as removed on the plans provided.
 - a. Two (2) of these trees (4 & 6) are of high retention value.
 - b. Three (3) of these trees (5, 33 & 35) are of moderate retention value.
 - c. Fifteen (15) of these trees (1, 2, 3, 7-17 & 31) are of low retention value.
3. Fourteen (14) of these trees (18-30 & 32) are less than 5 metres in height and are not considered significant to the site.
 - a. These trees have not been assessed as part of this report.

Several alterations and additions to the existing Darul Ulum College carpark are proposed at this site. It is understood that the existing car parking along the south boundary will remain unchanged and that the proposed alterations and additions will be primarily to the north and west of the existing car parking.

1.1. Methodology

Peter Bourke of this office conducted a visual assessment of 35 trees on site at 17 Baird Street, Fawkner. This assessment was carried out from the ground.

The following fields of information were documented:

1. Genus / species & common name.
2. Height, width and DBH (Diameter at Breast Height).
3. Origin of the species (Native, endemic, or exotic).
4. Assessment of health, structure, and general condition.
5. Estimate of Useful Life Expectancy (ULE).
6. Assessment of the amenity value to the site and canopy form.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Photos were taken of each tree on site and trees located within 4m of the site boundary on adjoining properties.

DBH measurements were taken using a diameter tape.

Distances and tree heights were measured using a laser range finder and inclinometer.

**ADVERTISED
PLAN**

2. Document control

File reference	File type	Modifications	Date
4188 170224	CIR	Original document. Construction impact assessment for 35 trees.	24/02/2017

3. Introduction

This report was commissioned by Mr. Mohamed Aboothahir of Darul Ulum College of Victoria to assess the condition of 35 trees located on site at 17 Baird Street, Fawkner 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 Peter Bourke of this office on Friday the 24th of February, 2017.

4. Documents reviewed

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

Date	Title	Author	Company
July 2013	Feature and Levels Survey (Ref: 4932FL1)	BW/JD.	Chris Runting & Associates.
16/11/2016	Site Plan & Scope of Works. (Ref: 1520 A001)	PM.	Design Core Architects P/L.
16/11/2016	Existing Conditions and Demolition Plan. (Ref: 0000 A002)	PM.	Design Core Architects P/L.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

5. Scope

All of those trees that are considered significant to the site and that are likely to be impacted by the proposed development are addressed in this report.

Significant trees are generally those that are greater than five metres in height and/or with a Diameter at Breast Height (DBH) of greater than 15 cm.

6. Site context

This site is located within a General Residential Zone within the municipal area of Moreland.

The following town planning overlays are applicable to this site:

1. *Environmental Audit Overlay (EAO)*.

7. Notes

1. The following fourteen (14) trees are less than 5 metres in height and are not considered significant to the site:
 - a. Trees 18-30 & 32.
 - i. These trees have not been assessed as a part of this report.
2. Twenty one (21) trees (8, 9, 11, 12, 14, 15, 17-30 & 32) were not shown on the survey provided.
 - a. These trees have been added to the enclosed site plans based on a visual estimation of their location.
 - b. The location of these trees and the estimation of construction impact for these trees are approximate only.
3. 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.

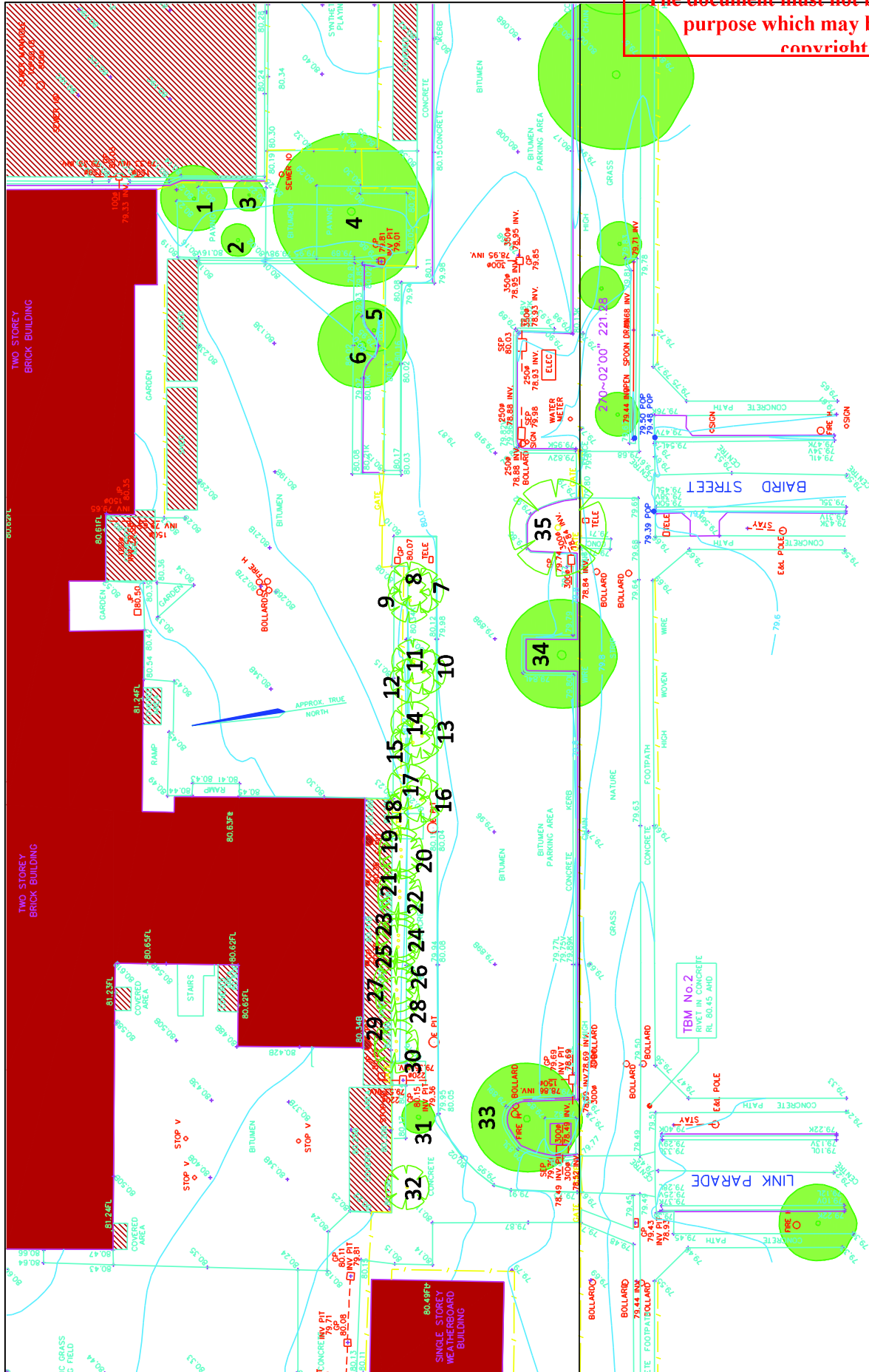
**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

**ADVERTISED
PLAN**

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

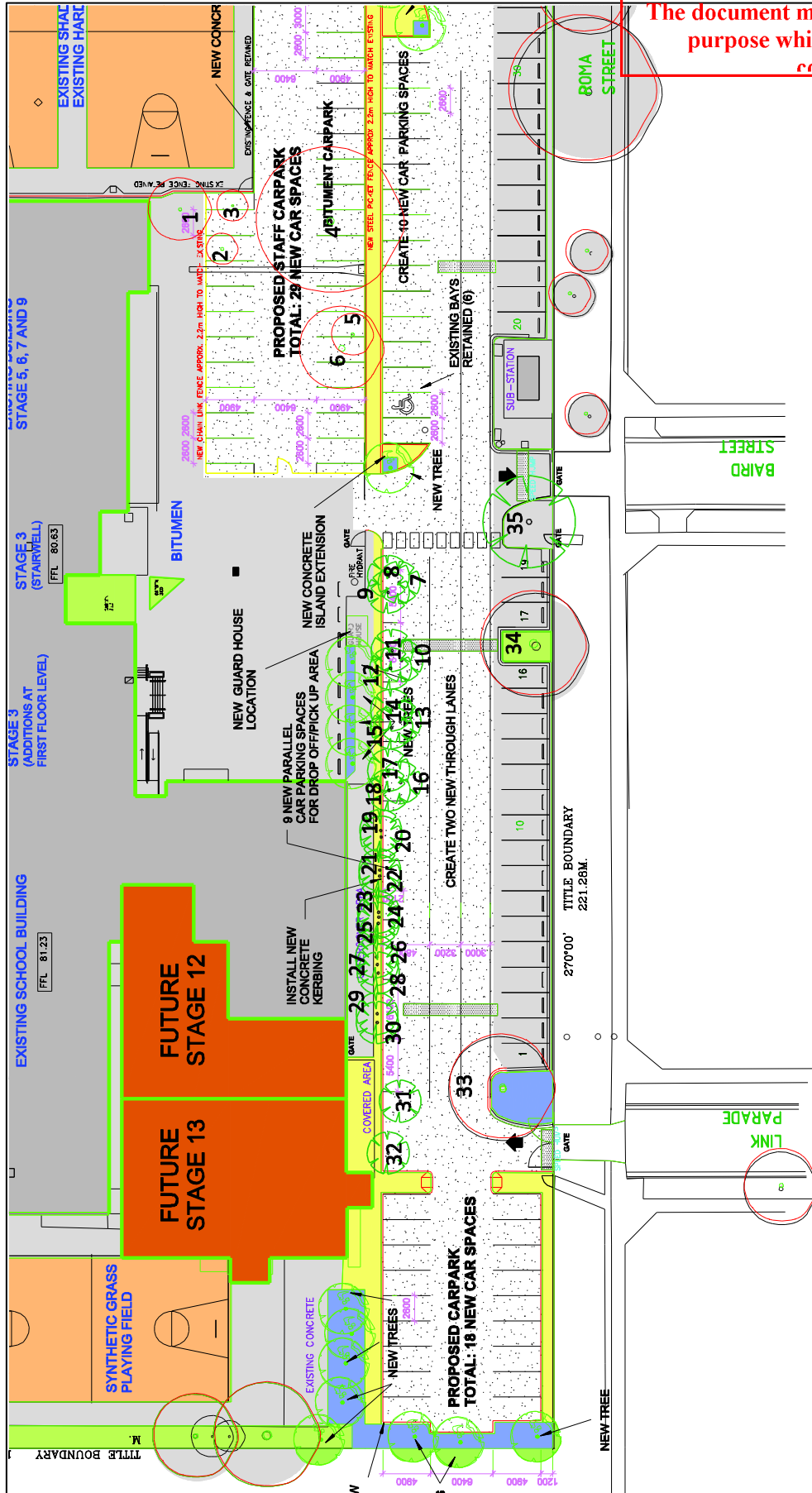
8. Site plan - Existing



ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

9. Site plan - Proposed



ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

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 not possible within the development as currently proposed.
 - e. **Blank:** 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:
1	Callistemon viminalis	Low	Removed	High	Site	2	3.6
2	Casuarina cunninghamiana	Low	Removed	High	Site	2	3.7
3	Casuarina cunninghamiana	Low	Removed	High	Site	1.7	2.8
4	Eucalyptus sideroxylon	High	Removed	High	Site	3	8.9
5	Eucalyptus leucoxyton	Moderate	Removed	High	Site	2.3	4.6
6	Eucalyptus sideroxylon	High	Removed	High	Site	2.7	7
7	Pyrus calleryana	Low	Removed	High	Site	1.5	2
8	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
9	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
10	Pyrus calleryana	Low	Removed	High	Site	1.5	2
11	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
12	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
13	Pyrus calleryana	Low	Removed	High	Site	1.5	2
14	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
15	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
16	Pyrus calleryana	Low	Removed	High	Site	1.5	2
17	Cupressus sempervirens	Low	Removed	High	Site	1.5	2
<u>18</u>	<u>Cupressus sempervirens</u>	Very low			Site	1.5	2

ID:	Genus / Species:	Retention Value:	Retained?:	Construction Impact:	Location:	SRZ:	TPZ:
<u>19</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>20</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>21</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>22</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>23</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>24</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>25</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>26</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>27</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>28</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>29</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
<u>30</u>	<i>Pittosporum tenuifolium</i>	Very low			Site	1.5	2
31	Cupressus sempervirens	Low	Removed	High	Site	2.5	5.5
<u>32</u>	<i>Callistemon sp.</i>	Very low			Site	1.5	2
33	Eucalyptus cladocalyx	Moderate	Removed	High	Site	2.8	7.3
34	Eucalyptus cladocalyx	Low	Retained	Moderate	Site	2.8	7.4
35	Melaleuca styphelioides	Moderate	Retained	Moderate	Site	2.6	6.1

Total number of tree/s referred to in this report(Total): 35

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

11. 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 19 tree/s are shown as Removed on the plans provided.								
1	<i>Callistemon viminalis</i>	30	2	3.6	= TPZ	0.1	Low	Removed
2	<i>Casuarina cunninghamiana</i>	31	2	3.7	= TPZ	0.1	Low	Removed
3	<i>Casuarina cunninghamiana</i>	23	1.7	2.8	= TPZ	0.1	Low	Removed
4	<i>Eucalyptus sideroxylon</i>	74	3	8.9	= TPZ	0.1	High	Removed
5	<i>Eucalyptus leucoxylon</i>	38	2.3	4.6	= TPZ	0.1	Moderate	Removed
6	<i>Eucalyptus sideroxylon</i>	58	2.7	7.0	= TPZ	0.1	High	Removed
7	<i>Pyrus calleryana</i>	13	1.5	2.0	= TPZ	0.1	Low	Removed
8	<i>Cupressus sempervirens</i>	10	1.5	2.0	= TPZ	0.1	Low	Removed
9	<i>Cupressus sempervirens</i>	11	1.5	2.0	= TPZ	0.1	Low	Removed
10	<i>Pyrus calleryana</i>	13	1.5	2.0	= TPZ	0.1	Low	Removed
11	<i>Cupressus sempervirens</i>	10	1.5	2.0	= TPZ	0.1	Low	Removed
12	<i>Cupressus sempervirens</i>	11	1.5	2.0	= TPZ	0.1	Low	Removed
13	<i>Pyrus calleryana</i>	15	1.5	2.0	= TPZ	0.1	Low	Removed
14	<i>Cupressus sempervirens</i>	11	1.5	2.0	= TPZ	0.1	Low	Removed
15	<i>Cupressus sempervirens</i>	12	1.5	2.0	= TPZ	0.1	Low	Removed
16	<i>Pyrus calleryana</i>	15	1.5	2.0	= TPZ	0.1	Low	Removed
17	<i>Cupressus sempervirens</i>	10	1.5	2.0	= TPZ	0.1	Low	Removed
31	<i>Cupressus sempervirens</i>	46	2.5	5.5	= TPZ	0.1	Low	Removed
33	<i>Eucalyptus cladocalyx</i>	61	2.8	7.3	= TPZ	0.1	Moderate	Removed
The following 2 tree/s are shown as Retained on the plans provided.								
34	<i>Eucalyptus cladocalyx</i>	62	2.8	7.4	= TPZ	4	Low	Retained
35	<i>Melaleuca styphelioides</i>	51	2.6	6.1	= TPZ	4	Moderate	Retained
SRZ: Structural Root Zone. TPZ: Tree Protection Zone. mTPZ: Tree Protection Zone.(Canopy) ConP: Construction Proximity.								
Number of trees in this section (total): 21								

11.1. Trees 34 & 35

These trees are located within the subject site to the west of the Baird Street entrance to the school carpark.

Tree 34 is a mature *Eucalyptus cladocalyx* – Sugar Gum. This tree exhibits fair health and poor structure with a Useful Life Expectancy (ULE) of 5 – 15 years. This tree is of low retention value.

Tree 35 is a mature *Melaleuca styphelioides* – Prickly Paperbark. This tree exhibits good health and fair structure with a ULE of 15 – 25 years. This tree is of moderate retention value.

The TPZ for these trees is partially covered with an existing bitumen carpark and the area to the south of these trees is public open space.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

The removal and reinstatement of the existing bitumen carpark carriageway is proposed within the Tree Protection Zone (TPZ) of these trees. It is understood that the new bitumen will be installed in the same location as the existing bitumen.

The proposed bitumen removal and reinstatement will not intrude into the Structural Root Zone (SRZ) of these trees.

The proposed bitumen removal and reinstatement will intrude into the TPZ of Tree 34 by 14.8% and Tree 35 by 14.5%. Under AS 4970 2009 – Protection of Trees on Development Sites these are considered major intrusions and it must be demonstrated that these trees will remain viable.

It is likely that these trees may have root mass immediately under the existing bitumen that could easily be damaged by the removal and replacement of the existing carpark. Accordingly, the existing bitumen should be carefully lifted and removed with a tracked excavator under the supervision of a suitably qualified arborist. If the trees root systems are found to be growing immediately beneath the existing bitumen, a layer of crushed rock, approximately 50mm in depth, should be spread over the TPZ intrusion areas before the new bitumen is installed to ensure tree root damage is avoided and that the impact on tree health and longevity is minimised.

Given that the TPZ intrusion area for these trees is covered with existing bitumen and that the new carpark is understood to be installed in the same location, the impact on the health and longevity of these trees from the proposed development is likely to be negligible.

There is ample contiguous soil volume within the area to the south of the carpark into which these trees may extend their root systems which may help to compensate for this level of intrusion.

These trees are likely to remain viable within the current design.

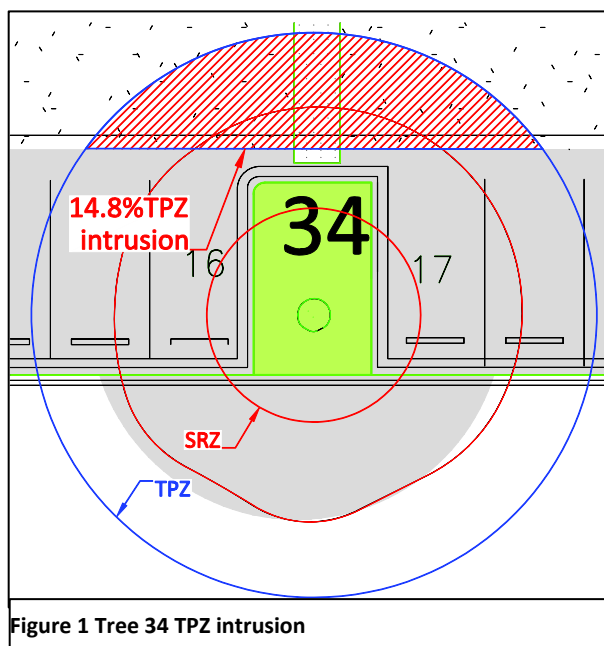


Figure 1 Tree 34 TPZ intrusion

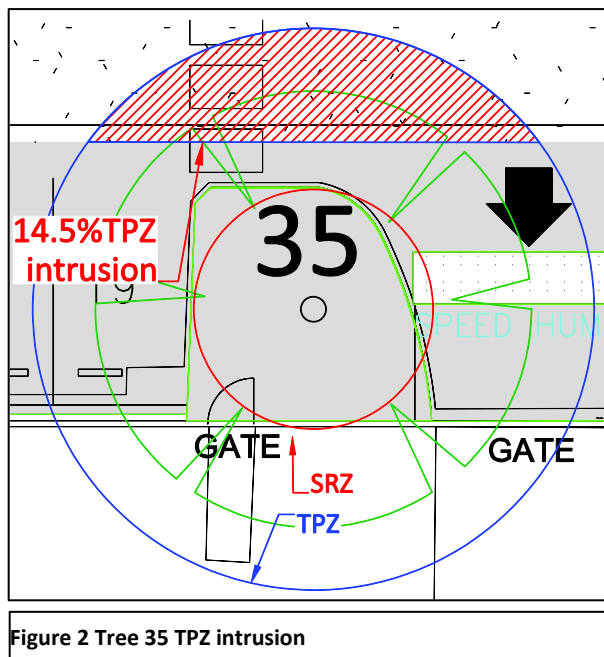


Figure 2 Tree 35 TPZ intrusion

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

12. Recommendations

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

12.1. Trees 34 & 35

1. The existing bitumen should be carefully lifted and removed with a tracked excavator under the supervision of a suitably qualified arborist.
 - a. If significant tree roots are found immediately beneath the existing bitumen then:
 - i. A layer of crushed rock approximately 50mm in depth should be spread over the TPZ intrusion area before the new bitumen is installed.
 - b. The need for root pruning should be assessed by the attending arborist.
 - c. Any root pruning should be undertaken by the attending arborist using sharp hand tools.
2. A services plan should be created for this site and this construction impact report should be revised as required to ensure that services installation impacts on retained trees are avoided.
3. A Tree Management Plan should be created for this site to inform tree management and as a guide to construction within the Tree Protection Zones for retained trees.

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

13. Trees shown as removed

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

ID	Genus / species	Common name	ULE	Ref value
The retention value for the following 2 tree/s is High				
4	<i>Eucalyptus sideroxylon</i>	Red Ironbark	25 - 50	High
6	<i>Eucalyptus sideroxylon</i>	Red Ironbark	25 - 50	High
The retention value for the following 15 tree/s is Low				
1	<i>Callistemon viminalis</i>	Weeping Bottle Brush	15 - 25	Low
2	<i>Casuarina cunninghamiana</i>	River She - Oak	5 - 15	Low
3	<i>Casuarina cunninghamiana</i>	River She - Oak	15 - 25	Low
7	<i>Pyrus calleryana</i>	Callery Pear	15 - 25	Low
8	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
9	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
10	<i>Pyrus calleryana</i>	Callery Pear	15 - 25	Low
11	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
12	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
13	<i>Pyrus calleryana</i>	Callery Pear	15 - 25	Low
14	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
15	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
16	<i>Pyrus calleryana</i>	Callery Pear	15 - 25	Low
17	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
31	<i>Cupressus sempervirens</i>	Italian Cypress	25 - 50	Low
The retention value for the following 2 tree/s is Moderate				
5	<i>Eucalyptus leucoxylo</i>	Yellow Gum	15 - 25	Moderate
33	<i>Eucalyptus cladocalyx</i>	Sugar Gum	15 - 25	Moderate
Number of tree/s in this section (Total): 19				

14. Trees recommended for removal

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

No trees are recommended for removal on this site.

15. Works required

The following section pertains to those trees that are recommended for retention (Retention recommendation).

If any of these trees are retained then the listed works should be performed as per the Priority section of the Explanation of Terms. The recommended works are of a general nature only and should be reviewed following the completion of the project.

No works are recommended on the trees to be retained on this site.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

16. References

- Coder, K.D 1996, Construction Damage Assessments, University of Georgia, <http://www.forestry.uga.edu/warnell/service/library/for95-039a/index.html>
- Harris, R.W., Clark, J.R. & Matheny, N.P. 2004, *Arboriculture: Integrated management of landscape trees, shrubs and vines*, 4th edn., Prentice Hall, New Jersey, USA.
- Hitchmough, J. D. 1994, *Urban Landscape Management*, Inkata Press, Chatswood, NSW.
- Society for Growing Australian Plants Maroondah, 1991, *Flora of Melbourne, a guide to the indigenous plants of the greater Melbourne area*, Society for Growing Australian Plants, Maroondah.
- Mattheck, C. & Breleor, H., 1994, *The body language of trees*, The Stationery Office, London, UK.
- Standards Australia, 2009, *AS 4970 - 2009 Protection of trees on development sites*, Standards Australia, Sydney.

17. 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)

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

. 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)	21
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: *Callistemon viminalis*
 Evergreen Weeping Bottle Brush
Height (m): 7 **Structure:** Fair
Width (m): 5 **Health:** Good
DBH (cm): 30 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 15 - 25
Retained?: Removed **Form:** Fair
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

SRZ (m): 2 **Works priority:** N/A
TPZ (m): 3.6 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



Tree ID: **2**

Genus / species: *Casuarina cunninghamiana*
 Evergreen River She - Oak
Height (m): 11 **Structure:** Poor
Width (m): 3 **Health:** Fair
DBH (cm): 31 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 5 - 15
Retained?: Removed **Form:** Poor
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

SRZ (m): 2 **Works priority:** N/A
TPZ (m): 3.7 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

Tree ID: 3

Genus / species: *Casuarina cunninghamiana*
 Evergreen River She - Oak
Height (m): 10 **Structure:** Fair
Width (m): 3 **Health:** Fair
DBH (cm): 23 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 15 - 25
Retained?: Removed **Form:** Poor
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

SRZ (m): 1.7 **Works priority:** N/A
TPZ (m): 2.8 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



Tree ID: 4

Genus / species: *Eucalyptus sideroxylon*
 Evergreen Red Ironbark
Height (m): 19 **Structure:** Fair
Width (m): 12 **Health:** Good
DBH (cm): 74 Measured **Maturity:** Mature
Origin: Victorian **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: High
Rec reason: N/A
Amenity value: High
Works Required:

SRZ (m): 3 **Works priority:** N/A
TPZ (m): 8.9 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



Tree ID: 5

Genus / species: *Eucalyptus leucoxylon*
 Evergreen Yellow Gum
Height (m): 15 **Structure:** Fair
Width (m): 3 **Health:** Fair
DBH (cm): 38 Measured **Maturity:** Mature
Origin: Melbourne **ULE (years):** 15 - 25
Retained?: Removed **Form:** Fair
Retention Value: Moderate
Rec reason: N/A
Amenity value: Moderate
Works Required:

SRZ (m): 2.3 **Works priority:** N/A
TPZ (m): 4.6 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

Tree ID: 6

Genus / species: *Eucalyptus sideroxylon*

Evergreen Red Ironbark

Height (m): 15 **Structure:** Fair
Width (m): 8 **Health:** Good
DBH (cm): 58 Measured **Maturity:** Mature
Origin: Victorian **ULE (years):** 25 - 50
Retained?: Removed **Form:** Fair

Retention Value: High

Rec reason: N/A

Amenity value: High

Works Required:

SRZ (m): 2.7 **Works priority:** N/A

TPZ (m): 7.0 **Construction Proximity:** 0.1

mTPZ (m): = TPZ



Tree ID: 7

Genus / species: *Pyrus calleryana*

Deciduous Callery Pear

Height (m): 6 **Structure:** Good
Width (m): 2 **Health:** Good
DBH (cm): 13 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 15 - 25
Retained?: Removed **Form:** Good

Retention Value: Low

Rec reason: N/A

Amenity value: Low

Works Required:

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

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

mTPZ (m): = TPZ



Tree ID: 8

Genus / species: *Cupressus sempervirens*

Evergreen Italian Cypress

Height (m): 5 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 10 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good

Retention Value: Low

Rec reason: N/A

Amenity value: Low

Works Required:

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

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

mTPZ (m): = TPZ



Tree ID: 9

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 6 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 11 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 10

Genus / species: *Pyrus calleryana*
 Deciduous Callery Pear
Height (m): 6 **Structure:** Good
Width (m): 3 **Health:** Good
DBH (cm): 13 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 15 - 25
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 11

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 6 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 10 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Tree ID: 12

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 6 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 11 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 13

Genus / species: *Pyrus calleryana*
 Deciduous Callery Pear
Height (m): 6 **Structure:** Good
Width (m): 3 **Health:** Good
DBH (cm): 15 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 15 - 25
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 14

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 5 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 11 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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

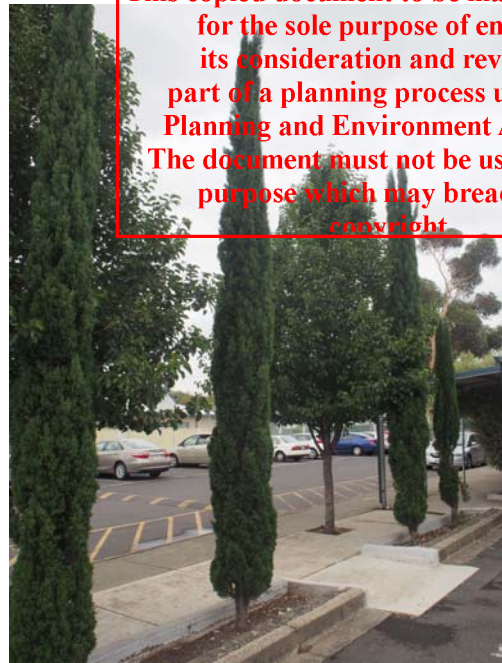


This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

Tree ID: 15

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 6 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 12 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 16

Genus / species: *Pyrus calleryana*
 Deciduous Callery Pear
Height (m): 6 **Structure:** Good
Width (m): 3 **Health:** Good
DBH (cm): 15 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 15 - 25
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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



Tree ID: 17

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 6 **Structure:** Good
Width (m): 1 **Health:** Good
DBH (cm): 10 Measured **Maturity:** Imature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

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

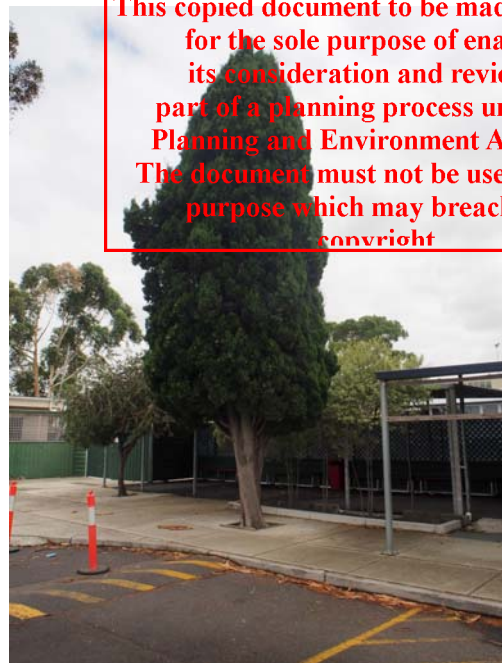


This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Tree ID: 31

Genus / species: *Cupressus sempervirens*
 Evergreen Italian Cypress
Height (m): 9 **Structure:** Good
Width (m): 3 **Health:** Good
DBH (cm): 46 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 25 - 50
Retained?: Removed **Form:** Good
Retention Value: Low
Rec reason: N/A
Amenity value: Low
Works Required:

SRZ (m): 2.5 **Works priority:** N/A
TPZ (m): 5.5 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



Tree ID: 33

Genus / species: *Eucalyptus cladocalyx*
 Evergreen Sugar Gum
Height (m): 17 **Structure:** Fair
Width (m): 10 **Health:** Fair
DBH (cm): 61 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 15 - 25
Retained?: Removed **Form:** Poor
Retention Value: Moderate
Rec reason: N/A
Amenity value: Moderate
Works Required:

SRZ (m): 2.8 **Works priority:** N/A
TPZ (m): 7.3 **Construction Proximity:** 0.1
mTPZ (m): = TPZ



Tree ID: 34

Genus / species: *Eucalyptus cladocalyx*
 Evergreen Sugar Gum
Height (m): 14 **Structure:** Poor
Width (m): 9 **Health:** Fair
DBH (cm): 62 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 5 - 15
Retained?: Retained **Form:** Poor
Retention Value: Low
Rec reason: N/A
Amenity value: Moderate
Works Required:

SRZ (m): 2.8 **Works priority:** N/A
TPZ (m): 7.4 **Construction Proximity:** 4
mTPZ (m): = TPZ



Tree ID: 35

Genus / species: *Melaleuca styphelioides*

Evergreen Prickly Paperbark

Height (m): 11 **Structure:** Fair
Width (m): 7 **Health:** Good
DBH (cm): 51 Measured **Maturity:** Mature
Origin: Australian **ULE (years):** 15 - 25
Retained?: Retained **Form:** Fair

Retention Value: Moderate

Rec reason: N/A

Amenity value: Moderate

Works Required:

SRZ (m): 2.6 **Works priority:** N/A

TPZ (m): 6.1 **Construction Proximity:** 4

mTPZ (m): = TPZ



ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

19. 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.

19.1. 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:

19.1.1. 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.

19.1.2. 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 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.

19.2. 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.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

19.3. 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.

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

**ADVERTISED
PLAN**

20. 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 be 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”.

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

**ADVERTISED
PLAN**

21. 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.

21.1. 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.

21.2. 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.

21.3. 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.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

21.4. 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.

<u>Category</u>	<u>Description</u>
➤ 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.

21.5. 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.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

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

<u>Category</u>	<u>Example</u>	<u>AVV</u>
➤ 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.

<u>Category</u>	<u>Example</u>	<u>ULEM</u>
➤ 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 – 25	The tree is unlikely to provide useful amenity for longer than 25 years. The tree may be in moderate decline, a short lived species, present a slightly elevated hazard and/or require moderate levels of maintenance.	10

- **25 – 50** The tree is likely to provide useful amenity for up to 50 years. 11
 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.

- **> 50** The tree is likely to provide useful amenity for greater than 50 years. 12
 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.

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

<u>Category</u>	<u>Example</u>	<u>RV value</u>
➤ 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

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

21.6. Health

Pertains to the health and growth potential of the tree.

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

<u>Category</u>	<u>Example</u>
➤ Good	<p>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.</p> <p>Tree exhibits above average health and no works are required.</p>
➤ Fair	<p>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.</p> <p>The tree exhibits below average health and remedial works may be employed to improve health.</p>
➤ Poor	<p>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.</p> <p>The tree exhibits low health and remedial works or removal may be required.</p>
➤ Very poor	<p>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.</p> <p>The tree exhibits very low health and remedial works or removal are required.</p>
➤ Dead	<p>Tree is dead and generally should be removed.</p>

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

21.7. 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.

<u>Category</u>	<u>Example</u>
➤ Good	<p>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.</p> <p>The tree is considered a good example of the species with a well-developed form.</p>
➤ Fair	<p>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.</p> <p>These defects are not likely to result in catastrophic trunk or branch failure although some branch failure may occur under normal conditions.</p>
➤ Poor	<p>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.</p> <p>These defects may predispose the tree to major trunk or branch failure.</p>
➤ Very poor	<p>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.</p> <p>These defects are likely to predispose the tree to trunk or scaffold limb failure.</p>

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

21.8. 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.

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

22. 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.

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

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

23. 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.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

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.

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

24. Practice Note VCAT 2 — Expert Evidence

24.1. Name & address of consultant

Peter Bourke of 1 Como Street, Emerald, 3782.

24.2. Qualifications & experience

Peter Bourke has the following qualifications and experience:

- AQF Certificate V - Diploma of Arboriculture.
- AQF Certificate III of Arboriculture (Horticulture).
- Quantified Tree Risk Assessment (QTRA) Registered User
- 8 years experience in arboriculture.
- 7 years as a practical arborist within both commercial and local government areas.

24.3. Area of expertise

Peter Bourke provides specialist technical advice in the field of arboriculture. This is predominantly from a practical background within local government municipalities and commercial companies.

24.4. Expertise to report

Peter Bourke has, by training, education, experience and research, 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 management and maintenance, hazard assessment and tree condition appraisal.

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

24.5. 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.”

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

25. 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.
2. Greenwood Consulting contracts with you on the basis that your promise that all affected property complies with all applicable statutes and subordinate legislation.
3. Greenwood Consulting will take all reasonable care to obtain necessary information from reliable sources and to verify data. However Greenwood Consulting neither guarantees nor is responsible for the accuracy of information provided by others.
4. If, after delivery of this report, you later require a representative of Greenwood Consulting to attend court to give evidence or to assist in the preparation for a hearing because of this report, you must pay an additional hourly fee at our then current rate for expert evidence.
5. Alteration of this report invalidates the entire report.
6. Greenwood Consulting retains the copyright in this report. Possession of the original or a copy of this report does not give you or anyone else any right of reproduction, publication or use without the written permission of Greenwood Consulting.
7. The contents of this report represent the professional opinion of the consultant. Greenwood Consulting's consultancy fee for the preparation of this report is in no way contingent upon the consultant reporting a particular conclusion of fact, nor upon the occurrence of a subsequent event.
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,



Peter Bourke.

AQF Cert. III. Arb.
Dip. Arb.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**