



Tree Management Strategies

Preliminary Arboricultural Impact Assessment

80 O'SULLIVAN ROAD,
LEUMEAH.
17-6-21

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Contents

SUMMARY	2
1. Introduction	3
2. Developmental Impacts/Observations	4
3. Referenced Documents	5
4. Conclusions & Recommendations	6
5. References	7
6. Appendices	8
Appendix 1: Tree Data Schedule	8
Appendix 2: Tree Impact Plan.....	9
Appendix 4: Method	11
Site Assessment	11
Research.....	11
Tree Data Schedule Method	12
Tree Retention Value Method	15
Tree Protection Zone and Structural Root Zone Method	18

Summary

Tree Management Strategies have been commissioned by Equity Development Management on behalf of Redcape Hotel Group Pty Ltd to provide an Arboricultural Impact Assessment on thirty-two trees at 80 O'Sullivan Road, Leumeah, NSW (Figure 1) as part of a Proposed Planning Proposal.

This report aims to:

- Assess the Health, Condition and Retention value of thirty-two trees on the subject site.
- Calculate the impact the proposed development will have on all trees assessed.
- Recommend the retention or removal of trees on the subject site.

The Health, Condition, Retention values and photographs of thirty-two trees are recorded in the Tree Data Schedule (Appendix 1).

The developmental Impacts are shown in the Tree Impact Plan (Appendix 2) and explored in (Section 2) Developmental Impacts, of this report.

Conclusion

Trees 6, 9, 10, 11, 15, 18 and 20 given a low retention value have major or total incursions to their TPZ's that require their removal as part of the proposal.

Trees 4, 5, 16, 17 and 19 given a medium retention value have major or total incursions to their TPZ's that require their removal as part of the proposal.

Tree 8 is given a high retention value and has a major incursion to its TPZ's by the proposal that will require its removal.

Following the proposals approval, a review of the current design in conjunction with a level 5 consulting arborist should be performed to reduce the impact the proposal will have on medium to high value trees and potentially retain additional trees.

Following the proposals approval and completion of architectural, civil and landscape plans, a detailed Arboricultural Impact Assessment should be prepared.

The current proposal requires the removal of 16 trees and the retention of 16 trees.

1. Introduction

Tree Management Strategies have been commissioned by Equity Development Management on behalf of Redcape Hotel Group Pty Ltd to provide an Arboricultural Impact Assessment on thirty-two trees at 80 O'Sullivan Road, Leumeah, NSW (Figure 1) as part of a Proposed Planning Proposal.

Campbelltown City Council is the Consenting authority for the proposal.

The proposal consists of the demolition of the existing structures and construction of a new hotel, residential apartment building, retail centre and local amenity facilities.

This report aims to:

- Assess the Health, Condition and Retention value of thirty-two trees on the subject site.
- Calculate the impact the proposed development will have on all trees assessed.
- Recommend the retention or removal of trees on the subject site.



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2. Developmental Impacts/Observations

The Health, Condition, Retention Value, General data and photographs of thirty-two trees is displayed in the Tree Data Schedule (Appendix 1).

All tree retention values are in accordance with IACA Significance of a Tree, Assessment Rating System (STARS) © (IACA 2010) ©.

The tree impacts detailed below are based on the plans referenced in Section 5 of this document.

The below ground incursions impacting the Tree Preservation Zones (TPZ) of the subject trees assessed are shown on the Tree Impact Plan (Appendix 2).

Tree 2 is a group of six trees assessed as one tree. The group is the same species and of similar size and age, refer to the Tree Data Schedule (Appendix 1).

Tree 4 is a group of four trees assessed as one tree. The group is the same species and of similar size and size, refer to the Tree Data Schedule (Appendix 1).

Trees 6, 9, 10, 11, 18 and 20 are given low retention values and have total incursions to their TPZ's by the proposal that will require their removal, refer to the Tree Impact Plan (Appendix 2).

Tree 15 is given a low retention value and has a major incursion of 27% to its TPZ's by the proposal that will require its removal, refer to the Tree Impact Plan (Appendix 2).

Trees 4, 5, 16, 17 and 19 are given medium retention values and have total incursions to their TPZ's by the proposal that will require their removal, refer to the Tree Impact Plan (Appendix 2).

Tree 16 is given a medium retention value and has a major incursion of 27% to its TPZ's by the proposal that will require its removal, refer to the Tree Impact Plan (Appendix 2).

Tree 8 is given a high retention value and has a major incursion of 29% to its TPZ's by the proposal that will require its removal, refer to the Tree Impact Plan (Appendix 2).

Trees 1, 2, 3, 7, 12, 13, 14, 21, 22, 23 and 24 are unaffected by the proposal.

3. Referenced Documents

Plans that were referred to for this report include:

Plan Title	Drawing Number	Consultant	Revision
Architectural	Floor Plans	Integrated design Group	19-5-21
Survey	1 of 6	Mitch Ayres Surveying	14-5-21
Tree Impact Plan	Appendix 2	IEMA	16-6-21

No Civil or Stormwater plans were reviewed as part of this assessment.

4. Conclusions & Recommendations

Conclusion

Trees 6, 9, 10, 11, 15, 18 and 20 given a low retention value have major or total incursions to their TPZ's that require their removal as part of the proposal.

Trees 4, 5, 16, 17 and 19 given a medium retention value have major or total incursions to their TPZ's that require their removal as part of the proposal.

Tree 8 is given a high retention value and has a major incursion to its TPZ's by the proposal that will require its removal.

Following the proposals approval, a review of the current design in conjunction with a level 5 consulting arborist should be performed to reduce the impact the proposal will have on medium to high value trees and potentially retain additional trees.

Following the proposals approval and completion of architectural, civil and landscape plans, a detailed Arboricultural Impact Assessment should be prepared.

The current proposal requires the removal of 16 trees and the retention of 16 trees.

5. References

Shigo, A., 1986, A New Tree Biology and Dictionary: facts, photos, and philosophies on trees and their problems and proper care, Snohomish, WA

Council of Standards Australia (August 2009)
The Australian Standard for the Protection of Trees on Development Sites (AS 4970 – 2009).

Harris, R., Clark, J., Matheny, N., 2003, Integrated Management of Landscape Trees, Shrubs, and Vines, fourth edition, Prentice Hall, Australia

IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

Lonsdale, D. (1999). *Principles of Tree Hazard Assessment and Management*. Forestry Commission, London.

Mattheck, C and Breloer, H (1994) *The Body Language of Trees*. Research for Amenity Trees No.4, The Stationery Office, London.

Disclaimer:

By the nature of their size, weight and miscellaneous structure, constant exposure to the weather and the elements, susceptibility to insects, pest and decay organisms, and trees always pose an inherent degree of hazard and risk from breakage or failure.

There is no guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future. No responsibility will be accepted for partial or full failure of any tree.

No responsibility will be accepted for any damage or injury caused by any tree or part thereof referred to in this report.

While great care is taken to accurately diagnose the condition of a tree, it is impossible to accurately determine the true structural condition of the entire tree and any diagnosis, opinions or recommendations expressed are based on several methods of determining tree health.




6. Appendices

Appendix 1: Tree Data Schedule




APPENDIX 1 – TREE DATA SCHEDULE

No	Genus-species	Common Name	DAB metres (radius) Above Buttress	DBH metres (radius) Breast Ht	SRZ (radius) Metres	TPZ (radius) Metres	Height Metres	Age Young, Semi-Mature, Mature Over-Mature	Canopy Spread (Metres) (radius)	Health Good Fair Fair/Poor Poor Failed	Condition Good Fair Fair/Poor Poor Failed	Useful Life Expectancy High Medium Low	Landscape significance High Medium Low	Retention value High Medium Low	Notes	Photo
1	Eucalyptus territicornis	Forest Red Gum	1.20	1.05	3.6	12.6	20.00	Mature	10.00	Fair	Fair/Poor	Medium	Medium	Medium		
2	Eucalyptus territicornis	Forest Red Gum	0.60	0.50	2.7	6.00	18.00	Mature	8.00	Fair	Fair/Poor	Medium	Medium	Medium	Group of 6 trees	
3	Eucalyptus territicornis	Forest Red Gum	0.60	0.50	2.7	6.00	16.00	Mature	5.00	Fair/Poor	Fair/Poor	Medium	Medium	Medium		




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4	Eucalyptus territicornis	Forest Red Gum	0.50	0.40	2.5	4.80	20.00	Mature	5.00	Fair/Poor	Fair/Poor	Medium	Medium	Medium	Group of 4 trees	
5	Eucalyptus territicornis	Forest Red Gum	0.63	0.51	2.7	6.1	20.00	Mature	5.00	Fair	Fair	Medium	Medium	Medium		
6	Eucalyptus territicornis	Forest Red Gum	0.20	0.18	1.7	2.2	8.00	Semi Mature	2.00	Fair	Fair/Poor	Medium	Low	Low		




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No	Genus-species	Common Name	DAB metres (radius) Above Buttress	DBH metres (radius) Breast Ht	SRZ (radius) Metres	TPZ (radius) Metres	Height Metres	Age Young, Semi- Mature, Mature Over- Mature	Canopy Spread (Metres) (radius)	Health Good Fair Fair/Poor Poor Failed	Condition Good Fair Fair/Poor Poor Failed	Useful Life Expectancy High Medium Low	Landscape significance High Medium Low	Retention value High Medium Low	Notes	Photo
7	Eucalyptus territicornis	Forest Red Gum	0.35	0.28	2.1	3.4	16.00	Mature	3.00	Fair	Fair	Medium	Low	Low		
8	Eucalyptus territicornis	Forest Red Gum	1.60	1.40	4	15	20.00	Mature	12.00	Fair	Fair/Poor	Medium	Medium	High	Hollows	
9	Casuarina glauca	Swamp She-Oak	0.43	0.35	2.3	4.2	16.00	Mature	2.00	Fair/Poor	Fair/Poor	Medium	Low	Low		



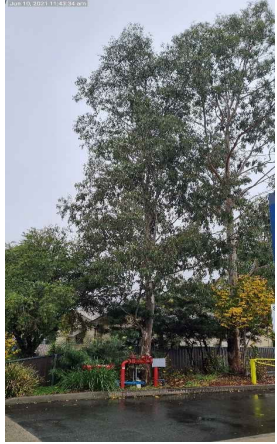
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10	Casuarina glauca	Swamp She-Oak	0.35	0.28	2.13	3.36	12.00	Semi Mature	2.00	Fair	Fair/Poor	medium	Low	Low		
11	Allocasuarina littoralis	Black She-Oak	0.40	0.25	2.2	3.00	8.00	Mature	2.00	Fair	Poor	Medium	Low	Low		
12	Eucalyptus territicornis	Forest Red Gum	0.35	0.28	2.1	3.3	14.00	Mature	3.00	Fair/Poor	Poor	Medium	Low	Low		




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13	Eucalyptus territicornis	Forest Red Gum	0.62	0.50	2.7	6.00	15.00	Mature	4.00	Fair/Poor	Fair/Poor	Medium	Low	Low		
14	Eucalyptus territicornis	Forest Red Gum	0.51	0.42	2.5	5	12.00	Mature	3.00	Fair/Poor	Fair/Poor	Medium	Low	Low		
15	Eucalyptus territicornis	Forest Red Gum	1.10	0.95	3.4	11.40	20.00	Mature	8.00	Fair/Poor	Poor	Medium	Low	Low	Hollow observed at 3m possible animal habitat.	




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No	Genus-species	Common Name	DAB metres (radius) Above Buttress	DBH metres (radius) Breast Ht	SRZ (radius) Metres	TPZ (radius) Metres	Height Metres	Age Young, Semi- Mature, Mature Over- Mature	Canopy Spread (Metres) (radius)	Health Good Fair Fair/Poor Poor Failed	Condition Good Fair Fair/Poor Poor Failed	Useful Life Expectancy High Medium Low	Landscape significance High Medium Low	Retention value High Medium Low	Notes	Photo
16	Eucalyptus territicornis	Forest Red Gum	1.05	0.90	3.4	10.80	20.00	Mature	10.00	Fair	Fair/Poor	Medium	Medium	Medium		
17	Casuarina glauca	Swamp She-Oak	0.45	0.38	2.4	4.6	15.00	Mature	3.00	Poor	Fair	Medium	Medium	Medium		
18	Eucalyptus territicornis	Forest Red Gum	0.35	0.26	2.1	3.1	15.00	Mature	3.00	Fair	Fair	Medium	Low	Low		

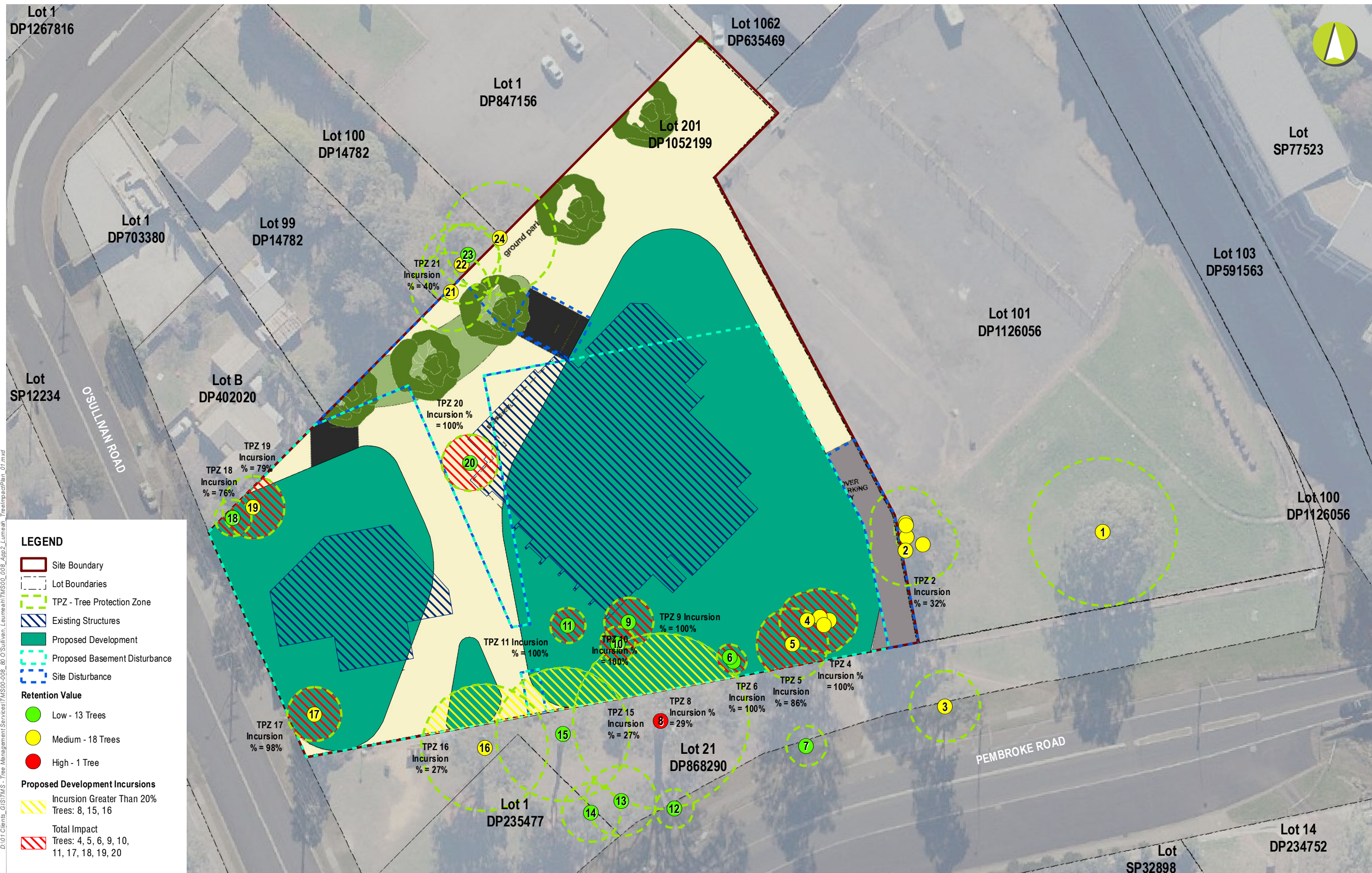
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19	Eucalyptus territicornis	Forest Red Gum	0.54	0.44	2.5	5.3	18.00	Mature	4.00	Fair	Fair	Medium	Medium	Medium		
20	Cupaniopsis anacardiodes	Tuckaroo	0.43	0.40	2.3	4.80	6.00	Mature	3.00	Fair	Fair/Poor	Medium	Low	Low		
21	Eucalyptus territicornis	Forest Red Gum	0.65	0.56	2.8	6.7	18.00	Mature	5.00	Fair	Fair	Medium	Medium	Medium		

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No	Genus-species	Common Name	DAB metres (radius) Above Buttress	DBH metres (radius) Breast Ht	SRZ (radius) Metres	TPZ (radius) Metres	Height Metres	Age Young, Semi- Mature, Mature Over- Mature	Canopy Spread (Metres) (radius)	Health Good Fair Fair/Poor Poor Failed	Condition Good Fair Fair/Poor Poor Failed	Useful Life Expectancy High Medium Low	Landscape significance High Medium Low	Retention value High Medium Low	Notes	Photo
22	Eucalyptus territicornis	Forest Red Gum	0.65	0.56	2.8	6.7	18.00	Mature	5.00	Fair	Fair/Poor	Medium	Medium	Medium		
23	Eucalyptus territicornis	Forest Red Gum	0.54	0.44	2.5	5.3	15.00	Mature	4.00	Fair/Poor	Fair/Poor	Medium	Low	Low		
24	Eucalyptus territicornis	Forest Red Gum	0.90	0.80	3.17	9.60	22.00	Mature	10.00	Fair	Fair/Poor	Medium	Medium	Medium		

Appendix 2: Tree Impact Plan



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Scale: 1:600

GDA2020 MGA Zone 56
16/06/2021

Appendix 4: Method

Site Assessment

From the ground, the following information was recorded and displayed in the Tree Data Schedule (Appendix 1).

- Tree genus and species.
- Approximate height spread if deemed applicable.
- Trunk diameter at breast height and above the buttress.
- Age class: young, semi mature, mature, over mature.
- Health.
- Condition.

Observations were recorded and photographed.

Research

The following legislation, documents or websites were reviewed:

- The Australian Standard for the Protection of Trees on Development Sites (AS 4970 – 2009).
- Campbelltown City Council Development Control Plan 2015.
- Campbelltown City Council Environmental Plan 2015.

Tree Data Schedule Method

The Health and Condition of all trees are shown in the Tree Data Schedule (**Appendix 1**) with the methods explained below:

Tree Health

Overall Health (Vigour/Vitality)	Tree vigour is exhibited by crown density, crown cover, leaf colour, leaf size, leaf texture, presence of epicormic growth, ability to withstand predation by pest and disease, resistance and degree of dieback.
Good (Excellent)	Good tree vigour exhibited by no decline in overall health and vigour, height and shape. The specimen is observed to be of excellent condition displaying characteristics that is known for that particular species (what would be the expected condition for that particular species of that age in that location), 0% dieback, full crown density, leaf health, no pest or disease present.
Fair	Fair tree vigour exhibited by moderate decline in overall health and vigour, height and shape. The specimen is observed to be of moderate condition by not displaying characteristics adequately that is known for that particular species (what would be expected for that particular species of that age in that location), less than 10% dieback, 90% of crown foliage density, more than 90% leaf health, acceptable level of pest or disease is evident for the assessing arborist (where it is considered the tree's overall health or condition will not be affected or lead to irreversible decline from pest or disease).
Fair/Poor	Fair to poor tree vigour exhibited by considerable decline in overall health and vigour, height and shape. The specimen is observed to be of less than acceptable condition by not displaying characteristics adequately that is known for that particular species (what would be expected for that particular species of that age in that location), 10-20% dieback, considerable foliage deficiencies, 70-90% foliage density, 70-90% leaf health, pest or disease infestation at acceptable thresholds for the assessing arborist (where it is considered the tree's overall health or condition will not be affected or lead to irreversible decline from pest or disease).
Poor	Poor vigour exhibited by substantial decline in overall health and vigour, height and shape. The specimen is observed to be of poor condition by not displaying characteristics adequately that is known for that particular species (what would be

	expected for that particular species of that age in that location), 20-30% dieback, considerable foliage deficiencies, 50-70% leaf health, pest or disease infestation at unacceptable infestation level that exceeds thresholds for the assessing arborist (where it is considered the tree's overall health or condition will be affected or lead to irreversible decline from pest or disease).
Very Poor	Very poor vigour exhibited by irreversible decline in overall health and vigour, height and shape. The specimen is observed to be of less than acceptable condition by not displaying characteristics adequately that is known for that particular species (what would be expected for that particular species of that age in that location), 15-50% dieback; severe foliage deficiencies; 30-50% density; 30-50% leaf health; pest or disease infestation at severe infestation level that exceeds thresholds for the assessing arborist (where it is considered the tree's overall health or condition will be affected or lead to irreversible decline from pest or disease).
Dead	Dead tree vigour exhibited by complete decline in overall health and vigour, height and shape. The specimen is observed to be dead by not displaying any characteristics adequately that is known for that particular species (what would be expected for that particular species of that age in that location), tree holds less than 15% foliage; branching is dead throughout canopy, pest or disease infestation at severe infestation level that exceeds thresholds for the assessing arborist (where it is considered the tree's overall health or condition will be affected or lead to irreversible decline from pest or disease).

Tree Condition

Overall Condition (Structure/Stability)	The tree condition as identified by the arborist in regard to defects in structure and stability.
Good (Exceptional specimen)	No damage or decay observed to the root plate, visible basal and /or root flare, stable in ground, well tapered branches with sound open unions. All characteristics within thresholds for the assessing arborist.
Fair (Standard tree – no observable major defects to suggest that there is an increased likelihood of tree or part of tree failure)	Minor damage or decay observed to root plate, trunk or primary branches or branch unions (1 st or 2 nd branch order or scaffolding branch), well-formed branch unions, minor branch end weight or over-extensions within thresholds for the assessing arborist.
Fair/Poor	Moderate damage or decay observed to root plate, trunk or primary branches or branch unions (1 st or 2 nd branch order or scaffolding branch); minimal basal/root flare; acute branch; past branch failure(s); moderate branch end-weight or over-extension approaching thresholds for the assessing arborist.
Poor	Major damage or decay observed to root plate, trunk or primary branches or branch unions (1 st or 2 nd branch order or scaffolding branch) no observable basal and /or root flare; acute branch unions starting to include bark; major branch end-weight or over-extension at or exceeds thresholds for the assessing arborist.
Very Poor	Excessive damage or decay observed to root plate, trunk, primary branch or branch unions (1 st or 2 nd branch order or scaffolding branch), excessive decay or hollows compromising the structural integrity, unstable in ground, excessive branch end-weight, included-bark unions, exceeding thresholds for assessing arborist. Failure probable.
Failed	Failure of root plate or trunk or primary branch or branch unions (1 st or 2 nd branch order or scaffolding branch) or active split between branch unions or severe damage to primary tree structure.

Tree Retention Value Method

IACA Significance of a Tree, Assessment Rating System (STARS) © (IACA 2010) ©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the Tree Significance - Assessment Criteria and Tree Retention Value - Priority Matrix, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria



High Significance in landscape

- The tree is in good condition and good vigour. The tree has a form typical for the species.
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age.
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered Ecological Community or listed on a council's Significant Tree Register.
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity.
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values.
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ - tree is appropriate to the site conditions.

Medium Significance in landscape

- The tree is in fair to good condition and good or low vigour.
- The tree has form typical or atypical of the species.
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area.
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street.
- The tree provides a fair contribution to the visual character and amenity of the local area.
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

Low Significance in landscape

- The tree is in fair to poor condition and good or low vigour.
- The tree has form atypical of the species.
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings.
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area.
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen.
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ - tree is inappropriate to the site conditions.
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms.
- The tree has a wound or defect that has potential to become structurally unsound.
- Environmental Pest/Noxious Weed Species.
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/allergenic properties.
- The tree is a declared noxious weed by legislation.
- Hazardous and or Irreversible Decline.
- The tree is structurally unsound and/or unstable and is considered potentially dangerous.
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a mono-cultural stand in entirety.

Useful Life Expectancy (ULE)

Useful life expectancy (ULE) is a measure of a trees remaining lifespan regarding its health, condition and locality ULE categories were measured as:

- Long (greater than 40 years)
- Medium (between 15 and 40 years)
- Short (between 1 and 15 years)
- Dead

Tree Retention Value - Priority Matrix

		Significance				
		1. High Significance in Landscape	2. Medium Significance in Landscape	Significance in Landscape	3. Low Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					
<p>Legend for Matrix Assessment</p> <p>Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.</p> <p>Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.</p> <p>Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.</p> <p>Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.</p>						

REFERENCES

- Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia
- Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturist (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.
- Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

Tree Protection Zone and Structural Root Zone Method

Following the VTA, The Tree Preservation Zones and Structural Root zones were calculated and added to the Tree Data Schedule (Appendix 1) and the Tree Impact Plan (Appendix 3) with the methods explained below:

The Structural Root Zone (SRZ) is the area around the base of a tree required for its stability. The woody root growth and soil cohesion in this area are necessary to hold the tree upright; therefore, there are no variations to its size. The SRZ is normally circular with the trunk at its centre and is expressed by its radius in metres (AS – 4970). Due to the potential of causing instability of a tree, it is highly recommended that no roots within its SRZ are pruned or removed. SRZ, which is the area required for tree stability, was calculated as follows: SRZ radius = $(D \times 50) 0.42 \times 0.64$.

The Tree Protection Zone (TPZ) is the principle means of protecting trees on development sites. The TPZ is a combination of the root area and crown area that requires protection. It is an area isolated from construction disturbance, so that the tree remains viable (AS – 4970). The radius of the TPZ is calculated for each tree by multiplying its DBH x 12. TPZ = DBH x 12 (DBH = trunk diameter measured at 1.4m above ground level). The radius of the TPZ is measured from COT (Centre of the trunk).

Variations to the Tree Protection Zone (TPZ)

General

It may be possible to encroach into or make variations to the standard TPZ. Encroachment Includes excavation, compacted fill and machine trenching.

Minor encroachment

If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. Variations must be made by the project arborist considering relevant factors. (Figure 2) demonstrates some examples of possible encroachment into the TPZ up to 10% of the area.

Major encroachment

If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. This may require root investigation by non-destructive methods and consideration of relevant factors listed in the Clause.

Figure 2

