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PROFESSIONALS IN ARBORICULTURE

Preliminary Tree Assessment

Site: Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006

Date: Tuesday, 1 November 2022

ATS6966-AdeAquCenPTA

Contents

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Report prepared for
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Executive Summary

Arborman Tree Solutions was engaged by Emma Wood, Associate at JPE Design Studio Pty Ltd to undertake Preliminary Tree Assessment of the trees within the identified survey area at Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006. The purpose of this assessment is to evaluate tree suitability for retention through a Tree Retention Rating system and provide Preliminary Tree Protection advice for trees to be retained. This assessment provides information in accordance with Australian Standard *AS4970-2009 Protection of trees on development sites* (AS4970-2009) and relevant legislation.

The assessment considered 457 trees and/or groups of trees which are identified as a mix of three indigenous, twenty-one native and seven exotic species. The majority of trees are considered to be in Good to Fair overall condition and have extended useful life expectancies. However, there are eighteen trees which are displaying poor overall condition as evidenced by attributes, such as elevated levels of deadwood, dieback, and/or reduced foliage density throughout the crown while others display structural decline such as increased levels of epicormic growth as a result of being lopped, history of branch failures and increased levels of decay in the primary structure.

The assessment has identified Trees there are twenty-five Significant Trees, and fifty-nine Regulated Trees as defined in the *Planning, Development and Infrastructure Act 2016*. The remaining trees are either exempt from regulation or unregulated. Significant and Regulated Trees should be preserved if they meet aesthetic and/or environmental criteria as described in the *Planning, Development and Infrastructure (General) Regulations 2017*. There are eighteen trees which are considered to provide 'important' aesthetic and/or environmental benefit which would warrant their protection; the remaining trees whilst providing benefit in this regard do not do so to a level that would be considered to be 'important'. Additionally, all the trees assessed have been identified as assets of the City of Adelaide.

The assessment has identified fifteen Regulated Trees, six Significant Trees and six unregulated trees/tree groups as having a High Retention Rating. It is my opinion, the Regulated and Significant Trees display one or more attributes described within the *Planning, Development and Infrastructure Act 2016*, that warrant their retention as important trees.

The remaining trees achieve a Moderate or Low Retention Rating. Trees that achieve a Moderate Retention Rating are worthy of consideration for retention if they can be adequately protected in an otherwise reasonable and expected development. The trees that achieve a Low Retention Rating should not form a constraint to an otherwise reasonable and expected development.

A Project Arborist should be appointed to assist in the design around trees to be retained; the development impacts and tree protection requirements are to be included in a Development Impact Report and a Tree Protection Plan as identified in Australian Standard *AS4970 2009 Protection of trees on development sites*.

Brief

Arborman Tree Solutions was engaged by Emma Wood, Associate at JPE Design Studio Pty Ltd to undertake a Preliminary Tree Assessment of the trees within the identified survey area at Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006. The purpose of a Preliminary Tree Assessment is to evaluate trees' suitability for retention through a Tree Retention Rating system and provide Preliminary Tree Protection advice for trees to be retained.

In accordance with section 2.2 of the Australian Standard *AS4970-2009 Protection of trees on development sites* (2.2) the following information is provided:

- Identification of the species of each tree and assessment of their health and structure.
- Identification of the legislative status of trees as defined in the *Planning, Development and Infrastructure Act 2016* (*PDI Act 201*).
- Tree Retention Rating for each tree, this has been applied to all trees regardless of legislative status.
- Identify the Tree Protection Zone for each tree.

Note: This report is intended to provide preliminary advice to assist with determining scope for development and guide design. The City Council may require further information to approve the removal of any Significant Trees/Regulated Trees.

Documents and Information Provided

The following information was provided for the preparation of this assessment

- Email instruction on scope of works
- Site Plan identifying the area to be assessed

Method

A site inspection was undertaken on the 29th and 30th of September and the 12th of October 2022. Trees in this report were mapped using TreePlotter software and assigned a unique tree number. Individual tree findings were recorded using the Tree Assessment Form (TAF©). Tree Health Indicator (THI©), Tree Structure Assessment (TSA©) and Useful Life Expectancy (ULE), were assessed using the methodology described in Appendix A. Legislative Status was identified for all trees controlled under the relevant legislation.

Each tree's suitability for retention was determined by reviewing principles under the *PDI Act 2016* or relevant authority and applying these findings in the Tree Retention Rating (TRR©) method, as described within Appendix A. Tree Protection Zones were calculated using the Australian Standard *AS4970-2009* (Section 3.2). Mapping was performed using GIS and CAD software.

Limitations: Tree management options such as pruning, soil amelioration, pathogen treatment are not part of this report; these should be considered in relation to any proposed development.

Site Location

The trees are located within the Adelaide Park Lands, Aquatic Centre carpark and within the Aquatic Centre complex.

Figure 1: Survey Area - Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006

Figure 1: Survey Area - Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006

Assessment

Arborman Tree Solutions was engaged by Emma Wood, Associate at JPE Design Studio Pty Ltd to undertake Preliminary Tree Assessment of the trees within the identified survey area at Adelaide Aquatic Centre Jeffcott Road, Adelaide South Australia 5006. The purpose of this assessment is to evaluate tree suitability for retention through a Tree Retention Rating system and provide Preliminary Tree Protection advice for trees to be retained. This assessment provides information in accordance with Australian Standard *AS4970-2009 Protection of trees on development sites* (AS4970-2009) and relevant legislation.

Tree Assessment

The assessment considered 457 trees and/or groups of trees which are identified as a mix of three indigenous, twenty-one native and seven exotic species as shown in Table 1 below. The majority of trees are considered to be in Good to Fair overall condition and have extended useful life expectancies. However, there are eighteen trees which are displaying poor overall condition as evidenced by attributes, such as elevated levels of deadwood, dieback, and/or reduced foliage density throughout the crown while others display structural decline such as increased levels of epicormic growth as a result of being lopped, history of branch failures and increased levels of decay in the primary structure.

Table 1 – Tree Identification

Botanic Name	Common Name	Number of Trees	Origin
Acacia pycnantha	Golden Wattle	3	Native
Agonis flexuosa	Willow Myrtle	1	Native
Brachychiton populneus	Kurrajong	15	Native
Callistemon viminalis	Weeping Bottlebrush	1	Native
Callitris sp.	Murray Pine	2	Indigenous
Casuarina cunninghamiana	River She Oak	11	Native
Casuarina sp.	Casuarina	1	Native
Corymbia citriodora	Lemon Scented Gum	4	Native
Corymbia maculata	Spotted Gum	11	Native
Corymbia variegata	Northern Spotted Gum	3	Native
Eucalyptus camaldulensis	River Red Gum	102	Indigenous
Eucalyptus cladocalyx	Sugar Gum	34	Native
Eucalyptus intertexta	Smooth Barked Coolibah	5	Native
Eucalyptus leucoxylon	South Australian Blue Gum	51	Indigenous
Eucalyptus leucoxylon ssp. stephaniae	Mallee Blue Gum	1	Native
Eucalyptus salmonophloia	Salmon Gum	16	Native
Eucalyptus sideroxylon	Mugga or Red Ironbark	8	Native
Eucalyptus sp.	Gum Tree	16	Native
Eucalyptus steedmanii	Steedman's Mallet	1	Native
Eucalyptus stricklandii	Strickland's Gum	1	Native
Eucalyptus torquata	Coral Gum	6	Native

Botanic Name	Common Name	Number of Trees	Origin
Ficus macrophylla	Moreton Bay Fig	12	Native
Ficus microcarpa 'Hillii'	Hills Weeping Fig	5	Native
Fraxinus angustifolia ssp. angustifolia	Desert Ash	6	Exotic
Fraxinus angustifolia ssp. oxycarpa 'Raywood'	Claret Ash	34	Exotic
Lagunaria patersonia	Norfolk Island Hibiscus	6	Exotic
Melia azedarach	White Cedar	4	Exotic
Pinus canariensis	Canary Island Pine	10	Exotic
Pinus halepensis	Aleppo Pine	69	Exotic
Schefflera actinophylla	Queensland Umbrella Tree	2	Native
Syagrus romanzoffiana	Cocos Palm	16	Exotic

Findings on individual tree health and condition is presented in Appendix B - Tree Assessment Findings (available on request).

Legislative Assessment

The assessment has identified Trees there are twenty-five Significant Trees, and fifty-nine Regulated Trees as defined in the *Planning, Development and Infrastructure Act 2016*. The remaining trees are either exempt from regulation or unregulated. Significant and Regulated Trees should be preserved if they meet aesthetic and/or environmental criteria as described in the *Planning, Development and Infrastructure (General) Regulations 2017*. There are eighteen trees which are considered to provide 'important' aesthetic and/or environmental benefit which would warrant their protection; the remaining trees whilst providing benefit in this regard do not do so to a level that would be considered to be 'important'. Additionally, all the trees assessed have been identified as assets of the City of Adelaide.

Table 2 - Legislative Status

Legislative Status	Number of Trees	Tree Numbers
Significant	25	4, 36, 41, 43, 98, 99, 111, 127, 200, 215, 234, 239, 343, 392, 394, 404, 408, 409, 411, 422, 424, 429, 431, 443 and 451
Regulated	59	5, 8-11, 15, 27, 39, 42, 44, 46, 47, 74, 80, 100, 109, 110, 112, 115, 123, 125, 128, 130, 131, 136, 144, 160, 170, 174, 178, 180, 183, 186, 191, 193, 208, 220, 236, 237, 244, 258, 261, 265, 266, 268, 272, 281, 282, 295, 308, 326, 336, 344, 345, 395, 405, 420, 423 and 430,
Unregulated	371	1-3, 6, 7, 12-14, 16-22, 24-26, 28-35, 37, 38, 40, 45, 48-73, 75-78, 81-97, 101-108, 113, 114, 116-122, 124, 126, 129, 132, 134, 135, 138-141, 143, 145-157, 159, 161-163, 165-169, 171-173, 175-177, 179, 181, 182, 184, 185, 187, 189, 190, 192, 194-199, 201-207, 209-214, 216-219, 221-233, 235, 238, 240-243, 245257, 259, 260, 262-264, 267, 269-271, 273-280, 283-294, 296-307, 309-325, 327-335, 337-342, 346-391, 393, 396-403, 406, 407, 410, 412-419, 421, 425-428, 432-442, 444-450 and 452-457
Exempt	2	164 and 188

The highlighted trees above identify the Regulated and/or Significant Trees that are considered to meet aesthetic and/or environmental criteria as described in the PDI Act 2016 identifying them as important trees.

Retention Assessment

Trees that provide an environmental and/or aesthetic contribution to the area, are in good condition will achieve a High or Moderate Retention Rating and conservation of these trees is encouraged. Trees that do not provide this contribution and/or are in poor condition will achieve a Low Retention Rating; these trees will display one or more of the following or similar attributes:

a) are in poor condition due to health and/or structural decline,

b) have poor form that impacts their aesthetic value,

c) provide limited environmental and/or aesthetic benefit,

d) are a short-lived species and/or have a short Useful Life Expectancy,

e) represent a material risk to persons or property,

f) are identified as causing or threatening to cause substantial damage to a structure of value,

The assessment has identified twenty-seven trees as having a High Retention Rating. Trees. The twenty-one Regulated and/or Significant Trees that scored a High rating, display one or more attributes within the *PDI Act 2016* which warrant their protection as important trees.

The assessment has identified 381 trees as having a Moderate Retention Rating. It is my opinion, the Regulated and/or Significant Trees with a Moderate Retention Rating, do not display attributes described within the *Planning, Development and Infrastructure Act 2016*, that would warrant their retention as important trees. However, they are worthy of consideration for retention if they can be adequately protected in an otherwise reasonable and expected development.

Table 3 - Retention Rating

Retention Rating	Number of Trees	Tree Numbers
High	27	15, 27, 36, 40, 43, 44, 74, 115, 142 (group), 144, 164, 178, 183, 191, 193, 200, 244, 251, 262, 265, 268, 344, 391, 404, 429, 430 and 431
Moderate	381	1-6, 8-14, 16-22, 24, 25, 28-34, 37, 39, 41, 42, 45-53, 55-73, 75-78, 80-86, 89-94, 98-114, 116-132, 134-136, 138-141, 143, 145-157, 159-163, 165, 166, 170-177, 179-182, 184-188, 190, 192, 194, 196-199, 203-218, 220-234, 236, 237, 239-243, 246-250, 252-261, 263, 264, 266, 267, 269-285, 288-291, 293-295, 298-301, 303-313, 315-343, 344-347, 349, 350, 352, 354-361, 363378, 380, 384-386, 388-390, 392-403, 405-409, 411-414, 416-420, 422-428, 433, 436-441, 443 and 450-457
Low	49	7, 26, 35, 38, 54, 79 (group), 87, 88, 95-97, 167-169, 189, 195, 201, 202, 219, 238, 286, 287, 292, 296, 297, 302, 314, 348, 351, 353, 362, 379, 381-383, 387, 410, 415, 421, 432, 434, 435, 442 and 444-449

The highlighted trees above identify the Regulated and/or Significant Trees that are considered to have a High Retention Rating identifying them as important trees.

The remaining trees achieved a Low Retention Rating indicating that development constraint, alternative designs or tree-friendly construction methodologies are not warranted. As such, tree removal could be considered to achieve development (this includes Regulated/Significant Trees).

Tree Protection Assessment

Australian Standard AS4970-2009 *Protection of trees on development sites* prescribes the use of a Tree Protection Zone (TPZ) as the principle means of protecting trees throughout the development process. If encroachment is required within any TPZ, the Project Arborist should be consulted to identify impacts and recommend mitigation measures. The Tree Protection Zones should be used to inform any future development of the site, maintaining these areas as open space.

The Tree Protection Zone radii for these trees, as measured from the centre of the trunk, have been calculated and are shown in the individual Tree Assessment Forms available on request; alterations to the area around these trees should be restricted in accordance with the guidelines of AS4970-2009.

Conclusion

The assessment has identified fifteen Regulated Trees, six Significant Trees and six unregulated trees/tree groups as having a High Retention Rating. It is my opinion, the Regulated and Significant Trees display one or more attributes described within the *Planning, Development and Infrastructure Act 2016*, that warrant their retention as important trees.

The removal of these trees is highly unlikely to be approved unless it can be demonstrated that:

a. they are substantially restricting an otherwise reasonable and expected development, and

b. alternative design solutions that retain these trees and achieve any form of reasonable and expected development are not available.

Alterations to the Tree Protection Zone around these trees should be restricted in accordance with the guidelines of AS4970-2009. It is recommended the design of any future development consider the extent of the TPZs and minimise all potential encroachments to ensure these trees are not impacted.

The remaining trees achieve a Moderate or Low Retention Rating. Trees that achieve a Moderate Retention Rating are worthy of consideration for retention if they can be adequately protected in an otherwise reasonable and expected development. The trees that achieve a Low Retention Rating should not form a constraint to an otherwise reasonable and expected development.

Regulated or Significant Trees require Development Approval prior to any tree damaging activity occurring. This includes development activities within the TPZ, tree removal and potentially pruning.

A Project Arborist should be appointed to assist in the design around trees to be retained; the development impacts and tree protection requirements are to be included in a Development Impact Report and a Tree Protection Plan as identified in Australian Standard *AS4970 2009 Protection of trees on development sites*.

Thank you for the opportunity to provide this report. Should you require further information, please contact me and I will be happy to be of assistance.

Yours sincerely,

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Registered User Quantified Tree Risk Assessment (QTRA)

Definitions

Circumference: trunk circumference measured at one metre above ground level. This measurement is used to determine the status of the tree in relation to the *Planning, Development and Infrastructure Act 2016*.

Diameter at Breast Height (DBH): trunk diameter measured at 1.4 metres above ground level used to determine the Tree Protection Zone as described in Australian Standard AS4970-2009 *Protection of trees on development sites*.

Diameter at Root Buttress (DRB): trunk diameter measured just above the root buttress as described in Australian Standard AS4970-2009 *Protection of trees on development sites* and is used to determine the Structural Root Zone.

Tree Damaging Activity Tree damaging activity includes those activities described within the *Planning, Development and Infrastructure Act 2016* such as removal, killing, lopping, ringbarking or topping or any other substantial damage such as mechanical or chemical damage, filling or cutting of soil within the TPZ. Can also include forms of pruning above and below the ground.

Tree Protection Zone (TPZ): area of root zone that should be protected to prevent substantial damage to the tree's health.

Structural Root Zone (SRZ): calculated area within the tree's root zone that is considered essential to maintain tree stability.

Project Arborist A person with the responsibility for carrying out a tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The Project Arborist must be competent in arboriculture, having acquired through training, minimum Australian Qualification Framework (AQTF) Level 5, Diploma of Horticulture (Arboriculture) and/or equivalent experience, the knowledge and skills enabling that person to perform the tasks required by this standard.

Important: The following definition of important was described by Commissioner Nolan of the Environment, Resource and Development Court in the case of Savoy Developments Pty Ltd v Town of Gawler [2013] SAERDC 32.

"In my view, for habitat to be raised to the level of 'important' (as sought by Objective 2(d)), it must be beyond that likely to be expected in any mature tree of indigenous origins – that is, it is beyond the normal level that might be expected or that it is so unique or special that it may be considered important. From the evidence before me I do not consider the trees to provide "important habitat for native fauna"."

This definition of important, whilst in this case relating to Habitat Value, has been related when looking at all Objectives that use the term "*Important*".

Notable: The *Planning, Development and Infrastructure Act 2016* and local Development Plan also use the term "notable" when assessing the visual contribution of a tree. The Environment, Resource and Development Court does not appear to have defined the term "notable" as applied in the *Planning, Development and Infrastructure Act 2016* however, when researching definitions it is clear that this term bears equal or similar weight as the term "important" and as such for a tree to be "notable" it has to have a similar level of attributes to an important tree. When compared to a typical example of the species for a tree to be described as "notable" it would also be considered to be a noteworthy, remarkable, outstanding, momentous, memorable, impressive, extraordinary or an exceptional example of the species or of greater importance in regard to its value as a visual element than other similar sized example of the species.

***PDI Act 2016*:** the *Planning, Development and Infrastructure Act 2016* and associated *Planning, Development and Infrastructure (General) Regulations 2017* includes provisions for the control of Regulated and Significant Trees within the 18 metropolitan Adelaide councils, townships in the Adelaide Hills Council and parts of the Mount Barker Council; these provisions do not apply in areas outside of these councils.

Regulated Tree: is recognised as any tree in the prescribed council areas with a trunk circumference of two metres or more. In the case of trees with multiple trunks, those with trunks with a total circumference of two metres or more and an average circumference 625 mm or more. The circumference is measured at a point one metre above natural ground level.

Significant Tree: *The Planning, Development and Infrastructure Act 2016* identifies a Significant Tree as any tree in Metropolitan Adelaide or townships in the Adelaide Hills Council or parts of the Mount Barker Council with a trunk circumference of three metres or more. In the case of trees with multiple trunks, those with trunks with a total circumference of three metres or more and an average circumference 625 mm or more. The circumference is measured at a point one metre above natural ground level.

Unregulated or Exempt Tree: unregulated and/or exempt trees have a trunk circumference of less than two metres and/or are excluded from control due to species, proximity to a structure or other reason as defined in the *Planning, Development and Infrastructure (General) Regulations 2017*.

***Native Vegetation Act 1991*:** Native vegetation refers to any naturally occurring local plant species that is indigenous to South Australia, from small ground covers and native grasses to large trees and water plants. It also includes naturally occurring regrowth and in certain circumstances, dead trees. In some circumstances, the management of native vegetation is protected by legislation.

References

Australian Standard AS4970–2009 ***Protection of trees on development sites***: Standards Australia.

Matheny N. Clark J. 1998: ***Trees and Development a Technical Guide to Preservation of Trees During Land Development***: International Society of Arboriculture, Champaign, Illinois, USA.

Dunster J.A., Smiley E.T., Metheny N. and Lilly S. 2013. ***Tree Risk Assessment Manual***. International Society of Arboriculture, Champaign, Illinois USA.

Appendix A - Tree Assessment Methodology

Tree Assessment Form (TAF©)

Record	Description
Tree	In botanical science, a tree is a perennial plant which consists of one or multiple trunks which supports branches and leaves. Trees are generally taller than 5 metres and will live for more than ten seasons, with some species that live for hundreds or thousands of seasons.
Genus and Species	Botanical taxonomy of trees uses the binominal system of a genus and species, often there are subspecies and subgenus as well as cultivars. When identifying tree species, identification techniques such as assessing the tree's form, flower, stem, fruit and location are used. Identifying the right species is critical in assessing the tree's legalisation and environmental benefit. All efforts are made to correctly identify each tree to species level, where possible. Genus is the broader group to which the tree belongs e.g. *Eucalyptus, Fraxinus* and *Melaleuca*. Species identifies the specific tree within the genus e.g. *Eucalyptus camaldulensis*, *Fraxinus griffithi* or *Melaleuca styphelioides*. Trees will also be assigned the most commonly used Common Name. Common Names are not generally used for identification due to their nonspecific use, i.e. *Melia azedarach* is commonly known as White Cedar in South Australia but is also called Chinaberry Tree, Pride of India, Bead-tree, Cape Lilac, Syringa Berrytree, Persian Lilac, and Indian Lilac; equally similar common names can refer to trees from completely different Genus e.g. Swamp Oak, Tasmanian Oak and English Oak are from the *Casuarina, Eucalyptus* and *Quercus* genus's respectively.
Height	Tree height is estimated by the arborist at the time of assessment. Tree height is observed and recorded in the following ranges; <5m, 5-10m, 10-15m and >20m.
Spread	Tree crown spread is estimated by the arborist at the time of assessment and recorded in the following ranges <5m, 5-10m, 10-15m, 15-20m, >20m.
Health	Tree health is assessed using the Arborman Tree Solutions - Tree Health Assessment Method that is based on international best practice.
Structure	Tree structure is assessed using Arborman Tree Solutions - Tree Structure Assessment Method that is based on international best practice.
Tree Risk Assessment	Tree Risk is assessed using Tree Risk Assessment methodology. The person conducting the assessment has been trained in the International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ), Quantified Tree Risk Assessment (QTRA) and/or VALID Tree Risk Assessment (VALID). Refer to the Methodology within the report for additional information.
Legislative Status	Legislation status is identified through the interpretation of the *Development Act 1993*, the *Natural Resource Management Act 2004,* the *Native Vegetation Act 1991* and/or any other legislation that may apply.
Mitigation	Measures to reduce tree risk, improve tree condition, remove structural flaws, manage other conditions as appropriate may be recommended in the form of pruning and is listed in the Tree Assessment Findings (available on request). Tree pruning is recommended in accordance with AS4373-2007 *Pruning amenity trees* where practicable. Where measures to mitigate risk is not possible and the risk is unacceptable, then tree removal or further investigation is recommended.

Useful Life Expectancy (ULE)

ULE Rating	Definition
Surpassed	The tree has surpassed its Useful Life Expectancy. Trees that achieve a surpassed ULE may do so due to poor health, structure or form. Additionally, trees that are poorly located such as under high voltage powerlines or too close to structures may also achieve a surpassed ULE. Trees that achieve this status will be recommended for removal as there are no reasonable options to retain them.
<10 years	The tree displays either or both Poor Health and/or Structure and is considered to have a short Useful Life Expectancy of less than ten years. Some short-lived species such as *Acacia sp*. may naturally achieve a short ULE.
>10 years	The tree displays Fair Health or Structure and Good Health or Structure and is considered to have a Useful Life Expectancy of ten years or more. Trees identified as having a ULE of >10, will require mitigation such as pruning, stem injections or soil amelioration to increase their ULE.
>20 years	The tree displays Good Health and Structure and is considered to have an extended Useful Life Expectancy of more than twenty years.

Maturity (Age)

Age Class	Definition
Senescent	The tree has surpassed its optimum growing period and is declining and/or reducing in size. May be considered as a veteran in relation to its ongoing management. Tree will have generally reached greater than 80% of its expected life expectancy.
Mature	A mature tree is one that has reached its expected overall size, although the tree's trunk is still expected to continue growing. Tree maturity is also assessed based on species; as some trees are much longer lived than others. Tree will have generally reached 20-80% of its expected life expectancy.
Semi Mature	A tree which has established but has not yet reached maturity. Normally tree establishment practices such as watering will have ceased. Tree will generally not have reached 20% of its expected life expectancy.
Juvenile	A newly planted tree or one which is not yet established in the landscape. Tree establishment practices such as regular watering will still be in place. Tree will generally be a newly planted specimen up to five years old; this may be species dependant.

Tree Health Assessment (THA©)

Category	Description
Good	Tree displays normal vigour, uniform leaf colour, no or minor dieback (<5%), crown density (>90%). When a tree is deciduous, healthy axillary buds and typical internode length is used to determine its health. A tree with good health would show no sign of disease and no or minor pest infestation was identified. The tree has little to no pest and/or disease infestation.
Fair	Tree displays reduced vigour abnormal leaf colour, a moderate level of dieback (<15%), crown density (>70%) and in deciduous trees, reduced axillary buds and internode length. Minor pest and/or disease infestation potentially impacting on tree health. Trees with fair health have the potential to recover with reasonable remedial treatments.
Poor	Tree displays an advanced state of decline with low or no vigour, chlorotic or dull leaf colour, with high crown dieback (>15%), low crown density (<70%) and/or in deciduous trees, few or small axillary buds and shortened internode length. Pest and or disease infestation is evident and/or widespread. Trees with poor health are highly unlikely to recover with any remedial treatments; these trees have declined beyond the point of reversal.
Dead	The tree has died and has no opportunity for recovery.

Tree Structural Assessment (TSA©)

Category	Description
Good	Little to no branch failure observed within the crown, well-formed unions, no included bark, good branch and trunk taper present, root buttressing and root plate are typical. Trees that are identified as having good health display expected condition for their age, species and location.
Fair	The tree may display one or more of the following a history of minor branch failure, included bark unions may be present however, are stable at this time, acceptable branch and trunk taper present, root buttressing and root plate are typical. Trees with fair structure will generally require reasonable remediation methods to ensure the tree's structure remains viable.
Poor	History of significant branch failure observed in the crown, poorly formed unions, unstable included bark unions present, branch and/or trunk taper is abnormal, root buttressing and/or root plate are atypical.
Failed	The structure of the tree has or is in the process of collapsing.

Tree Form Assessment (TFA©)

Category	Description
Good	Form is typical of the species and has not been altered by structures, the environment or other trees.
Fair	The form has minor impacts from structures, the environment or adjacent trees which has altered its shape. There may be slight phototropic response noted or moderate pruning which has altered the tree's form.
Poor	The tree's form has been substantially impacted by structures, the environment, pruning or other trees. Phototropic response is evident and unlikely to be corrected.
Atypical	Tree form is highly irregular due to structures or other trees impacting its ability to correctly mature. Extreme phototropic response is evident; or the tree has had a substantially failure resulting in its poor condition, or extensive pruning has altered the tree's form irreversibly.

Priority

Category	Description
Low	Identified works within this priority should be carried out within 12 months.
Medium	Identified works within this priority should be carried out within 6 months.
High	Identified works within this priority should be carried out within 3 months.
Urgent	Identified works within this priority should be carried out immediately. Works within this priority rating will be brought to attention of the responsible person at the time of assessment.

Tree Retention Rating (TRR)

The Tree Retention Rating is based on a number of factors that are identified as part of the standard tree assessment criteria including Condition, Size, Environmental, Amenity and Special Values. These factors are combined in a number of matrices to provide a Preliminary Tree Retention Rating and a Tree Retention Rating Modifier which combine to provide a Tree Retention Rating that is measurable, consistent and repeatable

Preliminary Tree Retention Rating

The Preliminary Tree Retention Rating is conducted assessing Tree Health and Structure to give an overall Condition Rating and Height and Spread to give an overall Size Rating. The following matrices identify how these are derived.

Condition Matrix				
Structure	**Health**			
	Good	**Fair**	**Poor**	**Dead**
Good	C1	C2	C3	C4
Fair	C2	C2	C3	C4
Poor	C3	C3	C4	C4
Failed	C4	C4	C4	C4

Size Matrix					
Spread	**Height**				
	>20	**15-20**	**10-15**	**5-10**	**<5**
>20	S1	S1	S1	S2	S3
15-20	S1	S1	S2	S3	S3
10-15	S1	S2	S2	S3	S4
5-10	S2	S3	S3	S4	S5
<5	S3	S3	S4	S5	S5

The results from the Condition and Size Matrices are then placed in the Preliminary Tree Retention Rating Matrix.

Preliminary Tree Retention Rating				
Size	**Condition**			
	C1	**C2**	**C3**	**C4**
S1	High	Moderate	Low	Low
S2	Moderate	Moderate	Low	Low
S3	Moderate	Moderate	Low	Low
S4	Moderate	Moderate	Low	Low
S5	Low	Low	Low	Low

The Preliminary Tree Retention Rating gives a base rating for all trees regardless of other environmental and/or amenity factors and any Special Value considerations. The Preliminary Tree Retention Rating can only be modified if these factors are considered to be of high or low enough importance to warrant increasing or, in a few cases, lowering the original rating.

Tree Retention Rating Modifier

The Preliminary Tree Retention Rating is then qualified against the recognised Environmental and Amenity benefits that trees present to the community thereby providing a quantitative measure to determine the overall Tree Retention Rating. Data is collected in relation to Environmental and Amenity attributes which are compared through a set of matrices to produce a Tree Retention Rating Modifier.

Environmental Matrix				
Origin	**Habitat**			
	Active	**Inactive**	**Potential**	**No Habitat**
Indigenous	E1	E1	E2	E3
Native	E1	E2	E3	E3
Exotic	E2	E3	E3	E4
Weed	E3	E3	E4	E4

Amenity Matrix				
Character	**Aesthetics**			
	High	**Moderate**	**Low**	**None**
Important	P1	P1	P2	P3
Moderate	P1	P2	P3	P3
Low	P2	P3	P3	P4
None	P3	P3	P4	P4

Tree Retention Rating Modifier				
Amenity	**Environment**			
	E1	**E2**	**E3**	**E4**
P1	High	High	Moderate	Moderate
P2	High	Moderate	Moderate	Moderate
P3	Moderate	Moderate	Moderate	Moderate
P4	Moderate	Moderate	Moderate	Low

Tree Retention Rating

The results of the Preliminary Tree Retention Rating and the Tree Retention Rating Modifier matrices are combined in a final matrix to give the actual Tree Retention Rating.

Tree Retention Rating Matrix			
Tree Retention Rating Modifier	**Preliminary Tree Retention Rating**		
	High	**Moderate**	**Low**
High	Important	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

Special Value Trees

There are potentially trees that have Special Value for reasons outside of normal Arboricultural assessment protocols and therefore would not have been considered in the assessment to this point; to allow for this a Special Value characteristic that can override the Tree Retention Rating can be selected. Special Value characteristics that could override the Tree Retention Rating would include factors such as the following:

Cultural Values

Memorial Trees, Avenue of Honour Trees, Aboriginal Heritage Trees, Trees planted by Dignitaries and various other potential categories.

Environmental Values

Rare or Endangered species, Remnant Vegetation, Important Habitat for rare or endangered wildlife, substantial habitat value in an important biodiversity area and various other potential categories.

Where a tree achieves one or more Special Value characteristics the Tree Retention Rating will automatically be overridden and assigned the value of Important.

Tree Retention Rating Definitions

Important These trees will in all instances be required to be retained within any future development/redevelopment. It is highly unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Trees will be either remnant, or naturally occurring species with environmental value, will have active hollows and be in good overall condition.

High These trees will in most instances be required to be retained within any future development/redevelopment. It is unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Trees will be either remnant, or naturally occurring species with environmental value but are starting to decline or will be a planted native and have active hollows and be in good condition. Or may provide a high aesthetic contribution to an area and be in good overall condition

Moderate Trees with a moderate retention rating provide limited environmental benefit and amenity to the area. These trees may be semi mature or exotic species with limited environmental value. Moderate trees may also be large trees that display fair overall condition.

Low These trees may not be considered suitable for retention in a future development/redevelopment. These trees will either be young trees that are easily replaced. or in poor overall condition. Trees in this category do not warrant special works or design modifications to allow for their retention. Trees in this category are likely to be approved for removal and/or other tree damaging activity in an otherwise reasonable and expected development. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.