



SEASONED TREE CONSULTING

PRELIMINARY ARBORICULTURAL IMPACT ASSESSMENT REPORT

Prepared for
DMPS

Site address
**Pymble Golf Club
No. 4, 12 – 14 Cowan Road,
St Ives**

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1. INTRODUCTION

- 1.1 This report has been commissioned by DMPS to provide a Preliminary Arboricultural Impact Assessment Report in relation to trees located on or close to the site that may be affected by proposed rezoning and therefore future development.

TABLE 1: DOCUMENTS PROVIDED FOR THE ASSESSMENT

Title	Author	Date	Reference on document
Plan of detail and levels	Rygate Surveyors	2014	-
Urban Design Report	DMPS	April 2002	-

- 1.2 One site inspection was carried out for the purpose of this assessment in March 2017. The site inspection was undertaken to collect tree and site data.
- 1.3 An additional site visit was undertaken on 15th January 2023 to reassess all trees and update this report and data where required.

2. SCOPE OF THE REPORT

- 2.1 **This report has been undertaken to meet the following objectives.**
- 2.2 Conduct a visual assessment from ground level of trees located on or close to development proposed within the site.
- 2.3 Determine the trees estimated contributing years, remaining useful life expectancy and award the tree a retention value.
- 2.4 Provide an assessment of the potential impact the proposed development is likely to have on the condition of the subject trees in accordance with AS4970 Protection of trees on development sites (2009).
- 2.5 Recommend methods to mitigate development impacts where appropriate.

3. LIMITATIONS

- 3.1 Observations and recommendations are based on the single site inspection. The findings of this report are based on the observations and site conditions at the time inspection.
- 3.2 All observations were carried out from ground level. No detailed additional testing was carried out on trees or soil on site and none of the surrounding surfaces were lifted for investigation.
- 3.3 Root decay can sometimes be present with no visual indication above ground. It is also impossible to know the extent of any root damage caused by mechanical damage such as underground root cutting during the installation of services without undertaking detailed root investigation. Any form of tree failure due to these activities is beyond the scope of this assessment.
- 3.4 The report reflects the subject tree(s) as found on the day of inspection. Any changes to the growing environment of the subject tree, or tree management works beyond those recommended in this report may alter the findings of the report. There is no warranty, expressed or implied, that problems or deficiencies relating to the subject tree, or subject site may not arise in the future.
- 3.5 Tree identification is based on accessible visual characteristics at the time of inspection. As key identifying features are not always available the accuracy of identification is not guaranteed. Where tree species is unknown, it is indicated with a spp.
- 3.6 All diagrams, plans and photographs included in this report are visual aids only and are not to scale unless otherwise indicated.
- 3.7 Seasoned Tree Consulting neither guarantees, nor is responsible for, the accuracy of information provided by others that is contained within this report.
- 3.8 While an assessment of the subject trees estimated useful life expectancy is included in this report, no specific tree risk assessment has been undertaken for any of trees at the site.
- 3.9 Where trees are stated as retainable under the current proposal, this will only become a reality if all recommendations and specifications are followed exactly.
- 3.10 The ultimate safety of any tree cannot be categorically guaranteed. Even trees apparently free of defects can collapse or partially collapse in extreme weather conditions. Trees are dynamic, biological entities subject to changes in their environment, the presence of pathogens and the effects of ageing. These factors reinforce the need for regular inspections. It is generally accepted that hazards can only be identified from distinct defects or from other failure-prone characteristics of a tree or its locality.
- 3.11 Alteration of this report invalidates the entire report.

4. METHODOLOGY

- 4.1 The following information was collected during the assessment of the subject tree(s).
- 4.2 Tree common name
- 4.3 Tree botanical name
- 4.4 Tree age class
- 4.5 DBH (Trunk/Stem diameter at breast height/1.4m above ground level) - millimetres.
- 4.6 Estimated height - metres
- 4.7 Estimated crown spread (Radius of crown) - metres
- 4.8 Health
- 4.9 Structural condition
- 4.10 Amenity value
- 4.11 Estimated remaining contribution years (SULE)¹
- 4.12 Retention value (Tree AZ)²
- 4.13 Notes/comments
- 4.14 An assessment of the trees condition was made using the visual tree assessment (VTA) model (Mattheck & Breloer, 1994).³
- 4.15 Tree diameter was measured using a DBH tape or in some cases estimated. All other measurements were estimations unless otherwise stated. The other tools I used during the assessment were a digital camera and a Leica DistoD410 digital laser tape.
- 4.16 All DBH measurements, tree protection zones, and structural root zones were calculated in accordance with methods set out in AS4970 Protection of trees on development sites (2009) ⁴ and in some cases estimated. See appendices for information.
- 4.17 Details of how the observations in this report have been assessed are listed in the appendices.

¹ Barrell Tree Consultancy, *SULE: Its use and status into the New Millennium*, TreeAZ/03/2001, <http://www.treeaz.com/>.

² Barrell Tree Consultancy, *Tree AZ version 10.10-ANZ*, <http://www.treeaz.com/>.

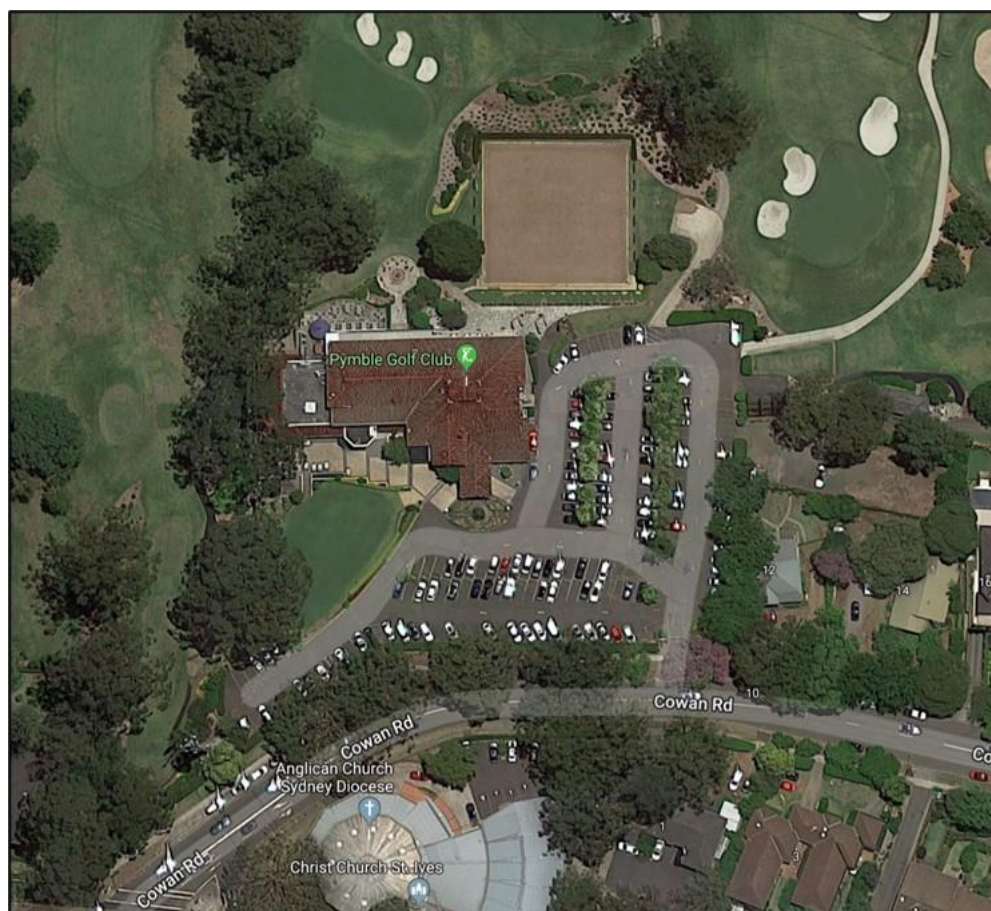
³ Mattheck, C. & Breloer, H., *The body language of trees - A handbook for failure analysis*, The Stationary Office, London, England (1994).

⁴ Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009).

5. SITE LOCATION AND BRIEF DESCRIPTION OF PROPOSAL

- 5.1 The site is located in the suburb of St Ives in the Ku-ring-gai Shire Council LGA. This assessment has been carried out in accordance with the following documents and legislation;
 - 5.1.1 Ku-ring-gai Local Environmental Plan 2015
 - 5.1.2 Ku-ring-gai Development Control Plan (DCP) 2021
 - 5.1.3 State Environmental Planning Policy (Biodiversity and Conservation 2021).
- 5.2 Pymble Golf Club is situated off Mona Vale road in the suburb of St Ives. The proposed development site encompasses the existing clubhouse and amenities, carpark and surrounding garden areas, plus 2 separate blocks of land to the north. The site has environmental protection overlays including mapped Critically Endangered Ecological Community (Blue Gum high Forest). The site has no mapped heritage items⁵.
- 5.3 The proposal consists of an application for a Planning Proposal which seeks to enable a rezoning of select land within the site with an indicative site design.

Tile 1: Approx Site location⁶



⁵ <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

⁶ <https://maps.six.nsw.gov.au/>

6. OBSERVATIONS AND GENERAL INFORMATION IN RELATION TO PROTECTING TREES ON DEVELOPMENT SITES

- 6.1 **Tree information:** Details of each individual tree assessed, including the observations taken during the site inspection can be found in the tree inspection schedule in appendix 2, where the indicative tree protection zone (TPZ) for the subject trees has been calculated. The TPZ and SRZ should be measured in radius from the centre of the trunk. Trees have been awarded a retention value based on site observations. The system used to award the retention value is Tree AZ. Tree AZ is used to identify higher value trees worthy of being a constraint to development and lower value trees that should generally not be a constraint to the development. A field sheet of Tree AZ categories sheet (Barrell Tree Consultancy) has been included at the end of the report to assist with understanding the retention values. The retention value that has been allocated to the subject trees in this report is not definitive and should only be used as a guideline.
- 6.2 **Site plans:** Appendix 1 contains an existing site plan identifying tree locations and an overlay of the indicative TPZ and SRZ of each tree. Appendix 1A contains the proposed site plans and calculated encroachments Appendix 1B contains a tree protection plan.
- 6.3 **Tree protection zone (TPZ):** The TPZ is principle means of protecting trees on development sites and is an area required to maintain the viability of trees during development. It is commonly observed that tree roots will extend significantly further than the indicative TPZ, however the TPZ is an area identified AS4970-2009 to be the extent where root loss or disturbance will generally impact the viability of the tree. The TPZ is identified as a restricted area to prevent damage to trees either above or below ground during a development. Where trees are intended to be retained proposed developments must provide an adequate TPZ around trees. The TPZ is set aside for the tree's root zone, trunk and crown and it is essential for the stability and longevity of the tree. The tree protection also incorporates the SRZ (see below for more information about the SRZ). The TPZ of palms, other monocots, cycads and tree ferns has been calculated at one metre outside the crown projection. Appendix 4 contains additional information about the TPZ including information about calculating the TPZ and examples of TPZ encroachment.
- 6.4 **Structural Root Zone (SRZ):** This is the area around the base of a tree required for the trees stability in the ground. An area larger than the SRZ always needs to be maintained to preserve a viable tree. There are several factors that can vary the SRZ which include height, crown area, soil type and soil moisture. It can also be influenced by other factors such as natural or built structures. Generally work within the SRZ should be avoided. Soil level changes should also generally be avoided inside the SRZ of trees to be retained. Palms, other monocots, cycads and tree ferns do not have an SRZ. See appendix 5 for more information about the SRZ.

- 6.5 **Minor encroachment into TPZ:** Sometimes encroachment into the TPZ is unavoidable. Encroachment includes but is not limited to activities such as excavation, compacted fill and machine trenching. Minor encroachment of up to 10% of the overall TPZ area is normally considered acceptable, providing there is space adjacent to the TPZ for the tree to compensate and the tree is displaying adequate vigour/health to tolerate changes to its growing environment.
- 6.6 **Major encroachment into TPZ:** Where encroachment of more than 10% of the overall TPZ area is proposed an Arborist must investigate and demonstrate that the tree will remain in a viable condition. In some cases, tree sensitive construction methods such as pier and beam footings, suspended slabs, or cantilevered sections, can be utilised to allow additional encroachment into the TPZ by bridging over roots and minimising root disturbance. Major encroachment is only possible if it can be undertaken without severing significant size roots, or if it can be demonstrated that significant roots will not be impacted.

7. ASSESSEMENT OF CONSTRUCTION IMPACTS

7.1 **Table 2:** The table below contains a summary of the impact of proposed development impact to all trees included in the assessment.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
1	<i>Cupressus sp</i>					-	Tree has been removed.	n/a
2	<i>Angophora costata</i> (Sydney Red gum)	AA	12.3	3.57	475.3	Major	Tree is located within the streetscape and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
3	<i>Eucalyptus pilularis</i> (Blackbutt)	AA	10.8	3.34	366.4	Major	Tree is located within the streetscape and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
4	<i>Eucalyptus pilularis</i> (Blackbutt)	AA	10.2	3.2	326.9	Major	Tree is located within the streetscape and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
5	<i>Angophora costata</i> (Sydney Red gum)	AA	15	4.14	706.9	Major	Tree is located within the streetscape and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
6	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	15	3.89	706.9	Major	Tree is located within the streetscape and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
7	<i>Jacaranda mimosifolia</i> (Jacaranda)	A2	4.8	2.65	72.4	Footprint	Tree is located within the footprint of the proposed club entry driveway and would be required to be removed at a later date to facilitate this development.	Remove and replace.
8	<i>Jacaranda mimosifolia</i> (Jacaranda)	A2	6.8	2.87	145.3	Major	Tree is located within the streetscape and has a moderate retention value. There is likely a major encroachment from proposed plans. The tree may be able to be retained in a viable condition with sensitive design required for any major encroachment.	Retain and protect.
9	<i>Weeping Standard Cherry</i>					-	Tree has been removed.	n/a
10	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	15	4.41	706.9	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
11	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	15	4.19	706.9	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
12	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	14.	3.81	615.8	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
13	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	15	4.15	706.9	Minor	Tree is located within the site and has a very high retention value. There is likely a minor encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any works within the TPZ and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
14	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	13.3	3.69	555.7	Minor	Tree is located within the site and has a very high retention value. There is likely a minor encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any works within the TPZ and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
15	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	AA	14.7	3.81	678.9	Minor	Tree is located within the site and has a very high retention value. There is likely a minor encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any works within the TPZ and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
16	<i>Toona ciliata</i> (Australian Red Cedar)	A3	11.88	3.4	443.4	Footprint	Further investigation/ pricing into transplant of entire tree elsewhere on site/ into the new development.	Further investigation required
17(a) 17(b)	2 x <i>Eucalyptus saligna</i> (Sydney Blue Gum) (To be accurately surveyed onto plan)	AA	15	4.16	706.9	Minor	Tree is located within the site and has a very high retention value. There is likely a minor encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any works within the TPZ and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
18	Group of trees- <i>Melaleuca</i> sp +	Z4	4.8	2.2	72.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
19	<i>Lophostemon confertus</i> (Group of Variegated Brushbox) + 1 x <i>Platanus x acerifolia</i> (London Plane Tree)	A2	2.4	1.85	18.1	Footprint	Group of trees are located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
20	<i>Eucalyptus paniculata</i> (Grey Ironbark)	A1	9.8	3.14	301.7	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
21	<i>Eucalyptus paniculata</i> (Grey Ironbark)	Z9	13.2	3.53	547.4	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.
22	<i>Syncarpia glomulifera</i> (Turpentine)	AA	11.6	3.31	422.7	Major	Tree is located within the site and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design required for any major encroachment, and high-quality project arborist management supervision throughout demolition and construction.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
23	<i>Tilia cordata</i> (Linden tree)	A1	7.2	2.7	162.9	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
24	Possibly <i>Castanea sativa</i> ??? (Chestnut tree) <i>Species not confirmed</i>	A2	2.4	1.75	18.1	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
25	<i>Magnolia x alba</i> (White champaca)	A2	3.6	2.13	40.7	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
26	<i>Harpephyllum caffrum</i> (Kaffir Plum tree)	Z3	4.2	2.13	55.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
27	<i>Celtis spp</i> (Chinese hackberry)	Z3	4.8	2.37	72.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
28	<i>Nyssa sylvatica</i> (Tupelo)	A2	4.8	2.3	72.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
29	<i>Parrotia persica</i> (Persian ironwood)	A1	4.2	2	55.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
30	<i>Angophora costata</i> (Sydney Red gum)	A1	7.8	2.85	191.1	Major	Tree is located within the front setback and has a very high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
31	<i>Liquidambar styraciflua</i> (Liquidambar)	A2	9	3.04	254.5	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
32	<i>Lophostemon confertus</i> (Brushbox)	A1	6.2	2.67	120.8	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
33	<i>Lophostemon confertus</i> (Brushbox)	A1	6.9	2.71	149.6	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
34	<i>Nyssa sylvatica</i> (Tupelo)	A2	2.7	1.5	22.9	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
35	<i>Jacaranda mimosifolia</i> (Jacaranda)	A2	3.8	2.1	45.4	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
36	<i>Lophostemon confertus</i> (Brushbox)	A1	12.6	3.5	498.8	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
37	<i>Liquidambar styraciflua</i> (Liquidambar)	A2	6.2	2.63	120.8	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
38	<i>Liquidambar styraciflua</i> (Liquidambar)	A1	6.6	2.78	136.8	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.
39	<i>Lophostemon confertus</i> (Brushbox)	A1	10.4	3.12	339.8	Major	Tree is located within the front setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.

Tree ID	Common name	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sq m)	TPZ Encroachment See Appendix 1A	Discussion/ Conclusion	Recommendation
40	Group of small trees <i>Acer sp</i>	A2	3.6	2.13	40.7	Footprint	Tree is located within the footprint of the proposed footprint and would be required to be removed at a later date to facilitate this development.	Remove and replace.
T41	<i>Lophostemon confertus</i> (Brushbox) (To be accurately surveyed onto plan)	A1	9.2	3.12	265.9	Major	Tree is located within the side setback and has a high retention value. There is likely a major encroachment from proposed plans. The tree will be able to be retained in a viable condition with sensitive design for any major encroachment.	Retain and protect.

8. CONCLUSIONS

8.1 **Table 3:** Summary of the impact to trees during the development;

Impact	Reason	A	Z
Trees to be removed	Building construction, new surfacing and/or proximity, trees in poor condition	19, 23, 24, 25, 28, 29, 34, 35, 36, 40 (10 trees)	7, 9, 18, 26, 27 (5 trees)
Retained trees that will be subject to TPZ encroachment Sensitive design will be required + Trees may require further investigation (Root Mapping)	Removal of existing surfacing/structures and/or installation of new surfacing/structures	2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 15, 17 (a + b), 20, 21, 22, 30, 31, 32, 33, 37, 38, 39, 41 (25 trees)	None
Trees to be retained that will not be subject to TPZ encroachment	Space for development	None	None
Tree will require further investigation (in the form of transplant assessment)	Specialist tree located within footprint of the proposed building	16 (1 tree)	None

*** T1 has been removed

9. RECOMMENDATIONS

- 9.1 This report assesses the preliminary impact of a proposed development at the site on 41 trees located on or close to the site in accordance with AS4970 Protection of trees on development sites (2009).
- 9.2 It is recommended that **Trees numbered 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 15, 17, 20, 21, 22, 30, 31, 32, 33, 37, 38, 39, 41 (total of 24 trees) all be retained and protected.** Arboriculturally sensitive design will be required when designing within TPZs and SRZs, with multiple root investigations likely to be required.
- 9.3 **Tree 16 (total of 1 tree) will require further investigation** in the form of a transplant assessment.
- 9.4 It is recommended that **Trees numbered 7, 9, 18, 19, 23, 24, 25, 26, 27, 28, 29, 34, 35, 36, 40 (total of 15 trees) be approved for future removal** to cater for the proposed rezoning and future development of the site.
- 9.5 **No Tree Protection measures are required at this time due to the type of rezoning development.**
- 9.6 This report does not provide approval for tree removal or pruning works. All recommendations in this report are subject to approval by the relevant authorities and/or tree owners. This report should be submitted as supporting evidence with any tree removal/pruning or development application.

10. BIBLIOGRAPHY/REFERENCES

- Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009).
- Mattheck, C. & Breloer, H., *The body language of trees - A handbook for failure analysis*, The Stationary Office, London, England (1994).
- Barrell Tree Consultancy, *SULE: Its use and status into the New Millennium*, TreeAZ/03/2001, <http://www.treeaz.com/>.
- Barrell Tree Consultancy, *Tree AZ version 10.10-ANZ*, <http://www.treeaz.com/>. Property.
- State Environmental Planning Policy (Vegetation in Non-Rural Areas 2017).

11. LIST OF APPENDICES

The following are included in the appendices:

Appendix 1 - Existing Site Plan
Appendix 1A – Proposed Site Plan
Appendix 1A – Tree Removal/ Retention Plan
Appendix 2 - Tree Inspection schedule
Appendix 3 - Tree Health
Appendix 4 – Tree Protection Zone
Appendix 5 – Structural Root Zone
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Appendix 7 – Age Class
Appendix 8 – Structural Condition
Appendix 9 – SULE Categories
Appendix 10 – Trees AZ

APPENDIX 1 - SITE PLAN

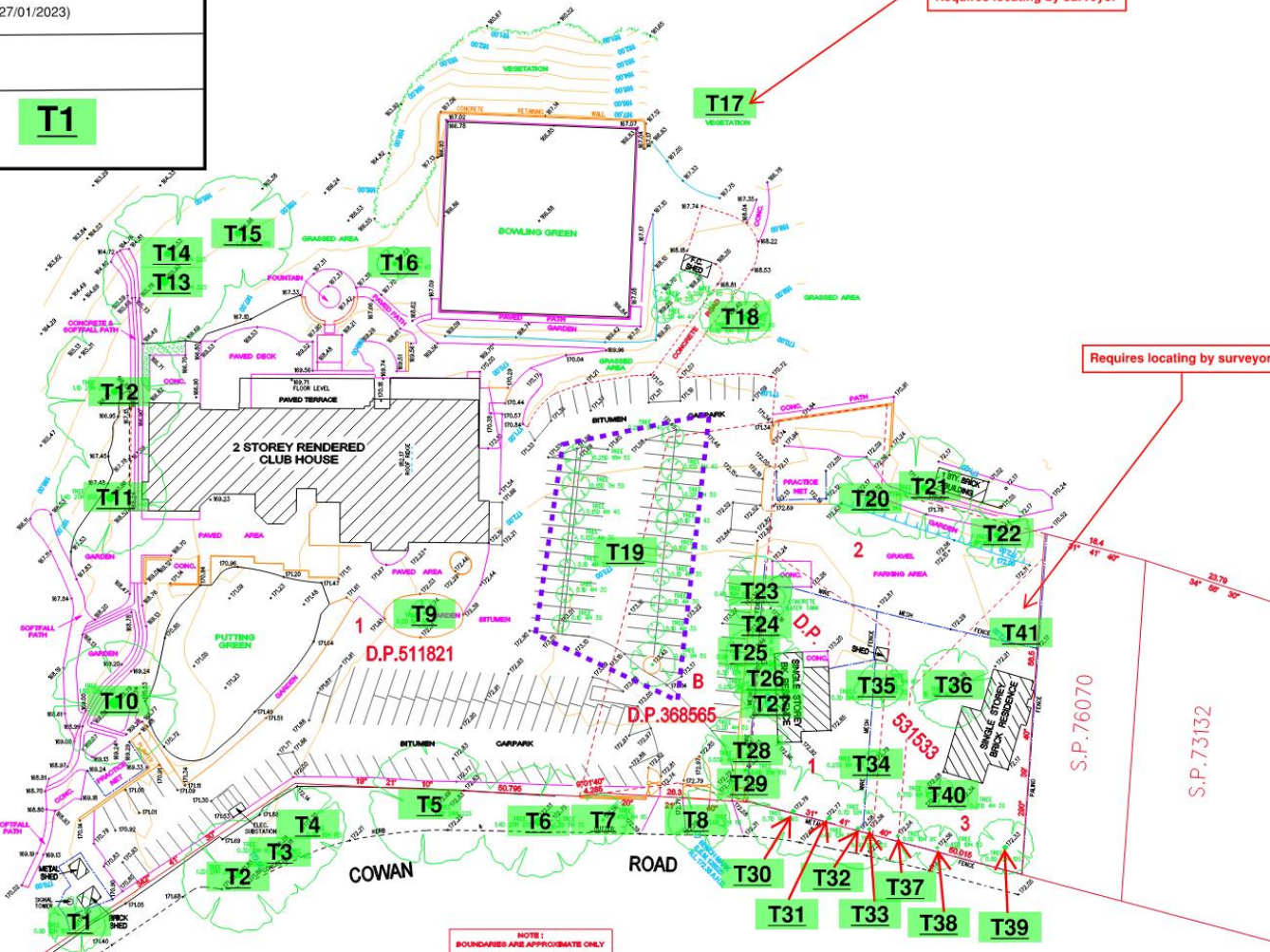
Tree Location Plan

(Seasoned Tree Consulting 27/01/2023)

Legend

Tree Number

T1



NOTES:

BEARINGS SHOWN RELATE TO M.S.A. NORTH.
LIMITED BOUNDARY SURVEY MADE. IF ANY CONSTRUCTION IS INTENDED IN THE PROXIMITY OF THE BOUNDARIES IT IS RECOMMENDED THAT A FURTHER SURVEY BE REQUESTED FOR THE MARKING OF THE RELEVANT BOUNDARIES.

TREE SPREADS & TRUNK DIAMETERS SHOWN ARE DIAGRAMMATIC ONLY AND TREE HEIGHTS ARE ESTIMATED. IF ANY OF THESE ELEMENTS ARE CRITICAL TO DESIGN IN PARTICULAR (SPECIAL) MORE SPECIFIC DETAILS SHOULD BE REQUESTED FOR ACCURATE LOCATION.
CONSTRUCTION WORKS MUST BE RELATED TO THE SITE BENCH MARK AND NOT LEVELS OF STRUCTURES SHOWN ON THE PLAN.

THE EXISTENCE AND POSITION OF UNDERGROUND SERVICES HAS NOT BEEN INVESTIGATED.

IT IS THE RESPONSIBILITY OF EACH CONTRACTOR AND/OR CONSULTANT TO CONTACT THE RELEVANT AUTHORITY AND/OR 'Call Before You Dig' (Phone 1900 Fax 1500 652 077) BEFORE COMMENCING ANY EXCAVATION.

THIS PLAN HAS BEEN CREATED AT A SCALE OF 1:400 AND MAY NOT BE SATISFACTORY FOR OTHER PURPOSES. THE ACCURACY OF ANY ENLARGEMENT OR OTHER REPRODUCTION MAY BE LESS THAN THAT OF THE ORIGINAL.

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REV.	DATE	AMENDMENTS
1	27/01/2023	Issue 001 Level 0, 10 Year 10 Survey 1000 2000
2	27/01/2023	Issue 001 Level 0, 10 Year 10 Survey 1000 2000
3	27/01/2023	Issue 001 Level 0, 10 Year 10 Survey 1000 2000

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SURVEYOR	DRAWN	CHECKED	APPROVED
A.C.	S.K.	A.C.	G.J.F.

0	40
REDUCTION RATIO: 1:400 @ A1	

DATUM : AUSTRALIAN HEIGHT DATUM
CONTOUR INTERVAL : 1 METRE
ORIGIN OF LEVELS : S.S.M. 120520
R.L. 172.38 A.M.D.

THIS TITLE BLOCK AND NOTES FORM AN INTEGRAL PART OF THE PLAN AND MUST BE REPRODUCED IN ANY USE, EXPLANATION OR AMENDMENT.

CLIENT: PYMBLE GOLF COURSE

ARCHITECT: P.D. MAYOH PTY. LTD.

LOCALITY: ST IVES

L.G.A.: KURRING-GAI

PLAN

SHOWING LIMITED DETAIL & LEVELS

PYMBLE GOLF COURSE

CAD REFERENCE: 76607.dgn

REFERENCE NO.: 76607

PLAN NO.: 20/11/2014

DATE: 20/11/2014

SHEET NO.: 21

OF SHEETS

APPENDIX 1A – PROPOSED SITE PLAN

Proposed Site Plan

(Seasoned Tree Consulting 16/08/2022)

Legend

Tree Number **T1**

Tree Protection Zone

Structural Root Zone

TREES TO BE RETAINED
EXISTING CLUB HOUSE
NEW RESIDENTIAL ENTRY
COURTYARD
GROUND (UNEXCAVATED)



Figure 7.1.3 Indicative Design - Ground Floor Plan

(Seasoned Tree Consulting 27/01/2023)

Tree Number 11

~~T1~~

ROUND (UNEXCAVATED)



 **Figure 7.1.3 Indicative Design - Ground Floor Plan**

APPENDIX 2- TREE INSPECTION SCHEDULE

Tree Inspection Site: Pymble Golf Club

Surveyed by: David Gowenlock

Date of Inspection: 10.03.2017, 15.01.2023

Tagged: No

Tree ID	Tree Species	DBH (MM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE (yrs.)	TreeAZ retention Value	Comments
1	Has been removed.														Has been removed.
2	<i>Angophora costata</i> (Sydney Red gum)	1030	12.3	475.3	1200	3.57	24	25	Mature	G	G	Significant	1 (Long, 40+ years)	AA	
3	<i>Eucalyptus pilularis</i> (Blackbutt)	900 (+ 1 small trunk @ 330)	10.8	366.4	1020	3.34	22	25	Mature	G	G	Significant	1 (Long, 40+ years)	AA	
4	<i>Eucalyptus pilularis</i> (Blackbutt)	850	10.2	326.9	95	3.2	22	20	Mature	G	G	Significant	1 (Long, 40+ years)	AA	
5	<i>Angophora costata</i> (Sydney Red gum)	1510	15	706.9	1700	4.14	22	20	Mature	G	G	Significant	1 (Long, 40+ years)	AA	
6	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1420	15	706.9	1470	3.89	25	22	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Habitat hollow at 2.0m south side of trunk. Some epicormic growth on lower branches, upper canopy in minor decline.
7	<i>Jacaranda mimosifolia</i> (Jacaranda)	4 trunks- 150, 150, 220, 320	4.8	72.4	590	2.65	6	10	Mature	F	F	Moderate	3 (Short, 5-15 years)	A2	
8	<i>Jacaranda mimosifolia</i> (Jacaranda)	570	6.8	145.3	710	2.87	7	10	Mature	F	F	Moderate	3 (Short, 5-15 years)	A2	
9	Has been removed.														Has been removed.
10	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1810	15	706.9	1980	4.41	30	25	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Tree has multiple cable braced limbs. Multiple trunk cavities. Habitat cavity at 2.5m on west side of trunk.
11	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1620	15	706.9	1750	4.19	25	25	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Close to existing clubhouse and large structural concrete elements that likely have modified the typical root spread. Significant amount of hard surfacing as well. Tree has been significantly canopy raised. Hazardous dead hanging branch at 16m height on west side of canopy.

Tree ID	Tree Species	DBH (MM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE (yrs.)	TreeAZ retention Value	Comments
12	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1220	14.	615.8	1400	3.81	24	20	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Close to existing clubhouse and large structural concrete elements that likely have modified the typical root spread. Significant amount of hard surfacing as well. Tree has been significantly canopy raised.
13	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1610	15	706.9	1710	4.15	30	25	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Codominant from 3m height appears well attached. Trunk decay at 5 to 7m in height on eastern side of tree. Deep trunk wound and decay on western side of tree 4-6m in height.
14	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1110	13.3	555.7	1300	3.69	30	20	Mature	Good	Fair	Significant	1 (Long, 40+ years)	AA	Suppressed by T13 and significantly canopy weighted to the west. Lowest first order branch from 6m in height has significant lateral end weight, Epicormic growth on top of branch and is at higher risk of failure, albeit protected by other trees.
15	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	1230	14.7	678.9	1400	3.81	30	22	Mature	Good	Fair	Significant	1 (Long, 40+ years)	AA	Bracket fungi on cavity at 7m on SE side of trunk. Possibly another bracket fungi at 13m south side of trunk. Consider internal diagnostic testing. Hanging deadwood at 13m.
16	<i>Toona ciliata</i> (Australian Red Cedar)	990	11.88	443.4	110	3.4	15	16	Mature	G	G	Significant	1 (Long, 40+ years)	A3	Historical association this tree should be retained. Possibly transplant but it would be huge cost. Surface roots.
17	<i>Eucalyptus saligna</i> (Sydney Blue Gum) (To be accurately surveyed onto plan)	1600	15	706.9	1720	4.16	30	20	Mature	G	G	Significant	1 (Long, 40+ years)	AA	Habitat hollow at 13m east side of trunk.
18	Group of trees- <i>Melaleuca</i> sp, <i>Paperbarks</i>	200-500	4.8	72.4	-	2.2	10	8	Senescent	P	P	Low	3 (Short, 5-15 years)	Z4	Multiple trees, mostly dead or in poor condition.

Tree ID	Tree Species	DBH (MM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE (yrs.)	TreeAZ retention Value	Comments
19	<i>Lophostemon confertus</i> (Group of Variegated Brushbox) + 1 x <i>Platanus x acerifolia</i> (London Plane Tree)	100-250	2.4	18.1	150-300	1.85	4-7	8	Semi Mature	G/F	F	Moderate	2 (Medium, 15-40 years)	A2	Stunted. Surrounded by bitumen.
20	<i>Eucalyptus paniculata</i> (Grey Ironbark)	820	9.8	301.7	880	3.14	18	20	Mature	G	G	Significant	1 (Long, 40+ years)	A1	
21	<i>Eucalyptus paniculata</i> (Grey Ironbark)	1120	13.2	547.4	1170	3.53	20	20	Mature/ Over mature	G	F (leaning heavily North)	High	2 (Medium, 15-40 years)	Z9	Significant lean to east with extreme weight. Decay and open cavity on tension side of trunk at 4m height.
22	<i>Syncarpia glomulifera</i> (Turpentine)	970	11.6	422.7	1000	3.31	16	15	Mature	G	G	High	1 (Long, 40+ years)	AA	
23	<i>Ulmus minor variegata</i> , Silver Elm	450*300*250 (=600) (3 Trunks)	7.2	162.9	60	2.7	13	15	Mature	G	G	Moderate	1 (Long, 40+ years)	A1	
24	Possibly <i>Castanea sativa</i> ??? (Chestnut tree) <i>Species not confirmed</i>	200	2.4	18.1	220	1.75	9	6	Semi mature	F	F	Low	3 (Short, 5-15 years)	A2	
25	<i>Magnolia x alba</i> (White champaca)	300	3.6	40.7	350	2.13	7	10	Mature	F	F	Low	3 (Short, 5-15 years)	A2	
26	<i>Harpephyllum caffrum</i> (Kaffir Plum tree)	350	4.2	55.4	350	2.13	7	10	Mature	G	F	Low	2 (Medium, 15-40 years)	Z3	

Tree ID	Tree Species	DBH (MM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE (yrs.)	TreeAZ retention Value	Comments
27	<i>Celtis spp</i> (Chinese hackberry)	400	4.8	72.4	450	2.37	10	10	Mature	G	F (Tree is covered in English ivy)	Moderate	1 (Long, 40 + years)	Z3	
28	<i>Nyssa sylvatica</i> (Tupelo)	400	4.8	72.4	420	2.3	13	10	Mature	F	F (Bifurcated trunk from 2m)	Low	2 (Medium, 15-40 years)	A2	
29	<i>Parrotia persica</i> (Persian ironwood)	150 x 8 trunks	4.2	55.4	-	2	7	8	Mature	F	G	Low	2 (Medium, 15-40 years)	A1	
30	<i>Angophora costata</i> (Sydney Red gum)	650	7.8	191.1	700	2.85	16	16	Mature	G	G	High	1 (Long, 40 + years)	A1	Located front fence line
31	<i>Liquidambar styraciflua</i> (Liquidambar)	750	9	254.5	820	3.04	17	20	Mature	G	F	Moderate	2 (Medium, 15-40 years)	A2	Very suppressed on south and north
32	<i>Lophostemon confertus</i> (Brushbox)	440 + 280	6.2	120.8	600	2.67	15	15	Mature	G/F	G	Moderate	2 (Medium, 15-40 years)	A1	Very suppressed on south side of tree and slightly to the north Located front fence line
33	<i>Lophostemon confertus</i> (Brushbox)	480 + 330	6.9	149.6	620	2.71	15	15	Mature	G/F	G	High	2 (Medium, 15-40 years)	A1	Located front fence line
34	<i>Nyssa sylvatica</i> (Tupelo)	220	2.7	22.9	-	1.5	6	3	Semi Mature	G/F	F	Moderate	2 (Medium, 15-40 years)	A2	
35	<i>Jacaranda mimosifolia</i> (Jacaranda) <i>Camellia sasanqua</i> (Camellia)	320	3.8	45.4	340	2.1	10	8	Mature	G	G/F	Moderate	2 (Medium, 15-40 years)	A2	

Tree ID	Tree Species	DBH (MM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE (yrs.)	TreeAZ retention Value	Comments
36	<i>Lophostemon confertus</i> (Brushbox)	1050	12.6	498.8	1150	3.5	14	20	Mature	G	G	Moderate	1 (Long, 40 + years)	A1	
37	<i>Liquidambar styraciflua</i> (Liquidambar)	520	6.2	120.8	580	2.63	15	15	Mature	G	F	Moderate	2 (Medium, 15-40 years)	A2	Located front fence line
38	<i>Liquidambar styraciflua</i> (Liquidambar)	550	6.6	136.8	660	2.78	15	15	Mature	G	G	Moderate	2 (Medium, 15-40 years)	A1	Located front fence line
39	<i>Lophostemon confertus</i> (Brushbox)	870	10.4	339.8	870	3.12	15	15	Mature	G	G	Moderate	2 (Medium, 15-40 years)	A1	Located front fence line
40	Group of small trees <i>Acer sp</i>	300	3.6	40.7	350	2.13	5	5	Mature/ Over Mature	F	F	Low	3 (Short, 5-15 years)	A2	
T41	<i>Lophostemon confertus</i> (Brushbox)	770	9.2	265.9	870	3.12	15	16	Mature	G	G	Moderate	2 (Medium, 15-40 years)	A1	<i>To be accurately surveyed onto plan</i>

Explanatory Notes

Tree Species - Botanical name followed by common name in brackets. Where species is unknown it is indicated with an 'spp'.

Diameter at Breast Height (DBH) - Measured with a DBH tape or estimated at approximately 1.4m above ground level. If trees are inaccessible due to dense bush or being located in private property they are generally estimated.

Tree Protection Zone (TPZ) - DBH x 12. Measured in radius from the center of the trunk. Rounded to nearest 0.1m. For monocots, the TPZ is set at 1 meter outside the crown projection.

TPZ Area (Sq.M) - The area of the TPZ calculated in square metres.

Diameter Above root Buttresses (DAB): Measured with a DBH tape or estimated above root buttresses (DAB) for calculating the SRZ.

Structural Root Zone (SRZ) - $(DAB \times 50)^{0.42} \times 0.64$. Measured in radius from the center of the trunk. Rounded up to nearest 0.1m.

Height - Height from ground level to top of crown. All heights are estimated unless otherwise indicated.

Spread - Radius of crown at widest section. All tree spreads are estimated unless otherwise indicated.

Age Class - Over mature (OM), Mature (M), Early mature (EM), Semi mature (SM), Young (Y), Dead (D).

Health - Good/Fair/Poor/Dead

Structure - Good/Fair/Poor

Amenity Value - Very High/High/Medium/Low/Very Low.

Safe Useful Life Expectancy (SULE) - 1. Long >40 (40+years), 2. Medium 15 > 40 (15 - 40 years), 3. Short 5 > 15 (5 - 15 years), 4. Remove <5 (under 5 years)

TreeAZ retention Value- See Appendix 10

Appendix 3 – Condition/Overall health

<u>Category</u>	<u>Example condition</u>	<u>Summary</u>
Good	• Crown has good foliage density for species. • Tree shows no or minimal signs of pathogens that are unlikely to have an effect on the health of the tree. • Tree is displaying good vigour and reactive growth development. • Branch unions appear to be strong with no sign of defects. • There are no significant cavities. • The tree is unlikely to fail in usual conditions. • The tree has a balanced crown shape and form.	• The tree is in above average health and condition and no remedial works are required. • The tree is considered structurally good with well developed form.
Fair	• The tree may be starting to dieback or have over 25% deadwood. • Tree may have slightly reduced crown density or thinning. • There may be some discolouration of foliage. • Average reactive growth development. • There may be early signs of pathogens which may further deteriorate the health of the tree. • There may be epicormic growth indicating increased levels of stress within the tree. • The tree may have minor structural defects within the structure of the crown that could potentially develop into more significant defects. • The tree may have a cavity that is currently unlikely to fail but may deteriorate in the future. • The tree is an unbalanced shape or leans significantly. • The tree may have minor damage to its roots. • The root plate may have moved in the past but the tree has now compensated for this. • Branches may be rubbing or crossing.	• The tree is in below average health and condition and may require remedial works to improve the trees health. • The identified defects are unlikely cause major failure. • Some branch failure may occur in usual conditions. • Remedial works can be undertaken to alleviate potential defects.
Poor	• The tree may be in decline, have extensive dieback or have over 30% deadwood. • The canopy may be sparse or the leaves may be unusually small for species. • Pathogens or pests are having a significant detrimental effect on the tree health. • The tree has significant structural defects. • Branch unions may be poor or weak. • The tree may have a cavity or cavities with excessive levels of decay that could cause catastrophic failure. • The tree may have root damage or is displaying signs of recent movement. • The tree crown may have poor weight distribution which could cause failure.	• The tree is displaying low levels of health and removal or remedial works may be required. • The identified defects are likely to cause either partial or whole failure of the tree.
Dangerous	• The tree is dead or almost dead. • The tree is an imminent danger to people or property.	• The tree should generally be removed.

Appendix 4 - Tree Protection Zone (TPZ)

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 requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. The TPZ incorporates the structural root zone (SRZ).

Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH $\times$ 12.

$$\text{TPZ} = \text{DBH} \times 12$$

Where

DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

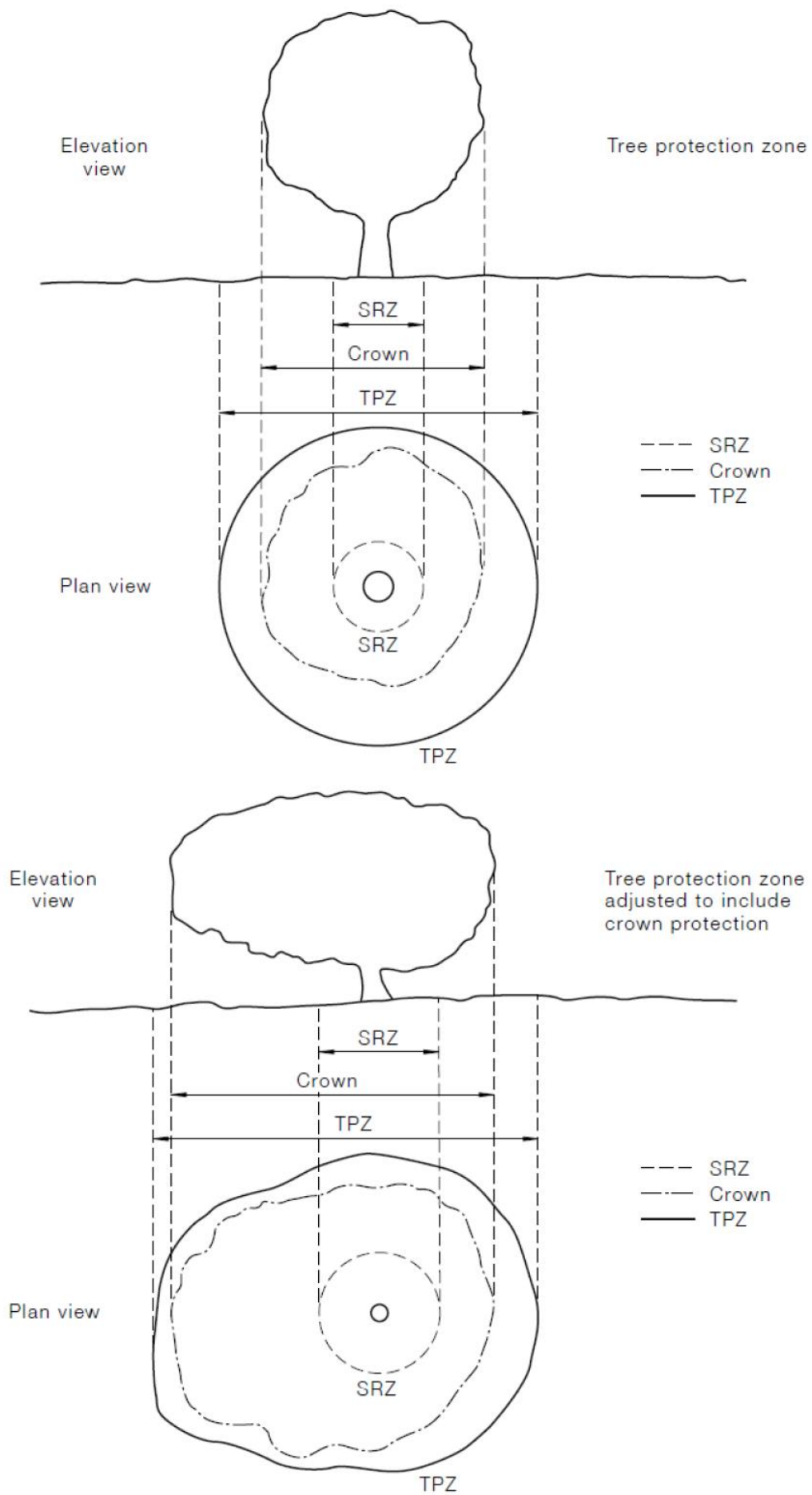
A TPZ should not be less than 2 m nor greater than 15 m (except where crown protection is required).

Minor encroachment into the TPZ

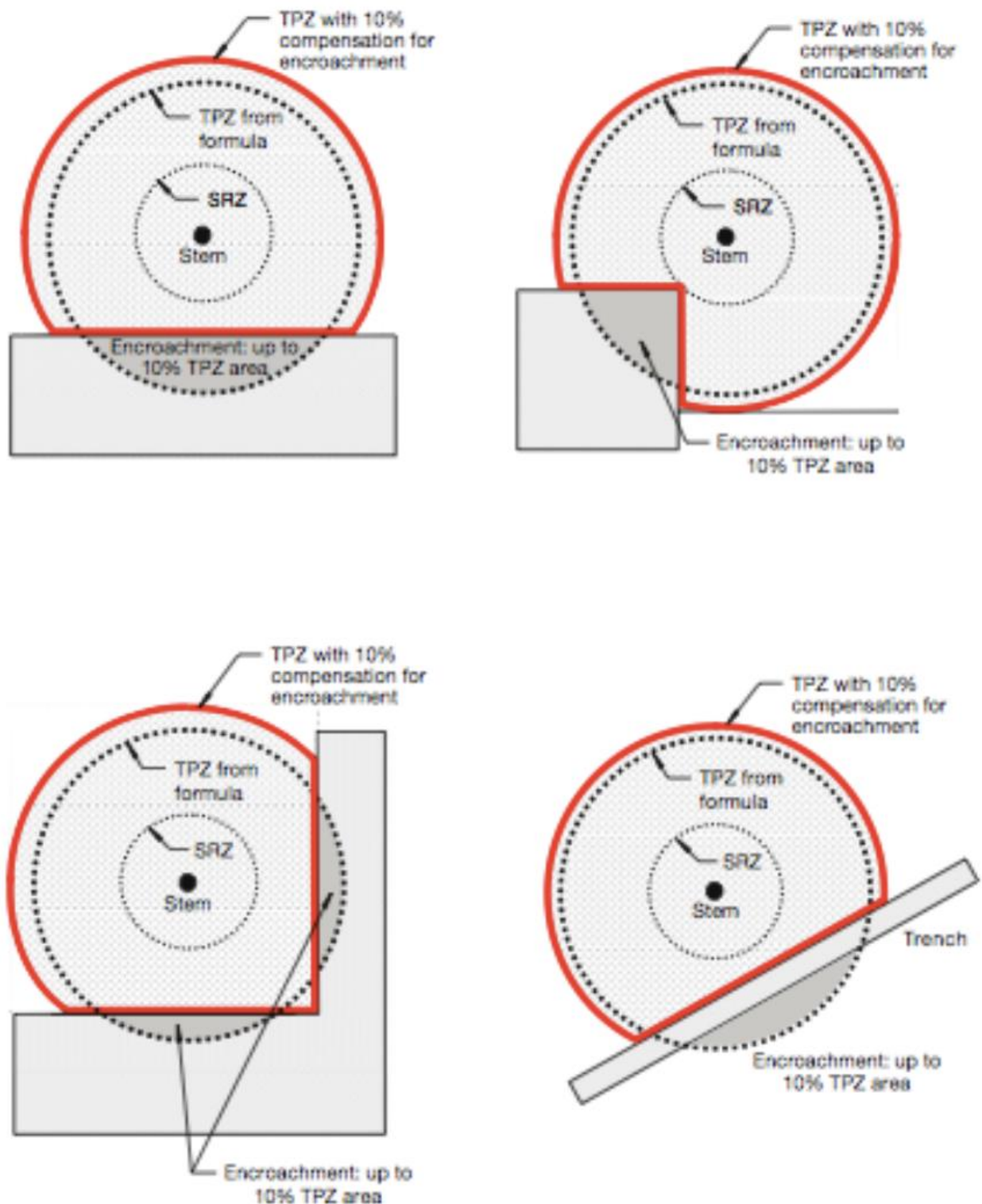
Where encroachment into the TPZ is unavoidable it is generally accepted that encroachment of under 10% of the total TPZ is possible without carrying out detailed root investigations. This minor loss of root area is normally compensated by the roots developing elsewhere.

Major encroachment into the TPZ

If an encroachment of more than 10% is proposed into the TPZ it would be necessary to demonstrate that the tree would remain viable. Non destructive root investigations may be required to determine any potential impact the encroachment may have on the tree.



Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

Appendix 5 - Structural root zone (SRZ)

This is the area around the base of a tree required for the trees stability in the ground. An area larger than the SRZ always need to be maintained to preserve a viable tree as it will only have a minor effect on the trees vigour and health. There are several factors that determine the SRZ which include height, crown area, soil type and soil moisture. It can also be influenced by other factors such as natural or built structures. Generally work within the SRZ should be avoided.

Determining the SRZ

An indicative SRZ radius can be determined from the diameter of the trunk measured immediately above the root buttresses. Root investigation could provide more information about the extent of the SRZ. The following formula should be used to calculate the SRZ.

$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

D = trunk diameter in m, measured above the root buttress.

Note - The SRZ for trees with trunk diameters less than 0.15 will be 1.5m.

Appendix 6 - Amenity value

To determine the amenity value of a tree we assess a number of different factors which include but are not limited to the information below.

- The visibility of the tree to adjacent sites.
- The relationship between the tree and the site.
- Whether the tree is protected by any statutory conditions.
- The habitat value of the tree.
- Whether the tree is considered a noxious weed species.

Appendix 7 - Age class

If can be difficult to determine the age of a tree without carrying out invasive tests that may damage the tree, so we have categorised there likely age class which is defined below.

<u>Category</u>	<u>Description</u>
Young/Newly planted	• Young or recently planted tree.
Semi Mature	• Up to 20% of the usual life expectancy for the species.
Early mature/Mature	• Between 20% - 80% of the usual life expectancy for the species.
Over mature	• Over 80% of the usual life expectancy for the species.
Dead	• Tree is dead or almost dead.

Appendix 8 - Structural condition

<u>Category</u>	<u>Example condition</u>	<u>Summary</u>
Good	• Branch unions appear to be strong with no sign of defects. • There are no significant cavities. • The tree is unlikely to fail in usual conditions. • The tree has a balanced crown shape and form.	• The tree is considered structurally good with well developed form.
Fair	• The tree may have minor structural defects within the structure of the crown that could potentially develop into more significant defects. • The tree may have a cavity that is currently unlikely to fail but may deteriorate in the future. • The tree is an unbalanced shape or leans significantly. • The tree may have minor damage to its roots. • The root plate may have moved in the past but the tree has now compensated for this. • Branches may be rubbing or crossing.	• The identified defects are unlikely cause major failure. • Some branch failure may occur in usual conditions. • Remedial works can be undertaken to alleviate potential defects.
Poor	• The tree has significant structural defects. • Branch unions may be poor or weak. • The tree may have a cavity or cavities with excessive levels of decay that could cause catastrophic failure. • The tree may have root damage or is displaying signs of recent movement. • The tree crown may have poor weight distribution which could cause failure.	• The identified defects are likely to cause either partial or whole failure of the tree.

Appendix 9 - Safe Useful Life Expectancy (SULE), (Barrel, 2001)

A trees safe useful life expectancy is determined by assessing a number of different factors including the health and vitality, estimated age in relation to expected life expectancy for the species, structural defects, and remedial works that could allow retention in the existing situation.

Category	Description
1. Long - Over 40 years	(a) Structurally sound trees located in positions that can accommodate future growth. (b) Trees that could be made suitable for retention in the long term by remedial tree care. (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.
2. Medium - 15 to 40 years	(a) Trees that may only live between 15 and 40 more years. (b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons. (c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. (d) Trees that could be made suitable for retention in the medium term by remedial tree care.
3. Short - 5 to 15 years	(a) Trees that may only live between 5 and 15 more years. (b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons. (c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. (d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.
4. Remove - Under 5 years	(a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions. (b) Dangerous trees because of instability or recent loss of adjacent trees. (c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form. (d) Damaged trees that are clearly not safe to retain. (e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. (f) Trees that are damaging or may cause damage to existing structures within 5 years. (g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f). (h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
5. Small/Young	(a) Small trees less than 5m in height. (b) Young trees less than 15 years old but over 5m in height. (c) Formal hedges and trees intended for regular pruning to artificially control growth.

Appendix 10- TreeAZ Categories

TreeAZ Categories (Version 10.04-ANZ)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

- | | |
|-----------|---|
| Z1 | Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc |
| Z2 | Too close to a building, i.e. exempt from legal protection because of proximity, etc |
| Z3 | Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc |

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

- | | |
|-----------|---|
| Z4 | Dead, dying, diseased or declining |
| Z5 | Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc |
| Z6 | Instability, i.e. poor anchorage, increased exposure, etc |

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

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| Z7 | Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc |
| Z8 | Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc |

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

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| Z9 | Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc |
| Z10 | Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc |
| Z11 | Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc |
| Z12 | Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc |

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

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| A1 | No significant defects and could be retained with minimal remedial care |
| A2 | Minor defects that could be addressed by remedial care and/or work to adjacent trees |
| A3 | Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years |
| A4 | Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment) |

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.