

This report is prepared by:

Let's Talk About Trees

Matthew Branagh

Diploma of Horticulture – Arboriculture
ACAS, Advanced Cert Horticulture,
Advanced Cert Arboriculture
Cert IV Business Management, Certificate
of Arboricultural Consulting, Trade
Qualification in Gardening and
Landscaping

PO Box 660,
DRYSDALE Vic, 3222
Ph 0468 874233
ABN 20 625 418 599

arborist@letstalkabouttrees.com.au



**Let's Talk
About Trees**
Managing the Urban Forest

CLIENT DETAILS

City of Greater Geelong
Po Box 104
GEELONG, 3220, VIC.

CO/- Heather Forsyth

Arborists Assessment

Geelong Saleyards

Weddell Rd,
North Geelong
VICTORIA, 3228

Geelong Saleyards Precinct Plan

This report has been commissioned by:

City of Greater Geelong

Date: February 2018





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1.0 Key Objectives

This report has been commissioned by City of Greater Geelong, for the undertaking of tree health and pre development report on site vegetation.

The report looks at all vegetation on the site and makes assessment of its health and condition in relation to its health and useful life expectancy pre site development.

2.0 Methodology

The inspection for this report was performed on site, on the 15th of January 2018 and 13th of February 2018, by Matthew Branagh level 5 Consulting Arborist from Let's Talk About Trees.

A ground-based Visual Tree Assessment was performed on the above-ground section of the trees, in line with modern Arboricultural Practices and Principles, and AS 4970 – 2009 – Protection of Trees on Development Sites, AS 4373 – 2007 – Pruning of Amenity Trees.

All photographs were taken at the time of the inspection, and shall be used within this report for referencing or identification purposes.

3.0 Observations / Discussions

The allotment is public space referred to as the Geelong Sale Yards. It is currently a closed site, livestock sales ceasing in 2017.

The single planted specimen trees on the site were planted many years ago and have been managed for the purpose of giving shade to stock housed in pens.

Other trees have been planted as boundary plantations and have developed as plantation trees.

This report identifies trees on the allotment and makes assessment of their health concluding, with recommendations for the best management.

The site is proposed for development of an unknown nature, and this report is to assist in understanding the value of arboricultural assets on the site to assist with future planning.

It also determines Tree Protection Zones for the protection of the trees to be retained and protected during and post development as guided by AS 4970 – 2009 Protection of Trees on Development Sites.

43 trees were identified on the site.

All trees were identified as planted and of both Native and exotic species.

All trees have been established in a public space, and as such have been impacted by regular maintenance and periodic vandalism and wear and tear as the sites many years of change has caused various forms of impact to the specimens.

The following data is the field data collected at the time of the inspection.

No.	Identification	Est. Age Yrs	ULE	Health	Structure	Significance	Hazzard	Estimated Height (m)	DBH (cm)	TPZ (m) SRZ (m)	Comment
1	<i>Eucalyptus cladocalyx</i> – <i>Sugar Gum</i>	M	M	F	P	L	M	16	82*	9.8 SRZ 3.0	Multi stemmed at ground level, 4 main leaders. Past failings, past removal of limbs from ground level. Deadwood throughout the canopy. Deadwood evident in upper canopy. Previously removed tree with epicormics. Major structural damage occurred to one main scaffold during a storm event 10.2.2018 LOW RETENTION VALUE RECOMMENDED REMOVAL
2	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	8	56	6.7 SRZ 2.6	Sound tree with minor deadwood in canopy.
3	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	13	62	7.4 SRZ 2.7	Sound tree with good form and structure. Naturestrip tree
4	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	13	53	6.4 SRZ 2.5	Sound tree with good form and structure. Naturestrip tree
5	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	13	54	6.5 SRZ 2.6	Sound tree with good form and structure. Naturestrip tree
6	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	13	46	5.5 SRZ 2.4	Sound tree with good form and structure. Naturestrip tree
7	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	15	67	8.0 SRZ 2.8	Sound tree with good form and structure. Naturestrip tree Tree has a major drain within its TPZ.
8	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	S	P	P	L	L	9	25	3.0 SRZ 1.8	Stunted mature tree under canopy of tree number 7 and 9. Poor specimen. LOW RETENTION VALUE
9	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	M	P	P	L	M	15	71	8.5 SRZ 2.9	Mature tree with large dead stag in main trunk from ground level. Wood boring insect present with past infection evident. Will develop into a dangerous tree. LOW RETENTION VALUE
10	<i>Eucalyptus melliodora</i> – <i>Yellow Box</i>	SM	L	G	G	M	L	13	47	5.6 SRZ 2.6	Sound tree, minor deadwood throughout the canopy. Impacted by major storm event 10.2.2018 Damage to canopy structure, will require pruning to manage limb wound.
11	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	14	42	5.0 SRZ 2.3	Sound tree, minor deadwood throughout the canopy.
12	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	M	L	14	45	5.4 SRZ 2.4	Sound tree, minor deadwood throughout the canopy.

No.	Identification	Est. Age Yrs	ULE	Health	Structure	Significance	Hazzard	Estimated Height (m)	DBH (cm)	TPZ (m) SRZ (m)	Comment * = Multi Stemmed
13	<i>Eucalyptus botryoides</i> – Mahogany Gum	M	M	P	P	L	M	11	78 est	9.4 SRZ 3.0	Stressed tree, deadwood throughout the canopy. Stunted in form. Open spreading canopy. In boundary plantation. LOW RETENTION VALUE
14	<i>Eucalyptus viminalis</i> – Manna Gum	SM	M	F	F	L	L	9	36 est	4.3 SRZ 2.2	Stunted open crown – minor deadwood throughout the canopy. (Planted Indigenous Veg.) Boundary plantation.
15	<i>Eucalyptus lehmannii</i> – Bushy Yate	D	D	D	D	D	D	D	D	N/A	Dead Tree Boundary Plantation RECOMMENDED REMOVAL Failed in storm event 10.2.2018
16	<i>Eucalyptus spathulata</i> – Swamp Gum	M	L	G	G	M	L	11	65	7.8 SRZ 2.8	Sound tree with open spreading crown. Boundary Plantation
17	<i>Corymbia maculata</i> – Spotted Gum	M	S	F	P	L	H	11	48	5.8 SRZ 2.4	Sound tree with significant lean to the NE. This tree will fail in the short term future. Boundary plantation LOW RETENTION VALUE
18	<i>Corymbia maculata</i> – Spotted Gum	M	L	F	G	L	L	10	31	3.7 SRZ 2.0	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
19	<i>Corymbia maculata</i> – Spotted Gum	M	L	F	G	L	L	10	27	3.2 SRZ 1.9	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
20	<i>Corymbia maculata</i> – Spotted Gum	M	L	G	G	L	L	12	48	5.8 SRZ 2.4	Dominant in canopy this tree grows in the corner of a fenced compound. It over shadows the canopy of trees 19 and 21 Sound tree with long useful life expectancy.
21	<i>Corymbia maculata</i> – Spotted Gum	M	S	P	F	L	L	8	18	2.2 SRZ 1.8	Stunted growth. Sound tree growing in competition with tree 20.
22	<i>Corymbia maculata</i> – Spotted Gum	M	S	P	P	L	L	8	19	2.3 SRZ 1.6	Stunted tree growing under the canopy of tree 23. Limited amenity use. SHORT USEFUL LIFE
23	<i>Eucalyptus spathulata</i> – Swamp Gum	M	M	G	F	L	L	10	59	7.1 SRZ 2.7	Open spreading crow, major past limb losses in main structure at 2.5m high. LOW RETENTION VALUE
24	<i>Eucalyptus spathulata</i> – Swamp Gum	M	L	F	G	L	L	10	37	4.4 SRZ 2.2	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.

No.	Identification	Est. Age Yrs	ULE	Health	Structure	Significance	Hazzard	Estimated Height (m)	DBH (cm)	TPZ (m) SRZ (m)	Comment *= Multi Stemmed
25	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	23	2.8 SRZ 1.8	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress. Stunted form and grows under the canopy of tree 24.
26	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	32	3.8 SRZ 2.1	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
27	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	43	5.2 SRZ 2.3	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
28	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	37	4.4 SRZ 2.2	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
29	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	26	3.1 SRZ 1.9	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress.
30	<i>Corymbia maculata</i> – <i>Spotted Gum</i>	M	L	G	G	L	L	10	52	6.2 SRZ 2.5	Sound tree with minor deadwood in canopy. Boundary planting to fenced compound. Tree shows major signs of drought stress. Bifurcated 1m above ground level Major upper canopy limb failures resultant of major storm event 10.2.2018
31	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	15	78	9.4 SRZ 3.0	Sound tree showing minor drought stress. Minor deadwood in canopy. Sealed hard surface over greater portion of root plate. Grows in a stock pen.
32	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	14	64	7.7 SRZ 2.7	Sound tree showing minor drought stress. Minor deadwood in canopy. Sealed hard surface over greater portion of root plate. Grows in a stock pen.
33	<i>Melia azedarach</i> – <i>Native Cedar</i>	Y	L	G	G	L	L	6	31*	3.7 SRZ 2.0	Grows ON NEIGHBOURING ALLOTMENT (golf course) Has 3 main stems and is sound condition. May require root protection during development
34	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	15	32	3.8 SRZ 2.1	Sound tree showing minor canopy deadwood
35	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	17	84	10.0 SRZ 3.1	On NEIGHBOURING ALLOTMENT Sound young tree. May require protection during development.
36	<i>Acacia pycnantha</i> – <i>Black Wattle</i>	Y	L	G	G	L	L	8	19 est	2.3 SRZ 1.6	On NEIGHBOURING ALLOTMENT Sound young tree. May require protection during development.

No.	Identification	Est. Age Yrs	ULE	Health	Structure	Significance	Hazzard	Estimated Height (m)	DBH (cm)	TPZ (m) SRZ (m)	Comment * = Multi Stemmed
37	<i>Melia azedarach</i> – <i>Native Cedar</i>	M	L	G	G	M	L	10	53 est	6.4 SRZ 2.5	On NEIGHBOURING ALLOTMENT Sound young tree showing minor canopy deadwood May require protection during development.
38	<i>Grevillea robusta</i> – <i>Silky Oak</i>	M	L	G	G	M	L	12	40 est	4.8 SRZ 2.3	On NEIGHBOURING ALLOTMENT Sound young tree showing minor canopy deadwood May require protection during development.
39	<i>Melaleuca styphelioides</i> – <i>Prickly Paperbark</i>	M	L	G	P	L	H	9	72	8.6 SRZ 2.9	Multi stemmed from 0.5m above ground level. Included bark to ground level. Major structural issues in canopy. Short term future failure tree. LOW RETENTION VALUE RECOMMENDED REMOVAL
40	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	11	116	13.9 SRZ 3.5	Drought stressed and compaction effected tree. Deadwood throughout the canopy. The tree is in sound health and with sound management has a retainable future.
41	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	8	43	5.2 SRZ 2.3	Sound stunted tree growing in stock yards. The tree has hard surfacing to its trunk. This is causing many of the trees issues. Tree suffering but is in good health.
42	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	F	P	L	L	7	33*	4.0 SRZ 2.1	Very poor quality tree growing under power lines. Has been heavily trimmed and pruned in the past. Multi stemmed from ground level LOW RETENTION VALUE
43	<i>Fraxinus angustifolia</i> – <i>Desert Ash</i>	M	L	G	G	L	L	10	68	8.2 SRZ 2.8	Sound tree growing in stock pens. Hard surfacing to the trunk. Deadwood evident in canopy and shows past canopy failings

The allotments current and past use sees all trees impacted in one way or another. All trees have served as ornamental utility trees within a public space and carry no specific or high habitat value.

All specimens are easily replaceable post site development.

The trees numbered 33, 35, 36, 37 and 38 are on an adjoining allotment and could require further root protections during site development.

Trees numbered 3, 4, 5, 6 and 7 are municipal naturestrip trees. These could require further root protections during site development.

No trees within 2 metres of boundaries on adjoining allotments carry any high retention value.

Establishing the trees TPZ and protecting trees where retained as guided by this report and ASS4970-2009 Protection of Trees on Development Sites will ensure the health of trees retained post site development.

The Tree Protection Zones (TPZ) of all trees should be plotted on design drawings where trees are determined for retention. Trees should then be managed using AS 4970-2009 Protection of Trees on Development Sites.

Where further tree issues arise, the sites level 5 arborist should be notified for best practice management of retained vegetation.

All pruning works to retained trees should be carried out as per AS 4373 – Pruning of Amenity Trees.

4.0 Conclusions

The past utility use of the trees of site gives them a limited use on the site moving forward.

Trees that have been managed as shade trees have developed poor structures and offer limited use moving forward.

Trees in boundary plantations offer an amenity use, however their structures have formed with a heavy reliance on other trees in their plantation. Their tall often upright form means they have developed in a manner susceptible to storm cell impacts.

Separating or selecting trees in plantations for retention as individual specimens is an undesirable option when considering and managing the structural integrity of trees moving forward.

Changed wind loads and environmental impacts often causes considerable losses post developmental change, failings can be regular.

If retaining trees from plantations group retention should be considered and edges of retained sections of wooded area should be selected where the largest gaps are located in plantations. Selecting these trees can be difficult and should be done in consultation with a certificated C5 arborist.

In developing the site, consideration should be given to the protection of trees on the neighbouring allotments and the municipal naturestrip, so as not to impact them.

This is achieved by using the Tree Protections Zones as determined in this report, being guided by AS 4970 – 2009 –Protection of Trees on Development Sites and engaging the sites level 5 arborist where ever issues relating to trees arises.

5.0 Recommendation

The observations, tabulated field data and discussions of this report should form the basis of the future management of the tree assets of this site.

Whilst no specimens on the site are of a highly significant nature, they do offer site amelioration and aesthetics.

Whilst these trees do not contribute to a habitat, they hold a key place in the overall beauty of the area as a whole, even impacted by past management as heavily as they are.

In the overall appeal of the site regardless of their condition, together the specimens offer an authentic green appeal which is in keeping with the surrounding area, attempting to maintain this post site development ensures the area remains as it is today pre site development.

Where the decision is made that trees are to be removed, it is strongly recommended they be considered for replacement post site development in order to retain the aesthetics of the allotment.

In doing this consideration should be given to the use of indigenous native species.

The two Australian Standards AS4970 –2009 Protection of Trees on Construction Sites, and AS 4373—2007 Pruning of Amenity Trees should be used in the ongoing management of this tree.

All works carried out the trees should be undertaken by qualified arborist as per the guideline of Australian Standard AS4970 – 2009 Protection of Trees on Construction Sites.

If this report results in the removal of vegetation on the site, IT DOES NOT give permissions for removal of vegetation.

These permissions must be sought from other authorities.

Heavy penalties for removal of vegetation without the correct permissions may apply in some areas.

6.0 Appendices

6.1 Photographs General Overview of Site Trees



6.2 Site Plan & Initial Tree Management Plan



6.3 Terms of Descriptor's

Definitions Descriptor's used for throughout this report.

AGE

Category	Description
Young	Juvenile or recently planted approximately 1-7 years.
Semi Mature	Tree actively growing.
Mature	Tree has reached expected size in situation.
Senescent	Tree is over mature and has started to decline.

HEALTH

Good	Foliage of tree is entire, with good colour, very little sign of pathogens and of good density. Growth indicators are good ie. Extension growth of twigs and wound wood development. Minimal or no canopy die back (deadwood).
Fair	Tree is showing one or more of the following symptoms; < 25% dead wood, minor canopy die back, foliage generally with good colour though some imperfections may be present. Minor pathogen damage present, with growth indicators such as leaf size, canopy density and twig extension growth typical for the species in this location.
Poor	Tree is showing one or more of the following symptoms of tree decline; > 25% deadwood, canopy die back is observable, discoloured or distorted leaves. Pathogens present, stress symptoms are observable as reduced leaf size, extension growth and canopy density.
Dead or dying	Tree is in severe decline; > 55% deadwood, very little foliage, possibly epicormic shoots, minimal extension growth.

STRUCTURE

Good	Trunk and scaffold branches show good taper and attachment with minor or no structural defects. Tree is a good example of the species with a well-developed form showing no obvious root problems or pests and diseases.
Fair	Tree shows some minor structural defects or minor damage to trunk eg. bark missing, there could be cavities present. Minimal damage to structural roots. Tree could be seen as typical for this species.
Poor	There are major structural defects, damage to trunk or bark missing. Co-dominant stems could be present or poor structure with likely points of failure. Girdling or damaged roots obvious. Tree is structurally problematic.
Hazardous	Tree is an immediate hazard with potential to fail, this should be rectified as soon as possible.

HAZARD

Hazard is rated into three levels; **LOW**, **MEDIUM**, and **HIGH**.

1. **LOW;** Tree appears to be structurally sound, is healthy with no signs of pests or disease, has good vigour and is clear of any hazards.
2. **MEDIUM;** Tree displays signs of structural problems, evidence of pests or disease, signs of low vigour, deadwood, decay, may be growing into an area that could create a hazard.
3. **HIGH;** Tree is an immediate hazard with the potential to fail, this should be rectified as soon as possible.

USEFUL LIFE EXPECTANCY – ULE

LONG ULE; Trees that appears to be retainable with an acceptable level of risk for more than 40 years.

1. Structurally sound trees located in positions that can accommodate future growth.
2. Storm damaged or defective trees that could be made suitable for retention in the long term by remedial tree surgery.
3. Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

MEDIUM ULE; Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.

1. Trees that may only live between 15 and 40 years.
2. Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals.
3. Trees that may live for more than 40 years but would be removed during the course of normal management for safety and nuisance reasons.
4. Storm damage or defective trees that can be made suitable for retention in the medium term by remedial work.

SHORT ULE; Trees that appear to be retainable with an acceptable level of risk for 5 to 15 years.

1. Trees that may live for 5 to 15 years.
2. Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals.
3. Trees that may live for more than 15 years but would be removed during the course of normal management for safety and nuisance reasons.
4. Storm damaged or defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.

REMOVE; Trees with a high level of risk that would need removal within the next 5 years.

1. Dead trees.
2. Dying or suppressed and declining trees through disease or inhospitable conditions.
3. Dangerous trees through instability or recent loss of adjacent trees.
4. Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.
5. Damaged trees that are considered unsafe to retain.
6. Trees that will become dangerous after removal of other trees for the above reasons.

SIGNIFICANCE / RETENTION VALUE

Significance is rated into three levels; **LOW, MEDIUM, HIGH.**

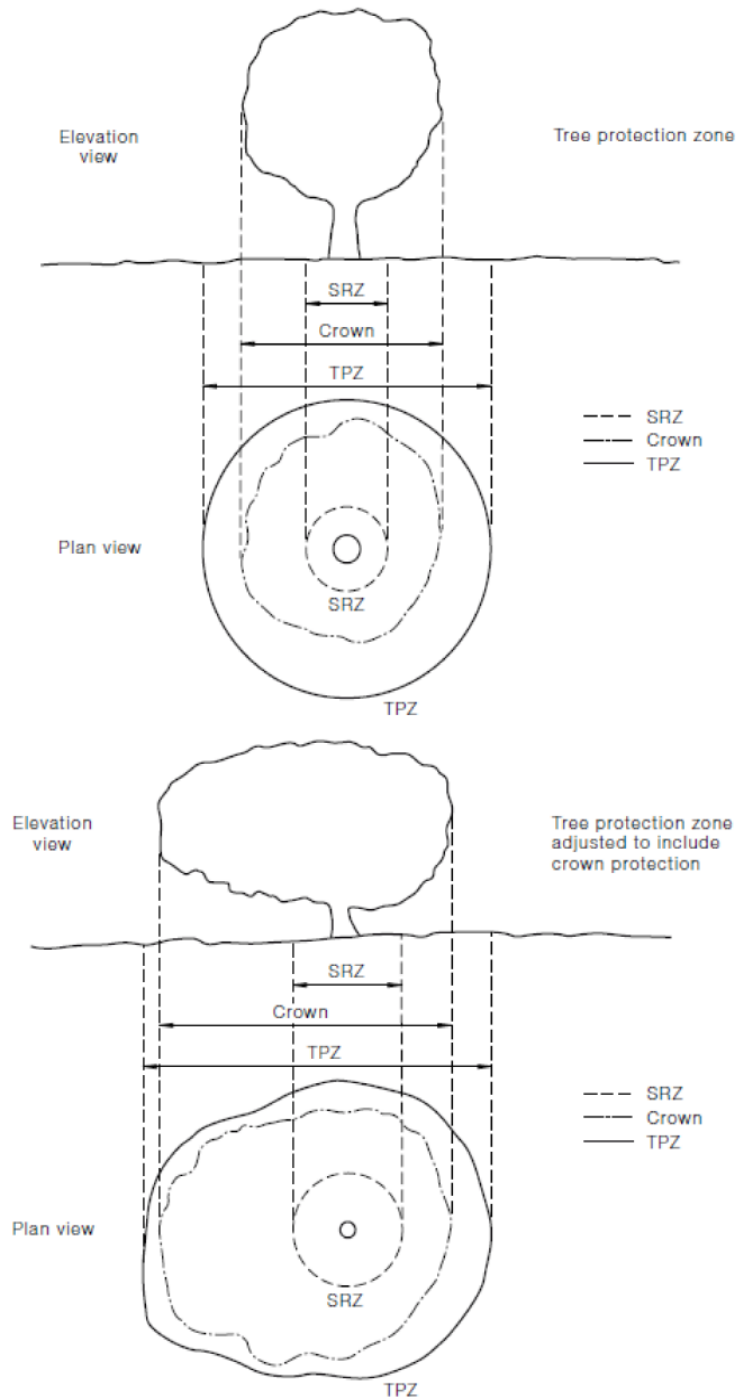
- LOW;** Trees that offer little in terms of contributing to the future landscape for the reasons of poor health or structural condition, species suitability in relation to unacceptable growth habit, noxious, poisonous or weed species or ULE, or a combination of these characteristics. Should be considered for removal.
- MODERATE;** Trees with some beneficial attributes that may benefit the site in relation to botanical, horticultural, historical or local significance but may be limited to some degree by their future growth potential at the site by maintenance requirements now or in the future. These trees should be considered for retention if possible within the development design, they may be modified to allow for construction. (eg. pruning, etc;)
- HIGH;** Trees with the potential to positively contribute to the site due to their botanical, horticultural, historical or local significance in combination with good characteristics of structure, health and future development. Should be considered for inclusion within development plans.

DIAMETER AT BREAST HEIGHT - DBH

Measurement of trunk width calculated at a given distance above the ground, often measured at 1.4m above the ground¹. This in turn is used to calculate a trees Tree protection Zone (TPZ) as guided by As 4070 – 2009 Protection of trees on development sites.

¹ Dictionary for managing trees in urban environments, D Draper and P Richards

6.4 Structural Root Zone & Tree Protection Zone.



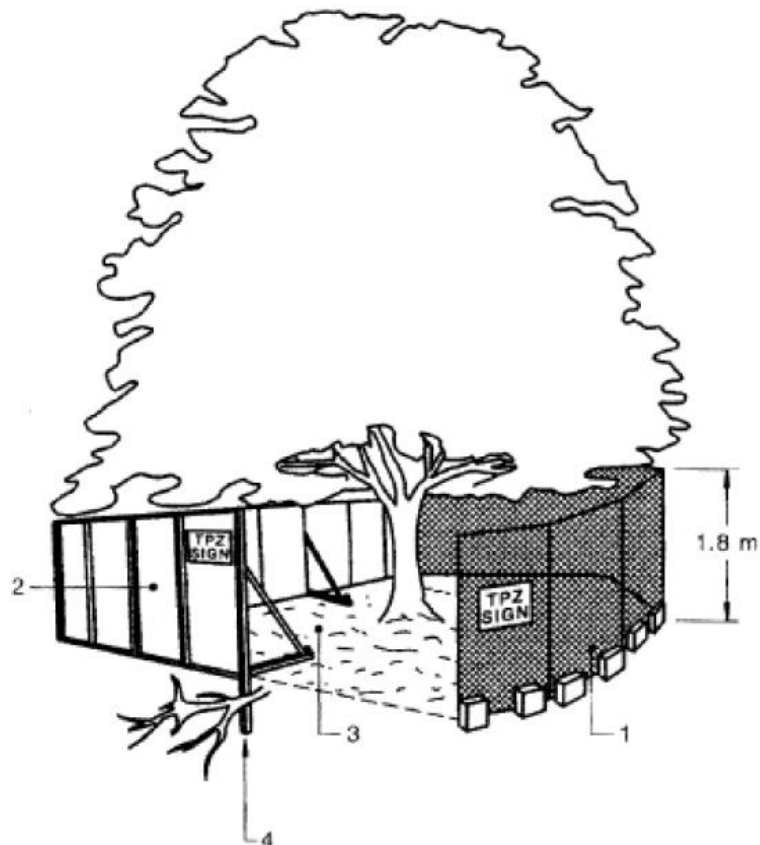
NOTE: Refer to Clause 3.2 for calculation of TPZ.

FIGURE 2 INDICATIVE TREE PROTECTION ZONE

6.5 Tree Protection Zone (TPZ) Signs

4.4 SIGNS

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site (refer Figure 3). The lettering on the sign should comply with AS 1319. Appendix C provides an example of a suitable TPZ sign.



LEGEND:

- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING

(Extract from AS4970 – 2009 Protection of trees on Development sites)

6.6 Tree Protection Zone (TPZ) Example

AS 4970—2009

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APPENDIX C TREE PROTECTION ZONE SIGN EXAMPLE (Informative)

A TPZ sign provides clear and readily accessible information to indicate that a TPZ has been established. Figure C1 provides an example of a suitable sign.



FIGURE C1 TREE PROTECTION ZONE SIGN

(Extract from AS4970 – 2009 Protection of trees on Development sites)

6.7 Indicative Stages in Development and the Tree Management Process

Stage in Development	Tree Management Process	
	Matters for Consideration	Actions and Certificates
Planning (Sections 2 and 3)		
Site acquisition	Legal constraints	
Detail surveys	Council plans and policies Planning instruments and controls Heritage Threatened species	Existing trees accurately plotted on survey plan.
Preliminary tree assessment	Hazard/risks Tree retention value	Evaluate trees suitable for retention and mark on plan Provide preliminary arboricultural report and indicative TPZs to guide development layout.
Preliminary development design	Condition of trees Proximity to buildings Location of services Roads Level changes Building operations space Long-term management	Planning selection of trees for retention Design review by proponent Design modifications to minimise impact to trees.
Development submission	Identify trees for retention through comprehensive arboricultural impact assessment of proposed construction. Determine tree protection measures. Landscape design.	Provide arboricultural impact assessment including tree protection plan (drawing) and specification.
Development approval	Development controls Conditions of consent	Review consent conditions relating to trees.
Pre-construction (Sections 4 and 5)		
Initial site preparation	State based OHS requirements for tree work Approved retention/removal Refer to AS 4373 for the requirements on the pruning of amenity trees Specifications for tree protection measures.	Compliance with conditions of consent. Tree removal/tree retention/transplanting Tree pruning Certification of tree removal and pruning. Establish/delineate TPZ Install protective measures Certification of tree protection measures.

Stage in Development	Tree Management Process	
	Matters for Consideration	Actions and Certificates
Construction (Sections 4 and 5)		
Site establishment	Temporary infrastructure Demolition, bulk earthworks, hydrology	Locate temporary infrastructure to minimise impact on related trees. Maintain protective measures Certification of tree protection measures.
Construction work	Liaison with site manager, compliance Deviation from approved plan	Maintain or amend protective measures Supervision and monitoring
Implement hard and soft landscape works	Installation of irrigation services Control of compaction work Installation of pavement and retaining walls	Remove selected protective measures as necessary Remedial tree works Supervision and monitoring
Practical completion	Tree vigour and structure	Remove all remaining tree protection measures Certification of tree protection
Post Construction (Section 5)		
Defects liability / maintenance period	Tree vigour and structure	Maintenance and monitoring Final remedial tree works Final certification of tree condition

NOTES:

1. Owing to variations in planning legislation, this Table is a general indication of the process only
2. Certification of tree protection and condition should be carried out by the project Arborist.

Extract from Australian Standard 4970 – 2009 – Protection of Trees on Development Sites.

The above Table shows clearly the process of tree protection on development sites as set out in the Australian Standard.

This Table should be followed in the management of all trees on development sites.

Depending on the stage of the project you are undertaking, the type of project you are undertaking and specific other requirements of various planning departments, in some instances additional reports may be required.

The above Table serves as an indicative guide to the process of managing and protecting trees.

7.0 References

Australian Standard® **AS4970-2009, Protection of trees on development sites, 2009, Sydney**

Australian Standard® **AS4373-2007, Pruning of Amenity Trees, 2007, Sydney**

Alex L. Shigo, **A New Tree Biology**. 1986. USA

Alex L. Shigo, **Modern Arboriculture**. 1991. USA

Writings within the report are of the author's personal knowledge and belief. The information and knowledge released in the report when referenced should be referenced to

Matt Branagh, Dip.App.Scl – Horticulture/Arboriculture – Let's Talk About Trees.

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