SEASONED TREE CONSULTING

ARBORICULTURAL IMPACT ASSESSMENT REPORT

Prepared for

ABA Pty Ltd

Site address

896-898 Woodville Road Villawood

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Date	16 December 2024

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1. INTRODUCTION

1.1 This report has been commissioned by Tony Owen Partners on behalf of the site owner ABA Pty Ltd to assess trees located on and adjoining the site that may be impacted by a proposed development.

Table 1: Plans and documents reviewed or prepared as part of this assessment:

Title	Author	Date	Reference on document
DA Submission Plans	Tony Owen Partners	December 2024	Rev D

1.2 Tree data collected for the purpose of this assessment and report was collected on 15th October 2024 where all trees were surveyed. The weather at the time of the site assessment was overcast with fair visibility.

2. ASSIGNMENT

2.1 This report has been carried out to meet the objectives listed below.

2.1.1 Conduct a Visual Tree Assessment from ground level of all trees identified on the survey plan provided that may be impacted by a proposed development.

2.1.2 In accordance with the relevant Consent Authority, a 'tree' is defined as being more than four metres in height or with a branch span of more than 3 metres or with a trunk diameter of more than 75mm measured 1 metre above ground level (not including trees associated with the Cumberland Plain Critically Endangered Ecological Community);

2.1.3 Determine the trees estimated useful life expectancy and award retention values to each tree.

2.1.4 Provide an assessment of the potential impact the proposed development is likely to cause to the condition of the subject trees in accordance with AS4970 Protection of trees on development sites (2009).

2.1.5 Recommend methods to mitigate development impacts where appropriate.

2.1.6 Provide tree protection advice in accordance with AS4970 Protection of Trees on Development Sites (2009) and a site-specific tree protection plan where reasonably practical.

3. METHODOLOGY

3.1 **The following data was collected from each tree during the site assessment.**

3.1.1 Age class

3.1.2 Diameter at Breast Height (DBH Trunk/Stem diameter at breast height/1.4m above ground level) - millimetres.

3.1.3 Diameter at Base (DAB trunk diameter above the root flare near the base of the tree)

3.1.4 Estimated height - metres

3.1.5 Estimated crown spread (Radius of crown) - metres

3.1.6 Health

3.1.7 Structural condition

3.1.8 Landscape value

3.1.9 Safe Useful Life expectancy (SULE)[1]

3.1.10 Trees AZ retention value [2]

3.1.11 An assessment of the trees condition was made using the Visual Tree Assessment (VTA) method (Mattheck & Breloer, 1994).[3]

3.1.12 Trunk diameter was measured using a calculated diameter tape measure. Where this was not possible the measurements have been estimated. All other measurements were estimations unless otherwise stated.

3.1.13 All tree protection zones and structural root zones have been calculated in accordance with AS4970 Protection of trees on development sites (2009).

3.1.14 The TPZ of palms and other monocots, cycads and tree ferns has been calculated at one metre outside the crown projection.

3.1.15 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. GLOSSARY OF BASIC TERMS

4.1.1 **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 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 retain 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 and other monocots, cycads and tree ferns has been calculated at one metre outside the crown projection.

4.1.2 **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.

4.1.3 **Minor encroachment**: 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.

4.1.4 **Major encroachment**: Where encroachment of more than 10% of the overall TPZ area is proposed the project 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.

4.1.5 The TPZ and SRZ measurements should be measured in radius from the centre of the tree trunk.

5. THE SITE AND THE PROPOSED WORKS

5.1 The subject site is located within the Fairfield Council LGA.
The trees on site are managed under the following policy and legislation:

5.1.1 Fairfield Local Environmental Plan 2013
5.1.2 Fairfield City Centre Development Control Plan 2013 op
5.1.3 Exempt Trees List A guide for residents & landowners
5.1.4 State Environmental Planning Policy (SEPP) (Biodiversity and Conservation 2021)
5.1.5 Biodiversity Conservation Act 2016

Tile 1. Site location [4]

[4] https://maps.six.nsw.gov.au/

Table 3: Site Considerations

Site Considerations	Application to site Yes/No	Source/Reference
Heritage Conservation Area	No	*https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address*
Heritage Item	No	
Biodiversity	No	
Ecologically Sensitive	No	
Bushfire Prone Land	No	

5.2 The site is a commercial block (DP 208677) of approx. 3155sqm in size, plus additional 277sqm for the RE1 block (DP1070965), plus 2 smaller blocks to the south (DP 220348 and DP 217764) all being a total calculated land area of 4412sqm and roughly U shaped around the petrol station site of 896A Woodville Road. The site is zoned as E1: Local Centre and RE1: Public Recreation. The site is generally flat and level. Existing dwellings consist of 2 residential houses on the southern blocks, a large industrial build plus bitumen and concrete carparks.

5.3 The tree population on or close to site composes mostly of semi-mature to mature trees of low to high significance. There are no street trees located outside of any of the properties.

5.4 The proposal consists of full demolition of all existing structures and site features, with the deep excavation into the site for underground carparks. Construction proposed is multi story residential towers up to 35m in height with associated retail and commercial restaurant and services development. Access into the site is proposed off Howatt Ave and Hilwa Streets.

6. ASSESSEMENT OF CONSTRUCTION IMPACTS

6.1 **Table 4:** Summary of the impact of proposed development impact to all trees included in the report.

Tree ID	Species	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sqM)	TPZ encroachment	Discussion/ Conclusion	Recommendation
1	*Corymbia maculata*, Spotted gum	A2	9.12	3.1	261.3	Minor to major	Large tree located within the northern corner of the site, close to Howatt Street. The tree is in overall good condition, although one of the branches is in direct contact with a light post on the street and this should be pruned. The tree will be subject to a minor to major encroachment from works within the site which include demolition of existing surfacing and replacement of this surfacing within the new Civic Plaza area. It is also presumed that the existing failing brick wall immediately outside of the site on Howatt Street will be demolished. To retain this high value tree in a viable condition it must be shown that the replacement surfacing can be constructed without impacting any significant roots (that being over 40mm in diameter). This can generally be provided for by designing the new surfacing using existing ground levels, with a maximum of 100mm depth of excavation (which should account for the existing bitumen and sub-base). Tree protection measures including trunk protection plus tree protection fencing must be installed prior to any works being undertaken on the site, including demolition.	Retain and protect.
2	Large Leaf Privet + small mango + Ornamental pear to 5m	Z3	-	-	-	Footprint	Group of small trees located within the development site proposed for removal.	Remove and replace.
3	*Melaleuca bracteata*, Black tea-tree	A2	5.88	2.5	108.6	Footprint	Medium sized tree located within the development site proposed for removal.	Remove and replace.
4	*Tristaniopsis laurina,* Watergum	A2	3	1.8	28.3	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.
5	*Melaleuca bracteata,* Black tea-tree	A2	5.88	2.4	108.6	Footprint	Medium sized tree located within the development site proposed for removal.	Remove and replace.
6	*Photinia sp.,* Photinia	A2	3	1.8	28.3	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.

Tree ID	Species	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sqM)	TPZ encroachment	Discussion/ Conclusion	Recommendation
7	Mango, lime, other fruit trees to 4m	Z3	-	-	-	Footprint	Group of small trees located within the development site proposed for removal.	Remove and replace.
8, 9, 10, 11, 12, 13	Group of 6 x *Melaleuca bracteata*, Black tea-tree	A2	2.4	1.7	18.1	Major	Group of 6 trees located within the neighbouring site proposed for removal. The trees cannot be retained with the proposed plans for deep excavation for the basement levels to the site boundaries. The plans show a benchmark scheme for the existing petrol station block which would require the removal of these trees.	Remove and replace.
14	*Callistemon sp.*, Bottlebrush	A1	4.2	2.1	55.4	Footprint	Medium sized tree located within the development site proposed for removal.	Remove and replace.
15	*Tristaniopsis laurina,* Watergum	Z10	3	1.8	28.3	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.
16	*Tristaniopsis laurina,* Watergum	A2	2.4	1.7	18.1	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.
17	*Tristaniopsis laurina,* Watergum	A2	3	2	28.3	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.
18	*Callistemon sp.*, Bottlebrush	A1	4.2	2.1	55.4	Footprint	Small tree located within the development site proposed for removal.	Remove and replace.
19	*Melaleuca quinquenervia*, Broad-leaf paperpark	Z2	6	2.7	113.1	Footprint	Medium sized tree located within the development site proposed for removal.	Remove and replace.
20	*Melaleuca bracteata,* Black tea-tree	Z2	3.6	2.1	40.7	Footprint	Medium sized tree located within the development site proposed for removal.	Remove and replace.
21	Group of *Citrus sp*, Citrus	Z3	-	-	-	Footprint	Group of small trees located within the development site proposed for removal.	Remove and replace.

7. CONCLUSIONS

7.1 **Table 5:** Summary of development impacts on trees assessed.

Impact	Reason	Retention Category		
		AA	A	Z
Trees to be removed	Building construction, new surfacing and/or proximity, or trees in poor condition.	-	**T3, T4, T5, T6, T8, T9, T10, T11, T12, T13, T14, T16, T17, T18** **(14 trees)**	**T2, T7, T15, T19, T20, T21** **(6 trees)**
Retained trees that will be subject to TPZ encroachment	Removal of existing surfacing/structures and/or installation of new surfacing/structures	-	-	-
Trees to be retained that will not be subject to TPZ encroachment	Trees are located sufficiently away from the development not to be impacted.	-	-	-
Retained trees that will require sensitive installation of structures	Refer to section 6 specifications (or see appendix 1A for graphical advice)	-	**T1** **(1 tree)**	-

8. RECOMMENDATIONS AND MITIGATION STRATEGIES

8.1 This report assesses the impact of a proposed development at the site on **21 trees** (that includes groups of trees) in accordance with the AS4970 *Protection of trees on development sites* (2009).

8.2 It is recommended that trees **T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18 T19, T20, T21 (20 trees) are removed and replaced.** Trees T8, T9, T10, T11, T12, T13 and T20 (total of 7 trees) are not within the subject development site.

8.3 It is recommended that tree **T1 (total of 1 tree) is retained. Tree sensitive demolition, design and construction will be required for the proposed hard surfacing within the TPZ of this tree.**

T1 will require tree protection measures to be installed, in the form of trunk protection, plus thick mulch within the TPZ area, plus tree protection fencing.

If any below ground features (drainage, power, gas etc) is required to be installed within the TPZ of T1, tree sensitive methods must be used (hydrovacuum or hand dug trenches whilst retaining and protecting any root over 40mm in diameter)

8.4 All construction activity is to comply with Australian Standard AS4970 Protection of Trees on Development Sites (2009), sections 7, 10 and 11 of this report.

8.5 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.

8.6 All works within the TPZ and SRZ of retained trees are to be overseen by an AQF5 Consulting Arborist to assist with minimising the development impact.

8.7 All services plans should be subject to review by a AQF5 Consulting Arborist. Where possible underground services should be located outside the TPZ of trees to be retained. All underground services located inside the TPZ of any tree to be retained must be installed via tree sensitive techniques. This should include either directional drilling methods or manual excavations to minimise the impact to trees identified for retention.

9. ARBORICULTURAL WORK METHOD STATEMENT (AWMS) AND TREE PROTECTION REQUIREMENTS

9.1 **See Appendix 1A for detailed tree protection guidance.**

9.2 **Use of this report:** All contractors must be made aware of the tree protection requirements prior to commencing works at the site and be provided a copy of this report.

9.3 **Tree protection Specifications:** It is the responsibility of the principle contractor to install tree protection prior to works commencing at the site (prior to demolition works) and to ensure that the tree protection remains in adequate condition for the duration of the development. The tree protection must not be moved without prior agreement of the project Arborist. The project Arborist must inspect that the tree protection has been installed in accordance with this document and AS4970-2009 prior to works commencing.

9.4 **Project Arborist:** Prior to any works commencing at the site a project Arborist should be appointed. The project Arborist should be qualified to a minimum AQF level 5 and/or equivalent qualifications and experience, and should assist with any development issues relating to trees that may arise. If at any time it is not feasible to carryout works in accordance with this, an alternative must be agreed in writing with the project Arborist.

9.5 **Tree work:** All tree work must be carried out by a qualified and experienced Arborist with a minimum of AQF level 3 in arboriculture, in accordance with NSW Work Cover Code of Practice for the Amenity Tree Industry (1998) and AS4373 Pruning of amenity trees (2007).

9.6 **Variations to protective fencing:** Where it is not feasible to install fencing at the specified location due to factors such restricting access to areas of the site or for constructing new structures, an alternative location and protection specification must be agreed with the project Arborist. Where the installation of fencing in unfeasible due to restrictions on space, trunk and branch protection will be required (see below). The protective fencing must be constructed of 1.8 metre ‘cyclone chainmesh fence’. The fencing must only be removed for the landscaping phase and must be authorised by the project Arborist. Any modifications to the fencing locations must be approved by the project Arborist.

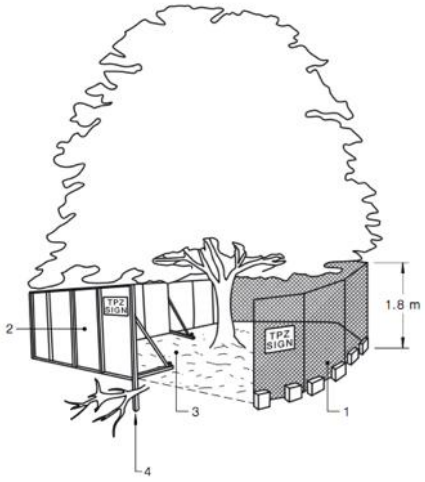
9.7 **TPZ signage:** Tree protection signage is to be attached to the protective fencing, displayed in a prominent position and the sign repeated at 10 metres intervals or closer where the fence changes direction. Each sign shall contain in a clearly legible form, the following information:

- Tree protection zone/No access.
- This fence has been installed to prevent damage to the tree/s and their growing environment both above and below ground. Do not move fencing or enter TPZ without the agreement of the project Arborist.
- The name, address, and telephone number of the developer/builder and project Arborist

9.8 **Trunk and Branch Protection:** The trunk must be protected by wrapped hessian or similar material to limit damage. Timber planks (50mm x 100mm or similar) should then be placed around tree trunk. The timber planks should be spaced at 100mm intervals, and must be fixed against the trunk with tie wire, or strapping and connections finished or covered to protect pedestrians from injury. The hessian and timber planks must not be fixed to the tree in any instance. The trunk and branch protection shall be installed prior to any work commencing on site and shall be maintained in good condition for the entire development period.

9.9 **Mulch:** Any areas of the TPZ located inside the subject site (only trees to be retained directly adjacent to site works must be mulched to a depth of 75mm with good quality composted wood chip/leaf mulch.

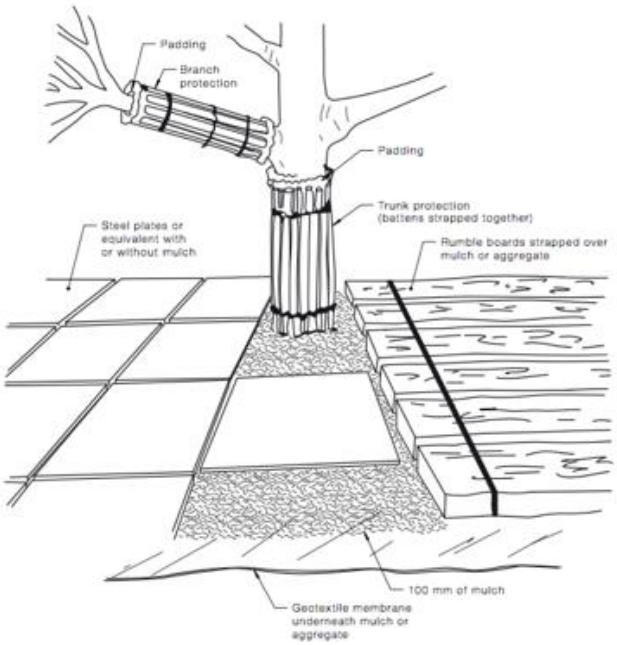
9.10 **Ground Protection:** Ground protection is required to protect the underlying soil structure and root system in areas where it is not practical to restrict access to whole TPZ, while allowing space for construction. Ground protection must consist of good quality composted wood chip/leaf mulch to a depth of between 150-300mm, laid on top of geo textile fabric. If vehicles are to be using the area, additional protection will be required such as rumble boards or track mats to spread the weight of the vehicle and avoid load points. Ground protection is to be specified by the project Arborist as required.



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.

An image from AS4970-2009,[5] with example tree protection.

[5] Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 16.

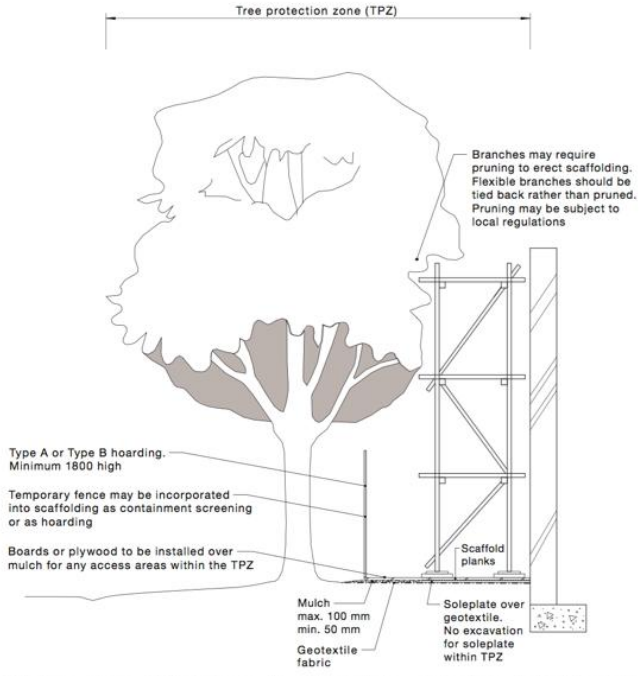


NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

An image from AS4970-2009,[6] with example tree protection.



NOTE: Excavation required for the insertion of support posts for tree protection fencing should not involve the severance of any roots greater than 20 mm in diameter, without the prior approval of the project arborist.

6 Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 17.

Image 3: An image from AS4970-2009,[7] with example tree protection involving scaffold.

9.11 **Root investigations:** Where major TPZ encroachments require demonstrating the viability of trees the following method for root investigations is to be used. Non-destructive excavations are to be carried out along the outer edge of proposed or existing structures within the TPZ (excavation methods include the use of pneumatic and hydraulic tools, high-pressure air or a combination of high-pressure water and a vacuum device). Excavations generally consist of a trench to a depth dictated by the location of significant roots, bedrock, unfavourable conditions for root growth, or the required depth for footings up to 1 metre. The investigation is to be carried out by AQF5 consulting Arborist who is to record all roots greater than 30 millimetres in diameter and produce a report discussing the significance of the findings. No roots 30 millimetres in diameter are to be frayed or damaged during excavation and the trench is to be backfilled as soon as possible to reduce the risk of roots drying out. In the event roots must be left exposed they are to be wrapped in hessian sack and regularly irrigated for the duration of exposure.

9.12 **Restricted activities inside TPZ:** The following activities must be avoided inside the TPZ of all trees to be retained unless approved by the project Arborist. If at any time these activities cannot be avoided an alternative must be agreed in writing with the project Arborist to minimise the impact to the tree.

A) Machine excavation.
B) Ripping or cultivation of soil.
C) Storage of spoil, soil or any such materials
D) Preparation of chemicals, including preparation of cement products.
E) Refueling.
F) Dumping of waste.
G) Wash down and cleaning of equipment.
H) Placement of fill.
I) Lighting of fires.
J) Soil level changes.
K) Any physical damage to the crown, trunk, or root system.
L) Parking of vehicles.

9.13 **Demolition:** The demolition of all existing structures inside or directly adjacent to the TPZ of trees to be retained must be undertaken in consultation with the project Arborist. Any machinery is to work from inside the footprint of the existing structures or outside the TPZ, reaching in to minimise soil disturbance and compaction. If it is not feasible to locate demolition machinery outside the TPZ of trees to be retained, ground protection will be required. The demolition should be undertaken inwards into the footprint of the existing structures, sometimes referred to as the ‘top down, pull back’ method.

[7] Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 19.

9.14 **Excavations and root pruning:** The project Arborist must supervise and certify that all excavations and root pruning are in accordance with AS4373-2007 and AS4970-2009. For continuous strip footings, first manual excavation is required along the edge of the structures closest to the subject trees. Manual excavation should be a depth of 1 metre (or to unfavourable root growth conditions such as bed rock or heavy clay, if agreed by project Arborist). Next roots must be pruned back in accordance with AS4373-2007. After all root pruning is completed, machine excavation is permitted within the footprint of the structure. For tree sensitive footings, such as pier and beam, all excavations inside the TPZ must be manual. Manual excavation may include the use of pneumatic and hydraulic tools, high-pressure air or a combination of high-pressure water and a vacuum device. No pruning of roots greater 30mm in diameter is to be carried out without approval of the project arborist. All pruning of roots greater than 10mm in diameter must be carried out by a qualified Arborist/Horticulturalist with a minimum AQF level 3. Root pruning is to be a clean cut with a sharp tool in accordance with AS4373 Pruning of amenity trees (2007).[8] The tree root is to be pruned back to a branch root if possible. Make a clean cut and leave as small a wound as possible.

9.15 **Landscaping:** All landscaping works within the TPZ of trees to be retained are to be undertaken in consultation with a consulting Arborist to minimize the impact to trees. General guidance is provided below to minimise the impact of new landscaping to trees to be retained.

9.16 **Level changes should be minimised**. The existing ground levels within the landscape areas should not be lowered by more than 50mm or increased by more 100mm without assessment by a consulting Arborist.

9.17 **New retaining walls** should be avoided. Where new retaining walls are proposed inside the TPZ of trees to be retained, they should be constructed from tree sensitive material, such as timber sleepers, that require minimal footings/excavations. If brick retaining walls are proposed inside the TPZ, considerer pier and beam type footings to bridge significant roots that are critical to the trees condition. Retaining walls must be located outside the SRZ and sleepers/beams located above existing soil grades.

9.18 **The location of new plantings** inside the TPZ of trees to be retained should be flexible to avoid unnecessary damage to tree roots greater than 30mm in diameter.

9.19 **Sediment and Contamination:** All contamination run off from the development such as but not limited to concrete, sediment and toxic wastes must be prevented from entering the TPZ at all times.

[8] Council Of Standards Australia, *AS 4373 Pruning of amenity trees* (2007) page 18

9.20 **Tree Wounding/Injury:** Any wounding or injury that occurs to a tree during the construction process will require the project Arborist to be contacted for an assessment of the injury and provide mitigation/remediation advice. It is generally accepted that trees may take many years to decline and eventually die from root damage. All repair work is to be carried out by the project Arborist, at the contractor's expense.

9.21 **Completion of Development Works:** After all construction works are complete the project Arborist should assess that the subject trees have been retained in the same condition and vigour. If changes to condition are identified the project Arborist should provide recommendations for remediation.

10. HOLD POINTS

10.1 **Hold Points:** Below is a sequence of standard hold points requiring project Arborist certification throughout the development process**.**

10.2 It provides a list of hold points that must be checked and certified where specified by the Consent Authority.

10.3 Certification is recommended to be provided in written format upon completion of each point. The final certification must include details of any instructions for remediation undertaken during the development.

Hold Point	Stage	Responsibility	Certification	Complete Y/N and date
Project Arborist to hold pre construction site meeting with principle contractor to discuss methods and importance of tree protection measures and resolve any issues in relation to feasibility of tree protection requirements that may arise.	Prior to work commencing.	Principle contractor	Project Arborist	
Project Arborist To supervise all pruning works to retained trees.	Prior to works commencing	Principal Contractor	Project Arborist	
Project Arborist to assess and certify that tree protection has been installed in accordance with section 11 and AS4970-2009 prior to works commencing at site.	Prior to development work commencing.	Principle contractor	Project Arborist	
In accordance with AS4970-2009 the project arborist should carryout regular site inspections to ensure works are carried out in accordance with the recommendations. I recommend site inspections on a bi-monthly frequency.	Ongoing throughout the development	Principle contractor	Project Arborist	
Project Arborist to oversee all initial pier excavations and demolition inside the TPZ of any tree to be retained.	Construction	Principle contractor	Project Arborist	
Project Arborist to certify that all pruning of roots greater than 40mm in diameter has been carried out in accordance with AS4373-2007. All root pruning must be carried out by a qualified Arborist/Horticulturalist with a minimum AQF level 3.	Construction	Principle contractor	Project Arborist	
Project Arborist to certify that all underground services including storm water inside TPZ of any tree to be retained have been installed in accordance with AS4970-2009.	Construction	Principle contractor	Project Arborist	
All landscaping works/boundary walls within the TPZ of trees to be retained are to be undertaken in consultation with the project Arborist to minimize the impact to trees.	Landscape	Principle contractor	Project Arborist	
After all construction works are complete the project Arborist should assess that the subject	Upon completion of construction	Principle contractor	Project Arborist	

trees have been retained in the same condition and vigor and authorize the removal of protective fencing. If changes to condition are identified the project Arborist should provide recommendations for remediation.				
Any wounding or injury that occurs to a tree during the demolition/construction process will require the project arborist to be contacted for an assessment of the injury and provide mitigation/remediation advice. All remediation work is to be carried out by the project arborist, at the contractor's expense.	Ongoing throughout the development	Principle contractor	Project Arborist	

11. BIBLIOGRAPHY/REFERENCES

- Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009).
- Council of Standards Australia, *AS4373 Pruning of amenity trees* (2007).
- 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/.
- State Environmental Planning Policy (SEPP) (Biodiversity and Conservation Act 2021)

12. LIMITATIONS AND ASSUMPTIONS

12.1 Observations and recommendations are based on one site inspection. The findings of this report are based on the observations and site conditions at the time inspection. 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.

12.2 Where access was not available to neighbouring trees, their dimensions have been estimated from within the property boundary or from public land.

12.3 It is possible that root decay and defects can be present below ground with no visual indication above ground. It is 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 or being present at the time of the works. Any form of tree failure due to these occurrences is beyond the scope of this assessment.

12.4 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.

12.5 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.

12.6 Seasoned Tree Consulting neither guarantees, nor is responsible for, the accuracy of information provided by others that is contained within this report.

12.7 Trees useful life expectancy has been estimates however this report is not an assessment of risk or probability of failure.

12.8 Trees stated as ‘retainable’ in this report may only be retained in a viable condition in the event they are correctly managed as per the recommendations and specifications in this report. In the event deviations occur the level of impact will increase and likely further impact the trees.

12.9 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.

12.10 Alteration of this report invalidates the entire report.

13. PHOTOGRAPHS

Image a: T1,

Image b: T2 (group of up to 5 small trees)

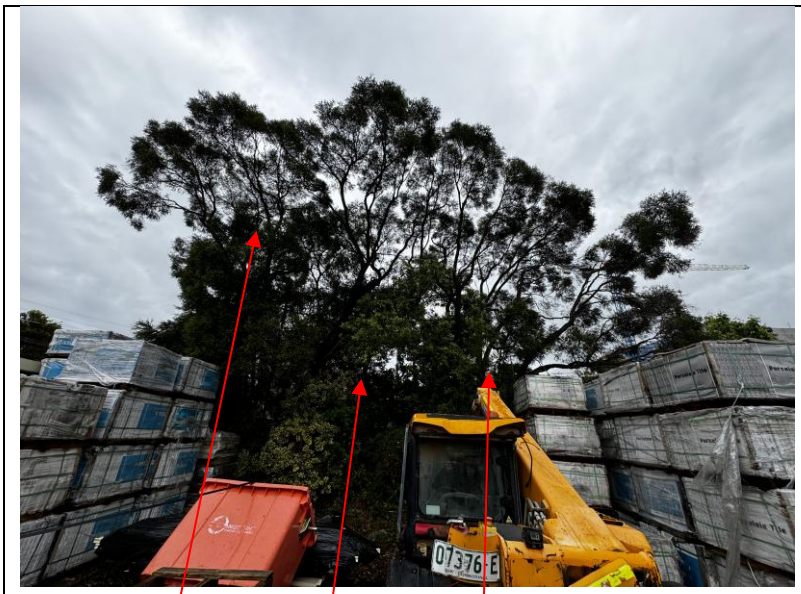


Image c: T5, T4, T3, T3

Image d: T7 (group of small trees)

Image e:

Image f:

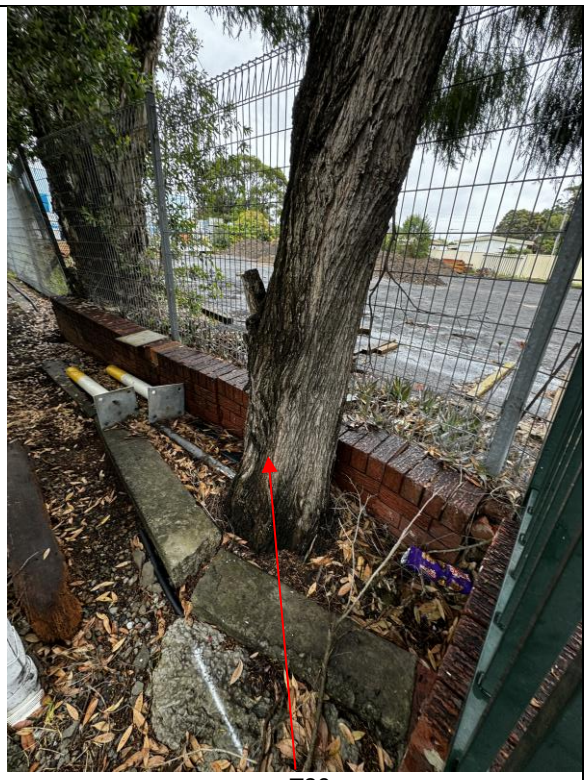


Image g: T19, T18, T17, T16 T20

Image h: T19, T18

14. LIST OF APPENDICIES

The following are included in the appendices:

Appendix 1 – Existing Site Plan
Appendix 1A – Proposed Ground Floor Plan
Appendix 2 - Tree inspection schedule
Appendix 3 – Health
Appendix 4 – Structural Condition
Appendix 5 – Age Class
Appendix 6 – Landscape Value
Appendix 7 – SULE Categories
Appendix 8 – Trees AZ Field Sheet
Appendix 9 – TPZ Encroachment Examples

Regards

David Gowenlock- Seasoned Tree Consulting

Diploma of Arboriculture AQF5
Diploma of Conservation and Land Management AQF5
TRAQ (International Society of Arboriculture – Tree Risk Assessment Qualification)
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AQF2 + AQF3 Arboriculture

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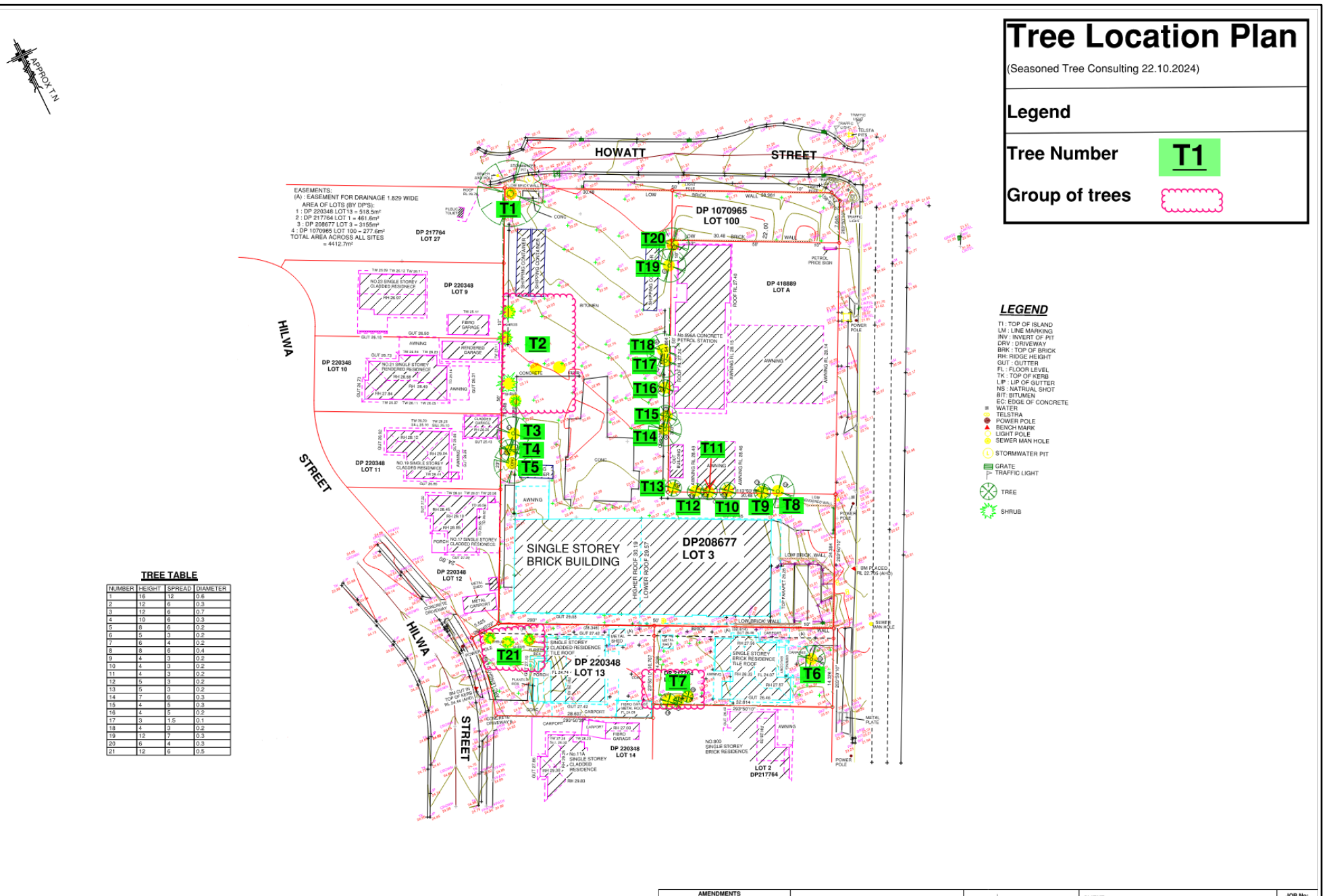
APPENDIX 1 – TREE LOCATION PLAN



TREE TABLE

NUMBER	HEIGHT	SPREAD	DIAMETER
1	16	12	0.6
2	12	6	0.3
3	12	6	0.7
4	10	6	0.3
5	8	6	0.2
6	5	3	0.2
7	6	4	0.2
8	8	6	0.4
9	4	3	0.2
10	4	3	0.2
11	4	3	0.2
12	5	3	0.2
13	5	3	0.2
14	7	6	0.3
15	4	5	0.3
16	4	5	0.2
17	3	1.5	0.1
18	4	3	0.2
19	12	7	0.3
20	6	4	0.3
21	12	6	0.5

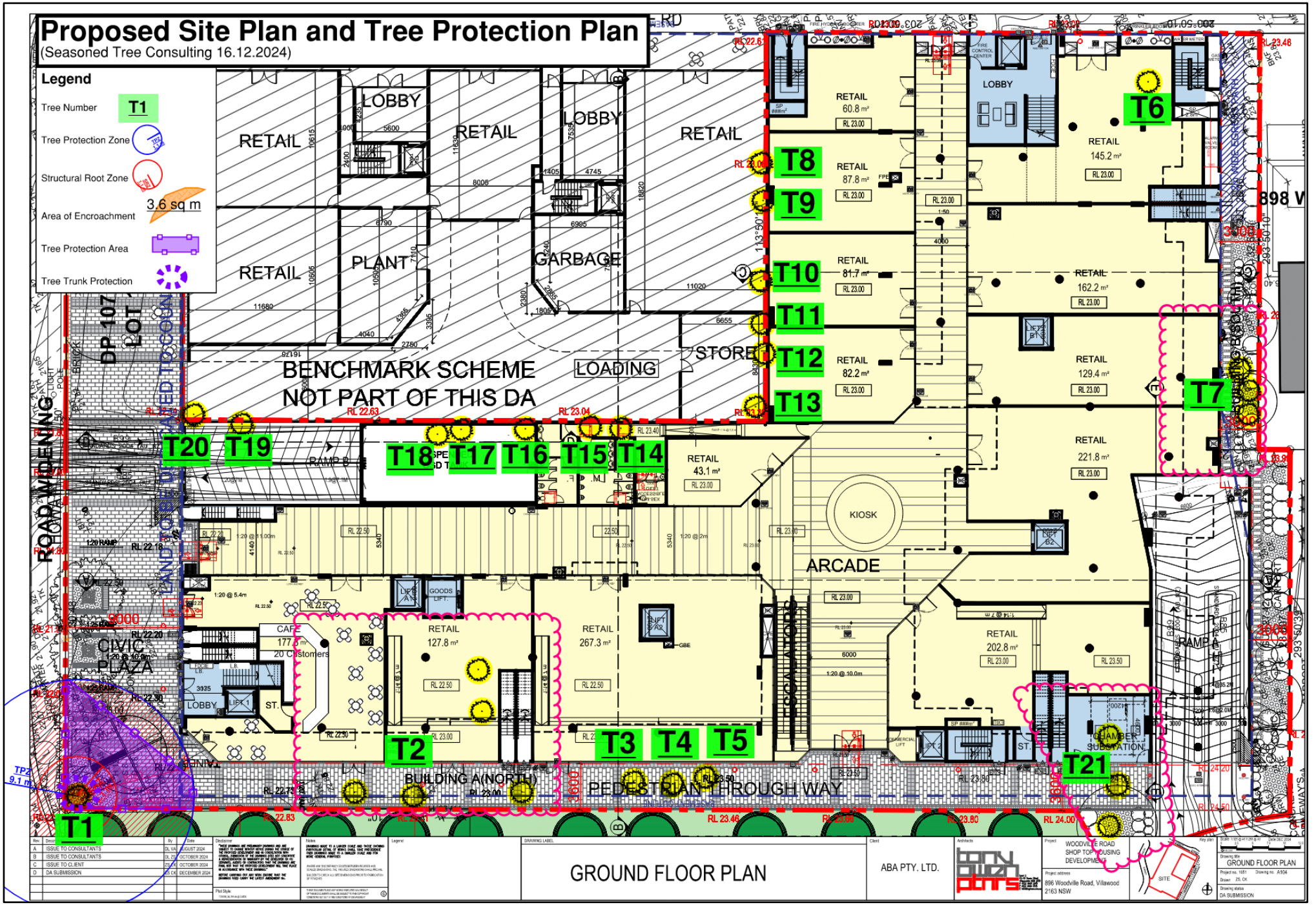
AMENDMENTS	
DATE:	DESCRIPTION:

NOTES:
ANY POINT CRITICAL TO THE PREPARATION OF PLANS AND/OR CONSTRUCTION SHOULD BE CHECKED BY THE BUILDER BEFORE ANY WORK COMMENCING. ALL SERVICES ARE INDICATIVE ONLY. OTHER SERVICES MAY EXIST. ALL TREES ARE APPROXIMATE LOCATION AND SIZE ONLY. DIAL BEFORE YOU DIG SHOULD BE UNDERTAKEN PRIOR TO ANY EXCAVATION WORK ON 1100. PRIOR TO THE COMPLETION OF ANY PLANS AND/OR CONSTRUCTION FURTHER FIELD WORK SHOULD BE UNDERTAKEN.

URBANEX SURVEYORS
PH: 9786 6724
SHOP 1 103 CANN ST BASS HILL 2197
EMAIL: survey@urbanex.net.au

CLIENT:		JOB No: 80-2022
CLIENT ADDRESS:	JOB ADDRESS: 896-898 WOODVILLE ROAD, VILLAWOOD 2163	DATE: 05.07.2022
SCALE: 1:300 ON A1	LEVELS: AHD LEVLS DERIVED FROM PM 3347	

APPENDIX 1A – PROPOSED SITE PLAN AND TREE PROTECTION PLAN



APPENDIX 2- TREE INSPECTION SCHEDULE

Tree Inspection Site: 896 Woodville Road Villawood

Surveyed by: David Gowenlock Date of Inspection: 15.10.2024 Tagged: No

Tree ID	Tree Species	DBH (CM)	TPZ radius (M)	TPZ Area (Sq.M)	DAB (CM)	SRZ radius (M)	Height (M)	Spread (M)	Age Class	Health	Structure	Amenity value	SULE	TreeAZ retention Value	Comments
1	*Corymbia maculata*, Spotted gum	76	9.12	261.3	85	3.1	17	13	Mature	Good	Good	High	>40	A2	Branch rubbing on light pole at 8m. Damaging old brick wall on street. Lots of bitumen and stormwater pit within 3m of trunk.
2	Large Leaf Privet + small mango + Ornamental pear to 5m						4 to 5	4	Semi-mature	Good				Z3	Mostly exempt species or sizes.
3	*Melaleuca bracteata*, Black tea-tree	28*25*31 (=49)	5.88	108.6	50	2.5	10	10	Mature	Good	Fair	Medium	5 > 15	A2	Stem lopped. Fair canopy condition.
4	*Tristaniopsis laurina,* Watergum	15*20 (=25)	3	28.3	25	1.8	6	5	Semi-mature	Good	Unknown - tree obscured	Low	15 > 40	A2	Covered in jasmine
5	*Melaleuca bracteata,* Black tea-tree	28*35*20 (=49)	5.88	108.6	45	2.4	10	10	Mature	Good	Fair	Medium	15 > 40	A2	Concrete gutter kerb
6	*Photinia sp.,* Photinia	25	3	28.3	25	1.8	4.5	5	Mature	Good	Good	Medium	15 > 40	A2	Recently pruned down low.
7	Mango, lime, other fruit trees to 4m						4	4	Mature	Good	Good	Low	15 > 40	Z3	Small, exempt species.
8, 9, 10, 11, 12, 13	Group of 6 x *Melaleuca bracteata*, Black tea-tree	20	2.4	18.1	20	1.7	5.6	5	Semi-mature	Good	Fair / good	Low	5 > 15	A2	Many poorly pruned. Large concrete kerb and gutter
14	*Callistemon sp*., Bottlebrush	35	4.2	55.4	35	2.1	7	6	Mature	Good	Good	Medium	15 > 40	A1	Bitumen beside with cracks from roots
15	*Tristaniopsis laurina,* Watergum	25	3	28.3	25	1.8	5	3	Semi-mature	Fair	Fair	Low	5 > 15	Z10	
16	*Tristaniopsis laurina,* Watergum	20	2.4	18.1	20	1.7	5	3	Semi-mature	Good	Fair / good	Low	15 > 40	A2	
17	*Tristaniopsis laurina,* Watergum	25	3	28.3	30	2	6	4	Semi-mature	Good	Fair / good	Low	15 > 40	A2	
18	*Callistemon sp*., Bottlebrush As per 14	35	4.2	55.4	35	2.1	7	6	Mature	Good	Good	Medium	15 > 40	A1	Bitumen beside with cracks from roots
19	*Melaleuca quinquenervia*, Broad-leaf paperpark	50	6	113.1	60	2.7	12	8	Mature	Good	Fair	Medium	15 > 40	Z2	Destroying bitumen and concrete kerb. Very close to building . On neighbour block.
20	*Melaleuca bracteata,* Black tea-tree	30	3.6	40.7	33	2.1	12	6	Mature	Good	Fair	Medium	5 > 15	Z2	Very close to building . On neighbour block.
21	Group of *Citrus sp*, Citrus						4	4	Semi-mature	Good	Good	Low	15 > 40	Z3	Small, exempt species.

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. Where DBH has been estimated it is indicated with an 'Est'.
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 x 50) $^{0.42}$ x 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+years), 2. Medium (15 - 40 years), 3. Short (5 - 15 years), 4. Remove (under 5 years), 5. Small/young.
TreeAZ retention Value- See Appendix 10

Appendix 3 – Assessment of Health

Category	Example condition	Summary
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.	• The tree is in above average health and condition and no remedial works are required.
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 is in below average health and condition and may require remedial works to improve the trees health.
Poor	• The 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 is displaying low levels of health and removal or remedial works may be required.
Dead	• The tree is dead or almost dead.	• The tree should generally be removed.

Appendix 4 - Structural condition

Category	Example condition	Summary
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 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 5 - Age class

Determining the exact age of a tree is difficult without carrying out potentially invasive testing. The age class of the subject tree has been estimated using the definitions below.

Category	Description
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 7 - 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	Useful life expectancy over 40 years
2. Medium	Useful life expectancy 15 to 40 years
3. Short	Useful life expectancy 5 to 15 years
4. Remove	Useful life expectancy under 5 years
5. Small/Young	Trees that could be transplanted or replaced with similar specimen.
6. Unstable	Tree has become hazardous or structurally unstable.

Appendix 6 Landscape Value

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to Commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally--indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m²; a crown density exceeding 70% (normal--dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally--indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m²; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non--local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m²;The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crowndensity of more than 50% (thinning to normal); and The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m² and can be replaced within the short term (5--10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Ref: *Determining the retention value of trees of development sites,* presentation handouts at TAFE NSW Ryde College, March 2012

Appendix 8 – Trees AZ Field Sheet

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 cannot 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	
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	
Z9	Severe damage and/or structural defects where a high risk of failure can be temporarily 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.

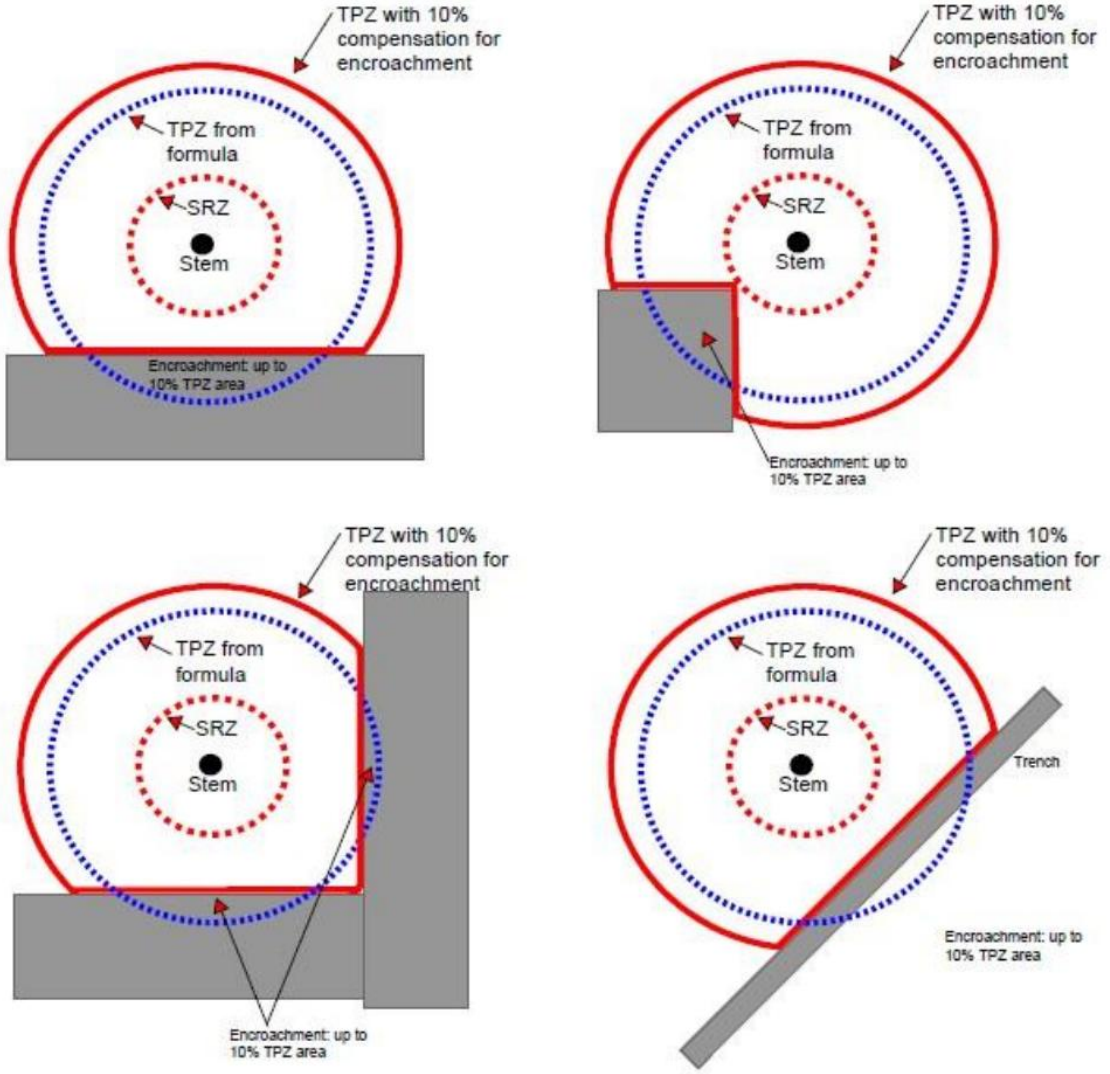
Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

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.

Appendix 9- Examples of TPZ encroachment

Encroachment into the Tree Protection Zone is sometimes unavoidable. The following diagram shows examples of acceptable levels of encroachment and how they may be compensated for by providing additional space contiguous to the TPZ area.



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