



**SEASONED TREE
CONSULTING**

**ARBORICULTURAL IMPACT
ASSESSMENT REPORT**

SSD-76440958

Prepared for
**Wollongong Developments
No.8 Pty Ltd**

Site address
**221-291 Crown Street, 216-
238 Keira Street and 86-90
Burelli Street, Wollongong**

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Site Address: 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong

Client Name: Wollongong Developments No.8 Pty Ltd

Date prepared: 31 July 2025

Revision: 001

1. INTRODUCTION

1.1 This Arboricultural Impact Assessment Report prepared by Seasoned Tree Consulting on behalf of Wollongong Developments No.8 Pty Ltd ('the Applicant') supports a State Significant Development Application (SSDA) for an Infill Affordable Housing Development, SSD-76440958, for the site at 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong (the site).

Specifically, consent is sought for the following development in this SSDA:

- Demolition of existing structures on the site, retention of heritage facades, tree removal and site excavation for new basement.
- Construction of a new mixed-use development consisting of:
 - Four residential towers, ranging from 16 to 38 storeys and comprising 546 apartments including:
 - Approx. 414 market apartments.
 - Approx. 132 affordable apartments.
 - Residential lobbies and podium.
 - Communal open space.
 - A 10-storey commercial office building, an 8-storey hotel comprising 166 rooms, and numerous retail tenancies (including a supermarket) consisting of:
 - 10,009 sqm of commercial GFA.
 - 8,793 sqm of hotel GFA.
 - 3,781 sqm of retail GFA.
 - 1,510 sqm of retail supermarket GFA.
- Car, motorcycle and bicycle parking for residents, workers and visitors across two basement levels, mezzanine, lower ground and levels 1 and 2 including:
 - 774 car parking spaces, including:
 - 547 residential spaces (including accessible spaces).
 - 49 residential visitor spaces.
 - 63 commercial/retail/residential visitor spaces.
 - 25 commercial/retail (staff) spaces.
 - 10 hotel (staff only) spaces.
 - 80 retail (supermarket) spaces.
 - Five (5) loading bays.
 - 320 bicycle parking spaces.
 - 47 motorcycle parking spaces.
- New public open space including a new public plaza.
- Associated landscaping and public domain works.

1.2 This report assesses 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 Drawings	DKO	May 2025	
Survey Plan	Masters Surveying	20.09.2024	Rev O

- 1.3 Tree data collected for the purpose of this assessment and report was collected on 11th September 2024 where all trees were surveyed.
- 1.4 The weather at the time of the site assessment was clear with good 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 5 metres in height, having a trunk diameter of 30cm or more measured at ground level, or has branches that are more than 10cm in diameter where they meet the trunk (for pruning).
 - 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 Amenity 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.

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

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).

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 PROPOSED WORKS

5.1 The site is located within the suburb of Wollongong in the Wollongong City Council LGA. This assessment has been carried out in accordance with the following documents and legislation;

5.1.1 Wollongong Local Environmental Plan 2009

5.1.2 Wollongong DCP 2009 - as amended 12 Jan 2018

5.1.3 State Environmental Planning Policy (Biodiversity and Conservation 2021).

5.2 The site is situated at 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong, within the Wollongong Local Government Area (LGA). The site forms part of the Wollongong City Centre Precinct, as identified in the Wollongong Local Environmental Plan 2009 (WLEP). It is well located, being approximately 280m from Wollongong Train Station which provides services within Wollongong and to the Sydney CBD. It is adjacent to Wollongong Central shopping centre, a major regional retail hub. The site has ample access to public open space being less than 50m from MacCabe Park. The site comprises a significant landholding of approximately 13,088m² with frontages to Crown Street, Keira Street, Burelli Street and Atchison Street. The site is owned by Wollongong Developments No.8 Pty Ltd.

The site area and legal description is recorded in the Error! Reference source not found. below.

Legal Description	Address
Lot 1 in DP 112417	216-222 Keira Street
Lot 100 in DP 774957	226-230 Keira Street
Lot 9 in DP 551157	232-234 Keira Street
Lot 8 in DP 546125	236-238 Keira Street
Lot 1 in DP 88455	86 Burelli Street
Lot 4 in DP 17979	
Lot 5 in DP 17979	
Lot B in DP 395330	90 Burelli Street
Lot 1 in DP 220513	221-229 Crown Street
Lot 3 in DP 17979	231 Crown Street
Lot 2 in DP 17979	233-235 Crown Street
Lot 1 in DP 17979	
Lot 7 in DP 878243	237-241 Crown Street
Lot 1 in DP 1135333	243-251 Crown Street
Lot 1 in DP 226374	253-259 Crown Street

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Lot 1 in DP 183348	
Lot 2 in DP 226374	
Lot 3 in DP 319452	261 Crown Street
Lot 2 in DP 319452	269-271 Crown Street
Lot 1 in DP 319452	
Lot 2 in DP 181570	273-279 Crown Street
Lot 1 in DP 1116034	
Lot 1 in DP 82673	281-291 Crown Street
Lot 1 in DP 117019	
Lot 1 in DP 927806	281-291 Burelli Street
Lot 1 in DP 1198873	
Lot 1 in DP 1087986	

Tile 1. Approx site location ⁴



 The Site

 NOT TO SCALE

⁴ [Source: Nearmap, edits by Ethos Urban](#)

5.3 Background

An existing consent approved on 12 December 2022 (DA-2021/957) applies to the site. The consent was granted for the demolition of existing structures, retention of heritage facades, tree removal, excavation for basement car parking and construction of a mixed-use development at the street block bound by Crown, Keira, Burelli and Atchison Streets, comprising three (3) residential towers (shop top housing), one (1) commercial building, retail shops, entertainment facilities (cinema, exhibition/performance space) and a wellness centre (pool, gym, and health services).

The proposal consists of demolition of most existing site features (whilst retaining the facades of the Former Marcus Clark Building and the Grand Hotel) and deep excavation for basement carparking levels, plus construction of multiple towers for residential and commercial development. Extensive landscape works are proposed.

5.4 This report has been prepared to respond to the Secretary's Environmental Assessment Requirements (SEARS) dated 8 October 2024 for SSD-76440958. Specifically, this report has been prepared to partially respond to the SEARS summarised in the table below.

8. Trees and Landscaping

- Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site.

Table 3: Site Considerations

Site Considerations	Application to site Yes/No	Source/References
Heritage Conservation Area	No	https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap
Heritage Item	Yes	
Biodiversity	No	
Ecologically Sensitive	No	
Bushfire Prone Land	No	

5.5 The tree population on or close to the site composes mostly of mature trees of varying significance.

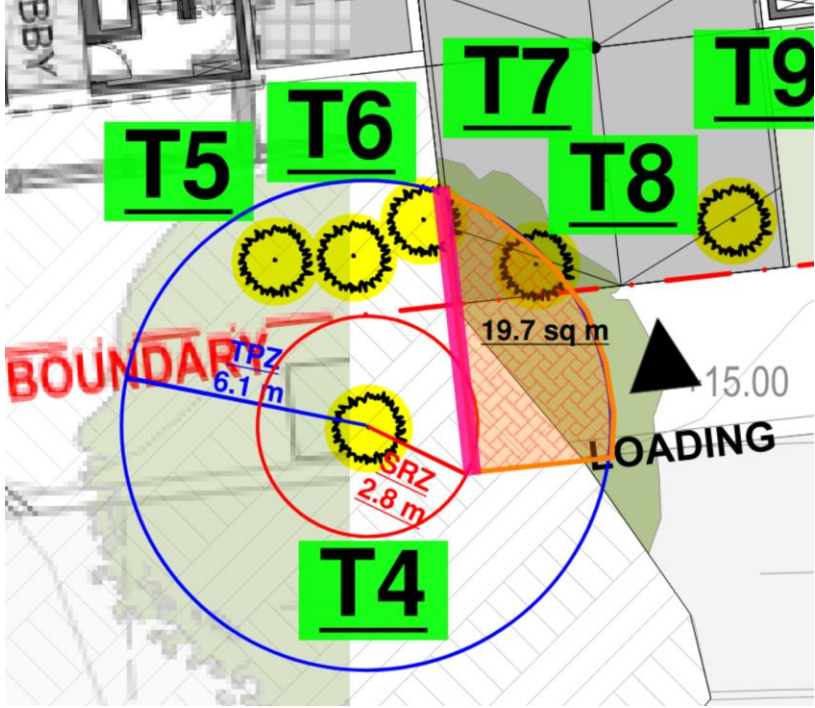
17 trees are located within the subject site, all of which are proposed for removal.

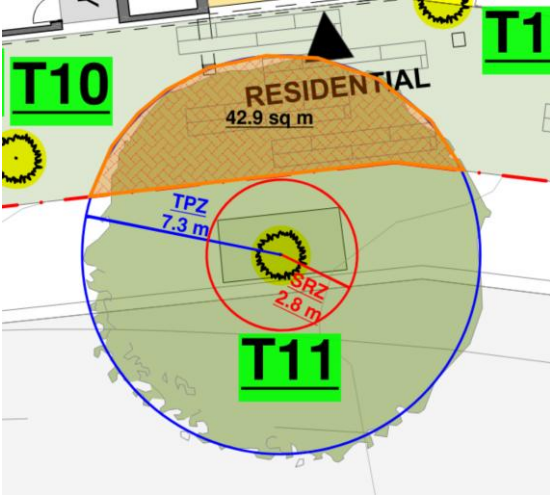
There are an additional 6 street trees located along Atchinson and Burelli Streets, all of which are proposed to be retained. Building setbacks have been provided within the design to retain canopy form that grows into the site from the street trees.

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	<i>Waterhousea floribunda</i> , Weeping Lilly Pilly	A1	2.2	1.8	15	Nil	Moderate size street tree located close to the corner of Atchinson and Crown street. As the façade of the Former Marcus Clark Building will be retained, no impact to the root system or crown of the tree is expected. The tree will require tree protection measures to be installed prior to any works occurring on the site.	Retain and protect
2	<i>Platanus x acerifolia</i> , London Plane Tree	A1	4.6	2.4	65	Nil	Large size street tree located close to the corner of Atchinson and Burelli street. As the façade of the Former Marcus Clark Building will be retained, no impact to the root system or crown of the tree is expected (aside from regular canopy maintenance pruning that should be undertaken to provide clearance to the building) The tree will require tree protection measures to be installed prior to any works occurring on the site. If the existing brick low retaining walls in close proximity to the tree are proposed to be removed and replaced, this should be done under the Project Arborists direct supervision. Any root system immediately behind the retaining walls must be managed and protected.	Retain and protect. Project Arborist management.
3	<i>Platanus occidentalis</i> , Oriental Plane Tree	A1	9.4	3.1	275	Nil	Large size street tree located close to the corner of Atchinson and Burelli street. As the façade of the Former Marcus Clark Building will be retained, no impact to the root system or crown of the tree is expected (aside from regular canopy maintenance pruning that should be undertaken to provide clearance to the building) The tree will require tree protection measures to be installed prior to any works occurring on the site.	Retain and protect
4	<i>Platanus occidentalis</i> , Oriental Plane Tree	A1	6.1	2.8	118	Major	The tree will be subject to a major calculated encroachment of approx. 20sqm (= 17%) including SRZ encroachment from construction of the driveway crossover into the site. It is noted that there are service pits within the footpath area in close proximity to the tree which may have modified the typical root structure and spread of this tree. Root pruning may be required to install the driveway crossover. This species of tree is capable of root pruning to an extent and is tolerant of construction impact.	Retain and protect. Project Arborist management and tree sensitive excavations/ root pruning.

Tree ID	Species	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sqM)	TPZ encroachment	Discussion/ Conclusion	Recommendation
							<p>It is recommended that preliminary excavations for the driveway crossover be undertaken by hydrovacuum excavation with the project arborist directly supervising and undertaking the anticipated root pruning (along the pink highlighted line area below)</p> <p>No canopy pruning appears to be required due to existing canopy clearance and the setback of the proposed structure within the site.</p> 	
5	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	3.8	2.2	46	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
6	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	2.0	2.7	13	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.

Tree ID	Species	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sqM)	TPZ encroachment	Discussion/ Conclusion	Recommendation
7	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	3.4	2.0	35	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
8	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	3.1	2.1	31	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
9	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	4.1	2.4	52	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
10	<i>Eucalyptus punctata</i> , Grey Gum	A2	8.0	3.2	203	Footprint	Large sized tree that is located within the footprint of the development area.	Remove and replace.
11	<i>Platanus occidentalis</i> , Oriental Plane Tree	A1	7.3	3.1	168	Major	<p>The tree may be subject to a major calculated encroachment of up to 43sqm (= 25%) from development and construction within the site.</p> <p>It is noted that there is an existing solid block retaining wall at 4.2m setback from the trunk of the tree, within the site which will have likely modified the typical root structure and spread of this tree. Additionally, there is concrete garden edging which may have also influenced root growth. This species of tree is capable of root pruning to an extent and is tolerant of construction impact. It is recommended that the project arborist directly supervise all works within the TPZ and SRZ</p> <p>No canopy pruning appears to be required due to the 6.0m setback of the proposed structure within the site.</p>	 <p>Retain and protect.</p> <p>Project Arborist management and tree sensitive excavations/ root pruning.</p>
12	<i>Eucalyptus sideroxylon</i> , Mugga Ironbark	A2	7.1	2.8	157	Footprint	Large sized tree that is located within the footprint of the development area.	Remove and replace.
13	<i>Phoenix canariensis</i> , Canary Island Date Palm	Z1		0.0		Footprint	Exempt (due to small size) small palm tree, located within the footprint of the development area.	Remove.

Tree ID	Species	Retention value	TPZ radius (m)	SRZ Radius (m)	TPZ Area (sqM)	TPZ encroachment	Discussion/ Conclusion	Recommendation
14	<i>Eucalyptus sideroxylon</i> , Mugga Ironbark	A1	8.8	3.3	241	Footprint	Large sized tree that is located within the footprint of the development area.	Remove and replace.
15	<i>Callistemon viminalis</i> , Weeping Bottle Brush	A2	4.3	2.4	59	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
16	<i>Callistemon viminalis</i> , Weeping Bottle Brush	A2	4.6	2.3	65	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
17	<i>Callistemon viminalis</i> , Weeping Bottle Brush	A2	4.7	2.4	69	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
18	<i>Phoenix canariensis</i> , Canary Island Date Palm	Z3				Footprint	Moderate sized palm that is located within the footprint of the development area.	Remove and replace.
19	<i>Syagrus romanzoffiana</i> , Cocos Palm	Z3	3.6	0.0	41	Footprint	Exempt weed species palm that is located within the footprint of the development area.	Remove and replace.
20	<i>Melaleuca bracteata</i> , Black Tea Tree	A2	8.8	3.1	241	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
21	<i>Ulmus parvifolia</i> , Chinese Elm	A2	5.0	2.4	80	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
22	<i>Ulmus parvifolia</i> , Chinese Elm	A2	3.8	2.2	46	Footprint	Moderate sized tree that is located within the footprint of the development area.	Remove and replace.
23	<i>Platanus x acerifolia</i> , London Plane Tree	A1	7.4	3.0	174	Nil	Street tree located on the corner of Burelli and Kiera Streets. As the façade of the Grand Hotel will be retained, no impact to the root system or crown of the tree is expected. The tree will require tree protection measures to be installed prior to any works occurring on the site.	Retain and protect

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.	-	T5, T6, T7, T8, T9, T10, T12, T14, T15, T16, T17, T20, T21, T22 (14 trees)	T13, T18, T19 (3 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.	-	T1, T2, T3, T23 (4 trees)	-
Retained trees that will require project arborist supervision + sensitive installation of structures	Refer to section 6 specifications	-	T4, T11 (2 trees)	-

8. RECOMMENDATIONS AND MITIGATION STRATEGIES

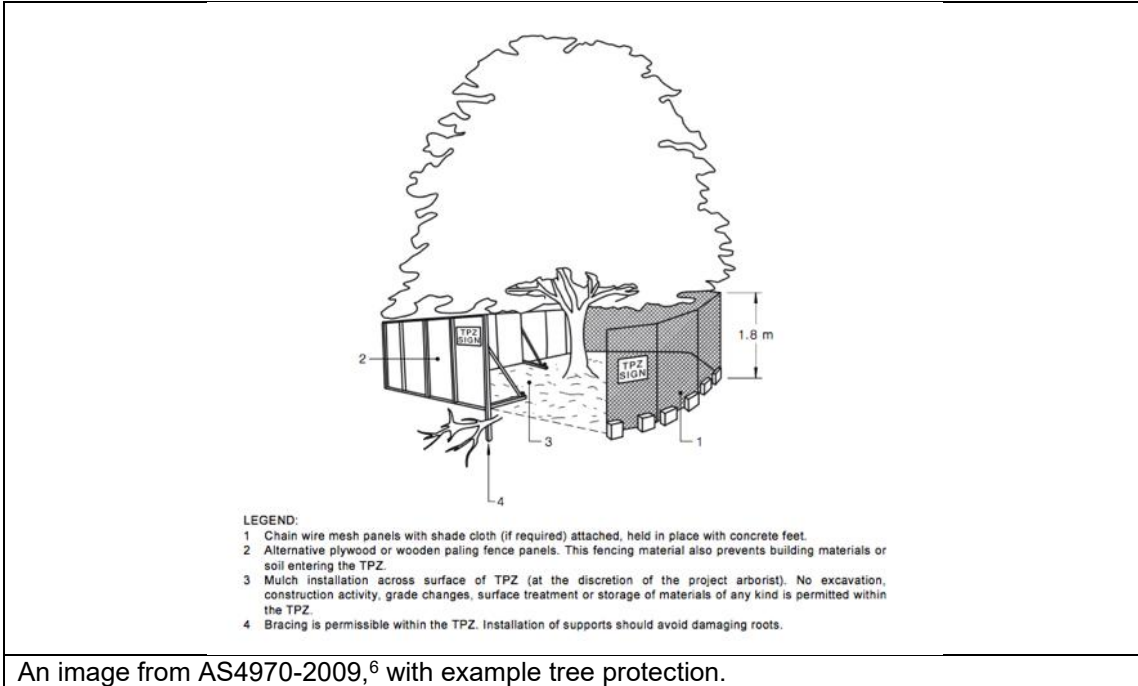
- 8.1 This report assesses the impact of a proposed development at the site on **23 trees** in accordance with AS4970 Protection of trees on development sites (2009).
- 8.2 For trees that will be required to be removed to facilitate the proposed works, it is recommended that trees **T5, T6, T7, T8, T9, T10, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22 (total of 17 trees) are removed and replaced.**
- 8.3 It is recommended that trees **T1, T2, T3, T4, T11, T23 (total of 6 trees) all be retained and protected**
- 8.4 **All 6 trees require tree protection measures to be installed.**
- 8.5 **The Project Arborist must directly supervise all works within retained trees TPZs and SRZs, especially focused on T4 and T11.**
- 8.6 Tree protection measures are recommended to be installed prior to the commencement of any site activity, inclusive of demolition and installed in accordance with the recommendations made within this report and be compliant to AS4970 Protection of Trees on Development Sites (2009).
- 8.7 All works within the TPZ areas are to be carried out in consultation with the project Arborist who is to monitor the condition of the trees and the site activities throughout the development process.
- 8.8 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.
- 8.9 No services plan has been assessed as part of this report. 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. Section 4.5.5 of AS4970-2009 says that 'The directional drilling bore should be at least 600 mm deep. The project Arborist should assess the likely impacts of boring and bore pits on retained trees. For manual excavation of trenches the project Arborist should advise on roots to be retained and should monitor the works'.⁵
- 8.10 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.

⁵ Council of Standards Australia, *AS 4970 Protection of trees on development sites* (2009) page 18.

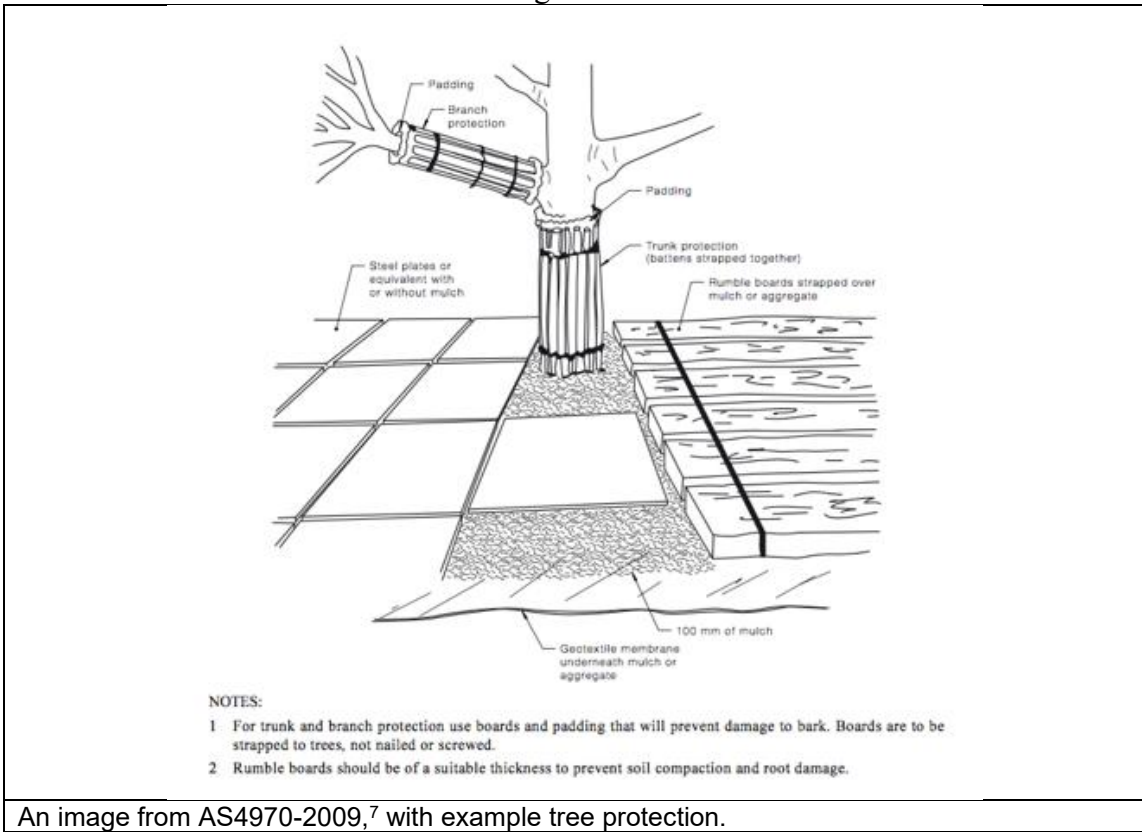
9. ARBORICULTURAL WORK METHOD STATEMENT (AWMS) AND TREE PROTECTION REQUIREMENTS

- 9.1 **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.
- 9.2 **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.
- 9.3 **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.
- 9.4 **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).
- 9.5 **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 is 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.
- 9.6 **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
- 9.7 **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.
- 9.8 **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.

9.9 **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.



⁶ Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 16.



An image from AS4970-2009,⁷ with example tree protection.

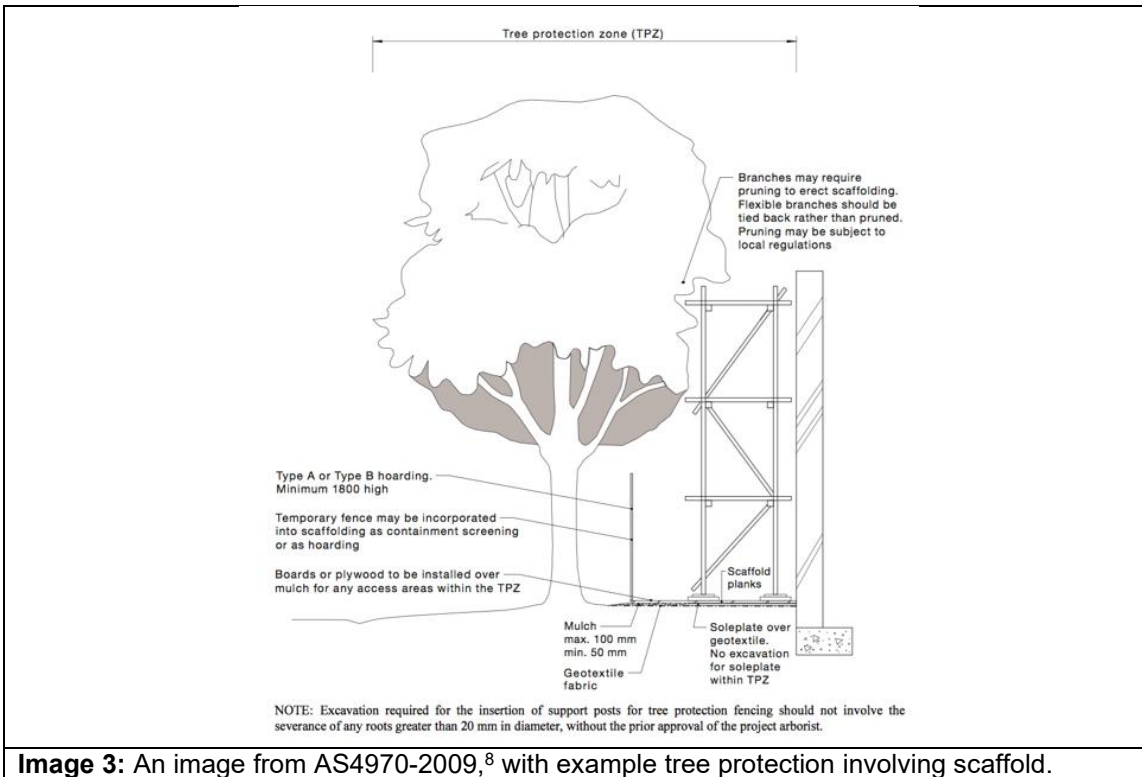


Image 3: An image from AS4970-2009,⁸ with example tree protection involving scaffold.

⁷ Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 17.

⁸ Council of Standards Australia, *AS4970 Protection of trees on development sites* (2009), page 19.

- 9.10 **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.
- 9.11 **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.
- 9.12 **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.

- 9.13 **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).⁹ 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.
- 9.14 **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.
- 9.15 **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.
- 9.16 **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.
- 9.17 **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.
- 9.18 **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.
- 9.19 **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.
- 9.20 **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.

⁹ Council Of Standards Australia, AS 4373 *Pruning of amenity trees* (2007) page 18

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 trees have been retained in the same condition and vigor and authorize the removal	Upon completion of construction	Principle contractor	Project Arborist	

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,



Image c: T3,



T4



Image d:

T5,

T6,

T7,

T8



Image e:

T9,

T10,

T11



Image f: T11,



T12,

T13 (Palm)



Image g:

T19



Image h:

T14



T22,

T21



Image h:

T23

Site Address: 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong
Client Name: Wollongong Developments No.8 Pty Ltd
Date prepared: 31 July 2025
Revision: 001

14. LIST OF APPENDICIES

The following are included in the appendices:

- Appendix 1 – Tree Location Plan
- Appendix 1A – Proposed Site Plan and Tree Protection 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
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VALID Tree Risk Assessment Qualified
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APPENDIX 1 – TREE LOCATION PLAN



DENOTES TREES/ VEGETATION LOCATED BY MASTERS SURVEYING ON THE 29TH OF SEPTEMBER 2024.
ALL OTHER DATA IS BY OTHERS (50783 001DT - BY LTS SURVEYORS - DATED 11/09/19)

Tree Location Plan

(Seasoned Tree Consulting 25.02.2025)

Legend

Tree Number



Rev.	Reason for Issue or Amendment	Date	Drawn	Checked	Surveyed
0	Initial Release	20/09/2024	ZS	NB	ZS



G07b 35 Crown Street, Wollongong NSW 2500 P 1300 245 427
Brisbane, Gladstone, Mackay, Rockhampton, Wollongong
CADASTRAL CONSTRUCTION ENGINEERING

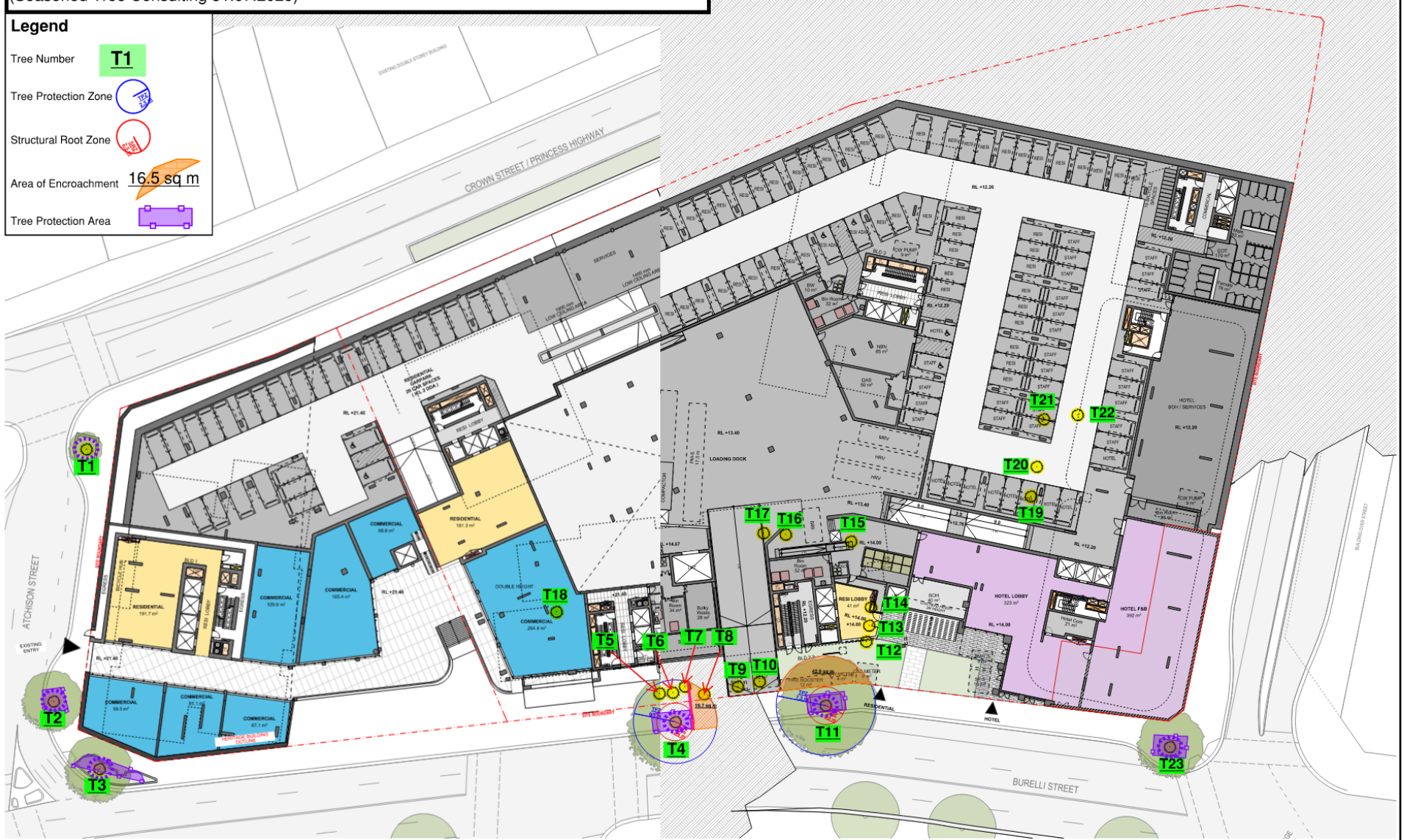
Project: WIN Grand	Masters Job No: 67868	Scale: 1:400 at A1
Title: Tree Location Plan	Level Datum: AHD	Origin: BY OTHERS
Client: Level 33	Co-ord System: NA	Revision: 0
	Masters Drawing No: 67868 - 1	Sheet: 1 of 1

APPENDIX 1A – PROPOSED SITE PLAN AND TREE PROTECTION PLAN

Proposed Site Plan and Tree Protection Plan (Seasoned Tree Consulting 31.07.2025)

Legend

- Tree Number **T1**
- Tree Protection Zone
- Structural Root Zone
- Area of Encroachment **16.5 sq m**
- Tree Protection Area



<p>Rev: 01 Date: 31.07.2025 Description: Final Design</p> <p>© 2025 Seasoned Tree Consulting Pty Ltd. All rights reserved. This drawing is the property of Seasoned Tree Consulting Pty Ltd. It is not to be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Seasoned Tree Consulting Pty Ltd. The information contained herein is confidential and intended solely for the use of the individual or entity to whom it is addressed. It is not to be distributed, copied, or disseminated to any other person, organization, or system without the express written consent of Seasoned Tree Consulting Pty Ltd. If you have received this document by mistake, please notify us immediately by email at info@stc.com.au or by phone at 08 8338 8888. We will be happy to delete the document from our systems and to provide you with a replacement if necessary.</p>		<p>Assisted by: DKO 201/201 Crown St, 316-328 Kates at Arts 500 St Marks St Adelaide, SA 5000 T: +61 8 8338 8888</p>		<p>Project Name: Crown Street, Walkington Project Number: 00013031 Project Address: 201/201 Crown St, 316-328 Kates at Arts, 500 St Marks St, Adelaide, SA 5000 Country: 24483606</p>		<p>DEVELOPMENT APPLICATION</p> <p>Drawing Name: Basement 01 Drawing Scale: 1:250 @ A1 Drawing No: DA2001</p>	
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APPENDIX 2- TREE INSPECTION SCHEDULE

Tree Inspection Site: 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong

Surveyed by: David Gowenlock

Date of Inspection: 11.09.2024

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 (yrs.)	TreeAZ retention Value	Comments
1	<i>Waterhousea floribunda</i> , Weeping Lilly Pilly	18	2.2	15	24	1.8	7	4	Semi-mature	Good	Good	Medium	>40	A1	Located in raised concrete garden bed (400mm)
2	<i>Platanus x acerifolia</i> , London Plane Tree	38	4.6	65	48	2.4	14	10	Mature	Good	Good	High	>40	A1	Some root girdling, crushed granite beneath, lifting paving
3	<i>Platanus occidentalis</i> , Oriental Plane Tree	78	9.4	275	87	3.1	17	11	Mature	Good	Good	High	>40	A1	Located in raised brick garden bed, some lower dieback on western side of tree. Co dominant at 2.5m
4	<i>Platanus occidentalis</i> , Oriental Plane Tree	51	6.1	118	68	2.8	16	11	Mature	Good	Good	High	>40	A1	Pronounced root crown, lifted rubber root protection, no lifting of pavers
5	<i>Melaleuca bracteata</i> , Black Tea Tree	26*18 (=32)	3.8	46	38.5	2.2	10	5	Mature	Good	Fair	Medium	5 > 15	A2	Growing in garden bed, edge of trunk 200mm from carpark wall. Semi suppressed by adjoining tree. Primary leader in contact with carpark wall
6	<i>Melaleuca bracteata</i> , Black Tea Tree	26	2.0	13	60	2.7	10	4	Mature	Good	Fair	Medium	15 > 40	A2	Semi suppressed by adjoining tree, base of trunk 600 from carpark wall
7	<i>Melaleuca bracteata</i> , Black Tea Tree	28	3.4	35	29	2.0	10	5	Mature	Good	Fair	Medium	15 > 40	A2	Semi suppressed by adjoining tree. Edge of base of trunk offset 500mm from carpark wall
8	<i>Melaleuca bracteata</i> , Black Tea Tree	26	3.1	31	35	2.1	9	6	Mature	Good	Fair / good	Medium	15 > 40	A2	Edge of trunk offset 400mm from carpark wall
9	<i>Melaleuca bracteata</i> , Black Tea Tree	26*22 (=34)	4.1	52	47	2.4	9	6	Mature	Good	Fair	Medium	5 > 15	A2	Edge of trunk 1m from carpark wall, 250mm from substation access slab. Codominant at 300mm, semi suppressed canopy to west
10	<i>Eucalyptus punctata</i> , Grey Gum	67	8.0	203	89	3.2	17	11	Mature	Good	Fair	Medium	5 > 15	A2	Edge of base 200mm from Besser block retaining wall, restricted root development. Branch wounds throughout canopy.
11	<i>Platanus occidentalis</i> , Oriental Plane Tree	61	7.3	168	86	3.1	16	10	Mature	Good	Good	High	>40	A1	Pronounced root crown, lifted rubber matting
12	<i>Eucalyptus sideroxylon</i> , Mugga Ironbark	59	7.1	157	68	2.8	16	11	Mature	Good	Fair / good	High	15 > 40	A2	Trunk lean to west, edge of trunk 700mm to besser block retaining wall

Site Address: 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong

Client Name: Wollongong Developments No.8 Pty Ltd

Date prepared: 31 July 2025

Revision: 001

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 (yrs.)	TreeAZ retention Value	Comments
13	<i>Phoenix canariensis</i> , Canary Island Date Palm	40				0.0	4	6	Juvenile	Good	Good	Low	5 > 15	Z1	Small young self sown tree
14	<i>Eucalyptus sideroxylon</i> , Mugga Ironbark	64*24*27 (=73)	8.8	241	96	3.3	17	15	Mature	Good	Good	High	15 > 40	A1	Closest point of trunk 600mm to concrete carpark retaining wall
15	<i>Callistemon viminalis</i> , Weeping Bottle Brush	36	4.3	59	45	2.4	10	7	Mature	Good	Fair / good	Medium	5 > 15	A2	Growing in restricted garden bed between road and carpark. Cracking and lifting of adjoining concrete
16	<i>Callistemon viminalis</i> , Weeping Bottle Brush	29*24 (=38)	4.6	65	42	2.3	9	7	Mature	Good	Fair	Medium	<5	A2	Tree base impacting on adjoining concrete structures. Growing in restricted garden bed
17	<i>Callistemon viminalis</i> , Weeping Bottle Brush	39	4.7	69	48	2.4	9	6	Mature	Good	Fair	Medium	5 > 15	A2	Growing in restricted garden bed. Structural roots between 40-100mm from structures
18	<i>Phoenix canariensis</i> , Canary Island Date Palm	90	-	-	-	0.0	6	5	Semi-mature / mature	Good	Good	Low	<5	Z8	In poor location impacting on walkway
19	<i>Syagrus romanzoffiana</i> , Cocos Palm	30	3.6	41		0.0	8	5	Semi-mature	Good	Good	Low	<5	Z3	Weed palm
20	<i>Melaleuca bracteata</i> , Black Tea Tree	30*32*35*35*31 (=73)	8.8	241	83	3.1	13	12	Mature	Good	Fair	Medium	15 > 40	A2	Located in pub garden between structures
21	<i>Ulmus parvifolia</i> , Chinese Elm	42	5.0	80	45	2.4	12	8	Mature	Good	Fair / good	Medium	5 > 15	A2	Growing in elevated garden bed, restricted root development, cracking surrounds
22	<i>Ulmus parvifolia</i> , Chinese Elm	32	3.8	46	38	2.2	12	7	Mature	Fair	Fair / good	Medium	5 > 15	A2	Growing in raised garden bed, restricted root development,
23	<i>Platanus x acerifolia</i> , London Plane Tree	62	7.4	174	79	3.0	18	14	Mature	Good	Good	High	>40	A1	Minor lifting of adjoining paving

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+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

Site Address: 221-291 Crown Street, 216-238 Keira Street and 86-90 Burelli Street, Wollongong

Client Name: Wollongong Developments No.8 Pty Ltd

Date prepared: 31 July 2025

Revision: 001

Appendix 3 – Assessment of Health

<u>Category</u>	<u>Example condition</u>	<u>Summary</u>
Good	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The tree is in above average health and condition and no remedial works are required.
Fair	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The tree is in below average health and condition and may require remedial works to improve the trees health.
Poor	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The tree is displaying low levels of health and removal or remedial works may be required.
Dead	<ul style="list-style-type: none"> • The tree is dead or almost dead. 	<ul style="list-style-type: none"> • The tree should generally be removed.

Appendix 4 - Structural condition

<u>Category</u>	<u>Example condition</u>	<u>Summary</u>
Good	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The tree is considered structurally good with well developed form.
Fair	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.

<u>Category</u>	<u>Description</u>
Young/Newly planted	<ul style="list-style-type: none"> • Young or recently planted tree.
Semi Mature	<ul style="list-style-type: none"> • Up to 20% of the usual life expectancy for the species.
Early mature/Mature	<ul style="list-style-type: none"> • Between 20% - 80% of the usual life expectancy for the species.
Over mature	<ul style="list-style-type: none"> • Over 80% of the usual life expectancy for the species.
Dead	<ul style="list-style-type: none"> • Tree is dead or almost dead.

Appendix 7 - Safe Useful Life Expectancy (SULE), (Barrel, 2001)

A tree's 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 300m ² 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 200m ² ; 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 100m ² ; 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 40m ² ;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 40m ² 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.

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 <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

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 <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.

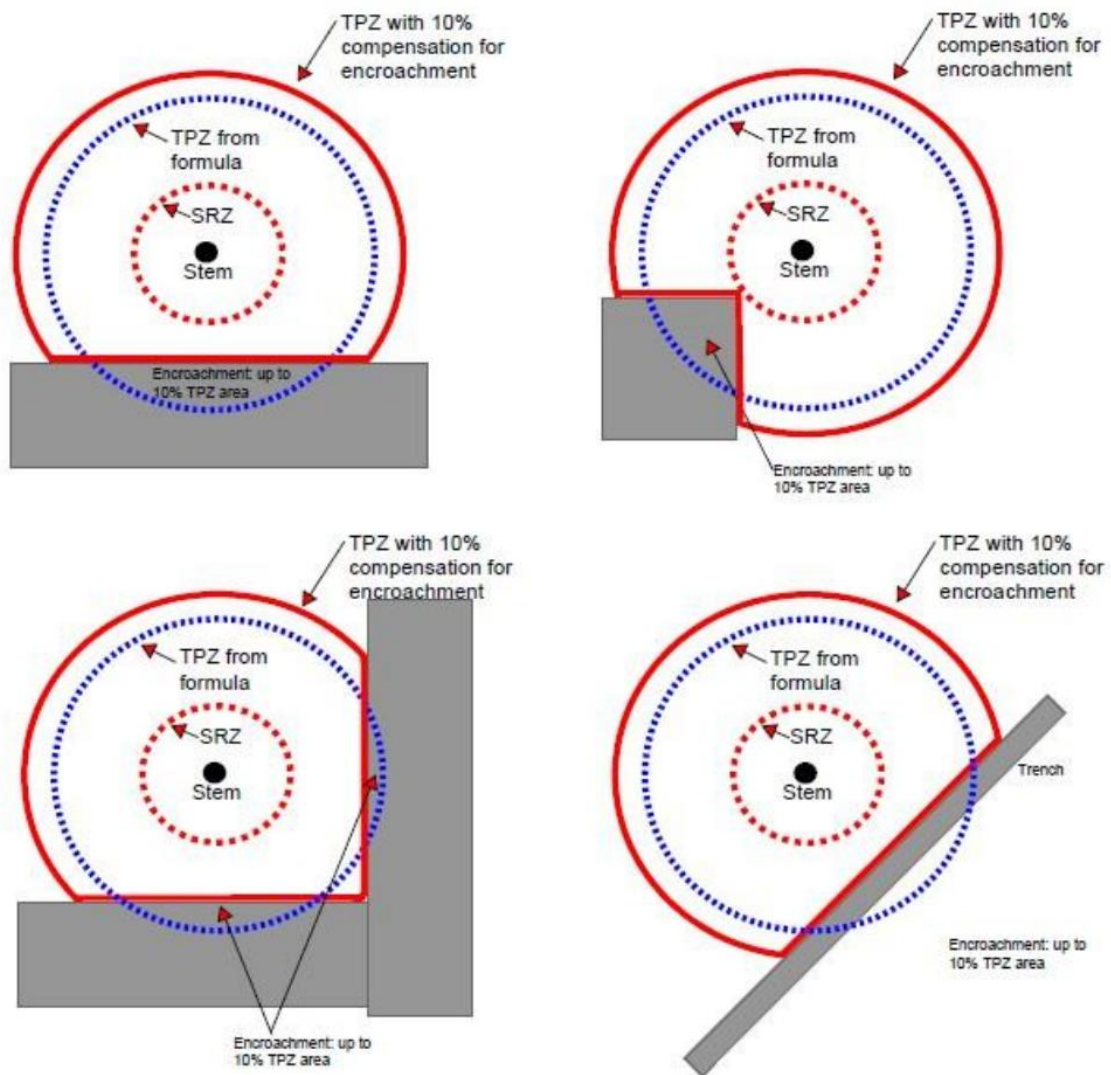
Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

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.