

Arboricultural Impact Assessment Report



83 Tempe St, Greenacre NSW 2190

Prepared for

Built Wise Projects Prepared by Rameh Zaoud AQF Level 5 Consulting Arborist 09th of February 2025 Version 1 of 1

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1.0 INTRODUCTION

This report was commissioned by Built Wise Projects to accompany the Development Application for the construction of a new secondary dwelling located at 83 Tempe St, Greenacre NSW 2190.

The purpose of this report is to assess the current health and condition of individual trees within the site and any tree outside the site (including trees in neighbouring properties, street trees, and park trees) that may be impacted by the proposed development.

The report has been prepared in accordance with the *State Environmental Planning Policy* (*Biodiversity and Conservation*) 2021, *Cumberland Council Development Control Plan Tree Preservation and Management Controls* and the Australian Standards 'AS4970:2009 - Protection of *Trees on Development Sites*'.

2.0 METHODOLOGY

An assessment of any tree contained within this report was limited to a visual assessment from ground level. A summary of the findings from the assessment are detailed in the Tree Assessment Schedule appended to this report. Information included in the table which will be relied upon throughout the report and form the basis of the discussions and recommendations includes:

Landscape Significance

Retention Value

Remaining Life Expectancy

Tree Protection Zone (TPZ)

Structural Root Zone (SRZ)

- Species Name
- Height and Spread (metres)
- Diameter at Breast height (DBH)
- Age Class
- Health
- Structure

(Refer to Appendix A - Definition and Criteria for further explanation)

The height and canopy spread of each tree was estimated. A metric diameter measuring tape was used to establish the trunk Diameter at Breast Height (DBH) and is recorded in millimetres.

A Smart Phone was used for the purpose of providing photographic evidence which may be cross referenced by persons who have obtained this report for the purpose of reading and analysing the information that has been discussed throughout.

Aerial inspection, root or soil analysis, exploratory root trenching and internal diagnostic testing has not been undertaken.

2.1 Tree Protection Zone and Structural Root Zone

The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) has been calculated in accordance with the *Australian Standard AS 4970-2009, 'Protection of Trees on Development Sites'*.



3.0 SITE DESCRIPTION

The subject site is a residential dwelling known as 83 Tempe St, Greenacre NSW 2190. The subject site is approximately 561m2 in land size. The site land is zoned category R4: High Density Residential pursuant to the *Canterbury-Bankstown Local Environmental Plan 2023 (pub. 23-6-2023)* and is legally defined as Lot 154/4 in Deposited Plan 845.



Figure 1 - Aerial view of subject site (source: SIX Maps)

3.1 Legislation and Planning Controls

Planning Control	Relevant	Not Relevant
Land Zoning	R4	
10/50 Vegetation Clearing Entitlement Area		4
Acid Sulfate Soils		✓
Foreshore Building Line		*
Flood Prone Land		*
Heritage Conservation Area		*
Heritage Listed Site		*
Terrestrial Biodiversity		*



4.0 OBSERVATIONS

4.1 Trees

A total of 18 trees were inspected on the 7th February 2025. The general health of the trees has been assessed as ranging from good with the structural condition assessed as good. Individual assessment findings are detailed in Section 5.0 - Tree Assessment Schedule.

4.2 Tree Significance

Determined by an assessment of the cultural, environmental and aesthetic value of individual trees - Appendix C, the following Landscape Significance findings were made for the 18 assessed trees.

Significance Scale:

- 1 High
- 2 Medium
- 3 Low
- 4 Insignificant

Significance	High	Medium	Low	Insignificant
Tree Number		1,2,3,4	GA,5,6,7,8,9,	
			10,11,12,13,14	

4.3 Tree Retention Values

Determined by combining the Useful Life Expectancy and Landscape Significance Rating into the Retention Value Matrix - Appendix B, the following Retention Values were given for the 18 assessed trees.

<u>Retention Value</u> **High** – Priority for Retention **Medium** – Consider for Retention **Low** – Consider for Removal **Insignificant** – Priority for Removal

Retention Value	High	Medium	Low	Insignificant
Tree Number		1,2,3,4	GA,5,6,7,8,9,	
			10,11,12,13,14	

*Trees within neighbouring property should be retained and protected regardless of retention value

5.0 TREE ASSESSMENT SCHEDULE

Tree No.	Species Name	Height (m)	Spread (m)	DBH (mm)	DAB (mm)	Age	Health	Structure	Form	Comments
1	callistemon viminalis	5	4	180&100	290	Mature	Good	Good	Good	
2	Lophostemon confertus	6	5	410	480	Mature	Good	Fair	Fair	The tree is situated beneath powerlines, which has resulted in powerline clearance pruning
GA	Chamaecyparis Iawsoniana	4	2	120	230	Semi mature	Good	Good	Good	
3&4	Chamaecyparis Iawsoniana	10	4	390	440	Mature	Good	Good	Good	Located within neighbouring property
5	Syagrus romanzoffiana	12	4	290	330	Mature	Good	Good	Good	Located within neighbouring property
6	Pyrus communis	3	3	30x3	200	Mature	Good	Fair	Fair	Exempt tree species
7	Musa paradisiaca	4	2	100x9		Mature				Exempt tree species
8	Ficus carica	3	1	20	60	Semi mature	Good	Good	Good	
9	Mangifera indica	2	1	40	80	Semi mature	Good	Good	Good	Exempt tree species
10	Pyrus communis	4	1	90	110	Semi mature	Good	Good	Good	Exempt tree species



11	Olea europaea	7	3	170	260	Mature	Good	Good	Good	Exempt tree species
12	Mangifera indica	2	2	110	200	Mature	Good	Good	Good	Exempt tree species
13	Olea europaea	5	1	110	200	Mature	Good	Good	Good	Exempt tree species
14	Ligustrum lucidum	6	4	200	270	Mature	Good	Good	Good	Exempt tree species



6.0 THE PROPOSAL

The proposed development includes:

- Demolition of existing building and structure
- Construction of a secondary dwelling

The following plans have been reviewed:

Dwg No.	Revision	Plan Name	Date	Prepared by
24154-2 f.t	С	Proposed Secondary Dwelling	21-11-2024	Devine Drafting and Design

7.0 TREE PROTECTION STANDARDS

This report adopts the Australian Standard 'AS4970-2009, Protection of Trees on Development Sites' as a point of reference and guide for the recommended minimum setbacks from the centre of the tree's trunk to development works.

7.1 Tree Protection Zone (TPZ)

The Tree Protection Zone (TPZ) is a radial distance measured from the centre of the tree trunk at 1.4 metres in height and are specified for each tree in Appendix D – Tree Impact Schedule. These have been calculated in accordance with 'AS4970-2009 - Protection of Trees on Development Sites'

The purpose of the TPZ is to ensure the tree's root area and crown area are protected during construction works. It is an area that is to be isolated from construction disturbances such as excavation, level changes, ripping of soil, trenching and movement of construction machinery, so that the tree remains viable into the future.

7.2 Structural Root Zone (SRZ)

The Structural Root Zone is an area which provides a trees structural stability. This is a radial distance calculated by formula (D x 50) 0.42 x 0.64. An SRZ should not be less than 1.5 metres.

This area should be completely restricted from construction activities unless clearly demonstrated that the works will not adversely impact on a tree's stability or viability.

7.3 Incursion into TPZ

Encroachments into a TPZ may be possible where it is assessed by a suitable qualified AQF Level 5 Arborist and deemed to be acceptable without being detrimental to the ongoing vigour of a tree.

- Minor Encroachment of 10% or less of the TPZ area and outside of the Structural Root Zone (SRZ) is generally considered acceptable. However, the area lost should be compensated for elsewhere and only be restricted to one side of the tree. Other factor such as health, condition, age, species type and tolerance to disturbance, as well as lean and stability must also be considered when establishing if the encroachment is acceptable and won't adversely impact on the tree.
- Major Encroachment of more than 10% of the TPZ area will require detailed investigation to establish if the tree will remain viable. Such investigation should involve either root investigation or consideration of health, condition, age, species type and tolerance to disturbance, lean and stability.



8.0 IMPACT ASSESSMENT

8.1 Site Trees TPZ and SRZ Calculations

The following TPZ and SRZ calculations have been made for all trees captured within *Appendix C* – *Tree Assessment Schedule*. The encroachment into the TPZ of each tree has been nominated as either 'No Incursion', 'Minor', 'Major' or 'Within Footprint' based on the above criteria:

Tree No.	TPZ	SRZ	Incursion
1	2.4m	1.5m	No Encroachment
2	2.4m	1,5m	No Encroachment
GA	2m	1.68m	No Encroachment
3&4	4.3m	2.6m	No Encroachment
5	4m	N/A	No Encroachment
6	2m	1.5m	No Encroachment
7	4m	N /A	Within Footprint
8	2m	1.5m	Within Footprint
9	2m	1.5m	Within Footprint
10	2m	1.5m	Within Footprint
11	2.04m	1.5m	No Encroachment
12	2m	1.5m	No Encroachment
13	2.04m	1.5m	No Encroachment
14	2.04m	1.5m	Minor encroachment

8.2 Proposed Development Assessment Findings

Exempt Trees

Within the front and rear yard of the property, there are a mixture of trees that either a) do not exceed 5 metres in height or b) are within the Canterbury Bankstown council Exempt Species list and as such, under the provisions of the Canterbury Bankstown Development Control Plan, they are exempt due to their size or species and therefore council consent is not required for the removal.

Trees within the footprint of the proposed development

<u>Tree 7 Musa paradisiaca</u>

The tree is within the proposed footprint of the secondary dwelling. The tree exhibits 'Low' retention values that should not be considered to be a constraint to design layout as the trees are exempt due to the species.

Tree 8 Ficus carica

The tree is within the proposed footprint of the secondary dwelling. The tree exhibits 'Low' retention values that should not be considered to be a constraint to design layout as the trees are exempt due to the height.

Tree 9 Mangifera indica



The tree is within the proposed footprint of the secondary dwelling. The tree exhibits 'Low' retention values that should not be considered to be a constraint to design layout as the trees are exempt due to the species.

Tree 10 Pyrus communis

The tree is within the proposed footprint of the secondary dwelling. The tree exhibits 'Low' retention values that should not be considered to be a constraint to design layout as the trees are exempt due to the species.

Tree with No Encroachments

Trees within the council nature strip

Trees 1 and 2 are located within the Nature strip and are not expected to have their TPZ encroached upon. Tree protection fencing, is to act as tree protection for these trees.

Group A Chamaecyparis lawsoniana

The trees are located within the front setback and are not expected to have their TPZ encroached upon.

Trees within the neighbouring property

Trees 3,4,5 are located within 81 Tempe St and are not expected to have their TPZ encroached upon. No tree protection is required as the boundary fence will act as tree protection for these trees.

Tree 6 Pyrus communis

The tree is located within the property and is not expected to have its TPZ encroached upon.

Trees 11 Olea europaea, 12 Mangifera indica and 13 Olea europaea

The trees are located within the rear setback and are not expected to have their TPZ encroached upon. The trees are exempt species.

However, if removal does not take place, it is recommended that tree protection fencing is Incorporated as the trees can be subjected to adverse Impacts.

Trees with a Minor Incursion

Neighbouring Tree 14 Magnolia grandiflora

Proposed Secondary Dwelling

The tree will be subjected to an 9.4% **minor encroachment** to facilitate construction for the proposed secondary dwelling. No tree protection is required as the boundary fence will act as tree protection fencing for this tree.



9.0 SITE SPECIFIC PROTECTION MEASURES

All trees to be retained are to be protected in accordance with "Australian Standard 4970 – 2009 Protection of Trees on Development Sites (AS4970-2009)" and specific recommendations detailed within this report.

Prohibited Activities

The following activities are to be prohibited within the TPZ;

- Ripping and cultivation
- Mechanical removal of vegetation
- Soil disturbance or movement of natural rock
- Soil changes including placement of fill (unless approved by and under the supervision of the Project Arborist)
- Movement and storage of plant, equipment and vehicles including machinery washing, repairs and refuelling
- Erection of site offices or sheds including portable toilets
- Affixing of signage or hoardings to trees
- Stockpiling, storage and mixing of materials including storage of waste materials, disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and any other toxic liquids
- Physical damage to canopies, trunk or root systems
- Any activity likely to cause damage to any tree

Tree Protection Fencing (TPF)

Prior to the commencement of any construction activities, install a Tree Protection Fence around individual trees or group of trees at the nominated TPZ distances specified on the Tree Protection Plan. Where TPZ merge together a single fence encompassing a group of trees is suitable. The fencing shall define and restrict entry into the TPZ. The fencing shall conform to the following:

- Fencing shall be a minimum of 1.8m steel galvanised chain wire fencing with lockable gates to AS 1725 and clad with shade cloth to prevent wind-blown debris entering the TPZ;
- The fencing shall be set / fixed into concrete blocks. The fencing must not be secured with posts driven into the ground;
- The area within the TPZ fencing shall be kept free of weeds and grass for the duration of project;
- Mulch shall be installed and maintained to a depth of 75mm for the duration of project
- Site fencing to act as TPF for 1 and 2.

The TPZ fencing shall be erected by the Contractor and approved by the Project Arborist before any machinery or materials are brought onto the site and before the commencement of any works including demolition.

Excavation within the TPZ

- No roots greater than 20mm in diameter are to be damaged, pruned or removed.
- In the event that any roots greater than 20mm diameter are located during excavation, further advice shall be obtained by the Project Arborist before further works continues where the root has been identified.
- Root pruning must not be undertaken without prior approval from the Project Arborist.



SITE INDUCTION

The Principal's Representative, Project Arborist, Contractor and any other persons required to work within the Tree Protection Zone (TPZ) of any trees shall attend a site induction meeting before any machinery or materials are brought onto the site and before the commencement of any site works including demolition, earthworks or site clearing.

The Tree Protection Measures, including the location of tree protection fencing, site sheds, stockpile areas, temporary access roads, sediment control devices and any drainage works shall be confirmed during the site induction meeting.

The site induction will highlight the requirements to protect the trees within the site, the type of actions that could lead to potential damage and the penalties imposed by Council for breach of the tree protection measures.

PROJECT ARBORIST

A Project Arborist, with minimum AQF Level 5 qualifications, shall be appointed prior to the commencement of any construction activities. The Project Arborist will be responsible for specifying, monitoring and certification of all tree protection measures for any activities proposed around existing trees located within the limit of the construction.

The Contractor shall provide site access to the Project Arborist at all times. The Project Arborist may provide advice on the existing trees; however, all communications will be formalised between the Contractor and the Principal's representative.

Tree Protection Prior to Works Commencing

It is the responsibility of the principal 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.

TRUNK PROTECTION

Trunk protection will be required where works have been approved within the TPZ. As a minimum, the trunk protection shall consist of wrapping of trunks with hessian and two-metre lengths of hardwood timber planks (100 x 50mm) spaced at 100-150mm intervals strapped around the trunk and secured with 2mm galvanised wire. The hessian and timber planks must not be fixed to the tree in any fashion or in any instance.

GROUND PROTECTION

Ground protection must be installed within the TPZ in the event that temporary access for machinery is required and has been approved by the Project Arborist. The ground protection is required to prevent root damage and soil compaction from occurring within the TPZ.

The ground protection shall include a permeable membrane such as geotextile fabric beneath a 100mm layer of mulch below rumble boards of a suitable thickness to prevent soil compaction and root damage from occurring during the movement of any machinery within the TPZ.



Root Management

All trees recommended for retention are to have mulch applied to the base of each tree to a depth of approximately 75mm within the Tree Protection Zone, or where branch and trunk protection is specified, in a radius of 2 meters from the trunk of the tree as much as feasibly possible, careful to avoid placing mulch on hard surfaces e.g. asphalt or concrete. Mulch is to be installed prior to the commencement of works to assist in maintaining tree health during the project.

EXCAVATIONS WITHIN TPZ

Any excavations undertaken within the TPZ which have been approved by the Project Arborist shall be undertaken using non-destructive methods (such as by hand or with an Airspade) to ensure no tree roots greater than 40mm diameter are damaged, pruned or removed.

In the event that any roots greater than 40mm diameter are located during excavation, further advice shall be obtained by the Project Arborist before further works continues where the root has been identified. Root pruning must not be undertaken without prior approval from the Project Arborist.

<u>Tree Damage</u> In the event that any tree is damaged during construction, the Project Arborist shall be notified as soon as possible to inspect and provide advice for remedial action that may minimise any adverse impact.

Underground Services

Where trenching works are required for any services / hydraulics / drainage etc. this shall not be undertaken within any TPZ. A qualified arborist (Australian Qualification Framework Level 5] shall be contacted if any works are required within the TPZ.

Alternative installation methods for services, such as directional boring/drilling, or redirection of services shall be employed where large woody roots greater than 50mm diameter are encountered during the installation of any services.

New boundary fencing

New boundary fencing is to include sensitive construction measures including pothole investigation of fence pole locations to avoid structural roots if the final plans incorporate a colourbond fence. Should a brick fence be incorporated, the section spanning through the TPZ should be bridged over utilising methods such as pier and beams to avoid below ground disturbance.



10.0 RECOMMENDATIONS

As a result of inspection and assessment of the subject trees, the following recommendations are made;

10.1 Tree Removal

The proposed development will require the removal of Four (4) trees located within the footprint of the proposed development, that been Trees 7,8,9 and 10 The trees exhibit 'Low' retention values that should not be considered to be a constraint to design layout as the trees are exempt due to the species.

10.2 Tree Retention

Trees 1, 2, GA, 3, 4, 5, 6, 11, 12, 13 and 14 are recommended for retention.

10.3 Tree Protection Measures

Trees 1,2, GA, 3, 4, 5, 6, 11, 12, 13 and 14 must be protected in accordance with the Australian Standards AS4970:2009 Protection of Trees on Development Sites, Section 9.0 Site Specific Protection Measures & Appendix B: Tree Protection (Generic) of this report.

Should you require any further information in relation to this report, please contact our office on:

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Regards

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11.0 LIMITATION OF LIABILITY

Cumberland Tree Arboricultural Consultants are tree specialists who use their qualifications, education, knowledge, training, diagnostic tools and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of this assessment and report.

Cumberland Tree Service cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways the arboriculture industry does not fully understand. Conditions are often hidden within trees and below ground. Unless otherwise stated, observations have been visually assessed from ground level. Cumberland Tree Service cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of Cumberland Tree Service, such as property boundaries and ownership, disputes between neighbours, sight lines, landlord-tenant matters, and related incidents. Cumberland Tree Service cannot take such issues into account unless complete and accurate information is given prior or at the time of the site inspection. Likewise Advanced Arbour cannot accept responsibility for the authorisation or non-authorisation of any recommended treatment or remedial measures undertaken.

In the event that Cumberland Tree Service recommends retesting or inspection of trees at stated intervals these works must be carried out within the designated time frame. It is the client's responsibility to make arrangements with Cumberland Tree Service to conduct the reinspection. Trees can be managed, but they cannot be controlled. To live or work near a tree involves a degree of risk. There is no warranty or guarantee, either expressed or implied by Cumberland Tree Service, that problems or deficiencies of the subject trees may not arise at a future time.

Trees are living entities. As such, their health may alter, they will grow and their environmental circumstances may change from the time of the site inspection upon which this report is based. For this reason, this report has a maximum validity time of 1 year from the date of being written. Should there be any alteration to the site, the tree or the trees immediate environment from those current at the time of the site inspection, upon which this report is based, the report will become invalid immediately.

All written reports must be read in their entirety, at no time shall part of the written assessment be referred to unless taken in full context of the whole written report. This report remains the intellectual property of Advanced Arbour. It has been issued to the identified client for the specified and agreed purpose only. Use of this report for any other purpose or by any other individual or company must have the written consent of Advanced Arbour PRIOR to that use. Failure to obtain such consent is deemed a breach of copyright and will result in legal action being undertaken against all parties involved. If this written report is to be used in a court of law or any legal situation Advanced Arbour must be advised in writing prior to the written assessment being presented in any form to any other party.

Care has been taken to obtain information from reliable sources. All data has been verified wherever possible however, Cumberland Tree Service can neither guarantee nor be responsible for the accuracy of information provided by others.

References and Bibliography

- Google Inc. 2012, Google™ earth (Version 6.2.2.6613) [Software]. Google Inc., Mountain View, CA (USA)
- http://www.treetec.net.au/TPZ_SRZ_DBH_calculator.php
- https://proofsafe.com.au/tpz_incursion_calculator.html
- *'Updated Field Guide for Visual Tree Assessment'* C. Mattheck, 2007.
- 'Body Language of Trees' The Stationary Office. London, Mattheck, C & Breloer, H, 1994
- 'Eucalypts of the Sydney Region' Van Klaphake, Third edition 2012

- Code of Practice Amenity Tree Industry, 1998.
- J. Dunster ISA, 2017, Tree Risk Assessment Manual, 2nd ed, Illinois.
- State Environmental Planning Policy (Biodiversity and Conservation) 2021
- AS 4970:2009 Protection of Trees on Development Sites
- AS 4373:2007 Pruning of Amenity Trees,
- AS 2303:2018 Tree Stock for Landscape Use



APPENDIX A – DEFINITIONS AND CRITERIA

Tree ID No A unique identification number assigned to a particular tree and used to identify it throughout the report.

Common Name The name in common use and accepted by most persons for that particular species.

Botanical Name The taxonomic name, expressed in binomial nomenclature, derived from visual identification features and visible from ground level or specimen collection.

Height (m) The visually estimated height of the tree in metres.

Width N/S = North to South; E/W = East to West. The visually estimated maximum width of the canopy in that direction in metres.

Ø (m) Diameter at Breast Height (DBH) measured at 1.4m above ground, unless otherwise noted, as outlined in AS 4970 – 2009.

Ø @ Base (m) Diameter at Base measured above the root flares and below the DBH as outlined in AS4970-2009.

Health Good (G) – In good, health with no significant health issues visible. Fair (F) – Some health issues which could be addressed by intervention. Poor (P) – Significant health issues that could be addressed by intervention. Very Poor (VP) – Significant health issues which are unlikely to be addressed by intervention. Senescent (S) – Tree has entered a cycle of decline from where it is unlikely to recover regardless of intervention.

Structure Good (G)– No visible defects within the structure of the tree. Fair (F) – Minor visible defects within the structure of the tree relative to the species. Poor (P) - Major visible defects within the structure of the tree relative to the species. Very Poor (VP) - Significant visible defects within the structure of the tree relative to the species.

Form Good (G) – A specimen that has attained its full genetic potential and with no physical or environmental impediments to growth. Fair (F) – A specimen that has generally attained its genetic potential and with some minor physical or environmental impediments to growth. Poor (P) – A specimen that has attained some of its genetic potential and with significant physical or environmental impediments to growth. Very Poor (VP) - A specimen that has not attained any of its full genetic potential due to major physical or environmental impediments impediments to growth.

Age Y = Young – young tree that is yet to establish. SM = Semi-mature – an established tree but one that has not attained its full genetic potential for size and/or form. M = Mature – a tree that has attained its full genetic potential in size and/or form. OM= Over Mature – a tree that is no longer capable of further growth and/or has entered a cycle of decline.

Canopy Cover A visual estimation, expressed as a percentage, of the canopy present as compared to a specimen which has attained its full genetic potential and with no physical or environmental impediments to growth.

Foliage Density A visual estimation, and expressed as a percentage, of the level of foliage density present as compared to a specimen which has attained its full genetic potential and with no physical or environmental impediments to growth.

Tree Protection Zone (TPZ) A defined, radial area within which certain activities are prohibited or restricted to prevent or minimise potential injury to designated trees. Calculated using the formula outlined in AS4970-2009.

Encroachments into a TPZ may be possible where it is assessed by a suitable qualified Arborist and deemed to be acceptable without being detrimental to the ongoing vigour of a tree.

A Minor Encroachment of 10% or less of the TPZ area and outside of the Structural Root Zone (SRZ) is generally considered acceptable. However, the area lost should be compensated for elsewhere and only be restricted to one side of the tree. Other factor such as health, condition, age, species type and tolerance to disturbance, lean and stability must also be considered when establishing if the encroachment is acceptable and won't adversely impact on the tree.

A Major Encroachment of more than 10% of the TPZ area will require detailed investigation to establish if the tree will remain viable. Such investigation should involve root investigation and consideration of health, condition, age, species type and tolerance to disturbance, lean and stability.

Structural Root Zone (SRZ) A radial area of soil around a tree where the majority of the structural roots are located and in which encroachment or activity is prohibited to prevent or minimise the potential for destabalisation of designated trees. Calculated using the formula outlined in AS4970-2009.

<u>Useful Life Expectancy (ULE)</u>: A useful life expectancy has been determined for individual trees based on an assessment of current estimated age, species characteristics and potential life span, any known impacts, level of impact that the proposed development will have on the tree, species tolerance to development impacts. The ratings are:

Long – 40 years + Medium – 15-40 years Short – 5-15 years Transient – less than 5 years



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Dead or hazardous (defective or unstable)

This rating has been determined based an assessment of the tree at the time of inspection and any information made available during the assessment. Unknown impacts or adverse actions following initial inspection of individual trees do not form part of the final ratings.

Landscape Significance Rating: The Landscape Significance has been determined by an assessment of the cultural, environmental and aesthetic value of individual trees. This location, amenity, visual prominence, habitat value and species type are also considered when determining the landscape significance of individual trees.

The following criteria is used when determining the Landscape Significance Rating. This rating aids with determining the Retention Value.

Landscape	Description
Significance	
	The subject tree is listed or forms part of the description of an item listed in the NSW Heritage Act
	The subject tree is listed as or forms part of the description of a Heritage Item under the Council's Local
Very High	Environmental Plan
	The subject tree is listed in Council's Register of Significant Trees
	The subject tree is remnant
	The subject tree is considered a land mark
	The subject tree is considered to be of local, cultural or historical importance
	The subject tree forms part of an Ecological Community associated with the site as defined by the provisions
	of the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity
	Conservation Act 1999.
	The subject tree has been identified as providing habitat value to a threatened or protected species.
High	The subject tree is visually prominent and provides a positive contribution to the amenity and aesthetics of
	the area.
	The subject tree is an excellent representative of the species in terms of health, structure and form
	The subject tree is of large /dominate dimensions (height and canopy spread) and provides a positive
	contribution to the canopy cover of the area.
	The subject tree provides a positive contribution to the amenity and biodiversity of the immediate area
	The subject tree provides a positive contribution to the visual appearance of the area
	The subject tree is a screening element, visual and/or noise buffer
	The subject tree provides present habitat value
Medium	The subject tree represents the species in a positive manner in term of health, structure and form.
	The subject tree is not protected by the provisions of Council's Development Control Plan as it is less than
	the proscribed height or is a species listed as exempt
Low	The subject tree is a species considered as being an environmental weed
	The subject tree provides little to no value to the amenity or aesthetics of the area
	The subject tree is structurally unsound or poor health which cannot be improved.
Insignificant	The tree is declared a Noxious Weeds under the Noxious Weeds Act 1993
	The tree is dead

*The above has been modified from the Tree iQ Criteria for Landscape Significance

<u>Tree Retention Rating</u>: The Retention Value has been allocated to individual trees by combining the Useful Life Expectancy and Landscape Significance Rating into the Matrix below to give a Retention Value of High, Medium or Low.

ncy		Very High	High	Medium	Low	Insignificant
oecta	Long					
fe Ex	Medium					
ful Lif	Short					
Use	Transient					
	Dead/Hazard					

High: Warrants retention and major design consideration (modification of footings, building alignment etc)

Medium: Warrants retention and minor design consideration (effort should be made to retain these trees wherever possible).

Low: These trees should not be considered to be a constraint to design layout. These trees should be removed irrespective of any proposed development.



APPENDIX B – TREE PROTECTION (GENERIC)

TREE PROTECTION

All trees, other than those indicated on the drawings to be removed, shall be protected at all times during construction in accordance with the Australian Standard 4970 - 2009 *Protection of Trees on Development Sites.*

All works shall be undertaken in accordance with the Tree Protection Plan and the following tree protection specifications, unless otherwise directed by the Principal's representative or the appointed Project Arborist.

PROJECT ARBORIST

A Project Arborist, with minimum AQF Level 5 qualifications, shall be appointed prior to the commencement of any construction activities. The Project Arborist will be responsible for specifying, monitoring and certification of all tree protection measures for any activities proposed around existing trees located within the limit of the construction.

The Contractor shall provide site access to the Project Arborist at all times. The Project Arborist may provide advice on the existing trees, however all communications will be formalised between the Contractor and the Principal's representative.

SITE INDUCTION

The Principal's Representative, Project Arborist, Contractor and any other persons required to work within the Tree Protection Zone (TPZ) of any trees shall attend a site induction meeting before any machinery or materials are brought onto the site and before the commencement of any site works including demolition, earthworks or site clearing.

The Tree Protection Measures, including the location of tree protection fencing, site sheds, stockpile areas, temporary access roads, sediment control devices and any drainage works shall be confirmed during the site induction meeting.

The site induction will highlight the requirements to protect the trees within the site, the type of actions that could lead to potential damage and the penalties imposed by Council for breach of the tree protection measures.

TREE PROTECTION FENCING

Prior to the commencement of any construction activities, install a Tree Protection Fence around individual trees or group of trees at the nominated TPZ distances specified on the Tree Protection Plan. Where TPZ merge together a single fence encompassing a group of trees is suitable. The fencing shall define and restrict entry into the TPZ. The fencing shall conform to the following:

- Fencing shall be a minimum of 1.8m steel galvanised chain wire fencing with lockable gates to AS 1725 and clad with shade cloth to prevent wind-blown debris entering the TPZ;
- The fencing shall be set / fixed into concrete blocks. The fencing must not be secured with posts driven into the ground;
- The area within the TPZ fencing shall be kept free of weeds and grass for the duration of project;
- Mulch shall be installed and maintained to a depth of 75mm for the duration of project



The TPZ fencing shall be erected by the Contractor and approved by the Project Arborist before any machinery or materials are brought onto the site and before the commencement of any works including demolition.

TPZ SIGNAGE

A sign (600mm x 400mm) identifying the name and contact details of the Project Arborist shall be attached to the protective fencing of each TPZ. Below is a sample signage for use:

PROHIBITED ACTIVITIES

The following activities are prohibited within the TPZ;

- Excavation, trenching (unless approved by and under the direct supervision of the Project Arborist)
- Ripping and cultivation
- Mechanical removal of vegetation
- Soil disturbance or movement of natural rock
- Soil changes including placement of fill (unless approved by and under the supervision of the Project Arborist)
- Movement and storage of plant, equipment and vehicles including machinery washing, repairs and refuelling
- Erection of site offices or sheds including portable toilets
- Affixing of signage or hoardings to trees
- Stockpiling, storage and mixing of materials including storage of waste materials, disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and any other toxic liquids
- Physical damage to canopies, trunk or root systems
- Any activity likely to cause damage to any tree

TRUNK PROTECTION

Trunk protection will be required where works have been approved within the TPZ. As a minimum, the trunk protection shall consist of wrapping of trunks with hessian and two-metre lengths of hardwood timber planks (100 x 50mm) spaced at 100-150mm intervals strapped around the trunk and secured with 2mm galvanised wire. The hessian and timber planks must not be fixed to the tree in any fashion or in any instance.

GROUND PROTECTION

Ground protection must be installed within the TPZ in the event that temporary access for machinery is required and has been approved by the Project Arborist. The ground protection is required to prevent root damage and soil compaction from occurring within the TPZ.

The ground protection shall include a permeable membrane such as geotextile fabric beneath a 100mm layer of mulch below rumble boards of a suitable thickness to prevent soil compaction and root damage from occurring during the movement of any machinery within the TPZ.

EXCAVATIONS WITHIN TPZ

Any excavations undertaken within the TPZ which have been approved by the Project Arborist shall be undertaken using non-destructive methods (such as by hand or with an Airspade) to ensure no tree roots greater than 40mm diameter are damaged, pruned or removed.

In the event that any roots greater than 40mm diameter are located during excavation, further advice shall be obtained by the Project Arborist before further works continues where the root has been identified. Root pruning must not be undertaken without prior approval from the Project Arborist.



CANOPY AND/OR ROOT PRUNING

Care shall be taken when operating heavy machinery near trees to avoid damage to tree canopies (foliage and branches). The Project Arborist shall be contacted if there is potential conflict between tree canopies and construction activities (including machinery).

Any canopy or root pruning required shall be undertaken in accordance with AS 4373-2007 *Pruning of Amenity Trees,* under the direct supervision of the Project Arborist. Where root pruning is required, roots shall be severed at the face of the excavation by hand using clean, sharp pruning implements. All excavations within the TPZ of any tree/s shall be undertaken under the supervision of the Project Arborist.

TREE ROOT PROTECTION

Temporary root protection, including hessian or similar biodegradable material, shall be installed under the supervision of the Project Arborist to prevent roots from drying out, where roots are exposed during demolition or construction works.

SERVICES

Where trenching works are required for any services / hydraulics / drainage etc. this shall not be undertaken within any TPZ. The Project Arborist shall be contacted if any works are required within the TPZ.

Alternative installation methods for services, such as directional boring/drilling, or redirection of services shall be employed where large woody roots greater than 50mm diameter are encountered during the installation of any services adjacent to the specified TPZ.

TREE DAMAGE

In the event that any tree is damaged during construction, the Project Arborist shall be notified as soon as possible to inspect and provide advice for remedial action that may minimise any adverse impact.



EXAMPLE FENCING, PROTECTION AND SIGNAGE:

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Table 1: Is Showing a representation of the incorrect tree protection fencing.

Image 1: The tree protection fencing does not adhere to AS 4970 Protection of	Image 2: shows the temporary fencing in this situation, temporary fencing is
sustainable measure for a long-term development and it is probable that various	addition, a practical method is trunk protection and ground protection.
impacts can occur with this method.	



Table 2: Is Showing a representation of the correct tree protection fencing.







Table 3: Shows a representation of the incorrect trunk protection and correct trunk protection.

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(a) Up to but not including the branch collar

NOTE: When removing dead wood from a tree, make the final cut as close to the branch collar as possible. Do not damage living tissue. The branch collar is the best guide for the final cut when removing a living branch. However, if there is no branch collar use the branch bark ridge as depicted in Figure 1(b).



(b) In the absence of a collar using the branch bark ridge

NOTE: On living branches where the branch collar cannot be located, the branch bark ridge can be used as a guide. Line A-X is a line parallel to the stem or trunk occurring just outside the branch bark ridge. Line A-C indicates the angle of the branch bark ridge and Line A-B represents the angle and location of the final cut. Angle 'a' should equal angle 'b'.

FIGURE 1 FINAL CUT LOCATION

1



(a) With extruded bark



(b) With included bark

NOTE: Line A-B represents the angle and location of the final cut, point C the bottom of the stern bark ridge. Point B is opposite Point C and represents the bottom of the final cut. These figures are a guide only (see Clause 5.4(c)).

FIGURE 2 CODOMINANT STEMS

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APPENDIX C – TREE IMPACT SCHEDULE

Tree No.	Species Name	TPZ (m)	SRZ (m)	ULE	Landscape Significance	Retention Value	Proposed Action	Development Impacts
1	callistemon viminalis	2.4m	1.5m	Medium	Medium	Medium	Retain	No impacts are anticipated
2	Lophostemon confertus	2.4m	1,5m	Medium	Medium	Medium	Retain	No impacts are anticipated
GA	Chamaecyparis lawsoniana	2m	1.68m	Medium	Medium	Medium	Retain	No impacts are anticipated
3&4	Chamaecyparis lawsoniana	4.3m	2.6m	Medium	Medium	Medium	Retain	No impacts are anticipated
5	Syagrus romanzoffiana	4m	N/A	Medium	Low	Low	Retain	No impacts are anticipated
6	Pyrus communis	2m	1.5m	Medium	Low	Low	Exempt	No impacts are anticipated
7	Musa paradisiaca	4m	N /A	Medium	Low	Low	Exempt	Within footprint of the proposed secondary dwelling
8	Ficus carica	2m	1.5m	Medium	Low	Low	Exempt	Within footprint of the proposed secondary dwelling



9	Mangifera indica	2m	1.5m	Medium	Low	Low	Exempt	Within footprint of the proposed secondary dwelling
10	Pyrus communis	2m	1.5m	Medium	Low	Low	Exempt	Within footprint of the proposed secondary dwelling
11	Olea europaea	2.04m	1.5m	Medium	Low	Low	Exempt	No impacts are anticipated
12	Mangifera indica	2m	1.5m	Medium	Low	Low	Exempt	No impacts are anticipated
13	Olea europaea	2.04m	1.5m	Medium	Low	Low	Exempt	No impacts are anticipated
14	Ligustrum lucidum	2.04m	1.5m	Medium	Low	Low	Exempt	The tree will be subjected to an 9.4% minor encroachment to facilitate construction for the proposed secondary dwelling. No tree protection is required as the boundary fence will act as tree protection fencing for this tree.

*TPZ & SRZ increased to adequately retain tree



APPENDIX D – PHOTOGRAPHIC EVIDENCE



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APPENDIX E – ARBORICULTURAL – PLANS

Plan 1 - Tree Location & Protection Plan

Arboricultural Impact Assessment Report



