16-20 Old Castle Hill Road Castle Hill Arboricultural Impact Assessment

Prepared for Urban Property Group

Arbor Express

0466 586 842
info@arbor-express.com.au

Document Tracking

Project Name	16-20 Old Castle Hill Road Castle Hill NSW 2154 Arboricultural Impact Assessment
Project Number	AIA1/12/2025
Prepared by	Alex de Jong - AQF Level 5 Arborist
Status	Final
Version	v1
Last saved on	1/12/2025

This report should be cited as 'Arbor Express 16-20 Old Castle Hill Road Castle Hill NSW 2154 Arboricultural Impact Assessment prepared for Urban Property Group'.

ACKNOWLEDGEMENTS

This document has been prepared by Arbor Express Pty Ltd with support from Urban Property Group

Disclaimer
I do not assume responsibility for liability associated with the tree on/or adjacent to this project site, the future demise and/or any damage which may result therefrom. They take care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others. I cannot be held responsible for any consequences as result of work carried out outside specifications, not in compliance with Australian Standards or by inappropriately qualified staff. If further investigations such as, aerial, drill and root tests are recommended, the report shall not be considered final until all investigations have been completed as further defects may be found. I have made every effort to accurately identify the current tree health and hazards. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure, not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure. All standing trees have an element of unpredictable risk. The inspection was limited to a visual ground examination of the tree, without aerial inspections and below ground excavations. The assessments are limited and do not include specialized analysis. No internal diagnostics, aerial inspection and pathology test were conducted. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale.

Table of Contents

1. Introduction 5
2. Method 6
3. Tree Schedule 9
4. Survey 10
5. Arboricultural Impact Assessment and Tree Protection Plan 11
6. Recommendations 12
7. Construction Hold Points for Tree Protection 14
8. References 15
Appendix A: Glossary of Terms 16
Appendix B: Retention Value 18
Appendix C: Safe Useful Life Expectancy (SULE) 19
Appendix D: Tree Protection Guidelines 21
Appendix E: Encroachment into the Tree Protection Zones 24

Abbreviations

Abbreviation	Description
AE	Arbor Express
AIA	Arboricultural Impact Assessment
AQF	Australian Qualifications Framework
AS	Australian Standards
C	Canopy
DAB	Diameter Above Buttress
DSH	Diameter at Standard Height
H	Height
m	Metre
mm	Millimetre
NDE	Non-Destructive Excavation
NO	Number
NRZ	Notional Root Zone
NSW	New South Wales
SRZ	Structural Root Zone
TPP	Tree Protection Plan
TPZ	Tree Protection Zone
VTA	Visual Tree Assessment

1. Introduction

This AIA has been prepared for Urban Property Group in relation to a proposed development at 16-20 Old Castle Hill Road Castle Hill NSW 2154. The address of the subject site is in Table 1 and mapped in Figure 1. The purpose of this report is to:

- Identify the trees within the site and adjacent surrounding area that are likely to be affected by the proposed development.
- Undertake a visual tree assessment of the subject trees.
- Assess the current overall health and condition of the subject trees.
- Evaluate the retention value of the subject trees.
- Identify trees to be removed, retained or transplanted.
- Determine the likely impacts of trees to be retained.
- Recommend tree protection measures to minimise the impacts to retained trees.
- Preparation of a tree protection plan for trees to be retained (if applicable).

Features of the subject site are tabulated below.

Table 1: Development site

Criteria	Description
Street address	16-20 Old Castle Hill Road Castle Hill NSW 2154
Local government area	The Hills Shire Council
Land zoning	R1: General Residential
Biodiversity values map	The site is not in a high biodiversity area
10/50 entitlement	The site does not have a 10/50 entitlement

Figure 1: Location

2. Method

Visual Tree Assessment

The subject trees were assessed in accordance with a stage one visual tree assessment (VTA) as formulated by Mattheck and Breloer (1994)[1], and practices consistent with modern arboriculture.

The tree schedule prepared by Russell Kingdon for the site has been utilised in the preparation of the AIA.

The following limitations apply to this methodology:

- Trees were inspected from ground level.
- These assessments did not include aerial (climbing) inspections, soil sampling, or root excavations.
- The canopy spread was measured either by estimation or pacing, and the longest span was recorded.
- The height of each tree was estimated.
- Trees were inspected within limits of site access.
- No aerial inspections or root mapping was undertaken.
- Trees located on adjacent properties or in restricted areas were not fully visually inspected, so any defects or abnormalities may not have been documented.
- Tree identification relied on broad taxonomical features visible from ground level at the time of inspection.

Retention Values

The retention value is the value of retaining a tree or group of trees and is assessed based on a blend of environmental, cultural, physical, and social factors.

- **High:** These trees are deemed worthy of preservation, and their retention should be prioritized. Proposed site designs and the positioning of buildings and infrastructure should take into account the Tree Protection Zones (TPZs) to mitigate any negative effects. Additionally, the extent of the canopy, especially concerning high-rise development, should be taken into consideration. Significantly pruning the trees to accommodate building envelopes or temporary scaffolding is typically not acceptable.
- **Moderate:** Retaining these trees is desirable. They should be preserved as part of any proposed development, if feasible. However, these trees are considered less crucial for retention. If their removal becomes necessary, replacement planting should be contemplated in alignment with the Council's Tree Replacement Policy to offset any loss of amenity.
- **Low:** These trees lack significant ecological, heritage, or amenity value, or such values are greatly diminished due to their Safe Useful Life Expectancy (SULE). Therefore, these trees should not be viewed as hindrances to the future development of the site.
- **Very Low:** These trees are regarded as potentially hazardous, very poor specimens, or may even qualify as environmental or noxious weeds. Consequently, their removal is recommended irrespective of any proposed development considerations.

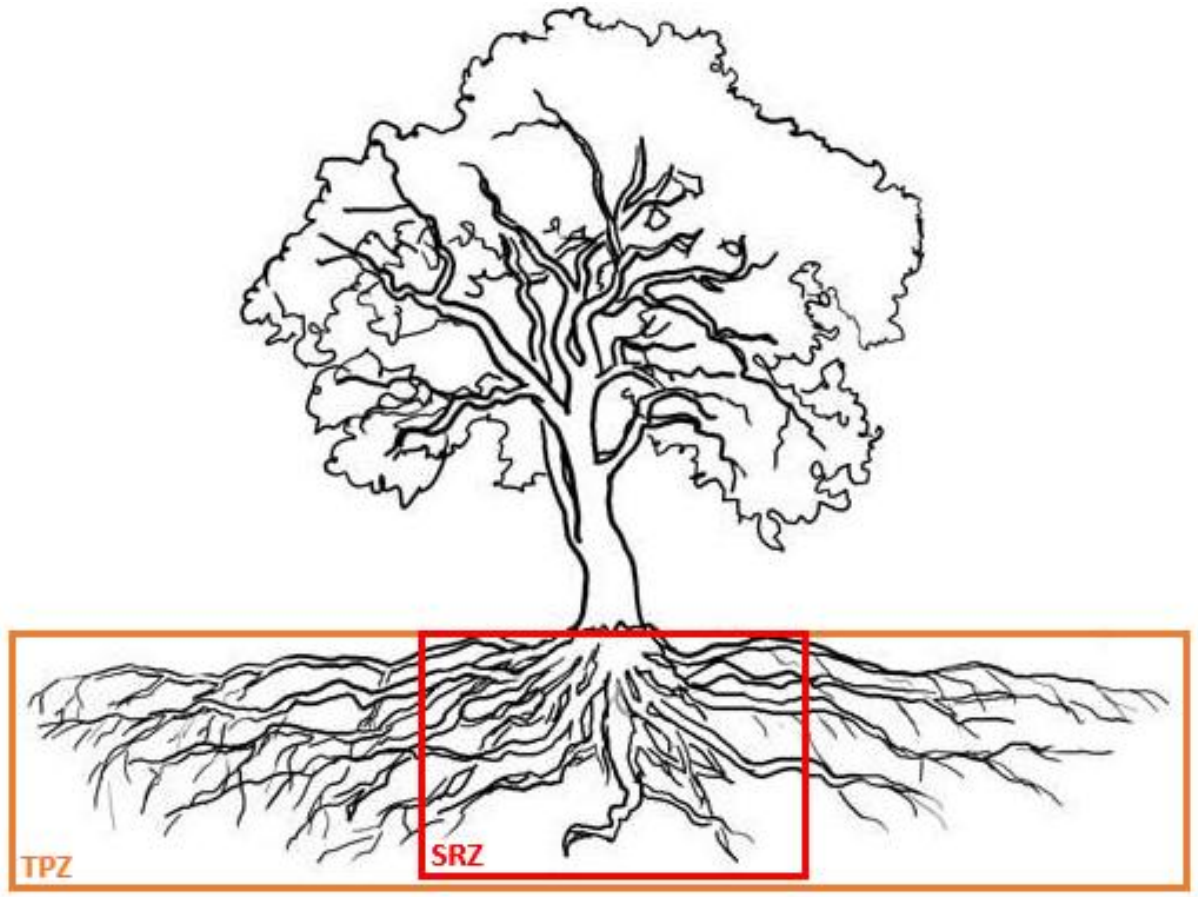
[1] Field Guide for Visual Tree Assessment (VTA) by Mattheck, C., and Breloer, H. Arboricultural Journa1, Vol 18 pp 1-23 (1994).

Protection Zones

Tree Protection Zone (TPZ): The Tree Protection Zone (TPZ) is fundamental for safeguarding trees on development sites. It encompasses both the root and crown spread, creating a protected space free from construction disturbances to preserve the tree's health and viability. The TPZ is calculated from the NRZ which is NRZ = DSH x 12

Structural Root Zone (SRZ): The Structural Root Zone (SRZ) defines the space essential for maintaining tree stability, often requiring a larger area to sustain the tree's health. Calculating the SRZ becomes necessary when substantial encroachment into a Tree Protection Zone (TPZ) is proposed. Further analysis through root investigations can provide valuable insights into the extent of these roots.

Figure 2: Tree Protection Zone and Structural Root Zone



Impact Assessment

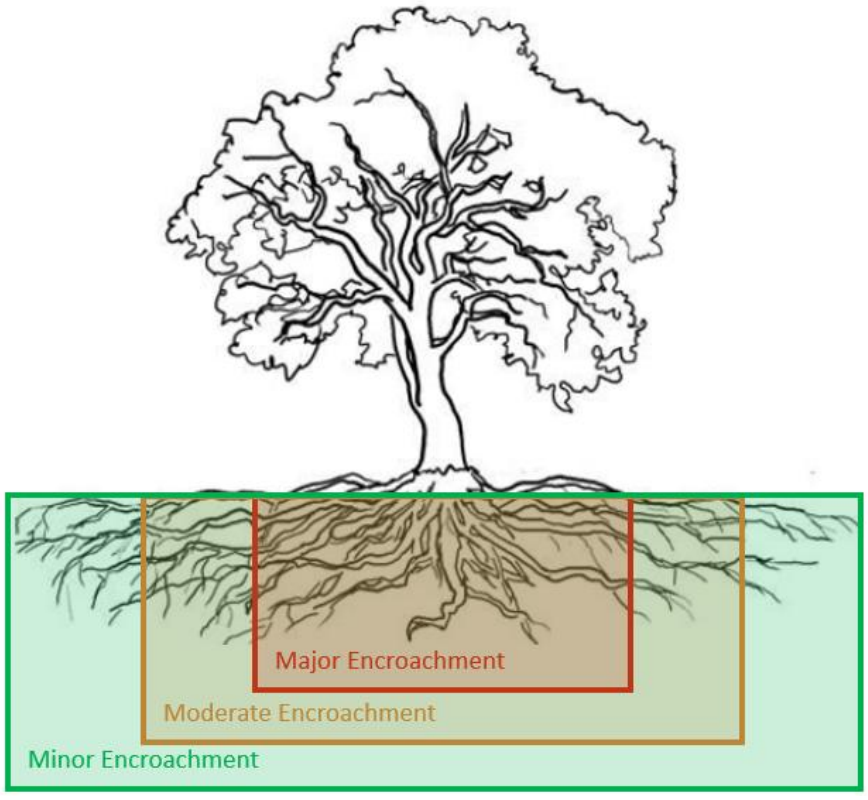
Development activities should be undertaken outside of Tree Protection Zones as much as possible. However, it's recognized that complete avoidance is not always feasible, and some encroachment within these zones may occur due to various reasons. Australian Standard AS 4970-2025, "*Protection of trees on development sites*," offers guidelines for managing such encroachments without necessitating extensive tree management and protection measures. Encroachment parameters are categorized as follows:

- **Minor TPZ Encroachment:**
  The proposed encroachment is considered minor as it affects less than or equal to 10% of the area of the Tree Protection Zone's (TPZ) and is located outside the Structural Root Zone (SRZ), and there have been no recent encroachments into the TPZ. Based on these conditions, it is generally unlikely that there will be a significant impact on the health, structure, or longevity of the tree. Tree protection measures should still be implemented during site works. To avoid a net loss of soil volume and area, the area of encroachment should be offset by incorporating an equivalent area into the TPZ, unless otherwise demonstrated by the project arborist that the tree will remain viable.

- **Moderate TPZ Encroachment:**
  A moderate encroachment is defined as one that affects more than 10% but less than or equal to 20% of the TPZ area and is located outside the SRZ. In such cases, an arborist must be engaged to assess the likely impacts and undertake any necessary investigations to determine the tree's ability to remain viable. These investigations may involve suitable design modifications or construction controls as part of a Tree Protection Plan (TPP) and Tree Protection Specification (TPS). As with minor encroachments, the area of soil and volume lost to the encroachment should be compensated by incorporating an equivalent area into the TPZ, unless the project arborist demonstrates otherwise.

- **Major TPZ Encroachment:**
  An encroachment is classified as major if it affects more than 20% of the TPZ area or is located within the SRZ. In such instances, an arborist must be engaged to assess the impact, explore alternative design solutions with the design team, or demonstrate that the tree can remain viable. A more detailed investigation is required, potentially including root mapping, soil analysis, review of site history, literature comparison, and examples of similar cases. A comprehensive TPP should be prepared to support the retention of the tree. As with lesser encroachments, the lost area should be offset within the TPZ unless the arborist determines that the tree will remain viable without this compensation.

Figure 3: Tree Protection Zone Encroachments



3. Tree Schedule

5.0 Comments on VTA and Recommendations for Tree Management

A more detailed assessment is provided by this section of the report.

Please note that this assessment and related VTA assessments are based upon health and condition that were observed at the time of inspection.

Accepted tree management practices recommend removal of trees where ULE ratings are 3 (or listed as dead), and/or where hazard ratings are high [where ratings adapted from Matheny and Clark range from low=3 to dangerous=12] (Matheny, et al., 1994). A detailed explanation of ULE ratings is provided in Appendix 9. Height/Diameter Ratio should not exceed 1:30 (Mattheck, et al., 1994).

The trees contained within the Tree Schedule (see below) range from having short to long ULEs. These trees also have a broad range of hazard ratings which limits the retention of such trees within development sites. Appendix 3 provides explanations of abbreviations and assessment criteria.

Tree Protection Zones for each of the trees that are assessed to be retained and protected are highlighted in yellow in the Tree Schedule below. It should be noted that distance stated is a radius, not a diameter. AS 4970:2009 Protection of trees on development sites (Australian Standard®, 2009) states that an intrusion of the TPZ of less than 10% is considered minor. No above-ground intrusion into the TPZ is to exceed 20% of total TPZ area (e.g., cantilevered building, balcony etc.).

5.0.1 Tree Schedule

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating-3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
1	*Acer negundo* (Box-elder Maple)	12	450	630	5.4	2.7	G	F	8 4 6 8	M	Pass	5	Medium	2B	Medium	This tree is on the boundary. It has epicormic shoots. The crown is over the road. This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent. Retention is recommended (see section 5.0 for details).	S

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
2	*Ulmus parvifolia* (Chinese Elm)	12	680	750	8.2	2.9	F	F	12 - 8 8	M	Pass	7	Medium	2B	Medium	This tree has a tropism to the north. It is unbalanced, has multiple branch attachments, large Deadwood and epicormic shoots and the crown has been reduced over the road. The crown is being suppressed by Tree 14.	S
3	*Ulmus glabra* (Wych Elm)	5	CD 180 190 (260)	520	3.1	2.5	P	P	1 2 2 -	M	Fail	8	Low	3B	Low	This tree has decay in the root buttress, previous failure sites and borers. This tree is nearly dead. It fails the VTA and is not suitable to be considered for retention. Removal is recommended.	R
4	*Melaleuca quinquenervia* (Broad-leaved Paperbark)	8	320	450	3.8	2.4	G	G	2 6 4 3	M	Pass	6	Medium	2B	Medium	This is a street tree. The crown is over the road.	S
5	*M. quinquenervia* (Broad-leaved Paperbark)	9	340	460	4.1	2.4	G	F	3 6 4 4	M	Pass	8	Medium	2B	Medium	This is a street tree. It has a 3° trunk lean to the south (over the road) and visible surface roots.	S
6	*M. quinquenervia* (Broad-leaved Paperbark)	10	QD 140 160 180 200 (340)	380	4.1	2.2	G	F	2 6 3 3	M	Pass	6	Medium	2B	Medium	This is a street tree. It has a tropism to the south and multiple branch attachments at 600mm.	S
7	*M. quinquenervia* (Broad-leaved Paperbark)	8	230	300	2.8	2.0	G	F	1 2 1 1	M	Pass	6	Medium	2B	Medium	This is a street tree. It has a tropism to the south and epicormic shoots. The crown has been raised - it has forest architecture.	S
8	*M. quinquenervia* (Broad-leaved Paperbark)	9	CD 250 260 (360)	400	4.3	2.3	G	F	4 6 4 6	M	Pass	6	Medium	2B	Medium	This is a street tree. It has an inclusive main fork union.	S
9	*A. negundo* (Box-elder Maple)	10	TD 230 2x300 (480)	680	5.8	2.8	G	F	4 10 1 10	M	Pass	6	Low	2B	Low	The crown of this tree is being suppressed by Tree 55. This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent. Retention is recommended (see section 5.0 for details).	S

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
10	*Eucalyptus pilularis* (Blackbutt)	18	530	820	6.4	3.0	G	G	8 radial	M	Pass	6	Medium	2B	Medium	This tree is in the adjacent site. It has some small Deadwood. This tree is >10m from the site.	S
11	*Ligustrum lucidum* (Large-leaved Privet)	8	Multi 6x<100 (240)	350	2.9	2.1	G	G	3 radial	M	Pass	4	Low	3B	Low	This tree is in the adjacent site. It has some small Deadwood. This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land".	S
12	*Eucalyptus crebra* (Narrow-leaved Ironbark)	22	650	750	7.8	2.9	P	G	12 8 8 10	M	Pass	8	Medium	3B	Low	This tree is in the adjacent site, 1.65m from the boundary fence from the centre of the trunk (COT). It has a very sparse canopy and is declining.	S
13	*Liquidambar styraciflua* (Sweet Gum)	20	650	840	7.8	3.2	G	G	9 12 10 12	M	Fail	8	Medium	2B	Medium	This tree is in the adjacent site, 3.92m from the fence from the COT. The crown of this tree is over the boundary (8m). This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land". This tree fails the VTA.	S
14	*Quercus shumardii* (Swamp Red Oak)	22	950	1300	11.4	3.7	G	VP	15 radial	M	Fail	10	Medium	3B	Low	This is a very large specimen. It has recent failure sites and a large split in the main leader in the crown. This tree has a high risk of failure. Removal is recommended.	R
15	*Franklinia axillaris* (Gordonia)	4	CD 120 140 (180)	190	2.2	1.7	G	G	1 radial	M	Pass	4	Low	2B	Low	This is a street tree.	S
16	*Cornus florida* (Flowering Dogwood)	4	CD 80 90 (120)	240	2.0	1.8	F	F	2 1 1 2	M	Pass	4	Low	3B	Low	This tree has decay and tip dieback.	S
17	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	No tree present. Most likely a re-plotting of Tree 14.	-

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
18	*U. parvifolia* (Chinese Elm)	14	CD 350 380 (520)	910	6.2	3.2	G	P	8 8 4 12	M	Pass	8	Medium	2B	Medium	This tree is coppice regrowth. It has an inclusive main fork union. It was previously lopped at 4m and has multiple branch attachments.	S
19	*Brachychiton acerifolius* (Flame Tree)	8	150	190	2.0	1.7	G	G	2 2 2 3	YM	Pass	4	Low	2B	Low	This tree was previously lopped at 4m and has multiple branch attachments.	S
20	*Harpephyllum caffrum* (Kaffir Plum)	5	280	350	3.4	2.1	G	G	4 6 6 2	M	Pass	5	Medium	2B	Medium	The crown of this tree is being suppressed by Tree 21. This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
21	Unknown deciduous species	12	320	400	3.8	2.3	G	F	6 8 - 8	M	Pass	6	Low	2B	Low	There were no leaves on this tree for identification. It is 2.41m from the COT to the existing residence. This tree is classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent as it is within 5m of an existing approved structure.	
22	*B. acerifolius* (Flame Tree)	8	90	140	2.0	1.5	G	G	1 2 1 2	J	Pass	4	Low	2B	Low	This is a young tree.	S
23	*Morus* sp. (Mulberry)	4	TD 80 100 120 (180)	240	2.2	1.8	G	P	2 3 2 3	M	Pass	4	Low	3B	Low	This tree has been lopped, it has multiple branch attachments and decay in the trunk. This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
24	*Grevillea robusta* (Silky Oak)	26	700	950	8.4	3.2	G	F	8 10 8 12	VM	Pass	8	Low	2B	Low	This tree is tri-dominant at 6m and has inclusive main fork unions. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
25	*L. styraciflua* (Sweet Gum)	20	680	840	8.2	3.2	G	F	8 10 8 10	VM	Pass	8	Low	2B	Low	This tree has previous failure sites and some small Deadwood. It is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
26	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	Tree 26 not shown on survey.	-
27	*Mangifera indica* (Mango)	4	CD 70 80 (110)	150	2.0	1.5	G	G	2 1 2 2	M	Pass	4	Low	2B	Low	This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	S
28	*Bauhinia galpinii* (South African Orchid Bush)	9	CD 130 200 (240)	350	2.9	2.1	F	F	4 3 - 10	M	Pass	7	Low	3B	Low	This tree has previous failure sites and a tropism to the west. It is unbalanced.	S
29	*Quercus robur* (English Oak)	18	CD 350 430 (550)	760	6.6	3.0	F	F	8 10 6 10	M	Pass	7	Medium	2B	Medium	This tree has leaf damage caused by chewing mouth-pieced insects.	S
30	*B. galpinii* (South African Orchid Bush)	6	230	280	2.8	1.9	G	P	1 2 - 4	M	Fail	6	Low	3B	Low	This tree has a 30° trunk lean to the west and is pushing over a retaining wall. It fails the VTA and is not suitable to be considered for retention. Removal is recommended.	R
31	*Lophostemon confertus* (Brush Box)	22	700	910	8.4	3.2	G	F	10 8 8 10	M	Pass	8	Medium	2B	Medium	This tree has an inclusive main fork union at 9m and some small Deadwood. The crown is over the adjacent site. Retention is recommended (see section 5.0 for details).	S
32	*G. robusta* (Silky Oak)	26	480	630	5.8	2.7	G	G	8 radial	M	Pass	9	Medium	3B	Low	The tree has a multiple branch attachment at 9m. It has been lopped. There are previous failure site and an emergent crown. This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
33	*B. acerifolius* (Flame Tree)	12	160	230	2.0	1.8	G	F	2 radial	YM	Pass	4	Medium	2B	Medium	This tree is in good health and fair structural condition.	S
34	*Olea europaea* subsp. *cuspidata* (African Olive)	6	TD 2x160 170 (280)	310	3.4	2.1	G	P	6 1 1 6	M	Pass	6	Low	3B	Low	This tree is <3m from the adjacent residence. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	S
35	*O. europaea* subsp. *cuspidata* (African Olive)	10	TD 200 250 260 (410)	480	4.9	2.4	G	P	8 6 6 6	M	Pass	6	Low	3B	Low	This tree is <3m from the adjacent residence. There is decay in the trunk and the crown is over the roof. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
36	*Morus* sp. (Mulberry)	8	460	700	5.5	2.9	F	VP	6 4 6 8	OM	Pass	6	Low	3B	Low	This tree has decay. It is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
37	*E. pilularis* (Blackbutt)	26	580	750	7.0	2.9	G	G	10 radial	M	Pass	8	Medium	2B	Medium	This tree is in the adjacent site growing on the top of a 2m retaining wall. There is a habitat site. None of the canopy is over the site.	S
38	*Eucalyptus scoparia* (Wallangarra White Gum)	26	530	610	6.4	2.7	G	G	10 - - 15	M	Pass	8	Medium	2B	Medium	This tree is in the adjacent site. It is growing on a bank and has a 15° trunk lean to the north. The crown is over the site corner, and it is unbalanced. This tree may need crown reduction. It is 1.8m from the edge of the trunk to the boundary.	S
39	*E. scoparia* (Wallangarra White Gum)	25	710	920	8.5	3.2	F	G	8 10 10 8	M	Pass	8	Medium	2B	Medium	This tree is in the adjacent site, growing on a bank. There is some small Deadwood. It is 2.466m from the edge of the trunk to the boundary.	S
40	*Pittosporum undulatum* (Native Daphne)	8	220	300	2.6	2.0	G	G	4 radial	M	Pass	5	Low	2B	Low	This tree is in the adjacent site. It has some small Deadwood.	S

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
41	*Jacaranda mimosifolia* (Jacaranda)	12	290	340	3.5	2.1	G	F	6 8 2 10	M	Pass	6	Low	2B	Low	This tree has a tropism to the west.	S
42	*G. robusta* (Silky Oak)	16	340	490	4.1	2.5	G	G	6 radial	M	Pass	6	Medium	2B	Medium	This tree is in the adjacent site, on a bank. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	S
43	*J. mimosifolia* (Jacaranda)	16	410	530	4.9	2.5	G	F	10 - 6 6	M	Pass	8	Medium	2B	Medium	This tree has a 10° trunk lean to the northeast and is unbalanced.	S
44	*J. mimosifolia* (Jacaranda)	15	380	460	4.6	2.4	G	F	4 10 2 8	M	Pass	7	Medium	2B	Medium	This tree is co-dominant at 2m. It has previous failure sites, decay in old wounds and in unbalanced. There is *Monstrosa* sp. up the trunk.	S
45	*J. mimosifolia* (Jacaranda)	16	370	450	4.4	2.4	G	F	4 10 8 8	M	Pass	7	Medium	2B	Medium	This tree has a tropism to the south. It has epicormic shoots.	S
46	*B. galpinii* (South African Orchid Bush)	9	180	260	2.2	1.9	G	F	3 4 - 10	M	Pass	6	Low	2B	Low	This tree has a tropism to the west and is unbalanced.	S
47	*B. acerifolius* (Flame Tree)	12	200	270	2.4	1.9	G	G	2 radial	YM	Pass	5	Low	2B	Low	The crown of this tree is being suppressed by Tree 44.	S
48	*Lagerstroemia indica* (Crepe Myrtle)	10	Multi 4x<120 150 160 (330)	510	4.0	2.5	G	F	4 2 2 6	M	Pass	6	Low	2B	Low	This tree has some small Deadwood.	S
49	*P. undulatum* (Native Daphne)	8	180	250	2.2	1.9	F	F	2 3 3 2	M	Pass	5	Low	2B	Low	This tree has epicormic shoots and some small Deadwood.	S
50	*M. quinquenervia* (Broad-leaved Paperbark)	18	Multi 230 280 2x300 360 440 (790)	2000	9.5	15.0	G	P	8 radial	M	Pass	8	Medium	2B	Medium	This tree is in the adjacent site with 5 trunks. It is old coppice regrowth.	S

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
51	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	*These tags are all attached to Tree 50 - 'Trees' 50-54 are all one tree.*	-
52	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	*These tags are all attached to Tree 50 - 'Trees' 50-54 are all one tree.*	-
53	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	*These tags are all attached to Tree 50 - 'Trees' 50-54 are all one tree.*	-
54	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	*These tags are all attached to Tree 50 - 'Trees' 50-54 are all one tree.*	-
55	*Q. shumardii* (Swamp Red Oak)	25	1000	1250	12	3.6	G	G	12 10 14 12	VM	Pass	8	Medium	2B	Medium	This tree has some small Deadwood with a major leader to the east - canopy over residence (see section 5.0 for details)	
56	*O. europaea* subsp. *cuspidata* (African Olive)	10	QD 130 2x140 230 (330)	360	4.0	2.1	F	F	6 - 4 4	M	Pass	6	Low	3B	Low	This tree has decay in the trunk. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
57	*P. undulatum* (Native Daphne)	10	230	350	2.8	2.1	F	F	2 4 2 4	M	Pass	5	Low	2B	Low	This tree has some small Deadwood, tip dieback and has a tropism to the south (edge).	S
58	*L. indica* (Crepe Myrtle)	8	Multi 7x<120 (270)	450	3.2	2.4	G	F	4 radial	M	Pass	5	Low	2B	Low	This tree has multiple branch attachments.	S
59	*Acer palmatum* (Japanese Maple)	4	CD 150 180 (230)	380	2.8	2.2	VP	P	3 - 2 2	VM	Fail	4	Low	3B	Low	This tree has inclusive main fork unions and has a tropism to the north. It fails the VTA and is not suitable to be considered for retention. Removal is recommended.	R
60	Dead tree	4	190	210	2.3	1.7	Dead	P	3 1 - 2	OM	Fail	5	Low	4	Low	This tree is dead. It fails the VTA and is not suitable to be considered for retention. Removal is recommended.	R

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
61	*M. indica* (Mango)	6	160	180	2.0	1.6	G	G	3 1 1 1	YM	Pass	4	Low	2B	Low	This tree has a tropism to the east. This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
62	*M. indica* (Mango)	5	100	210	2.0	1.7	P	F	1 radial	YM	Pass	4	Low	2B	Low	This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
63	*M. indica* (Mango)	5	90	140	2.0	1.5	F	G	2 1 1 1	YM	Pass	4	Low	2B	Low	This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
64	*A. negundo* (Box-elder Maple)	14	CD 340 360 (500)	540	6.0	2.6	G	F	6 5 2 8	M	Pass	6	Medium	2B	Medium	This tree is located on the site and provides streetscape amenity. It has a tropism to the west and decay in old wounds. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent. Retention is recommended (see section 5.0 for details).	S
65	*A. negundo* (Box-elder Maple)	14	340	430	4.1	2.1	G	F	4 4 - 8	M	Pass	6	Medium	2B	Medium	This is a street tree. This species is listed as an exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land".	S
66	*U. parvifolia* (Chinese Elm)	6	90	150	2.0	1.5	F	F	2 - 1 1	YM	Pass	4	Low	3B	Low	This tree has a tropism to the north and a suppressed crown.	S
67	*U. parvifolia* (Chinese Elm)	5	CD 50 90 (100)	100	2.0	1.5	F	F	3 2 - 1	YM	Pass	4	Low	3B	Low	This tree has a tropism to the north.	S
68	*Elaeocarpus reticulatus* (Blueberry Ash)	8	110	230	2.0	1.8	G	G	3 1 1 1	YM	Pass	4	Low	2B	Low	This tree has a tropism to the north.	S

ABBREVIATIONS: m-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
69	*B. galpinii* (South African Orchid Bush)	6	160	310	2.0	2.0	F	F	2 1 - 5	M	Fail	6	Low	3B	Low	This tree has a 15° trunk lean to the west. It has lodged and there is heaving soil. This tree fails the VTA and is not suitable to be considered for retention. Removal is recommended.	R
70	Group of 8x *Camellia sasanqua* (Sasanqua)	8	up to 190	up to 250	2.3	1.9	F	F	2 radial	M	Pass	4	Low	3B	Low	This is an ornamental hedge. There are lots of *Ligustrum lucidum* (Large-leaved Privet) to the south of the row.	S
71	*C. sasanqua* (Sasanqua)	6	CD 180 210 (280)	240	3.4	1.8	G	F	2 radial	M	Pass	4	Low	2B	Low	This is an ornamental tree.	S
72	*C. sasanqua* (Sasanqua)	4	Multi 10x<50 (160)	150	2.0	1.5	G	F	2 1 1 1	M	Pass	4	Low	2B	Low	This is an ornamental tree.	S
73	*C. sasanqua* (Sasanqua)	4	90	140	2.0	1.5	G	F	2 1 1 1	M	Pass	4	Low	2B	Low	This is an ornamental tree.	S
74	*B. galpinii* (South African Orchid Bush)	6	TD 3x80 (140)	200	2.0	1.7	F	F	6 1 1 4	M	Pass	4	Low	2B	Low	This tree has been lopped. It has a tropism to the north.	S
75	*B. galpinii* (South African Orchid Bush)	6	CD 2x100 (140)	250	2.0	1.9	F	F	4 1 2 2	M	Pass	4	Low	2B	Low	This tree has been lopped. It has a tropism to the north.	S
76	*Celtis sinensis* (Japanese Hackberry)	6	QD 4x90 (180)	260	2.2	1.9	G	F	2 4 2 4	YM	Pass	4	Low	2B	Low	This tree is listed as an exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
77	*L. styraciflua* (Sweet Gum)	10	170	240	2.0	1.8	G	G	2 radial	YM	Pass	4	Low	2B	Low	This tree is growing out of the stump of Tree 78. This species is classed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
78	*J. mimosifolia* (Jacaranda)	16	QD 2x80 200 460 (510)	630	6.1	2.7	G	P	14 4 - 14	M	Fail	10	Low	3B	Low	This tree has a 20° trunk lean to the west. There are exposed 1st order roots. This tree has lodged but has not hit the ground. It is unbalanced. It fails the VTA and is not suitable to be considered for retention. This tree poses an unacceptable level of risk and should be removed as a priority.	R
79	*B. galpinii* (South African Orchid Bush)	8	QD 4x70 (140)	300	2.0	2.0	G	P	3 2 2 4	YM	Pass	4	Low	3B	Low	This tree has multiple branch attachments at ground level. It is unbalanced.	S
80	*A. negundo* (Box-elder Maple)	14	420	500	5.0	2.5	G	F	10 10 8 10	M	Pass	6	Low	2B	Low	This tree has been topped at 5m. This species is classed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
81	*L. indica* (Crepe Myrtle)	5	150	260	2.0	1.9	G	P	- 2 - 8	M	Pass	6	Low	3B	Low	This tree has a 60° trunk lean to the west. It is unbalanced.	S
82	-	-	-	-	-	-	-	-	- - - -	-	-	-	-	-	-	This tree was tagged twice. This is Tree 2.	-
83	*O. europaea* subsp. *cuspidata* (African Olive)	8	CD 360 440 (570)	700	6.8	2.9	G	P	10 4 3 8	M	Pass	7	Low	2B	Low	This tree is in the adjacent site. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land".	S
84	*O. europaea* subsp. *cuspidata* (African Olive)	5	CD 150 180 (230)	340	2.8	2.1	Dead	P	1 1 4 2	OM	Fail	5	Low	4	Low	This tree is in the adjacent site. It is dead. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land". This tree fails the VTA.	S
85	*O. europaea* subsp. *cuspidata* (African Olive)	5	TD 3x90 (160)	300	2.0	2.0	Dead	P	2 radial	OM	Fail	5	Low	4	Low	This tree is in the adjacent site. It is dead. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land". This tree fails the VTA.	S
86	*Phoenix roebelenii* (Dwarf Date Palm)	3	260	300	3.1	2.0	F	F	1 radial	M	Pass	4	Low	3B	Low	This tree is on the site in a raised garden bed. It has a 5° trunk lean to the west.	S

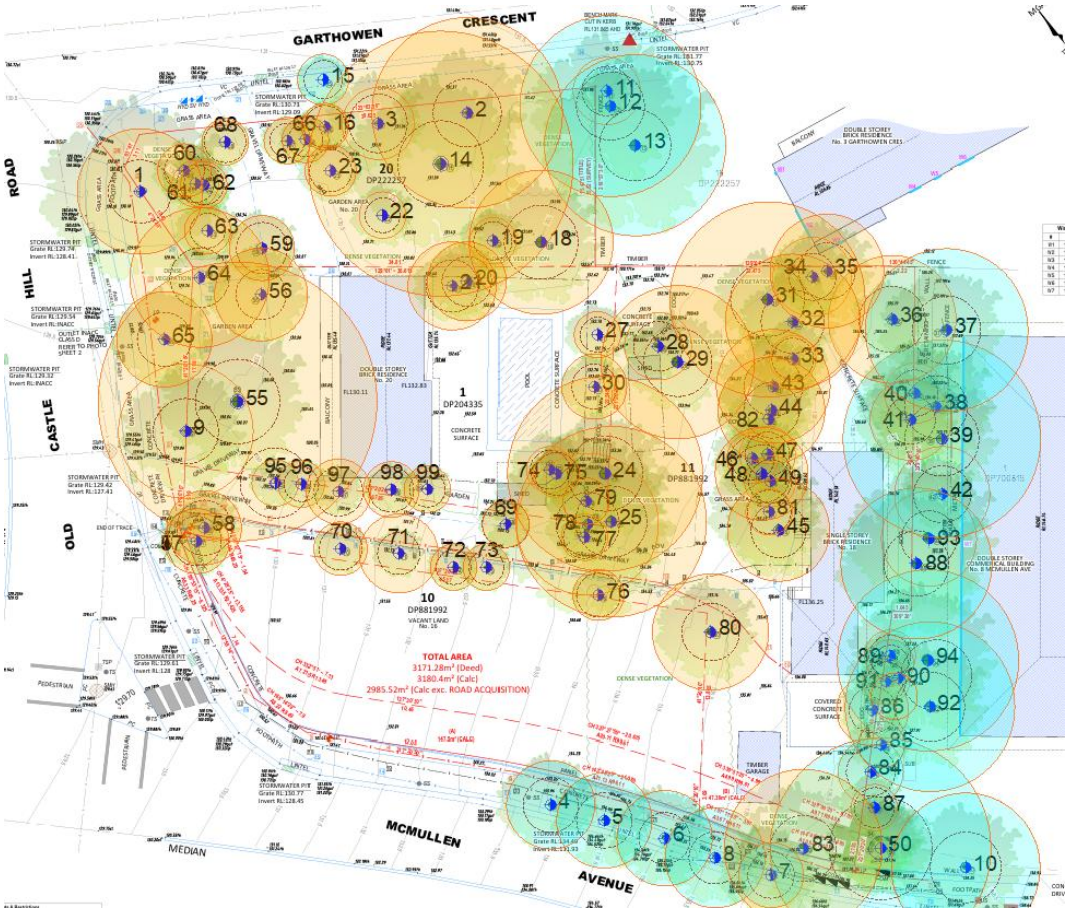
ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
87	*O. europaea* subsp. *cuspidata* (African Olive)	7	CD 100 110 (150)	210	2.0	1.7	G	G	3 1 6 1	YM	Pass	5	Low	2B	Low	This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
88	*E. scoparia* (Wallangarra White Gum)	18	540	680	6.5	2.8	P	G	6 6 8 10	M	Pass	10	Medium	3B	Low	This tree is in the adjacent site. The canopy is dying (canopy is on this site). A close inspection of the trunk revealed a large area of borer damage although no holes were seen. Probably natural death.	S
89	Dead tree	4	180	230	2.2	1.8	Dead	P	1 radial	OM	Fail	6	Low	4	Low	There is Jasmine vine in the canopy of this tree.	R
90	*Ligustrum sinense* (Small-leaved Privet)	6	110	160	2.0	1.5	G	P	2 radial	M	Pass	4	Low	3B	Low	This tree has been lopped at 1m. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
91	Dead tree	6	150	200	2.0	1.7	Dead	F	2 radial	OM	Fail	5	Low	4	Low	This tree is in the adjacent site. It is dead. There is vine in the crown.	S
92	*Eucalyptus saligna* (Sydney Blue Gum)	24	610	780	7.3	3.0	G	G	10 10 10 8	M	Pass	8	High	2B	Medium	This tree is in the adjacent site. The canopy is over this site and there is some small Deadwood.	S
93	*G. robusta* (Silky Oak)	18	340	460	4.1	2.4	G	G	6 6 8 6	M	Pass	6	Low	2B	Low	This tree is in the adjacent site. The crown is over the boundary of this site. This species is listed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land".	S
94	*E. saligna* (Sydney Blue Gum)	21	650	820	7.8	3.0	G	G	10 radial	M	Pass	8	High	2B	High	This tree is in the adjacent site. The canopy is over this site and there is some small Deadwood.	S
95	*L. indica* (Crepe Myrtle)	3	60	800	2.0	1.5	G	P	1 radial	YM	Pass	4	Low	3B	Low	This tree has been lopped. There is decay in the wounds.	S
96	*C. sasanqua* (Sasanqua)	4	CD 2x60 (80)	120	2.0	1.5	G	F	1 radial	M	Pass	4	Low	2B	Low	This tree has been lopped at 1.8m.	S

ABBREVIATIONS: **m**-metres, **mm**-millimetres, **TPZ**-tree protection zone, **SRZ**-structural root zone, **DBH**-trunk diameter @ 1.4m, **DGL**-trunk diameter at ground level, **VP**-very poor, **P**-poor, **F**-fair, **G**-good, **VG**-very good, **CD**-co-dominant trunk, **TD**-tri-dominant trunk, **QD**-quad-dominant trunk, **Multi**-5+ trunks/leaders, **J**-juvenile, **YM**-young mature, **SM**-semi mature, **M**-mature, **OM**-over mature, **REC**-recommendation, **S**-save, **R**-remove, **T**-transplant, **W**-work needed to be carried out, **Mon**-monitor, **VTA**-visual tree assessment, **Hazard Rating**-**3**=low hazard ~ **12**=dangerous, **N/A**-not applicable, **ULE**-useful life expectancy, **STARS**-Significance of a Tree, Assessment Rating System.

TREE NO.	SPECIES	HEIGHT (m)	DBH (mm)	DGL (mm)	TPZ (m) - radius	SRZ (m) - radius	HEALTH/VIGOUR	STRUCTURAL CONDITION	CANOPY SPREAD (m) N S E W	AGE CLASS	VTA	HAZARD RATING	SIGNIFICANCE RATING	ULE	STARS	COMMENT ON TREE ASSESSMENT:	REC
97	*A. negundo* (Box-elder Maple)	8	230	340	2.8	2.1	G	P	2 3 2 4	M	Pass	6	Low	3B	Low	This tree has been lopped. It is <1.5m from the residence. This species is classed as exempt in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	
98	*Pyrus communis* (European Pear)	5	200	280	2.4	1.9	F	F	2 radial	M	Pass	4	Low	3B	Low	This tree has been lopped. There is vine up the trunk.	S
99	*Citrus × limon* (Lemon Tree)	3	Multi 6x40 (100)	160	2.0	1.5	F	F	2 radial	M	Pass	4	Low	3B	Low	This tree has chlorotic leaves and a sparse canopy. This tree is a fruit tree and classed as exempt species in The Hills Shire Council's, "Tree Management Guidelines for Trees on Private Land" and may be removed without development consent.	

4. Survey



Legend

Tree Protection Zone

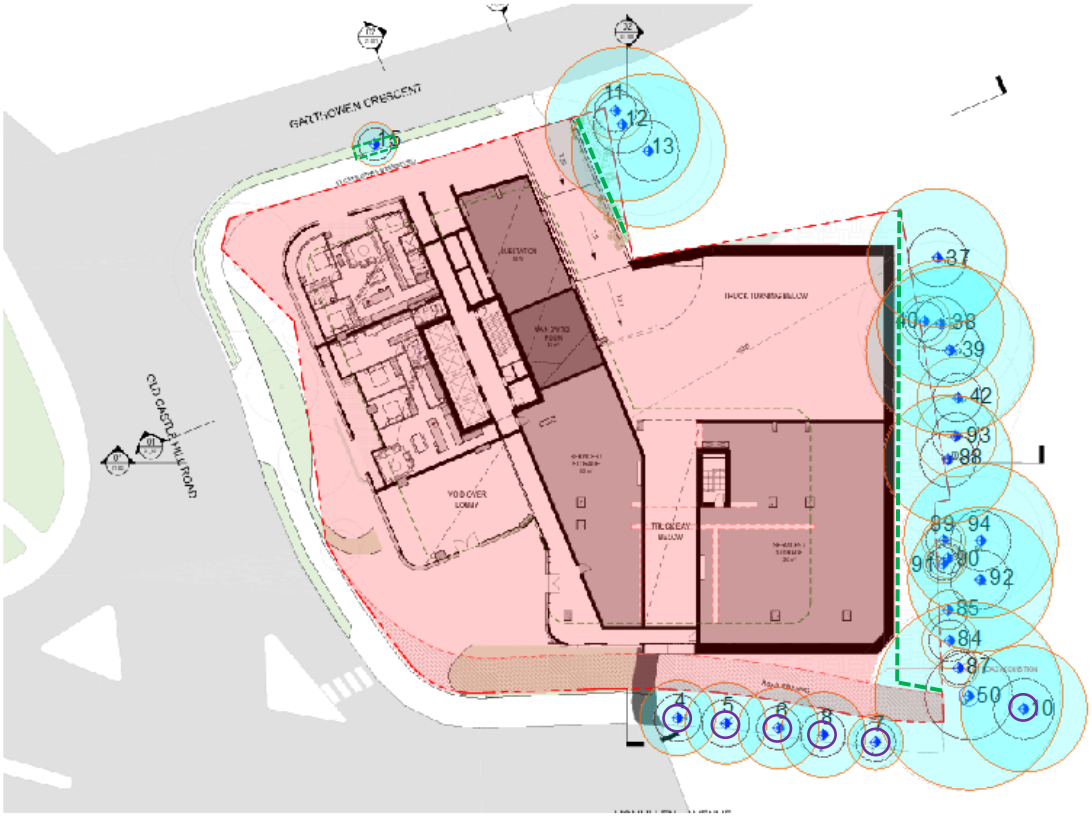
Structural Root Zone

Tree to be retained

Tree to be removed

Arbor Express

5. Arboricultural Impact Assessment and Tree Protection Plan



Legend

Tree Protection Fencing - - - - - - - Trunk Protection ○ Tree Protection Zone Encroachment ■

6. Recommendations

Tree Removal

Trees 1, 2, 3, 9, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 41, 43, 44, 45, 46, 47, 48, 49, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 86, 92, 94, 95, 96, 97, 98 and 99 are located within the footprint of the development and must be removed for the development to proceed.

Tree Protection

A total of 24 individual trees are proposed for retention. The following mitigation measures will be required:

- The tree protection plan (Section 5) must be implemented.
- Tree protection fencing is required around the TPZs (where viable) of Trees 11, 12, 13, 15, 37, 38, 39, 40, 42, 50, 84, 85, 87, 88, 89, 90, 91 and 93.
- Trunk protection is required around Trees 4-8 and 10 as it will not be viable to install tree protection fencing.
- All trees to be retained must be protected in accordance with AS 4970-2025, details of which are included in Appendix D.
- No over-excavation, shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist.

TPZ Encroachments

Tree #	TPZ Encroachment	Encroachment Type
4	8.4%	Minor
5	9.5%	Minor
6	11.9%	Moderate
7	4.7%	Minor
8	15.8%	Moderate
10	0.0%	Nill
11	0.0%	Nill
12	12.4%	Moderate
13	7.4%	Minor
15	0.0%	Nill
37	9.1%	Minor
38	8.4%	Minor
39	11.3%	Moderate
40	0.0%	Nill
42	0.0%	Nill
50	8.0%	Minor
84	0.0%	Nill
85	0.0%	Nill
87	0.0%	Nill
88	4.4%	Minor
89	0.0%	Nill
90	0.0%	Nill
91	0.0%	Nill

Tree #	TPZ Encroachment	Encroachment Type
93	0.0%	Nill

Trees 4, 5, 7, 10, 11, 13, 15, 37, 38, 40, 42, 50, 84, 85, 87, 88, 89, 90, 91 and 93 exhibit either minor TPZ encroachment or no encroachment as a result of the proposed works. In accordance with AS 4970–2025, this level of impact is considered acceptable, and the development is expected to have minimal effect on the long-term health and vitality of these trees.

Trees 6 and 8 have a moderate encroachment associated with the proposed development. However, existing built infrastructure such as the adjoining path lies between the trees and the construction area. As a result, it is anticipated that only a minimal number of roots would be present within this zone. Accordingly, the proposed works are expected to have a negligible impact on the vitality of these two trees.

Trees 12 and 39 have moderate encroachments of 12.4% and 11.3% respectively, which are only marginally above the 10% threshold specified in AS 4970–2025. Given the high vitality of both trees and the relatively minor exceedance of the acceptable limit, it is anticipated that the proposed development will not have any significant long-term impact on their health or vitality.

7. Construction Hold Points for Tree Protection

Project Arborist

Below is a sequence of hold points requiring project arborist certification throughout the development process. It provides a list of hold points that must be checked and certified. All certifications must be provided in written format upon completion of the development. The final certification must include details of any instructions for remediation undertaken during the development. The principle contractor should be responsible for implementation of all tree protection requirements.

Hold Point	Stage	Date Completed and Signature of Project Arborist Responsible
Project Arborist to assess and certify that tree protection has been installed in accordance with AS 4970-2025 prior to works commencing at site.	Prior to development work commencing	
Project Arborist to supervise all manual excavations and root pruning inside the TPZ of any tree to be retained. Project Arborist to approve all pruning of roots greater than 30mm inside TPZ. All root pruning of roots greater than 30mm in diameter must be carried out by an AQF level 5 Arborist.	Construction	
After all demolition, construction and landscaping 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.	Upon completion of the development	

8. References

Barrell, J. 2001. 'SULE: Its use and status into the new millennium', in *Management of mature trees, Proceedings of the 4th NAAA Tree Management Seminar*, NAAA, Sydney.

Brooker M.I.H, Kleinig D.A. 2006. *Field Guide to Eucalypts*. Volume 1, South-eastern Australia, 3rd ed Bloomings Books, Melbourne

Draper, B. and Richards, P., 2009. *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Harris, R.W., Matheny, N.P., and Clark, J.R., 1999. *Arboriculture: integrated management of landscape trees, shrubs, and vines*, Prentice Hall, Upper Saddle River, New Jersey.

Mattheck, C. and Breloer, H. 1994. 'Field Guide for Visual Tree Assessment' *Arboricultural Journal*, Vol 18 pp 1-23.

Mattheck, C. 2007. *Updated Field Guide for Visual Tree Assessment*. Karlsruhe: Forschungszentrum Karlsruhe. IACA 2010.

Robinson L, 2003. *Field Guide to the Native Plants of Sydney*, 3rd ed, Kangaroo Press, East Roseville NSW

Standards Australia 2003. *Composition, Soil and Mulches, AS 4454 (2003)*, Standards Australia, Sydney.

Standards Australia 2007. *Australian Standard: Pruning of amenity trees, AS 4373 (2007)*, Standards Australia, Sydney.

Standards Australia 2025. *Australian Standard: Protection of trees on development sites, AS 4970 (2025)*. Standards Australia, Sydney.

Appendix A: Glossary of Terms

Abiotic - Pertaining to non-living agents, e.g. environmental factors.

Anchorage - The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree.

Branch:

- Primary. A first order branch arising from a stem.
- Lateral. A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches.
- Sub-lateral. A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs.

Branch collar - A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base.

Cambium - Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally.

Canker - A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria.

Compartmentalisation - The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region.

Condition - An indication of the physiological condition of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree.

Crown/Canopy - The main foliage bearing section of the tree.

Crown lifting - The removal of limbs and small branches to a specified height above ground level.

Crown reduction/shaping - A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape.

DAB (Diameter Above Buttress) - Trunk diameter measured above the root buttress.

Defect - In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Dieback - The death of parts of a woody plant, starting at shoot-tips or root-tips.

Disease - A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms.

DBH (Diameter at Breast Height) - Stem diameter measured at a height of 1.4 metres or the nearest measurable point. Where measurement at a height of 1.4 metres is not possible, another height may be specified.

Deadwood - Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard.

Epicormic shoot - A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot.

Heartwood/false-heartwood - The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood.

Included bark (ingrown bark) - Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact.

Lions tailing - A term applied to a branch of a tree that has few if any side-branches except at its end and is thus liable to snap due to end- loading.

Occlusion - The process whereby a wound is progressively closed by the formation of new wood and bark around it.

Pruning - The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs.

Reactive Growth/Reaction Wood - Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth).

Ring-barking - The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage.

Stress - In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature.

SRZ (Structural Root Zone) - The area around the base of the tree required for the tree's stability in the ground.

Topping - In arboriculture, the removal of the crown of a tree, or of a major proportion of it.

TPZ (Tree Protection Zone) - A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

Veteran tree - Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.

Vigour - The expression of carbohydrate expenditure to growth (in trees).

Appendix B: Retention Value

Evaluating Sustainability and Landscape Significance to Determine Retention Value	
Retention Value	**Criteria and Categories**
High	These trees are considered to be worthy of preservation. As such, careful consideration should be given to their retention as a priority. Proposed site design and placement of buildings and infrastructure should consider the TPZ to minimize any adverse impact. In addition to TPZs, the extent of the canopy should also be considered, particularly in relation to a high-rise development. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
Moderate	The retention of these trees is desirable. These trees should be retained as part of any proposed development, if possible; however, these trees are considered to be less critical for retention. If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
Low	These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. These trees should not be considered as a constraint to future development of the site.
Very Low	These trees are considered to be potentially hazardous or very poor specimens or may be environmental or noxious weeds. The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Appendix C: Safe Useful Life Expectancy (SULE)

	1 LONG SULE	2 MEDIUM SULE	3 SHORT SULE	4 REMOVALS	5 MOVED OR REPLACED
	Long: appeared to be retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Medium: appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Short: appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance.	Removal: trees which should be removed within the next 5 years.	Moved or Replaced: Trees which can be readily moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live between 15 and 40 more years.	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5 metres (m) in height.
B	Trees that could be made suitable for long-term retention by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through damage, structural defect, instability or recent toss of adjacent trees.	Young trees less than 1 5 years old but over 5m in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Dangerous trees through structural detects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth'.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are' clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to	

	1 LONG SULE	2 MEDIUM SULE	3 SHORT SULE	4 REMOVALS	5 MOVED OR REPLACED
				provide space for new planting.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for the reasons given in A) to F).	

Appendix D: Tree Protection Guidelines

The following tree protection guidelines must be implemented during the construction period if no tree specific recommendations are detailed.

Tree Protection Zone Establishment

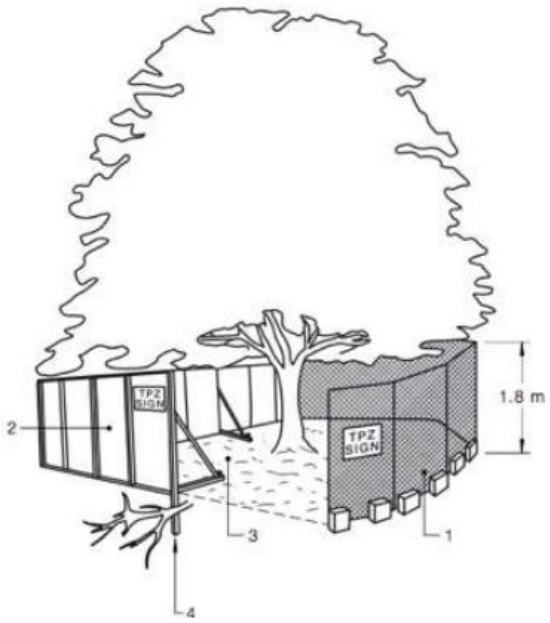
Prior to the introduction of any machinery or materials onto the site, and before initiating any works such as bulk earthworks, fencing should be installed. Once in place, any alterations or removal of protective fencing must receive approval from the project arborist. Access to the TPZ must be restricted by securing it appropriately. The establishment and management of the Tree Protection Zone should adhere to the following guidelines:

1) Specify the trees within and around the subject allotment that are slated for preservation and protection during the development process. This could involve trees on neighboring properties as well as street trees.

2) The Tree Protection Zone radius should align with the calculation specified in the Individual Tree Data and Imagery.

3) Please locate and mark the alignment of protective fencing. This alignment may differ from the actual TPZ radius, taking into account areas where acceptable encroachment is permitted (determined in consultation with the project arborist) and site access needs. Protective fencing is necessary only within the subject allotment, assuming appropriate boundary fencing is already installed.

4) Set up protective fencing as depicted in the accompanying image. Adhere to the relevant fencing requirements outlined in AS 4687 for temporary fencing and hoardings. Additionally, affix shade cloth or a similar material to mitigate the transfer of dust, particulate matter, and liquids into the protected area.



Legend:

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

Protection when works within the tree protection zone is required

If the fencing has been reduced from the full TPZ radius to accommodate vehicle or machinery access, it's crucial to implement heavy-duty ground protection and trunk protection. This measure is essential to support the passage of vehicles like excavators, cranes, pier drilling machinery, hydro-excavation trucks, and other necessary equipment.

The heavy-duty ground protection includes:

1) A layer of geotextile fabric on top of the natural ground.

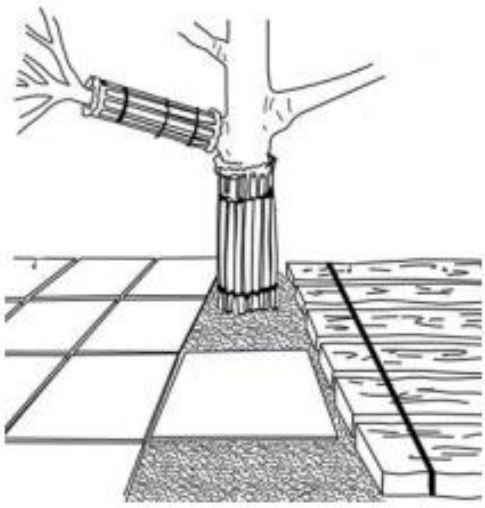
2) Cover the geotextile with a 100mm thick layer of organic mulch.

3) Install ground protection on top of the organic mulch (Bog mat or timber battens)

Trunk protection will include protection to the trunk and branches of trees as shown below. A minimum height of 2m is recommended.

1) Install breathable padding or hessian around the trunk of the tree.

2) Install closely spaced timber battens around the trunk, with the top edge protecting the trunk/bark by the padding/hessian. Secure with strapping

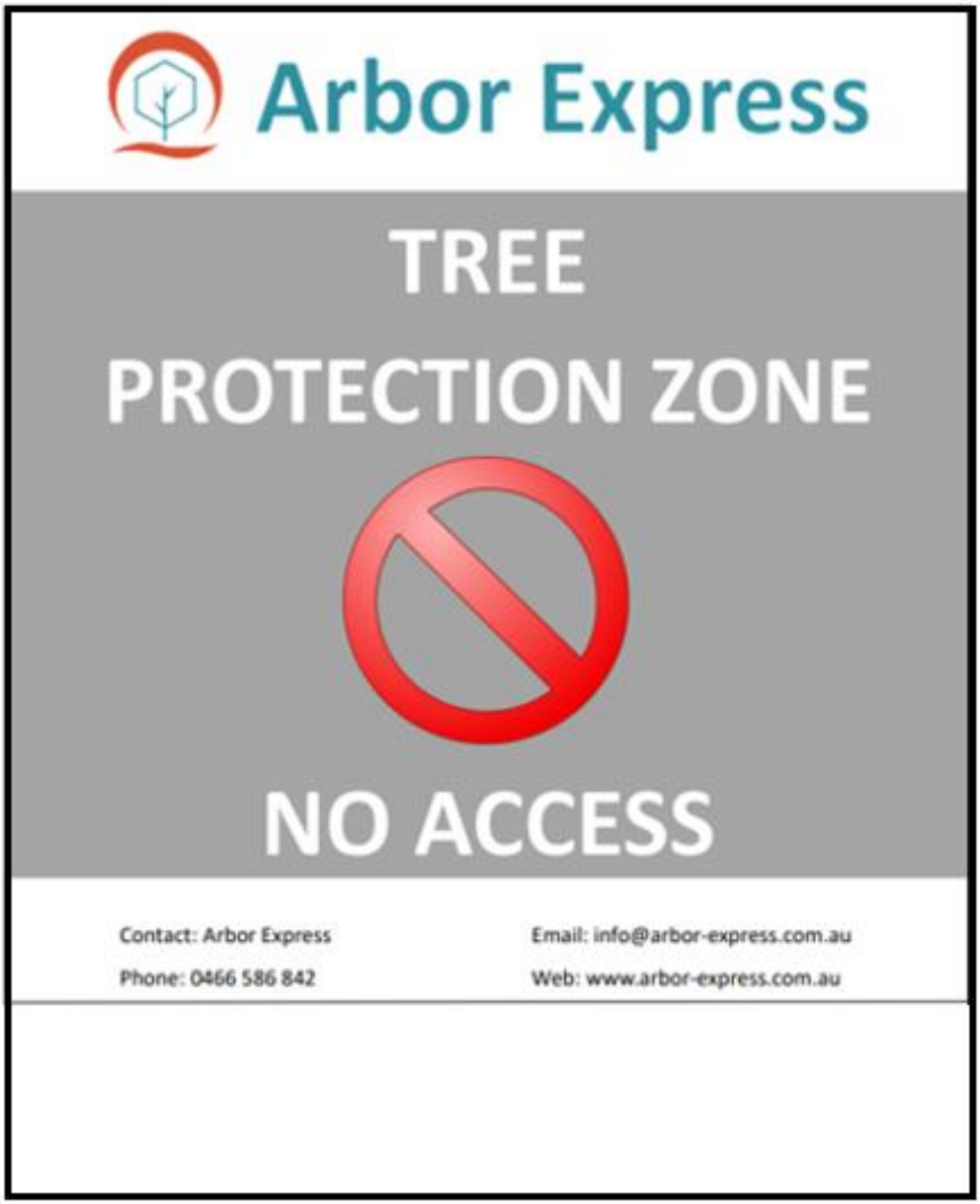


Notes:
1. For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2. Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Underground Services

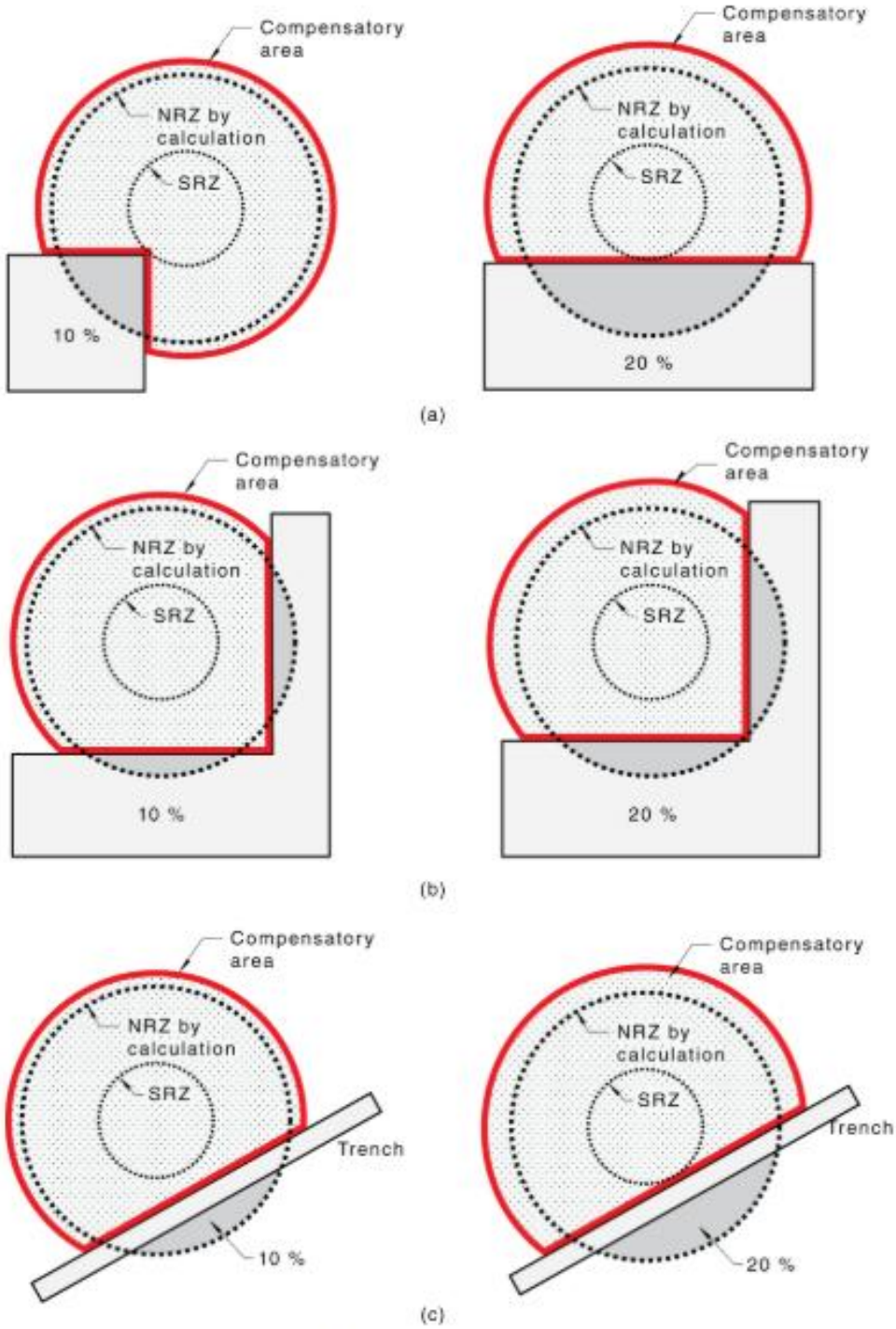
Whenever feasible, route all underground services away from the TPZ. If installing underground services within the TPZ becomes unavoidable, utilize non-intrusive methods such as horizontal directional drilling (HDD), non-destructive excavation (NDE) techniques like hydro-vacuum or Air Spade, or manually excavated trenches. Ensure that horizontal drilling or boring is carried out at a depth of at least 600 mm below grade. It's important to note that trenching for services is classified as "excavation." The project arborist should assess the potential impacts of drilling and bore pits on retained trees.

Example of a Tree Protection Sign



Appendix E: Encroachment into the Tree Protection Zones

Figure 1 — Sample minor and moderate encroachments



NOTE These examples are not to scale and are for illustrative purposes. The proposed encroachment is considered minor if it is less than or equal to 10 % of the area of the NRZ, has not had recent TPZ encroachments and is outside of the SRZ (see Clause 3.4). The proposed encroachment is considered moderate if it is greater than 10 % and less than or equal to 20 % of the area of the NRZ and is outside of the SRZ (see Clause 3.4).

Locations

- Sydney
- NSW South Coast (Wollongong to Bega)
- NSW Central Coast (Gosford to Newcastle)
- Southern Highlands
- Blue Mountains
- Canberra and Queanbeyan
- Regional NSW

Services

- Arborist Reports for Developments
- Tree Root Mapping
- Project Arborist
- Tree Health and Safety Assessments
- Tree Structural Testing (Resistograph)
- Flora & Fauna Assessments and Project Ecologist
- Vegetation Management Plans

Contact Us

- 0466 586 842
- Info@arbor-express.com.au