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Member of the Australian Institute of Horticulture and Arboriculture Australia

# **ARBORIST'S REPORT**



PROPERTY OF THE PROPOSED	84 Brook Street, Muswellbrook NSW
DEVELOPMENT:	
NUMBER OF SUBJECT TREES:	6
DATE OF REPORT:	7 December 2022
REQUESTED BY:	Janssen Designs

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#### **REPORT SUMMARY**

The report recommends the removal of Trees 1, 4, 5 and 5 smaller [non subject] trees, and the retention and protection of Trees 2 and 3 for a proposed development in accordance with the Muswellbrook Development Control Plan 2009.

#### INTRODUCTION

#### **Project Brief**

Assess the condition of the subject trees and any other declared vegetation within 5 metres of the proposed development and supply a written report.

#### **Methodology**

A ground level Visual Tree Assessment (VTA) was made of the subject trees and other vegetation on the 30<sup>th</sup> of November 2021. No internal testing e.g. Resistograph or drilling, or excavation was carried out. The trees were assessed from observations made during the inspection.

Tree dimensions were measured with a laser device.

The trunk diameter (DBH) for Tree 2 is an estimate as the base is surrounded by large shrubs and a spreading Date Palm on the west side.

#### SITUATION OVERVIEW

The subject trees and others may be affected by the proposed development.

#### SITE LOCATION

N



The site location (indicated).

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An aerial photograph (Six Maps -2018) used as a site plan, showing the northern end of the property (left) and the southern end, with the positions of the trees.

#### SITE DESCRIPTION

The site is a large block facing SSW to Brook Street, generally flat along the southern half and sloping slightly up to the north boundary. Trees 1, 2 & 3 are located in the north section, and Trees 4, 5 & 6 are located in the south section, with the centre mostly open.

Various shrubs/small trees to 5 metres high (some declared vegetation) are located toward the southern end, and these consist of: *Ulmus parvifolia* (Chinese Elm – coppiced) *Lagerstroemia indica* (Crepe Myrtle) *Bauhinia* sp. (Butterfly Tree) *Ligustrum lucidum* (Large Leaved Privet)

Some neighbouring trees are located in the east and west properties, and these are discussed in a separate section, p. 10.

#### SUMMARY OF ACTION PROPOSED FOR THE SUBJECT TREES

In accordance with the Muswellbrook Development Control Plan 2009, Section 3, Site Analysis:

Tree 1 is proposed for removal as it is structurally defective and presents a high risk to the subject and adjacent properties.

Trees 4 and 5 are proposed for removal for the proposed development due to the amount of encroachment required into their TPZs. It is considered they cannot be adequately protected during and after construction in accordance with *AS* 4970 (2009), *Protection of Trees on Development Sites*.

Tree 6 is proposed for removal for the proposed development due to the amount of encroachment required into its TPZSRZ.

A specimen of *Ligustrum lucidum* (Large Leaved Privet), 5 metres high, in poor condition is located adjacent to Tree 1. This specimen should be removed due to its condition and undesirable status.

A specimen of *Morus nigra* (Mulberry), 4 metres high, and *Duranta erecta* (Duranta), 4 metres high, both in good condition are located adjacent to Tree 3. These specimens should be removed to facilitate more open space.

The 5 specimens of Chinese Tallow between Trees 5 and 6 are also proposed for removal due to the amount of encroachment required.



SITE PLAN OF THE PROPOSED DEVELOPMENT

A supplied plan of the proposed development.

# Table 1.

Tree Identification	Identification Description		Health	Structure	U.L.E.
			Fair	Poor	(Useful Life
					Expectancy)
Tree 1	<u>Age</u> :	Mature	Description:	Description:	The tree has
Botanical Name	<u>CBH</u>	2780	Leaf density of 80%	Co – dominant stems from	been given a
Eucalyptus	(mm)	000	coverage.	2 metres high.	ULE of 4C due
nobilis	(mm)	890		6	to the wood
Common Name	Height	20	Some deadwood to 100	South stem (the major stem)	decay fungi,
Ribbon Gum	(metres)	20	mm diameter.	has a partial occlusion from	the large cavity
Kibboli Gulli	Canopy	16 X 12	Deadwood hanger 5	the stem union to 4.5 metres	and the
	<u>Spread</u>	10 11 12	metres long x 70 mm	high, approximately 300	termites.
	(metres)		diameter.	mm deep & wide).	
				Termite activity visible in	
			Partial occlusion from	this cavity	
			ground level to 1.8 metres		
			high with wood decay		
			fungus (Phellinus)		
			infection and active		
			termites present.		
Tree 2	<u>Age</u> :	Mature	Health	Structure	The tree has
Botanical Name			Good	Good	been given a
Eucalyptus	CBH	N/A	Description:	Description:	ULE of 1B due
nohilis	(mm)		Laaf dansity 80%	Appears structurally sound	to the age and
noonis	<u>DBH</u>	600		with good form (agrical	generally good
Common Nama	(mm)	(estimated)	coverage.	inspection required to	condition.
Dibbon Cum	(metres)	10	Slight deadwood to 80	aconfirm)	
Kibbon Gum	Conony	15 5 V	mm diameter.		
	<u>Callopy</u> Sprood	13.3 A	Some deadwood stubs to	Broken branch (south) at 10	
	(metres)	1/	120 mm diameter	metres high.	
	(metres)			Slight parrot damage	
Troo 2	A go:	Moturo	Ugalth	Structure	The tree has
1100 3	<u>Age</u> .	Mature	Cood	Cood	hoon given a
Botanical Name	CDU	12(0	Guu	Good	ULE of 1P due
Jacaranda	(mm)	1300 (at 1 metre high)	Description:	Description:	to the age and
mimosifolia	(IIIII)	1110	Leaf density 70%	Co – dominant stems from	
	DBH	560	coverage.	400 mm high (stem union	generally good
	(mm)	(combined)	Slight deadwood to 80	appears stable).	condition.
Common Name	Height	11	mm diamatar	West stor further	
Jacaranda	(metres)		mm diameter.	west stem further co –	
	Canopy	11.5 X	Slight infestation of	aominant from 1.4 metres	
	Spread	13.5	Madeira Vine.	high (stem union appears	
	(metres)			stable).	

### Table 1 cont.

Tree Identification	Descr	iption	Health	Structure	U.L.E.
			Good	Fair	(Useful Life
Tree 4	Age:	Mature	Description:	Description:	The tree has
Botanical Name	CBH (mm)	2130	Leaf density of 90%	Broken scaffold and some	been given a ULE of 3B due
galli	DBH (mm)	680	Some deadwood to 80 mm	wood).	to the position
Common Name	Height	7.5	diameter.	Numerous small epicormic	(located in the creek) and the
Cockspur Coral	(metres)	11 5 V		shoots.	undesirable
Iree	<u>Canopy</u> Spread	11.5 A 12			species
	(metres)	12			classification.
Tree 5	Age:	Mature	Health	Structure	The tree has
<b>Botanical Name</b>			Good	Good	been given a
Livistona	<u>CBH</u>	1580	Description:	Description:	ULE of 2B due
australis	(mm) DBH	500	Leaf density 90%	Structurally sound with	to the age and
	(mm)	200	coverage.	good form.	generally good
Common Name	<u>Height</u>	21			condition.
Cabbage Palm	(metres)				
	<u>Canopy</u>	4 X 4			
	Spread (metres)				
Tree 6	<u>Age</u> :	Mature	Health	Structure	The tree has
<b>Botanical Name</b>			Good	Fair (form)	been given a
Corymbia	<u>CBH</u>	2170	Description:	Description:	ULE of 2B due
citriodora	(mm)	600	Leaf density 70%	Co – dominant stems from	to the age &
	(mm)	090	coverage.	1.8 metres high (stem union	good condition,
Common Name	Height	14	Slight deadwood to 50	appears stable).	although has
Lemon Scented	(metres)		mm diameter	Structurally sound with fair	infrastructure
Gum	Canopy	29.5 X		form	over the
	Spread	23			soution of root
	(metres)				section of root
					plate.

ULE is an acronym for <u>Useful Life Expectancy</u>. There are a number of ULE categories that indicate the safe useful life anticipated for each tree. Factors such as the location, age, condition and health of the [particular] tree are significant to determining this rating. ULE is a broad classification as trees are living organisms and changes can occur over time.

Tree 1 is in fair – health, structurally defective with a fair shape.

Tree 2 is in good health, structurally sound with a good shape (clearing around the base and an aerial inspection required to confirm).

Tree 3 is in good health, structurally sound with a fair shape.

Tree 4 is in good health, structurally fair with a fair shape.

Tree 5 is in good health, structurally sound with a good shape.

Tree 6 is in good health, structurally sound with a fair shape.

The ULE classification for each tree is assessed as it is at the time of the inspection, and the proposed development is not included as part of the ULE assessment.

#### TREE PROTECTION ZONES (TPZ) & STRUCTURAL ROOT ZONES (SRZ)

Table 2.

In accordance with AS 4970 (2009), *Protection of Trees on Construction Sites*, Table 2 shows the TPZ and SRZ applicable to each tree (metres radius from the centre of the trunk).

Tree	TPZ	SRZ	Tree	TPZ	SRZ	Tree	TPZ	SRZ	Tree	TPZ	SRZ
<mark>1/</mark>	10.6	3.2	<mark>2/</mark>	7.2	2.8	<mark>3/</mark>	6.7	2.7	<mark>4/</mark>	8.1	2.9
<mark>5/</mark>	3.0	N/A	<mark>6/</mark>	8.3	2.95						

The proposed encroachment for the trees is major, however, the north end will be soil preparation and turf installation. The encroachment for Trees 4, 5 & 6 (and the 5 specimens of Chinese Tallow) will be concrete car parking and some garden installation.

Trees 4 & 5 are located in the creek and will require removal, and Tree 6 is located in the adjacent property.

Regarding Trees 4, 5 & 6:

Clause 3.3.3 (Major encroachment) of AS 4970 states:

"If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ (see Clause 3.3.5), the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ".

As Trees 4 & 5 are located in the creek, and Tree 6 is located in the neighbouring property, adjacent to the boundary. Due to these factors, the Arborist cannot demonstrate that these trees would remain viable.

Table 3. Encroachment Percentages for each tree.

The proposed development will require severe encroachment into each TPZ/SRZ. Table 3 shows the estimated encroachment required for each tree.

Tree	TPZ	Encroachment	SRZ	Encroachment	Tree	TPZ	Encroachment	SRZ	Encroachment
1/	10.6	67.6%	3.2	98.38%	<mark>2/</mark>	7.2	59.09%	2.8	87.9%
<mark>3/</mark>	6.7	56.19%	2.7	62.86%	<mark>4/</mark>	8.1	100%	2.9	100%
<mark>5/</mark>	3.0	62.65%	N/A	N/A	<mark>6/</mark>	8.3	28.73%	2.95	28.93%

From the percentages in Table 3, the following impacts are expected:

No impact – N/A

Slight impact – Trees 1, 2 & 3 (soil preparation and turf installation)

Moderate impact – N/A

Severe impact – Trees 4, 5 & 6

The effects of root loss or damage by any means, as required by the development could include:

- Loss of stability if structural woody roots or even lower order woody roots are cut
- Reduction in water and nutrient uptake
- An eventual loss of leaves, reduced photosynthesis and thus sugar production
- Decay as a result of wounding
- Predisposition to soil borne pathogens

#### TREE RETENTION VALUE

Based on species, size and position (landscape value), e.g., trees native to the area, larger size with generally good form and visually prominent (not located amongst buildings or other vegetation) would have a moderate to high retention value. The retention value may be reduced where a tree is not visually prominent (amongst other vegetation) or has less than good form).

Smaller trees or those exempt from Council's policy would have a low retention value.

The following retention values have been assigned to each tree.

Tree 1		Tree 2	
Tree Sustainability	Less than 5 years	Tree Sustainability	Greater
Landscape Significance:	High	Landscape Significance:	High
Retention Value:	Low	Retention Value:	High
	·		
Tree 3		Tree 4	
Tree Sustainability	15 – 40 years	Tree Sustainability	5 – 15 y
Landscape Significance:	Moderate	Landscape Significance:	Low
Retention Value:	Moderate	<b>Retention Value:</b>	Low
Tree 5		Tree 6	
Tree Sustainability	15 – 40 years	Tree Sustainability	15-40
Landscape Significance:	Low	Landscape Significance:	Very Hi
<b>Retention Value:</b>	Low	<b>Retention Value:</b>	High

#### **NEIGHBOURING TREES**

21 Sowerby Street:

A dead tree 12 metres high is located in the SE corner, directly adjacent to the fence (overhangs the subject property). This tree must be removed.

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23 Sowerby Street:

Four specimens of *Fraxinus griffithii* (Evergreen Ash), all 5 metres high, 1.5 metres from the fence (minimum 2 metre radius TPZ). 500 mm encroachment into the subject property, no impact expected.

One specimen of *Callistemon viminalis* (Weeping Bottlebrush), 8 metres high, 1.5 metres from the fence (estimated TPZ 4.4 metres radius). 2.9 metres encroachment into the subject property, slight impact expected.

86 Brook Street (adjacent to the boundary with the subject property):

One specimen of *Jacaranda mimosifolia* (Jacaranda), 13 metres high, TPZ/SRZ 6.8/2.6 metres radius. This tree is approximately 3 metres from the boundary, and the TPZ encroaches [into the subject property] by 3.8 metres.

One specimen of *Triadica sebifera* (Chinese Tallow), 8 metres high, TPZ/SRZ 4.5/2.2 metres radius. This tree is approximately 3 metres from the boundary, and the TPZ encroaches [into the subject property] by 1.5 metres.

The supplied survey shows one of the smaller specimens of Chinese Tallow as being in the neighbouring property as well. This tree is within the TPZ of the [neighbouring] Jacaranda.

Pruning or removal of neighbouring trees must have the permission of Council and the [tree's] owner.

#### TREE PROTECTION PLAN

The following tree protection measures should be implemented by the construction supervisor for any retained trees:

- Steel mesh fencing [around the TPZs] would be impractical, the TPZ of each tree should be measured and marked with road marking paint, and construction staff informed that the area is a Tree Protection Zone.
- As the proposed encroachment exceeds 10% of the area of the TPZs, root mapping may be required for Tree 6 and the neighbouring trees at the sought end to identify root positions.
- Concrete should be laid above ground on a 75 100 mm thick layer of 15 20 mm aggregate, so as to not disturb any roots beneath, may be an option. This may reduce the likelihood of infrastructure damage in the future from root invasion.
- The aggregate allows air and moisture exchange with the soil and tree roots (all plant roots need air as well as water, which is why plants will decline in health if the surrounding soil becomes compacted or sealed).
- The use of honeycomb concrete slabs for a car park would also allow air and moisture exchange with the soil and tree roots. Their installation still requires minimal root disturbance.
- . Permeable paving is preferred if possible.
- Pedestrian traffic should be kept to a minimum during construction.
- No materials are to be stored within the TPZ during construction.
- Vehicles must not be parked within a TPZ during construction.

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#### TREE PROTECTION PLAN CONTINUED

- Any excavation within a TPZ/SRZ should be dug using hand tools or hydraulic or pneumatic excavating equipment, e.g. air spade.
- Some root pruning within the TPZ is acceptable, however, excavation machinery such as backhoes and hand tools (shovels etc.) must not be used to cut tree roots. Root pruning must be carried out using secateurs or a saw.
- Any roots over 50 mm diameter within the TPZ requiring pruning should be inspected by an AQF 5 Arborist to ensure their removal will not have an adverse effect on the [particular] tree.
- Some encroachment into the SRZs of retained trees is required for the development, and any root pruning should not be carried out in this zone. If such pruning is required, it should be discussed with the project Arborist.
- Any pruning of the tree canopies must be carried out by a qualified contractor in accordance with AS 4373 (2007), *Pruning of Amenity Trees*, and within Council's policy.

#### SIGNIFICANCE CHECKLIST

The subject trees have no heritage significance or any listing on the Biodiversity Conservation Act 2016, No 63, Part 4, Threatened Species and Threatened Ecological Communities or Council's Tree Register.

No indications of faunal activity were observed in the trees, such as scratches on the trunks, nests or nesting hollows or scat around the bases.

#### CONCLUSION

Tree 1 is structurally defective and the risk it poses will increase substantially as use under the canopy increases. This tree requires removal.

Trees 2 & 3 are retainable with some remedial action.

Trees 4, 5 & 6 and the adjacent smaller Chinese Tallows require removal due to achieve best use of the property.

The neighbouring Jacaranda and Chinese Tallow (not shown on the supplied plan) are retainable by following the requirements of *AS* 4970, as described in the Tree Protection Plan.

The shrubs and small trees within the property require removal.

The alternatives to tree removal would require an attempt at alternative plans. Achieving best use of the property, physically and economically, prevents any major design changes in relation to the trees.

The removal of Trees 1, 4, 5 & 6, the and the adjacent smaller Chinese Tallows and replacement with a new planting is seen as fitting for the site.

#### RECOMMENDATIONS

Based on the observations made during the inspection, information supplied, personal communications with the contact person, and the considerations in the conclusion, it is recommended that Trees 1, 4, 5 & 6 and the smaller trees be removed, and compensatory planting be carried out.

Further recommended is the retention and protection of Trees 2, 3, 6 and the neighbouring trees.

#### COMPENSATORY PLANTING

The following species/cultivars are suggested for compensatory planting:

Corymbia 'Baby Orange'	Corymbia 'Baby Scarlet'
Corymbia 'Min Orange'	Corymbia 'Mini Red'
Corymbia 'Summer Red'	Elaeocarpus reticulatus
Syzygium "Cascade"	Syzygium "Resistance"
Note The above species/cultivars a	re suggestions only.

## PHOTOGRAPHS



Tree 1 viewed from the south.



Cavity in the largest stem of Tree1.



Wood decay fungal bracket at the base of Tree 1.



Tree 2 viewed from the south.



Base of Tree 2 viewed from the west.



Tree 3 viewed from the south.



Tree 4 viewed from the west, with the top of Tree 5 behind.



Tree 5 (indicated) viewed from the west.



The smaller trees and neighbouring trees adjacent to Tree 6.

Stephen Williams

Stephen Wellef.

AQF 5 Arborist Hunter Horticultural Services

The recommendations given in this report assumes that reasonable maintenance will be provided by a qualified Arboriculturist working to Australian Standard 4373 (2007), *Pruning Amenity Trees* and AS 4970 (2009), *Protection of Trees on Development Sites*.

Incorrect tree work practices can significantly accelerate tree decline and increase hazard potential.

No liability is accepted for any effects if the recommendations in this report were not followed.

The information in this report does not take into account the effects of unforeseen circumstances, severe weather, external organisms or tree aging on the subject trees.

#### ACKNOWLEDGEMENTS

Aerial Photographs courtesy of Google Earth and Six Maps.

#### REFERENCES

AS 4970 (2009), Protection of Trees on Development Sites.

AS 4373 (2007), Pruning of Amenity Trees.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

NSW Biodiversity Conservation Act 2016.

NSW Flora Online (https://plantnet.rbgsyd.nsw.gov.au).

Treetec online calculator, https://www.treetec.net.au/tree-arborist-victoria/tpz\_srz\_dbh\_calculator/

Tree Protection Zone (TPZ) Encroachment Calculator, //proofsafe.com.au/tpz\_incursion\_calculator.html Muswellbrook Development Control Plan 2009.

1

2

3

4

# 

		Common		Height	CBH	DBH	Ca	anopy Spi	ead (m)	)		<u>.</u>		
NO	Botanic Name	Name	Age	(m)	(mm)	(mm)	North	South	East	West	Health	Structure	ULE	Comments
1	Eucalyptus nobilis	Ribbon Gum	М	20	2780	890	10	6	5	7	F	Ρ	4C	Leaf density of 80% coverage. Some deadwood to 100 mm diameter. Deadwood hanger 5 metres long x 70 mm diameter. Partial occlusion from ground level to 1.8 metres high with wood decay fungus ( <i>Phellinus</i> ) infection and active termites present. Co – dominant stems from 2 metres high. South stem (the major stem) has a partial occlusion from the stem union to 4.5 metres high, approximately 300 mm deep & wide). Termite activity visible in this cavity. Remove tree as unacceptable risk.
2	Eucalyptus nobilis	Ribbon Gum	Μ	18	N/A	600 (estimated)	8	7.5	9	8	G	G	1B	Leaf density 80% coverage. Slight deadwood to 80 mm diameter. Some deadwood stubs to 120 mm diameter. Appears structurally sound with good form (aerial inspection required to confirm). Broken branch (south) at 10 metres high. Slight parrot damage. Major encroachment required (soil preparation and turf installation only). Can be adequately protected during and after construction. Retain and protect as discussed
3	Jacaranda mimosifolia	Jacaranda	Μ	11	1360 1110	560	5	6.5	7	6.5	G	F (form)	1B	Leaf density 70% coverage. Slight deadwood to 80 mm diameter. Slight infestation of Madeira Vine. Co – dominant stems from 400 mm high (stem union appears stable). West stem further co – dominant from 1.4 metres high (stem union appears stable). Major encroachment required (soil preparation and turf installation only). Can be adequately protected during and after construction. Retain and protect as discussed.
4	Erythrina crista- galli	Cockspur Coral Tree	M	7.5	2130	680	6.5	5	6	6	G	F	3B	Leaf density 90% coverage. Some deadwood to 80 mm diameter. Broken scaffold and some smaller branches (brittle wood). Numerous small epicormic shoots. Major encroachment required. Cannot be adequately protected during and after construction Remove and replace.

Age	DBH	Structure	Health
SM – Semi - Mature	Diameter at 1.4 m high	VP – Very Poor	VP – Very Poor
EM – Early Mature		P – Poor	P – Poor
M - Mature		F – Fair	F – Fair
LM – Late Mature		G – Good	G – Good
OM – Over Mature			

Nie	Datania Nama	Common	100	Height	CBH	DBH	Ca	anopy Spr	ead (m)	)	Llagith	Charlestan		Commonto	
INO	Botanic Name	Name	Age	(m)	(mm)	(mm)	North	South	East	West	пеани	Structure	ULE	Comments	
5	Livistona australis	Cabbage Palm	Μ	21	1580	500	2	2	2	2	G	G	2B	Leaf density 90% coverage. Slight deadwood to 80 mm diameter. 9°natural lean north (phototropic effect, no symptoms of instability). Severe encroachment required. Cannot be adequately protected during and after construction. Remove tree.	
6	Corymbia citriodora	Lemon Scented Gum	Μ	14	2170	680	6.5	13	11	12	G	F (form)	2B	Leaf density 70% coverage. Slight deadwood to 50 mm diameter. Co – dominant stems from 1.8 metres high (stem union appears stable). Structurally sound with fair form. Severe encroachment required. Cannot be adequately protected during and after construction. Remove tree.	

Age	DBH	Structure	Health
SM – Semi - Mature	Diameter at 1.4 m high	VP – Very Poor	VP – Very Poor
EM – Early Mature		P – Poor	P – Poor
M - Mature		F – Fair	F – Fair
LM – Late Mature		G – Good	G – Good
OM – Over Mature			

Appendix 1 con't.

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#### ULE

ULE is an acronym for <u>Useful Life Expectancy</u>. There are a number of ULE categories that indicate the safe useful life anticipated for each tree. Factors such as the location, age, condition and health of the tree are significant to determining this rating. Other influences such as the tree's effect on better specimens and the economics of managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995). ULE Categories and Subgroups

1 = Long ULE of > 40 years

А	В	С
Structurally sound in	Suitable to retain with some	Significant status – requires
suitable location	remedial care	Special care to preserve

2 = Medium ULE of 15 - 40 years

А	В	С	D
Lifespan limit	Eventual removal for safety or nuisance	Remove for adjacent trees or replanting	Requires extensive remedial care

3 = Short ULE of 5 - 15 years

А	В	С	D
Lifespan limit	Eventual removal for safety or nuisance	Remove for adjacent trees or replanting	Requires extensive remedial care

4 = Remove tree within 5 years

А	В	С	D	E	F	G
Dead, dying or diseased	Unstable or exposed by new clearing	Structurally defective	Damaged and unsafe	Remove for adjacent trees or replanting	Damaging existing structures	Clearing will affect stability

5 = Trees suitable to transplant

A	В	С
Less than 5m high	Young trees over 5m high	Height/width contained by pruning

The ULE rating given to any tree in this report assumes that reasonable maintenance will be provided by a qualified Arboriculturist using correct and acknowledged techniques. Retained trees are to be protected from root damage. Incorrect tree work practices can significantly accelerate tree decline and increase hazard potential.

Glossary of Terminology

CBH: Trunk circumference at 1.4 metres high or as otherwise stated DBH: Trunk diameter at 1.4 metres high or as otherwise stated Epicormic: Leaf shoots which arise from under the bark, and are not attached to the heartwood. These can detach, especially as they become larger, and have a high risk factor Frass Sawdust and webbing combined to cover holes of certain types of wood borer Kino: A type of resin exudated by Eucalypts and Angophoras as a defence mechanism against pathogen attack Mistletoe: A family (*Loranthaceae* in the southern hemisphere) of several genera [in the Sydney region] of parasitic plants, often hastening the decline of trees in poor health; many species are host specific. Structure: The shape of the tree, ranging from very good, with a single straight trunk, to very poor, with misshapen multiple trunks. Trees with multiple trunks etc. can have a higher risk factor, as splitting and trunk collapse may occur. ULE: An acronym for Useful Life Expectancy. A system for rating the possible longevity of a tree, designed by English Arborist Jeremy Barrell (see appendix 1.2). Included Bark: Bark that occurs in a crotch between branch and trunk or between co-dominant stems. Included bark usually: prevents the trunk from growing around a branch. occurs on defective V-shaped crotches in which the bark grows inward and on itself, causing a physical weakness where the co-dominant leaders meet.

Contact Details	Qualifications
P.O. Box 3193	<b>Bachelor of Arts Degree (Botany)</b>
Glendale NSW 2285	
Ph 0409 559 147	
Email: jwi52886@bigpond.net au	Horticulture Certificate (1989)
	with Arboriculture component
	included.
	Horticulture Certificate (2000 Northern Melbourne Institute of Technology) Diploma of Horticulture (2007 Kurri Kurri Tafe) Arboriculture. AQF Level 5 Accreditation Number 5510397