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ARBORIST'S STAGE C REPORT



PROPERTY:	4 – 14 Peters Avenue Wallsend NSW
NUMBER OF SUBJECT TREES/SHRUBS:	19
DATE OF REPORT:	22 March 2022 (updated 19 October 2023)
REQUESTED BY:	Sam Crawford Architects

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REPORT SUMMARY

The report recommends the retention and protection of the following trees, during a proposed development, located within the subject properties, the neighbouring property (number 4) and one public tree in front of number 6:

- Number 4 Peters Avenue – Trees 1, 2, 3.
- Number 6 Peters Avenue – Street Trees 1 & 2.
- Subject Properties – 9, 10, 15, 16.
- Number 14 Peters Avenue – Tree 19.

The protection requirements must be in accordance with Sections 4.5 and 7, Part A of the City of Newcastle (2018) Urban Forest Technical Manual, *Private Trees*, and AS 4970 (2009), *Protection of Trees on Development Sites*.

Further recommended is the removal of all other trees and shrubs.

INTRODUCTION

Project Brief

Assess the subject trees and supply a written report.

Methodology

A visual inspection was made of the subject trees from ground level on the 20th of October 2021. No internal testing e.g. Resistograph or drilling, or excavation was carried out. The trees were assessed from observations made during the inspection.

The City of Newcastle Council criteria for exemption from requiring approval to remove a tree or shrub is:

- The tree is less than 3m in height or with a circumference at breast height (1.4m above ground level) less than 450mm for a single trunk tree, or less than 300mm for each trunk of a multi-trunk tree, and is not part of a native vegetation community.
- The shrub is less than 5m in height and is not part of a native vegetation community.
- The tree or shrub is located within 3m of the wall of an existing principal building (excluding carports, garages, pergolas, fences, retaining walls and the like) on the land where it is situated or on adjacent privately owned land (where the land owner's consent for the works has been obtained).

Note 1: The 3m distance is measured from the closest point of the trunk to the footings of the building.

Note 2: It is preferable that a replacement tree is planted on the same lot as the removed tree where space

Undesirable species over the above measurements are not exempt.

SITUATION OVERVIEW

The trees may be affected by a proposed development.

SITES DESCRIPTION

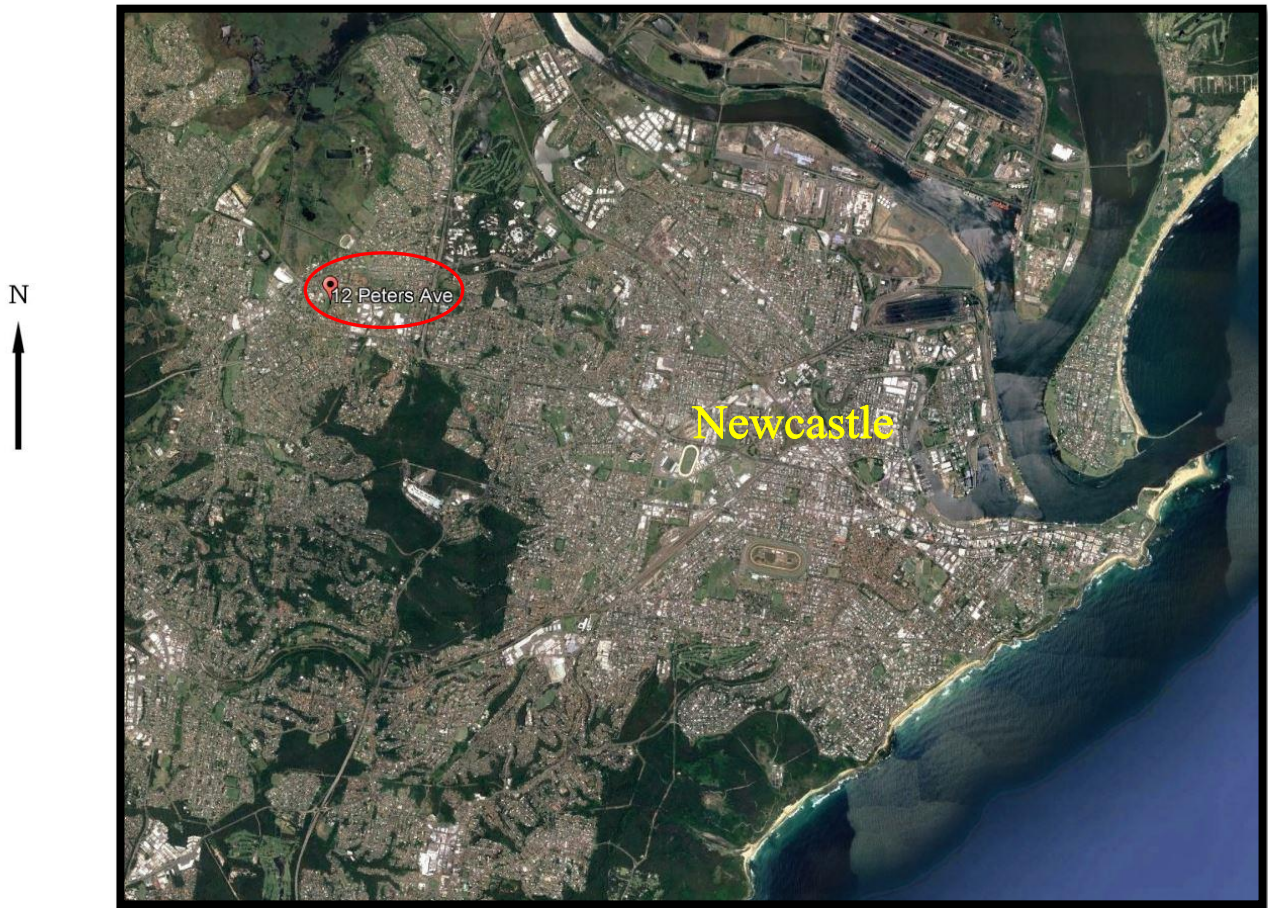
The sites are individual flat suburban blocks facing east – ENE.

Subject trees on site are:

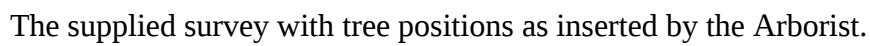
- 4 Peters Avenue – two Cocos palms and one tree.
- 6 Peters Avenue – one tree and two street trees.
- 8 Peters Avenue – one tree and three palms.
- 10 Peters Avenue – eight trees and two shrubs.
- 12 Peters Avenue – nil.
- 14 Peters Avenue – one tree 2.5 from the fence.

All other vegetation as shown on the survey is exempt from Council's policy due to size or proximity to principal buildings (see methodology).

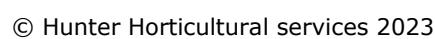
SITE LOCATION



The site location (indicated).



SURVEY 2

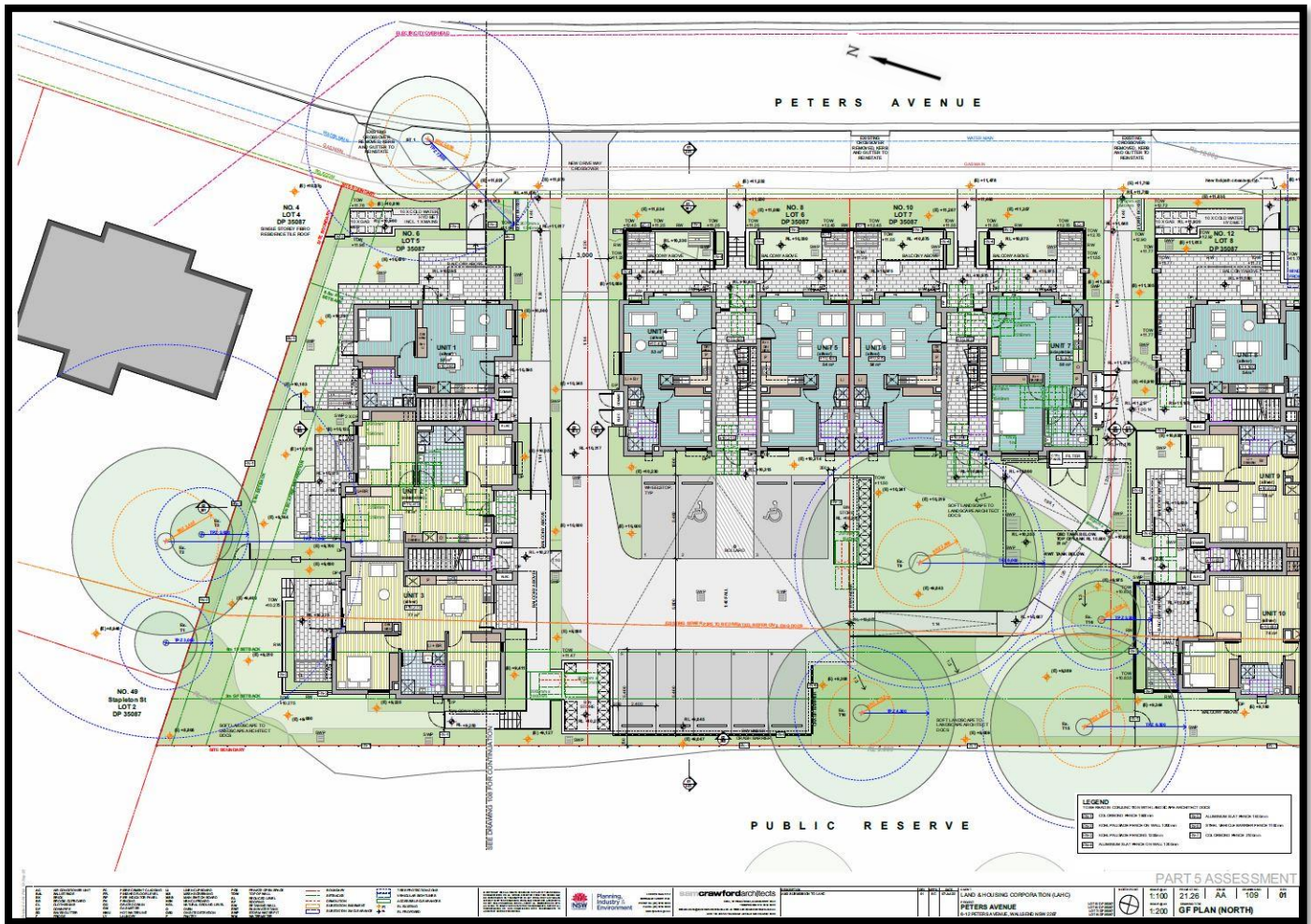


SITE PLAN



An aerial photograph (Six Maps 2018) used as a site plan showing the positions of the subject trees.

SITE PLAN OF THE PROPOSED DEVELOPMENT



A supplied site plan (Drawing No. 109, GF Plan (North), Rev 01, 12/09/2023, prepared by Sam Crawford Architects) of the proposed development showing the positions of the retained trees.

SUMMARY OF ACTION PROPOSED FOR THE SUBJECT TREES

The following actions are proposed for the subject trees:

The retention and protection of the following trees, during a proposed development, located within the subject properties, the neighbouring property (number 4) and one public tree (ST1) in front of number 6:

- Number 4 Peters Avenue – Trees 1, 2, 3.
- Number 6 Peters Avenue – Street Trees 1 & 2.
- Subject Properties – 9, 10, 15, 16.
- Number 14 Peters Avenue – Tree 19.
- The removal of all other trees and shrubs under Section 4 – 4.3 of the City of Newcastle (2018), Urban Forest Technical Manual, Part A, *Tree Removal on Private Land Associated with Development*, as they cannot be protected in accordance with AS 4970 (2009), *Protection of Trees on Development Sites* if best use of the properties is to be achieved.

TREE ASSESSMENT

Table 1

House Number	Number of Subject Trees	Tree Number	Tree Species	Height (metres)	Condition		CBH (mm)	DBH (mm)	TPZ (metres)	SRZ (metres)	ULE	Canopy Spread (metres)	Retention Value
					Health	Structure							
4	3	1	<i>Syagrus romanzoffiana</i> (Cocos Palm).	11	Good	Good	740	240	3.0	N/A	2B	4 x 4	Low
		2	<i>Melaleuca quinquenervia</i> (Broad Leaved Paperbark)	18	Good	Fair (form)	3290 (at 700 mm high)	1050	12.6	3.4	2B	13.5 x 10	Moderate
		3	<i>Syagrus romanzoffiana</i> (Cocos Palm).	11	Good	Good	930	360	3.0	N/A	2B	4 x 5	Low
6	1	4	<i>Cupressus sempervirens</i> (Italian Cypress)	12	Good	Good	1170 (at 400 mm high)	360	4.5	2.2	2B	1.5 x 4	Low
8	4	5	<i>Phoenix canariensis</i> (Date Palm)	7	Good	Good	N/A (no trunk)	N/A	4	N/A	2B	6 x 6	Very Low
		6	<i>Cinnamomum camphora</i> (Camphor Laurel)	10	Good	Poor (form)	N/A (unable to measure CBH)	1000 Approx.	12	3	2B	20 x 19	Moderate
		7	<i>Syagrus romanzoffiana</i> (Cocos Palm).	10	Good	Good	960	310	5	N/A	2B	8 x 8	Low
		8	<i>Syagrus romanzoffiana</i> (Cocos Palm).	10	Good	Good	940	300	5	N/A	2B	8 x 8	Low
10	10	9	<i>Corymbia torelliana</i> (Cadhadgi)	15	Good	Fair (form)	2090	670	8.0	2.8	2B	13 x 11	Moderate
		10	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	12	Good	Fair (form)	1130	360	4.3	2.1	2B	14 x 11	Moderate
		11	<i>Ficus benjamina</i> (Weeping Fig)	10	Good	Fair (form)	800 550	310	3.7	2.0	2B	11 x 10	Moderate
		12	<i>Ficus benjamina</i> (Weeping Fig)	8	Good	Good	590	320	3.8	2.0	2B	5 x 5	Low
		13	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	16	Fair	Poor	2040	650	7.8	2.8	4C	15 x 13.5	Low (diseased)
		14	<i>Grevillea robusta</i> (Silky Oak).	9	Good	Good	770	250	3.0	1.8	2B	8 x 8	Moderate

TREE ASSESSMENT CONTINUED

Table 2

House Number	Number of Trees	Tree Number	Tree Species	Height (metres)	Condition		CBH (mm)	DBH (mm)	TPZ (metres)	SRZ (metres)	ULE	Canopy Spread (metres)	Retention Value
					Health	Structure							
10 (con't)		15	<i>Angophora floribunda</i> (Rough Barked Apple)	14	Good	Good	1710	540	6.5	2.6	2B	18 x 13	Moderate
		16	<i>Melaleuca bracteata</i> 'Revolution Gold' (Honey Myrtle)	9	Good	Good	840	270	3.2	1.9	2B	8.5 x 8	Moderate
		17	<i>Callistemon citrinus</i> (Crimson Bottlebrush)	7	Good	Good	520	170	2.0	1.6	2B	6 x 6	Low
		18	<i>Syzygium</i> 'Cascade' (Cascade)	6	Good	Good	460	150	1.8	1.5	2B	3 x 3	Low
14	1	19	<i>Jacaranda mimosifolia</i> (Jacaranda)	13	Good	Fair (form)	N/A (unable to measure CBH)	520 Approx.	6.3	2.5	2B	10 x 10 Approx.	Moderate

USEFUL LIFE EXPECTANCY (ULE)

ULE is an acronym for Useful Life Expectancy. 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.

Trees 1 – 12 and 14 – 19 are in good health, structurally sound with good – poor form. There are no symptoms of detrimental fungal activity or insect damage, although they may not be ideally positioned [for development].

Tree 13 is structurally poor due to the parasitic fungus.

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

DISCUSSION

Tree 1:

- Good health with a leaf density of 90% coverage.
- Structurally sound with good form.
- Undesirable species, however, is not exempt from Council's policy.

Tree 2:

- Good health with a leaf density of 80% coverage and slight deadwood to 50 mm diameter.
- Structurally sound with fair form (four dominant stems from 1.3 metres high).
- 3.2 metres from the fence.

DISCUSSION CONTINUED

Tree 3:

- Good health with a leaf density of 90% coverage.
- Structurally sound with good form.
- Undesirable species, however, is not exempt from Council's policy.

Tree 4:

- Good health with a leaf density of 95% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with good form.
- 4.5 metres from the wall of the dwelling.

Tree 5:

- Good health with a leaf density of 90% coverage.
- Self sown growing in contact with T6.

Tree 6:

- Good health with a leaf density of 80% coverage and slight deadwood to 80 mm diameter.
- Structurally sound with poor form (multiple stems from .5 metres high).
- Undesirable species, however, is not exempt from Council's policy.
- In contact with the back fence.

Tree 7:

- Good health with a leaf density of 90% coverage.
- Structurally sound with good form.
- Undesirable species, however, is not exempt from Council's policy.

Tree 8:

- Good health with a leaf density of 90% coverage.
- Structurally sound with good form.
- Undesirable species, however, is not exempt from Council's policy.

Tree 9:

- Good health with a leaf density of 80% coverage and slight deadwood to 50 mm diameter.
- Structurally sound with fair form (co - dominant stems from 4.5 metres high).
- 4.9 metres from wall of dwelling.

Tree 10:

- Good health with a leaf density of 80% coverage and slight deadwood to 100 mm diameter (dead leader).
- Structurally sound with fair form (scaffolds dominant due to dead leader).
- 1.2 metres from back fence.

DISCUSSION CONTINUED

Tree 11:

- Good health with a leaf density of 90% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with fair form (co - dominant stems from .5 metres high).
- Likely to cause infrastructure damage over time if retained.

Tree 12:

- Good health with a leaf density of 90% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with fair form (co - dominant stems from .5 metres high).
- Likely to cause infrastructure damage over time if retained.

Tree 13:

- Fair health (fungal infection) with a leaf density of 80% coverage and some deadwood to 150 mm diameter.
- Structurally poor with a fungal bracket present (fruiting body of *Phellinus* sp).
- Removal recommended (council approval required).

Tree 14:

- Good health with a leaf density of 80% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with good form.
- Directly adjacent to the back fence.
- Removal of T13 will likely affect this tree (removal recommended).

Tree 15:

- Good health with a leaf density of 60% coverage and some deadwood to 100 mm diameter and slight tip dieback (tree under some stress).
- Structurally sound with fair form (some stem bow).
- Directly adjacent to the back fence.

Tree 16

- Good health with a leaf density of 90% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with good form.

Tree 17:

- Good health with a leaf density of 90% coverage and slight deadwood to 20 mm diameter.
- Structurally sound with good form.

Tree 18:

- Good health with a leaf density of 90% coverage and slight deadwood to 10 mm diameter.
- Structurally sound with good form.
- Among exempt shrubs and may require removal.

Tree 19:

- Good health with a leaf density of 80% coverage and slight deadwood to 50 mm diameter.
- Structurally sound with fair form (three stems from .5 metres high).
- 2.5 metres from the boundary with dwelling number 12.

TREE RETENTION VALUE

Table 3 (collective).

Using the Newcastle City Council Urban Forest Plan Technical Manual (Part A) Section 4.1, the following retention value has been assigned to the trees:

Tree 1	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 3	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 5	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Very Low

Tree 7	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 9	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 11	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 13	
Tree Sustainability	Less than 5 years
Landscape Significance:	Moderate
Retention Value:	Low

Tree 15	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 17	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 19	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 2	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 4	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 6	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Low

Tree 8	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 10	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree 12	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

Tree 14	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree16	
Tree Sustainability	15 – 40 years
Landscape Significance:	Moderate
Retention Value:	Moderate

Tree18	
Tree Sustainability	15 – 40 years
Landscape Significance:	Low
Retention Value:	Low

TREE PROTECTION ZONE (TPZ) & STRUCTURAL ROOT ZONE (SRZ)

Table 4

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

Tree	TPZ	SRZ	Tree	TPZ	SRZ	Tree	TPZ	SRZ	Tree	TPZ	SRZ	Tree	TPZ	SRZ
1/	3.0	N/A	2/	12.6	3.4	3/	3.0	N/A	4/	4.5	2.2	5/	4.0	N/A
6/	12.0	3.0	7/	5.0	N/A	8/	5.0	N/A	9/	8.0	2.8	10/	4.3	2.1
11/	3.7	2.0	12/	3.8	2.0	13/	7.8	2.8	14/	3.0	1.8	15/	6.5	2.6
16/	3.2	1.9	17/	2.0	1.6	18/	1.8	1.5	19/	6.3	2.5	ST1/	7.8	2.8
ST2/	8.3	2.8												

Minor encroachment will be required for Trees 1, 2, 4, 13, 14, 15, 16, 19.

Major encroachment will be required for Trees 3, 5, 6, 7, 8, 9, 10, 11, 12, 17, 18, ST1, ST2.

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”.

The Arborist cannot demonstrate that Trees 4, 5, 6, 7, 8, 11, 12, 17, 18 and ST2 would remain viable, and their proximity to the proposed development and boundary prevents contiguous compensation of the TPZs.

Tree 13 has a wood decay fungi infection *Phellinus* sp., and T14 has a low retention value and is likely to be affected by the removal of T13.

ARBORICULTURAL IMPACT ASSESSMENT

Approximate encroachment percentages for each tree.

The proposed development will require the approximate percentages of encroachment, as their TPZs/SRZs dominate the area of the proposed development.

Table 5

Tree	TPZ	Encroachment	SRZ	Encroachment	Tree	TPZ	Encroachment	SRZ	Encroachment
1/	3.0	3%	N/A	N/A%	2/	12.6	40%	3.4	0%
3/	3.0	3%	N/A	N/A	4/	4.0	3%	N/A	N/A
5/	4.0	100%	N/A	N/A	6/	12.0	100%	3.0	100%
7/	5.0	100%	N/A	N/A	8/	5.0	100%	N/A	N/A
9/	8.0	20%	2.8	0%	10/	4.3	15%	2.1	0%
11/	3.7	100%	2.0	100%	12/	3.8	100%	2.0	100%
13/	7.8	5%	2.8	0%	14/	3.0	5%	1.8	0%
15/	6.5	5%	2.6	0%	16/	3.2	3%	1.9	0%
17/	2.0	100%	1.6	100%	18/	1.8	100%	1.5	100%
19/	6.3	10%	2.5	0%	ST1/	7.8	20%	2.8	0%
ST2/	8.3	42%	2.8	20%					

ARBORICULTURAL IMPACT ASSESSMENT CONTINUED

From the percentages above, the following impacts are expected:

No impact – N/A

Slight impact – Trees 1, 2, 4, 13, 14, 15, 16, 19

Moderate impact – 3, 9, 10, ST1

Severe impact – Trees 4, 5, 6, 7, 8, 11, 12, 17, 18, ST2

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

ALTERNATIVE DESIGN CONSIDERATIONS

Section 4 of the Urban Forest Technical manual (Part A) recommends alternative design considerations such as:

- Relocating and/or minimising driveway crossover widths to retain existing trees
- Altering development footprint
- Altering hard surface design
- Utilising permeable pavement
- Move footpath alignment, or location
- Ramp or bridge over tree roots, or use elevated walkways
- Install footpath on surface without excavation and reduced batter
- Move above or below ground utilities (e.g. powerlines, water, gas) away from trees
- Avoid level changes near trees.

The above methods have been utilised as much as possible to retain the best trees.

OSD TANK AND STORMWATER PIPES

The supplied [revised] stormwater plans (Drawing Number 80822045-CI-1101 Revision 8 dated 7/9/2023 and prepared by Stantec) shows no encroachment into the SRZ of Tree 9, and the use of hand tools, air or water for the excavation will be in accordance with AS 4970. Remembering that any roots requiring pruning must be cut with secateurs or a saw.

Where roots larger than 50 mm diameter require pruning, the project Arborist should inspect beforehand, or if the root could be left, and if the infrastructure fed underneath is an option, this would be preferable.

Regarding the southern installation past T10, T15 and T16, as trenching would require major encroachment into the SRZs, trenching cannot be carried out. To retain these trees and install the infrastructure in this position, and not disturb the structural roots, under – boring to a minimum depth of one metre is considered the only option.

As most tree roots are located in the first 600 mm of soil, a minimum depth of 600 mm is required to reduce potential damage to structural roots, and prevent disturbing the soil around the roots, which may lead to a loss of [soil] compaction and subsequent support for the roots, resulting in a loss of anchorage potential tree failure (destabilisation).

OSD TANK AND STORMWATER PIPES CONTINUED

Clause 4.5.5 of AS 4970 states:

4.5.5 Installing underground services within TPZ:

“All services should be routed outside the TPZ. If underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches.

The directional drilling bore should be at least 600 mm deep. The project arborist should assess the likely impacts of boring and bore pits on retained trees. For manual excavation of trenches the project arborist should advise on roots to be retained and should monitor the works. Manual excavation may include the use of pneumatic and hydraulic tools”.

Given the above extract, the directional drilling (under – boring) method would also be suitable for use under the SRZ.

The impact of the OSD tank and stormwater pipes on Trees 9, 10, 15 and 16 can be reduced to slight if the requirements of AS 4970 and recommendations in this section are followed.

Figure 1 shows a diagrammatic view (not to scale) of a tree root plate and under-boring required.

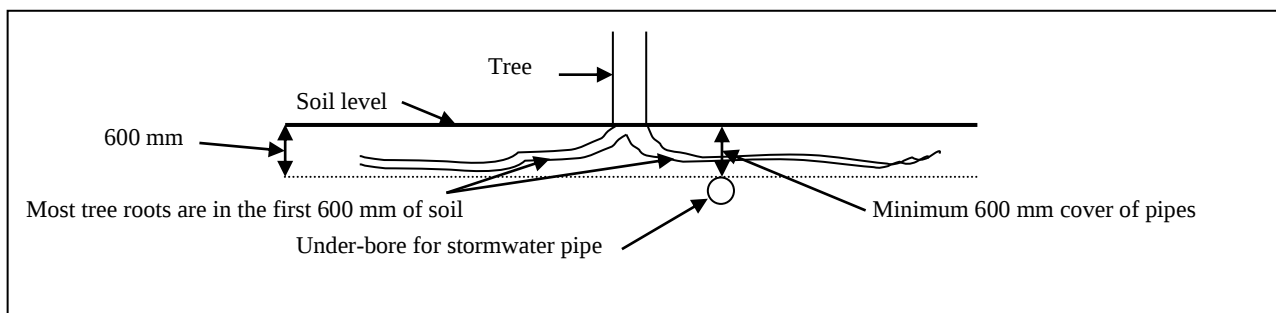


Figure 1.

TREE PROTECTION

1. Steel mesh fencing (around the TPZs of retained trees) should be used where practical. Where this may 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.
2. Overall encroachment should be minimised as much as possible. Encroachment over 10% will be discussed with the Project Arborist.
3. Pedestrian traffic must be kept to a minimum, and no materials are to be stored within the TPZs. Vehicles must not be parked within a TPZ.
4. Any excavation within a TPZ/SRZ must be dug using hand tools or hydraulic or pneumatic excavating equipment, e.g. air spade.
5. 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.

TREE PROTECTION CONTINUED

6. Root pruning within the SRZ should not be carried out, however, if [absolutely] necessary, may only be carried out for roots 50 mm diameter or less using secateurs or a saw. If a structural root larger than 50 mm diameter is encountered where a footing is required, engineering adjustments (e.g. bridge footing) must be made so the root is not damaged. A distance of 100 mm between structural roots and footings is recommended for spatial separation.
7. Any concrete such as paths/bin storage etc. 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, and reduce the likely-hood of infrastructure damage in the future. Permeable paving is preferred if possible.
8. 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).
9. The use of honeycomb concrete slabs for a car park would also allow air and moisture exchange with the soil and tree roots.
10. 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. Pruning of public trees is not permitted by private contractors (contact Council if such pruning is required).

STREET TREES

Two street trees (*Lophostemon confertus* – Brush Box) are located in front of dwelling number 6. Table 6 shows the assessment of these trees:

Table 6.

House Number	Number of Trees	Tree Number	Tree Species	Height (metres)	Condition		CBH (mm)	DBH (mm)	TPZ (metres)	SRZ (metres)	ULE	Canopy Spread (metres)	Retention Value
					Health	Structure							
6	2	ST1	<i>Lophostemon confertus</i> (Brush Box)	14	Good	Good	2050	650	7.8	2.8	2B	12 x 12	Moderate
		ST2	<i>Lophostemon confertus</i> (Brush Box)	12	Good	Good	2180	690	8.3	2.8	2B	12 x 12	Moderate

These trees are in generally good condition and ST1 will require protection as its TPZ extend into dwelling number 6, although its SRZ does not extend over the property boundaries.

ST2 is in the same situation of ST1, however, it required removal to allow the installation of the new crossover, as major encroachment is required for this.

The new driveway crossover will be in the same location as the existing [driveway], and ST1 can be retained and protected for this process. This will require careful removal of the old structure, for example, minimal use of excavation machinery, inspection by the Project Arborist if any structural roots over 50 mm diameter require pruning and the use of permeable paving for the new structure (see Tree Protection Section pp. 14 – 15).

Protection within the TPZ of ST1 will be the same as for the private trees as listed on pp.14 – 15.

SIGNIFICANCE CHECKLIST

Trees 1 – 19 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 faunal activity was observed in the trees, that is, no nests, nesting hollows, claw marks on the stems or scat around the bases.

CONCLUSION

Trees suitable for retention and protection are:

- Number 4 Peters Avenue – Trees 1, 2, 3.
- Number 6 Peters Avenue – Street Trees 1 & 2.
- Subject Properties – 9, 10, 15, 16.
- Number 14 Peters Avenue – Tree 19.

Trees suitable for removal to achieve best use of the properties are:

- 4, 5, 6, 7, 8, 11, 12, 17, 18, ST1 and all other shrubs.
- Tree 13 due to the parasitic fungus.
- Tree 14 as it will likely be affected by the removal of T13.

Many of the exempt shrubs are undesirable species, such as *Ligustrum lucidum* and *L. sinense* and *Schefflera actinophylla*.

RECOMMENDATIONS

1. Based on the observations made during the inspection, information supplied and the considerations in the conclusion, it is recommended that the following trees be retained and protected as discussed:
2. Number 4 Peters Avenue – Trees 1, 2, 3.
3. Number 6 Peters Avenue – Street Trees 1 & 2.
4. Subject Properties – Trees 9, 10, 15, 16.
5. Number 14 Peters Avenue – Tree 19.
6. Number 6 Peters Avenue – ST1 & ST2.
7. The project arborist must be engaged during construction for all excavation near the affected trees.
8. Subject trees 4, 5, 6, 7, 8, 11, 12, 13, 14, 17, 18, ST1 and all other shrubs are recommended for removal.

PHOTOGRAPHS



Trees 1 – 3 viewed from the east.



The bases of T1 – T3 viewed from the west.



Tree 4 viewed from the south.

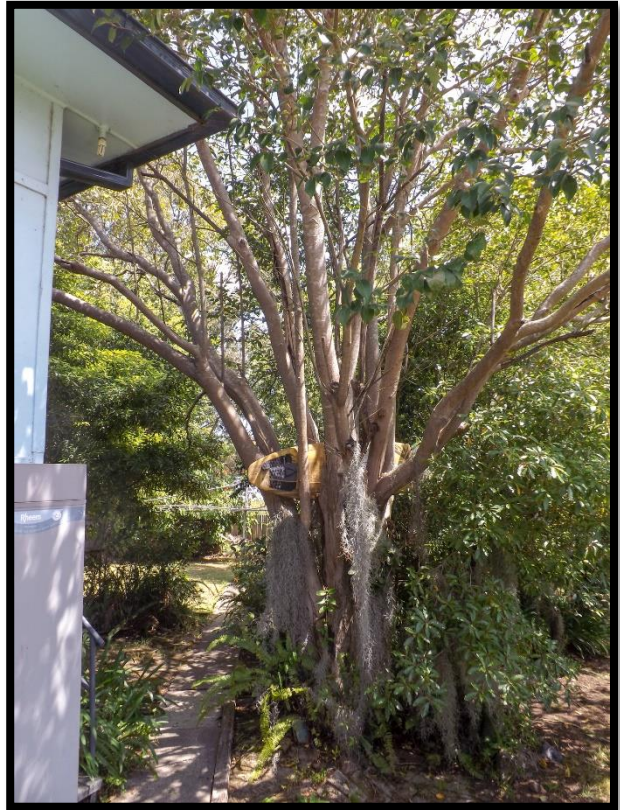


Street Tree 1 (ST1) in front of number 6.

TREE PROTECTION CONTINUED



Street Tree 2 in front of number 6.



Exempt shrub (Privet) in number 8 (within 3 metres of the wall).



Tree 6 viewed from the SE.



The bases of T5 and T6.

PHOTOGRAPHS CONTINUED



Example of exempt shrub (Schefflera) in number 8.



Tree 7 viewed from the SE.



Tree 8 viewed from the NE.



Tree 9 viewed from the SE.

PHOTOGRAPHS CONTINUED



Tree 9 viewed from the east.



Tree 10 viewed from the SW.



Tree 11 viewed from the SE.

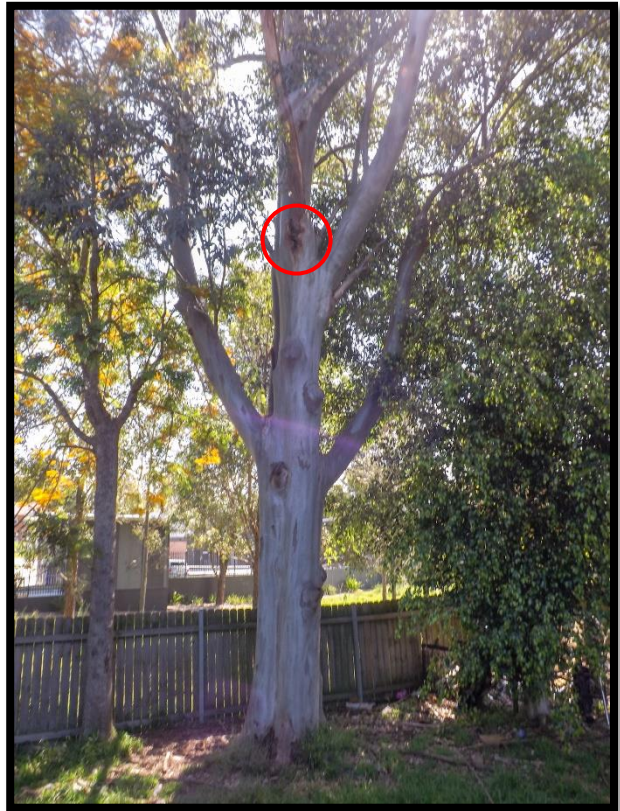


Tree 12 viewed from the east.

PHOTOGRAPHS CONTINUED



Tree 13 viewed from the east.



Position of fruiting body on Tree 13.



Fruiting body on Tree 13.

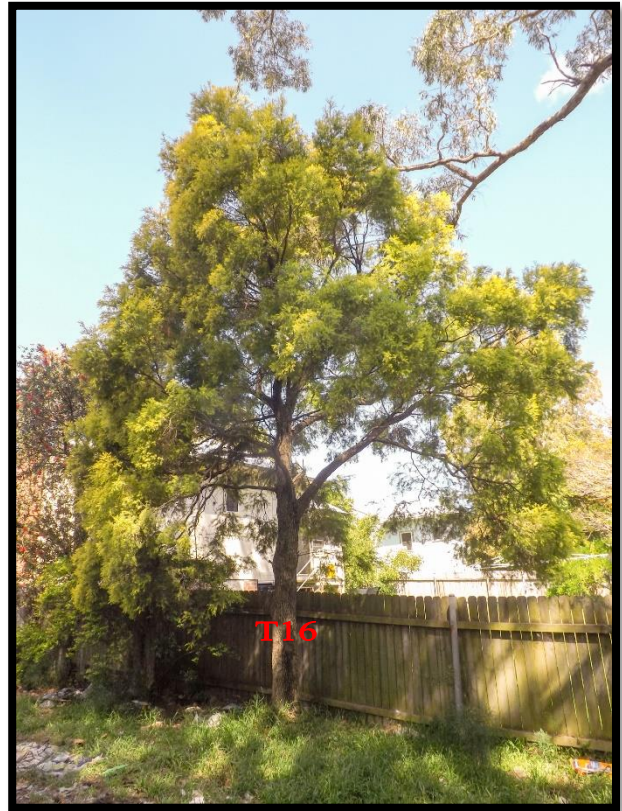


Tree 14 viewed from the east.

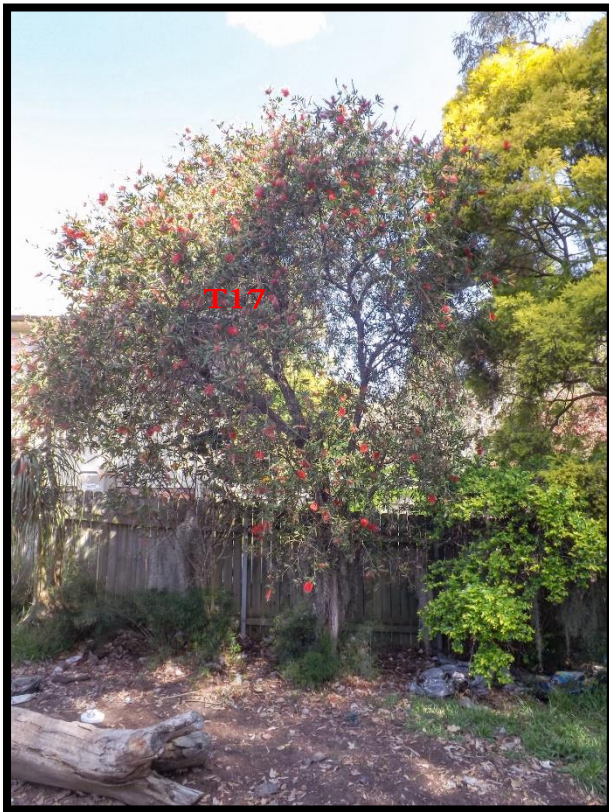
PHOTOGRAPHS CONTINUED



Tree 15 viewed from the NE.



Tree 16 viewed from the NW.



Tree 17 viewed from the north.



Tree 18 viewed from the east.

PHOTOGRAPHS CONTINUED



Tree 19 viewed from the north. The shrub in the foreground is exempt (undersize stems).

Stephen Williams

A handwritten signature in black ink that reads "Stephen Williams".

AQF 5 Arborist

Hunter Horticultural Services

DISCLAIMER

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 tree.

ACKNOWLEDGEMENTS

Aerial Photographs courtesy of Google Earth and Six Maps.

REFERENCES

Australian Standard 4970 (2009), *Protection of Trees on Development Sites*.

Australian Standard 4373 (2007), *Pruning Amenity Trees*.

City of Newcastle (2018) Urban Forest Technical Manual, Part A, *Private Trees*, Sections 4.5 and 7.

City of Newcastle Urban Forest Technical Manual, Section 9.0, Table 7, page 36, Part A Private Trees (Exempt Species).

APPENDICES

U.L.E. _____	1
Glossary of Terminology _____	2
Qualifications _____	3

ULE

ULE is an acronym for Useful Life Expectancy. 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

A Structurally sound in suitable location	B Suitable to retain with some remedial care	C Significant status – requires Special care to preserve
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2 = Medium ULE of 15 – 40 years

A Lifespan limit	B Eventual removal for safety or nuisance	C Remove for adjacent trees or replanting	D Requires extensive remedial care
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3 = Short ULE of 5 – 15 years

A Lifespan limit	B Eventual removal for safety or nuisance	C Remove for adjacent trees or replanting	D Requires extensive remedial care
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4 = Remove tree within 5 years

A Dead, dying or diseased	B Unstable or exposed by new clearing	C Structurally defective	D Damaged and unsafe	E Remove for adjacent trees or replanting	F Damaging existing structures	G Clearing will affect stability
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5 = Trees suitable to transplant

A Less than 5m high	B Young trees over 5m high	C Height/width contained by pruning
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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.

Appendix 1

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 (<i>Loranthaceae</i> 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.

Appendix 2

Contact Details	Qualifications
P.O. Box 3193 Glendale NSW 2285 Ph 0409 559 147 Email: jwi52886@bigpond.net au	Bachelor of Arts Degree (Botany) 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

Appendix 3