Arboricultural Impact Assessment Report

26 January 2021

Prepared for:
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45 Cox Street
Dundas Valley NSW 2117

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Contents

Arboricultural Impact Assessment Report

Overview

Evolution Arbor and Consulting was engaged by Ms Aily Liu (the client) to produce this Arboricultural Impact Assessment Report for fifteen (15) trees in relation to a proposed attached duel occupancy at 45 Cox Street, Dundas Valley NSW 2117.

The purpose of this report is to identify the trees on the site and the surrounding sites, detail the current condition of the trees and how they may be affected, either directly or indirectly by proposed works, assess and consider the location of trees in regard to the proposed works and where applicable make recommendations for retention and protection or removal and replacement in accordance with AS4970 (2009) Protection of Trees on Development Sites.

Site documents indicating the subgrade services, sections, elevations, or landscaping were not referenced for the purpose of producing this report.

Legislation

Where relevant this report has been produced with reference to:

- Parramatta DCP 2011 - as amended 13 Mar 2020
- Council's list of significant trees
- AS4970 (2009) Protection of Trees on Development Sites
- AS4373 (2007) Pruning of Amenity Trees
- Biodiversity Conservation Act (2016)

Disclaimer

Evolution Arbor and Consulting has taken care to ensure all information collated and reported in this publication has been obtained from reliable sources. All information covered in this report is based on the observations of the tree/trees examined at the time of the inspection. All information has been verified however Evolution Arbor and Consulting can neither guarantee nor be liable for the accuracy of information supplied by others.

This report is not intended as and does not represent any form of legal advice. Evolution Arbor and Consulting notes that laws, courts and governmental regulations in New South Wales and on federal level are subject to frequent change, and as such, Evolution Arbor and Consulting has made every effort to ensure the accuracy of the information included but cannot be held liable for any changes in relevant legislation or guidelines implemented after the publication of the report.

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Observations

The Site

The subject site is located at 45 Cox Street, Dundas Valley NSW 2117 (Figure 1). The site is located within Parramatta City Council LGA. As a result, all trees assessed within this site are protected under the councils Tree Preservation Order (TPO). Parramatta City Council is the consenting authority for all works regarding trees within this site, no works are to be conducted without the appropriate written consent from the council.

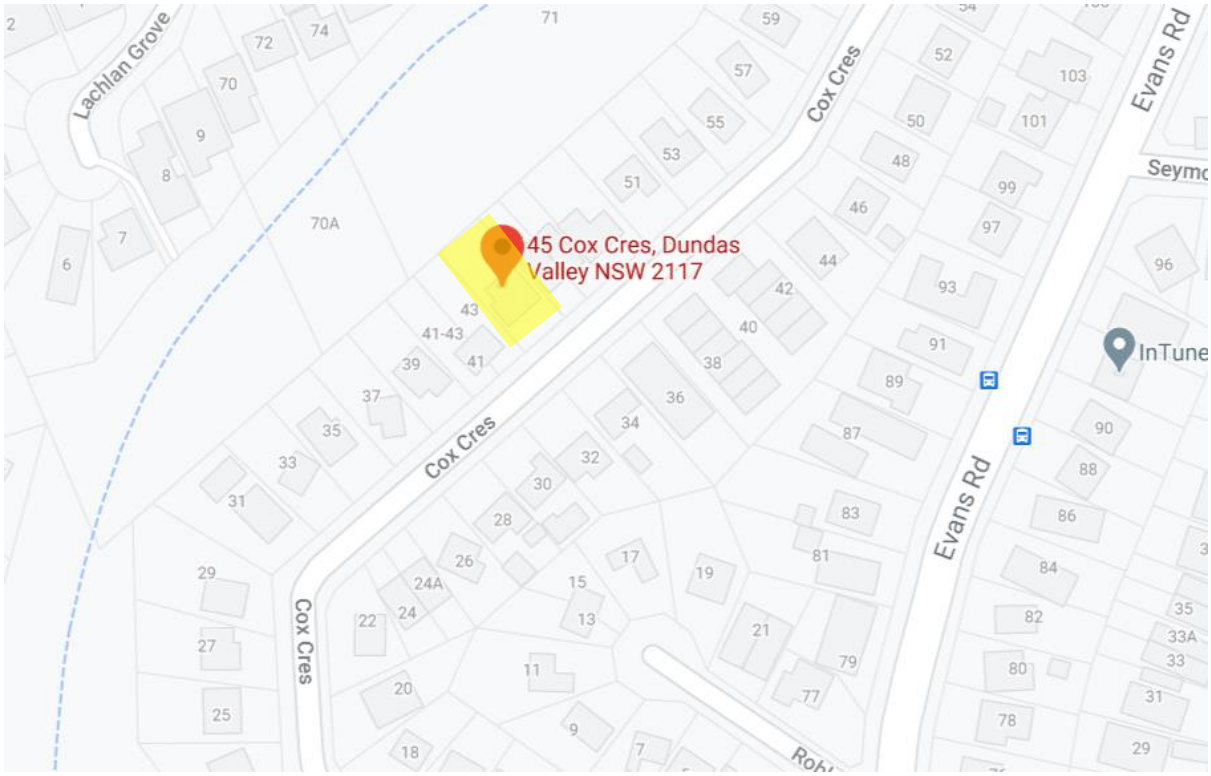


Figure 1: 45 Cox Street, Dundas Valley NSW 2117 (ePlanning Spatial Viewer 2021)

Physical Description

- The site is level and rectangular in shape with a south-east facing aspect.

Site Area

- The site is zoned R2: Low Density Residential

Relevant LGA Site Information

- The formal site description is Lot 824 / Plan# DP36700

Heritage and Significant Items:

- No Aboriginal or significant items were observed on the site on noted on the NSW Government ePlanner Spatial Viewer.

Method

A Visual Tree Inspection (VTA) was conducted on the 26th January 2021, by doing so we have created a record of the health and condition of the trees on the site and surrounding sites. Only what was reasonably accessible was assessed, no penetrative or diagnostic tests were conducted, nor were any underground parts of these trees assessed. This was performed, by Mitchell Newbery and Elizabeth Cowan.

The Assessment consisted of a visual inspection of all trees from the ground. No aerial inspections were conducted at this time. This style of tree assessment has been adapted Matheny & Clark, 1994 and is recognized by most Arboricultural Associations, such as Arboriculture Australia, as industry standard. International Society of Arboriculture (ISA) refers to this style of assessment in their best management practices titled "Tree Risk Assessment". The risk assessment matrix utilized by Evolution Arbor and Consulting is commonly used within our industry.

This risk assessment matrix is based upon the formula developed by Nelda P. Matheny & James R. Clark which is also recognized by ISA (International Society of Arboriculture). A hazard rating was implemented to assist in making recommendations regarding the above-mentioned tree/trees observations below. This hazard rating considers surrounding infrastructure beneath the abovementioned tree, this being a residential dwelling, private garden, public walkway and public road. The location of this tree and surrounding infrastructure would give this tree a "constant use" rating defined by Matheny & Clark, 1994. Industry standard considers an area of "constant use" as an area in frequent use such as a "busy area, main thoroughfare, street, parking lot, etc".

Any heights and or distances referenced are approximations, no measuring tools analogue, digital or mechanical were used. All photos unless stated otherwise were taken by Evolution Arbor and Consulting personnel using mobile phone cameras. Local and State tree protection rules and legislation were considered during the preparation of this report.

It is common knowledge in NSW that Ring Barking, Topping, Lopping, Removing, injuring and/or wilful destruction of any tree/s is prohibited unless with written consent from the appropriate council.

Observations

Fifteen trees (15) were assessed at the time of the inspection:

Tree Identification

Number	Botanical Name	Common Name
T1	Lophostemon confertus	Brush box
T2	Phoenix canariensis	Canary Island date palm
T3	Hymenosporum flavum	Native frangipani
T4	Acer palmatum	Japanese Maple
T5	jacaranda mimosifolia	Jacaranda
T6	Exotic tree sp.	Exotic tree sp.
T7	Exotic tree sp.	Exotic tree sp.
T8	Exotic tree sp.	Exotic tree sp.
T9	Unidentifed bush	Unidentified bush
T10	Duranta repens	Geisha Girl
T11	Duranta repens	Geisha Girl
T12	Duranta repens	Geisha Girl
T13	Capsicum frutescens	Tabasco pepper
T14	Capsicum frutescens	Tabasco pepper
T15	Murraya paniculata	Native murraya

T1 has Tree Protection Zone (TPZ) of 4.35m (58.10m2) and a Structural Root Zone (SRZ) of 2.25m. This tree is located approximately 800mm away from the proposed driveway on the right-hand side. Therefore, there is an encroachment of **39% (22.7m2)** of the TPZ. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites.

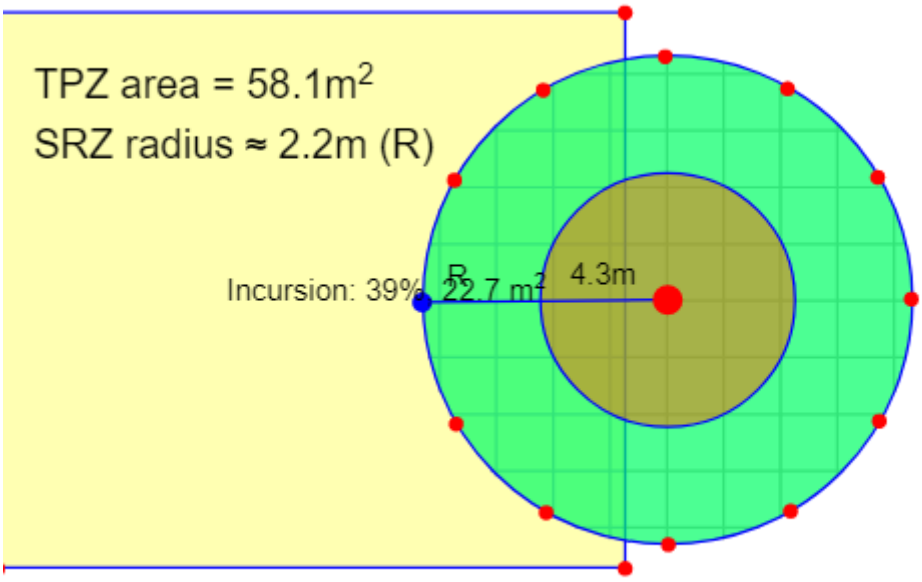
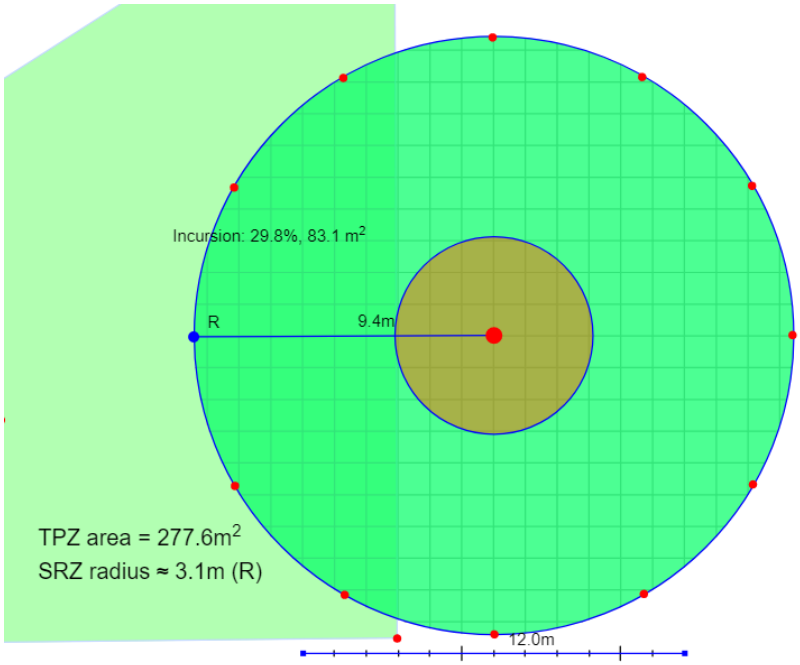


Figure 2: T1 encroachment

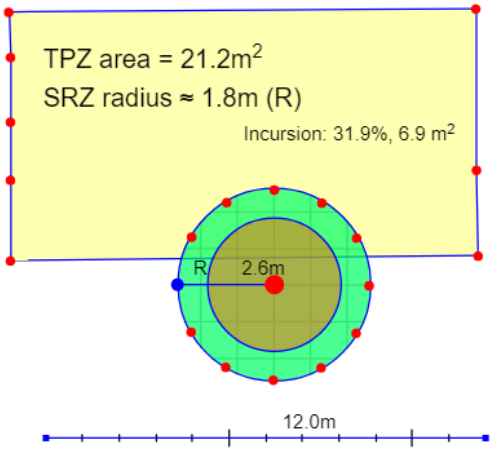
T2 has Tree Protection Zone (TPZ) of 9.4m (277.6m2) and a Structural Root Zone (SRZ) of 3.5m. This tree is located approximately 3m away from the proposed driveway on the left-hand side.

Therefore, there is an encroachment of **29.8% (83.1m2)** of the TPZ. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites.

T2 is a Phoenix canariensis and therefore the root system is not that of typical tree. The high level of encroachment is likely to have minimal effect on T2 due to the roots being confined to the structural root zone in which there is no encroachment.



T3 has Tree Protection Zone (TPZ) of 2.6m (21.2m2) and a Structural Root Zone (SRZ) of 1.92m (11.3m2). This tree is located approximately 500mm away from the proposed driveway on the left-hand side. Therefore, there is an encroachment of **31.9% (21.2m2)** of the TPZ. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites.



T4 has Tree Protection Zone (TPZ) of 3.36m (34.2m2) and a Structural Root Zone (SRZ) of 2.22m (15.2m2). This tree is located within the footprint of the proposed driveway. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites.

T5 has Tree Protection Zone (TPZ) of 7.56m (176.7m2) and a Structural Root Zone (SRZ) of 2.36m (16.6m2). This tree is located over 10m away from the proposed development therefore there is no encroachment per AS4970 (2009) Protection of Trees on Development Sites.

T6, T7, T8 and T9 are all located on the neighbouring property of 43 Cox Cres, Dundas Valley on the right-side boundary line in between the driveway of 43 Cox Cres and the boundary fence. All these trees are located under 1m from the existing driveway at 45 Cox Cres which is proposed for removal and are located 1.51m away from the new proposed driveway. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites.

- T6 has Tree Protection Zone (TPZ) of 2.75m (22.9m2) and a Structural Root Zone (SRZ) of 2.05m (12.6m2).
- T7 has Tree Protection Zone (TPZ) of 2.56m (19.6m2) and a Structural Root Zone (SRZ) of 2.05m (12.6m2).
- T8 has Tree Protection Zone (TPZ) of 2m (12.6m2) and a Structural Root Zone (SRZ) of 1.50m (7.1m2).
- T9 has Tree Protection Zone (TPZ) of 2m (12.6m2) and a Structural Root Zone (SRZ) of 1.96m (11.3m2).

T10, T11, and T12 are all located on the neighbouring property of 43 Cox Cres, Dundas Valley on the right-side boundary in the backyard. T10 and T11 are located under 1m from the existing driveway and shed at 45 Cox Cres which is proposed for removal and are located 1.51m away from the new proposed construction at 45 Cox Street. This is considered a major encroachment per AS4970 (2009) Protection of Trees on Development Sites. All trees were located in an inaccessible location of the backyard as the house is owned by public housing and it appears no tenants are currently living at the property. The backyard was overgrown and there was household items around the backyard prohibiting access. T10, T11 and T2 has an estimated Tree Protection Zone (TPZ) of 2.41m (18.1m2) and a Structural Root Zone (SRZ) of 1.96m (11.3m2).

T13 and T14 are located at 47 Cox Cres, Dundas Valley backyard along property boundary with #45. Plants grown for food production are exempt from council permission, however, these are located on the neighbouring property and must be retained. The proposed construction must not impact the viability of T13 and T14.

T15 is a stand of Murraya hedged into a privacy screen located at 47 Cox Cres, Dundas Valley on the boundary between 47 & 45 Cox Cres near T4. The stand measures 3.5m long, the way the stand has been hedged, accurate measurements were not feasible without causing potential damage to the face of the hedge, however, were estimated from behind the hence. T15 must be retained and protected. The proposed construction must not impact the viability of T15.

Discussion

Using the data on the site plan provided, the estimated construction encroachment on T1 and T3 is major at 39% (T1) and 31.9% (T2). To reduce the impact of the construction on these trees and to keep them viable during and post construction, the proposed driveway for Unit A can be moved across 1.5m to the right to be in line with the property boundary. This reduces the construction encroachment on T1 to 12.5% (T1) and 2.6% (T3).

T4 will remain within the footprint of the driveway so there is no added impact to this tree. This will create an encroachment on T15, but, should all recommendations regarding tree sensitive design listed in the below recommendations section it will significantly reduce the impact on T15 to ensure its viability during and after the construction process.

The proposed construction of the driveway for Unit B will have a major encroachment on T6 (19.2% and T7 (17.9%) as per AS4970 (2009) Protection of Trees on Development Sites. No feasible options are available to reduce the amount of encroachment to the trees on the neighbouring property with the proposed driveway in the current position. Moving the proposed driveway will only create further encroachment to other trees. Although it is a high encroachment, it is still possible for these trees to retain viable providing stricter care and guidelines are adhered to regarding construction around these trees as listed in the recommendations section of this report.

Due to the nature of the site and circumstances surrounding the inspection of T13, T14 and T15 accurate measurements were not possible.

Recommendations

The proposed development has been considered in relation to the fifteen (15) trees assessed in this report. The following recommendations are being made to ensure the proposed development is viable.

T1	Retain and protect. The proposed driveway for unit A can be moved 1.5m towards the right-side boundary which reduces the encroachment from 39% to 12.5% and is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
T2	Retain and protect
T3	Retain and protect. The proposed driveway for unit A can be moved 1.5m towards the right side boundary which reduces the encroachment from 31.9% to 2.6% and is to be constructed with tree sensitive construction methods in mind such as all excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
T4	Remove – within the footprint the proposed driveway for Unit A.
T5	Retain and protect
T6	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for Unit B is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
T7	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for Unit B is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.

T8	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for Unit B is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
T9	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for Unit B is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
T10	Retain and protect
T11	Retain and protect
T12	Retain and protect
T13	Retain and protect
T14	Retain and protect
T15	Retain and protect

-

Tree Protection Measures

T1 requires a Tree Protection Zone (TPZ) of four stakes in a square surrounding the tree as close as possible to the driplines with hi-visibility mesh. Conventional tree protection is not going to be feasible due to its location (street tree) in between the road and footpath and the mesh will allow foot traffic.

T2 and T3 are to be protected within the same TPZ which will follow the front boundary line, 500mm off the edge of the driveway, 500mm off the front of the proposed porch.

Hi-visibility orange bunting to be installed from the front boundary line of the property to the rear fence within the boundary of the subject site on both the right and left sides, to 1m from the back veranda and along the length of the property. No machinery is to be used, no tools to be stored, and no cleaning or chemicals to be used within 2m of the orange bunting. Conventional tree protection methods would not be feasible considering the proximity of the proposed construction to the boundary lines. The existing boundary fences will act as a physical barrier if these recommendations are not followed.

- This will provide adequate protection for T5, T6, T7, T8, T9, T10, T11, T12, T13, T14 and T15 which are all located on the neighbouring properties.

No other tree works are to be conducted within this site without relevant permissions from the required consent authority.

Yours sincerely

Mitchell Newbery
Evolution Arbor and Consulting
Dip Arboriculture (Stud) 2020
Cert III Arb

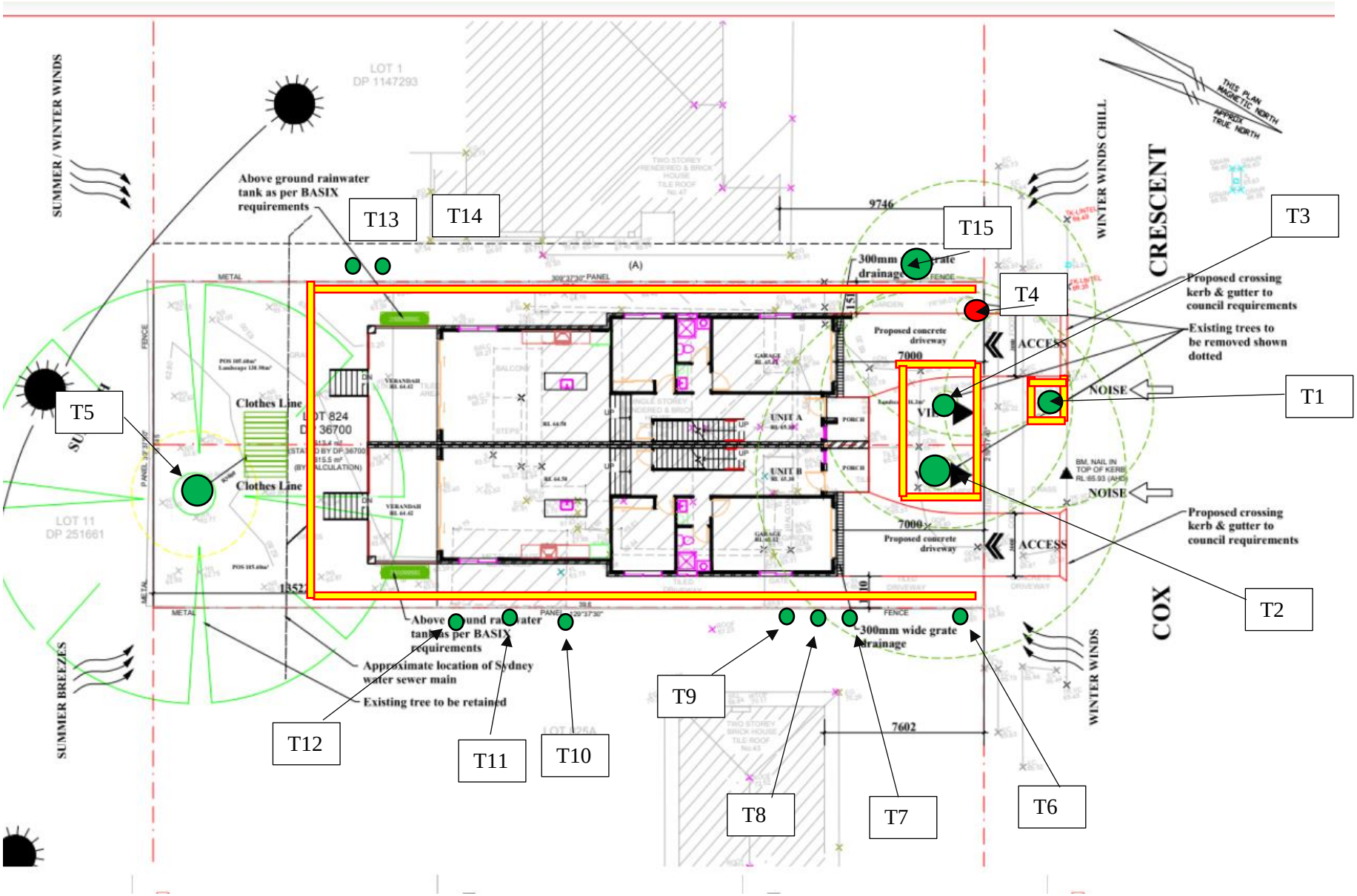
Elizabeth Cowan
Cert III Arboriculture (Stud 2020)
B Communications
Dip Business

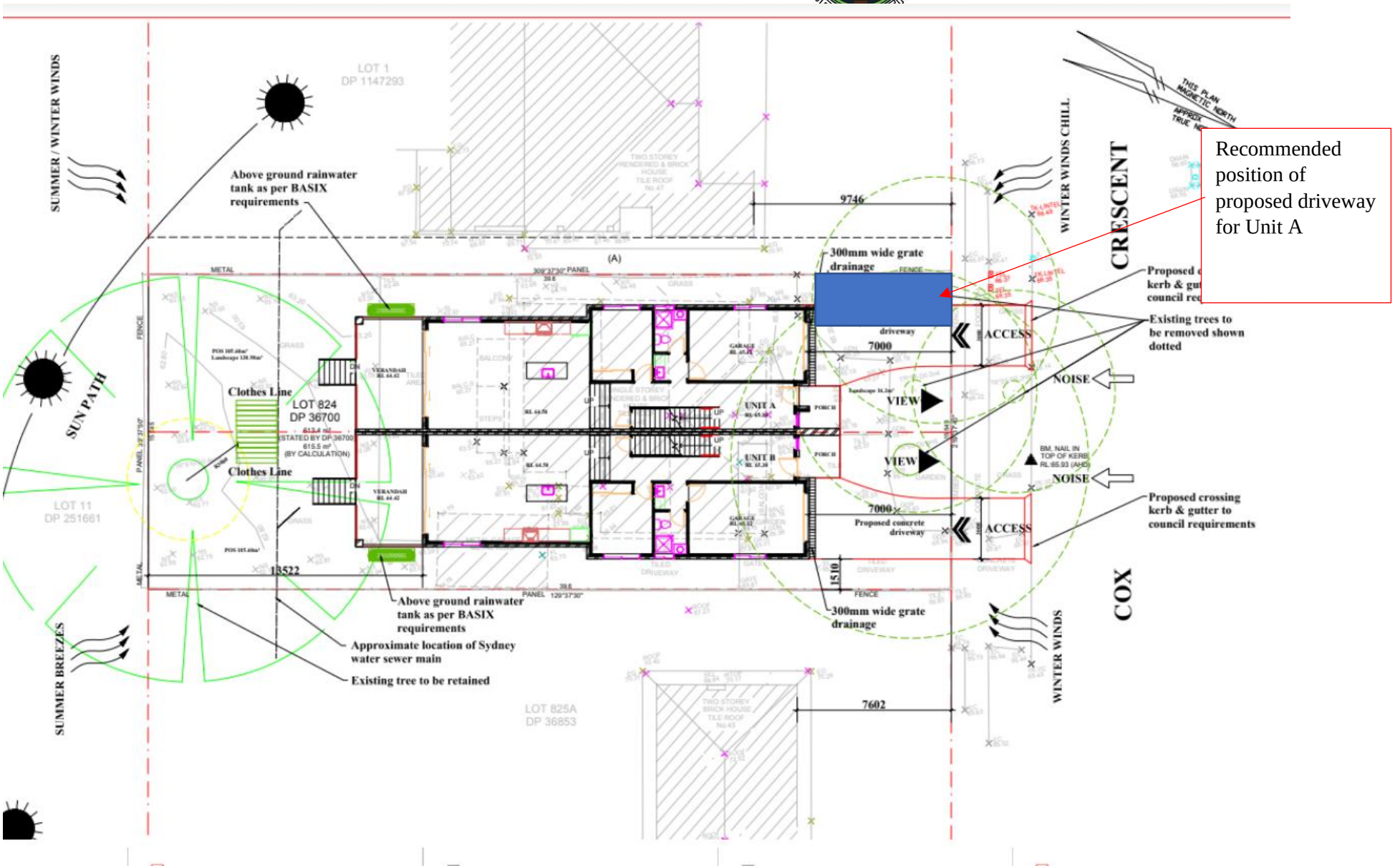
Appendix 1 - Site Plan with Tree Protection Measures

= trees recommended to be retained

= trees recommended for removal

= tree protection hi vis mesh fencing




SUMMER / WINTER WINDS
SUN PATH
SUMMER BREEZES
WINTER WINDS CHILL
WINTER WINDS
Above ground rainwater tank as per BASIX requirements
Above ground rainwater tank as per BASIX requirements
Approximate location of Sydney water sewer main
Existing tree to be retained
Clothes Line
Clothes Line
LOT 824
DP 36700
LOT 1
DP 1147293
LOT 11
DP 251661
LOT 825A
DP 36853
9746
13522
7602
7000
7000
1510
300mm wide grate drainage
300mm wide grate drainage
driveway
Proposed concrete driveway
ACCESS
ACCESS
NOISE
NOISE
VIEW
VIEW
UNIT A
UNIT B
Existing trees to be removed shown dotted
Proposed crossing kerb & gutter to council requirements
CRESCENT
COX
Recommended position of proposed driveway for Unit A

Appendix 2 – Images

Image 1: T1 (front) T2 and T3 (taken from google images 2021)

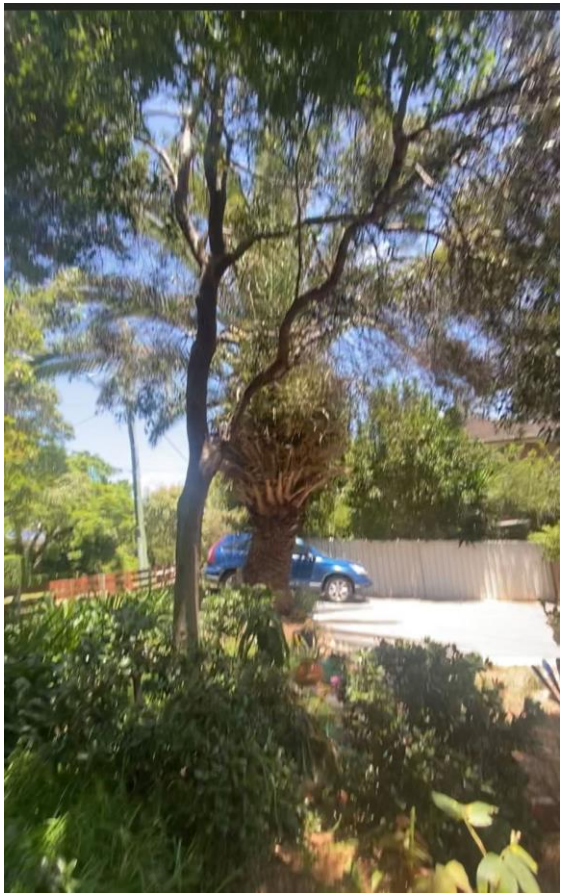


Image 2: T2 and T3

Image 3: T5

Image 4: T6

Image 5: Limited access to 43 Cox Cres backyard

Image 6: T13 and T14

Appendix 3 – Tree Inspection Form

	T1	T2	T3
Species	Lophostemon confertus	Phoenix canariensis	Hymenosporum flavum
Common Name	Brush box	Canary Island date palm	Native frangpani
Location	Council tree	front garden	front garden
DBH (mm)	362.87	783.04	216.45
DAB (mm)	397.88	1141	273.74
Height (m)	4m	7m	5m
Canopy Spread (m)	6m	5m	6m
SULE	L	L	L
Age Class	M	M	M
TPZ (m) Radius	4.35m (R)	9.4m (R)	2.6m (R)
SRZ (m) Radius	2.25m (R)	3.5m (R)	1.92m (R)
TPZ M2	58.10	277.6	21.2
SRZ M2	15.20	38.5	11.3
Distance to development (approximate locations)	500mm from the right side proposed driveway	3m from the left side proposed driveway	800mm from the right side proposed driveway
Proposed Encroachment per client's plan	39%	29.8%	31.9%
Proposed Encroachment per our recommendations	12.5%	29.8%	2.6%
Health and Structure	Evidence of powerline clearing	Good	codominant
Recommendations	Retain and protect. The proposed driveway for unit A can be moved 1.5m towards the right-side boundary which reduces the encroachment from 39% to 12.5% and is to be constructed with tree sensitive construction methods in mind. All excavation works are to be completed by hand and tree	Retain and protect	Retain and protect. The proposed driveway for unit A can be moved 1.5m towards the right side boundary which reduces the encroachment from 31.9% to 2.6% and is to be constructed with tree sensitive construction methods in mind such as all excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed benath the driveway.

	sensitive systems such as honeycomb blocks to be installed beneath the driveway.		
	T4	**T5**	**T6**
Species	Acer palmatum	Jacaranda mimosifolia	Exotic tree sp.
Common Name	Japenese Maple	Jacaranda	Exotic tree sp.
Location	Front garden	Back garden	43 Cox Cres, Dundas Valley between driveway and boundry fence
DBH (mm)	280.11	630.25	229.18
DAB (mm)	385.15	445.63	318.3
Height (m)	5m	8m	6m
Canopy Spread (m)	8m	8m	3.6m
SULE	L	M	M
Age Class	M	M	SM
TPZ (m) Radius	3.36m (R)	7.56m (R)	2.75m (R)
SRZ (m) Radius	2.22m (R)	2.36m (R)	2.05m (R)
TPZ M2	34.2	176.7	22.9
SRZ M2	15.2	16.6	12.6
Distance to development (approximate locations)	Within footprint of proposed driveway	10m	<1m from the existing driveway proposed for removal and 1.51m away from the new proposed driveway
Proposed Encroachment per client's plan	100%	0%	19.2%
Proposed Encroachment per our recommendations	100%	0%	19.2%
Health and Structure	tridominant	<5% epicormics, pruning events, tyre swing attached, deadwood,	Evidence of boring insect activity
Recommendations	Remove	Retain and protect	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for unit B is to be constructed with tree sensitive construction methods in mind such as all excavation works

			are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
	T7	**T8**	**T9**
Species	Exotic tree sp.	Exotic tree sp.	Unidentifed bush
Common Name	Exotic tree sp.	Exotic tree sp.	Unidentifed bush
Location	43 Cox Cres, Dundas Valley between driveway and boundry fence	43 Cox Cres, Dundas Valley between driveway and boundry fence	43 Cox Cres, Dundas Valley between driveway and boundry fence
DBH (mm)	159.15	85.94	124.14
DAB (mm)	213.26	127.32	286.47
Height (m)	6m	5m	2
Canopy Spread (m)	3.5m	3.5m	1.5
SULE	M	M	M
Age Class	SM	SM	M
TPZ (m) Radius	2.56m (R)	2m (R)	2m (R)
SRZ (m) Radius	2m ®	1.5m (R)	1.96m (R)
TPZ M2	19.6	12.6	12.6
SRZ M2	12.6	7.1	11.3
Distance to development (approximate locations)	<1m from the existing driveway proposed for removal and 1.51m away from the new proposed driveway	<1m from the existing driveway proposed for removal and 1.51m away from the new proposed driveway	<1m from the existing driveway proposed for removal and 1.51m away from the new proposed driveway
Proposed Encroachment per client's plan	17.9%	10%	10%
Proposed Encroachment per our recommendations	17.9%	10%	10%
Health and Structure	Evidence of boring insect activity	Good	Good
Recommendations	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for unit B is to be constructed with tree sensitive	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for unit B is to be constructed with tree sensitive construction methods in mind such as all	Retain and protect. The current driveway is to be removed by hand construction methods only. The proposed driveway for unit B is to be constructed with tree sensitive construction methods in mind such as all excavation works

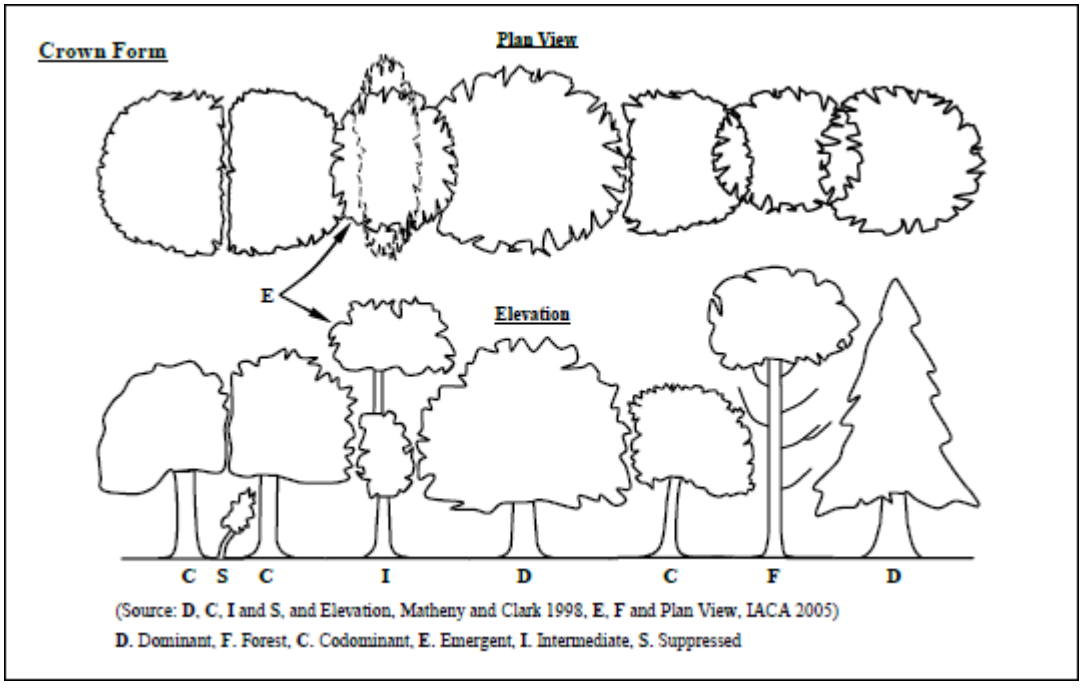
	construction methods in mind such as all excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.	excavation works are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.	are to be completed by hand and tree sensitive systems such as honeycomb blocks to be installed beneath the driveway.
	T10	T11	T12
Species	Duranta repens	Duranta repens	Duranta repens
Common Name	Geisha Girl	Geisha Girl	Geisha Girl
Location	43 Cox Cres, Dundas Valley backyard along property boundry with #45	43 Cox Cres, Dundas Valley backyard along property boundry with #45	43 Cox Cres, Dundas Valley backyard along property boundry with #45
DBH (mm)	200.53	200.53	200.53
DAB (mm)	286.47	286.47	900
Height (m)	5	5	5
Canopy Spread (m)	6	6	6
SULE	S-M	S-M	S-M
Age Class	M	M	M
TPZ (m) Radius	2.41m (R)	2.41m (R)	2.41m (R)
SRZ (m) Radius	1.96m (R)	1.96m (R)	1.96m (R)
TPZ M2	18.1	18.1	18.1
SRZ M2	11.3	11.3	11.3
Distance to development (approximate locations)	2.1m from the proposed dwelling	2.1m from the proposed dwelling	2.1m from the proposed dwelling
Proposed Encroachment per client's plan	2.8%	2.8%	2.8%
Proposed Encroachment per our recommendations			
Health and Structure	Good	Good	Good
Recommendations			
	T13	T14	T15
Species	Capsicum frutescens	Capsicum frutescens	Murraya paniculata

Common Name	Tabasco pepper	Tabasco pepper	Native murraya
Location	47 Cox Cres, Dundas Valley backyard along property boundry with #45	47 Cox Cres, Dundas Valley backyard along property boundry with #45	47 Cox Cres, Dundas Valley front yard along property boundry with #45
DBH (mm)	N/A - no access	N/A - no access	N/A - no access
DAB (mm)	N/A - no access	N/A - no access	N/A - no access
Height (m)	2.8	2.8	5m
Canopy Spread (m)	2.5	2.5	3.5
SULE	M	M	M
Age Class	SM - M	SM - M	SM - M
TPZ (m) Radius	N/A - no access	N/A - no access	N/A - no access
SRZ (m) Radius	N/A - no access	N/A - no access	N/A - no access
TPZ M2	N/A - no access	N/A - no access	N/A - no access
SRZ M2	N/A - no access	N/A - no access	N/A - no access
Distance to development (approximate locations)	>5m	>5m	151m to proposed drvieway
Proposed Encroachment per client's plan	N/A - no access	N/A - no access	N/A - no access
Proposed Encroachment per our recommendations			
Health and Structure	Good	Good	Good
Recommendations			

SULE key: Long (L) 40+, Medium (M) 15-30, Short (S) 5-10, Remove (R) Under 5, Too small (TS).
Age class key: Young (Y), Semi mature (SM), Mature (M), Over mature (OM) or Dead (D)

Appendix 4 – Glossary

VTA	VTA or Visual Tree Assessment, industry standard for assessing trees.
Hazzard	A Hazzard is defined by Workcover NSW 1996 as anything with the potential to harm property, health and/or life.
DBH	DBH or Diameter at Breast Height is the industry standard of trunk measurement at 1.4 meters above ground level.
DAB	Diameter at base
Infrastructure	Hard stands such as roads, houses etc. that cannot be moved.
Vigour	The overall health of the tree and the ability to counter Physical strain/stress.
Asymmetry/Asymmetrical	Asymmetry is a clear difference in the two halves.
Target area	The area immediately beneath the tree that may be impacted in the event of failure.
Codominant	The term codominant is used to describe two (2) or more stems of equal size growing from the same location on the tree.
Deadwood	Dead branches within the trees canopy which can be quantitively considered as separate to the crown cover.
Die Back	The death of some areas of the crown.
Epicormic shoots	Juvenile shoots produced at branches or trunk from epicormic strands.



(Source: **D**, **C**, **I** and **S**, and Elevation, Matheny and Clark 1998, **E**, **F** and Plan View, IACA 2005)
D. Dominant, **F**. Forest, **C**. Codominant, **E**. Emergent, **I**. Intermediate, **S**. Suppressed

Appendix 5 – Pruning Standards

Any and all pruning recommended in this report is to comply with Australian Standards, these standards can be found in AS- 4373-2007 Pruning of Amenity Trees. All works should be conducted in a manner so as to conform with NSW Work Cover Authority's Code of Practice titled, Tree Work 2007.

All pruning works are to comply with the relevant Tree Management Policy, Tree Management Order or Tree Preservation Order where applicable, these guidelines can be found on an approved development application, approved consent for works letter or the local Council's website. Depending on the consent sought for the site will determine which of these is applicable.

Tree maintenance and removal work is dangerous and as such should be conducted by Arborists who hold the relevant competencies and qualifications under the Australian Qualification Framework, with a minimum of three (3) years of continuous experience in carrying out these tasks, these professionals should also hold the relevant insurances to undertake these works.

Appendix 6 – Guidelines for Tree Protection Works

Tree Management Plan – Prior to any works commencing within this site a project arborist should be appointed, to supervise any and all tree protection procedures stated in this report and/or stated in the approved development application. The project arborist should have the relevant qualifications set out in the Australian Qualification Framework.

Milestones – Milestones set out in this report are to be adhered to at the relevant times during the development, any and all relevant paperwork is to be to the relevant local authority.

Tree protection zones – Each required tree protection zone (TPZ) is to be incorporated into the relevant construction method. Protective fences are to be installed before works commence in the areas outlined in the Tree Protection Plan above. Under the Australian Standard for Protection of Trees on Development Sites, tree protection should be twelve (12) times trunk diameter measured at breast height (DBH), this means a tree with a one (1) meter DBH would require a tree protection zone of twelve (12) meters. This area can be altered to accommodate the proposed works; however, this can only be done by the project arborist appointed to the site and only be done where no other option is possible or feasible.

Ground Protection – Ground protection should be included within the TPZ at the time the protection is erected, this will enable the protection to be moved if temporarily removed if access is required within the TPZ. Ground protection should be in the form of good quality leaf mulch spread at a thickness of 100mm, with mulch spread at this depth it will remove the possibility of soil compaction and root damage. Leaf mulch also acts as a natural insulator which helps keep the roots at an optimal temperature whilst also releasing nutrients back into the soil during works. Whilst leaf mulch spread at a depth of 100mm over the top of a permeable material such as geo textile fabric is preferred, other options are possible such as crushed rock under rumble boards and other natural materials.

Excavation within a Tree Protection Zone – where excavation is required within a TPZ, the works should be done in the least invasive way possible, excavations should be conducted by hand under the supervision of the project arborist. Where it is not feasible to conduct excavations by hand due to an obstacle such as a steep slope, these works may be possible to be conducted by machine. If the works to be completed may jeopardize the structural integrity of the tree or the retainability of the tree, a re-assessment should be conducted, and the retention value be revised and possible removal of the tree.

Appendix 7 – Milestones

Tree protection prior to commencement of works – All tree protection is to be erected prior to the works commencing, this includes all fencing and ground cover for all retained trees and shrubbery. Tree protection signage that meets the specifications detailed in AS 4970-2009 Protection of Trees on Development Sites is to be installed on all required fences.

This is milestone one (1) the project arborist is to inspect all retained trees and shrubs at this point and complete the required documentation before works proceed. Demolition and removal of trees – At the commencement of works all required tree removals should be completed, this should be done a manner so as to not disturb any retained trees and/or shrubs.

After Demolition and before construction – Prior to commencement of construction works any required regrading around retained trees should be completed where possible, location of under-ground services within the TPZ of retained trees should also be completed at this time. Any relocatable buildings such as site sheds and toilets should be taken into consideration at this time, it is possible to store these buildings within the TPZ of a retained tree, providing no harmful chemicals or vehicle traffic is to occur.

This is milestone two (2) the project arborist is to reinspect any retained trees and shrubs prior to the commencement of construction works and assess tree protection measures installed as part of the D/A approval conditions, all required documentation is to be completed for the respective consent authority.

Tree protection during construction – All tree protection zones are to remain for the duration of works within the site, any woody roots found during excavation that must be pruned shall be done with a sharp tool so as to leave a clean cut, any required root pruning is to be done under the supervision of the project arborist. Any weeding that must be done within the TPZ of a retained tree is to be done by hand to create minimal disturbance around the root system of the retained trees, no poisons are to be used in the vicinity of any retained trees or shrubs.
Milestone three (3) the project arborist is to frequently inspect the retained trees and TPZ during the construction, any alterations to a TPZ required is to be done so by the project arborist, all relevant documentation is to be completed at each inspection and submitted to the respective consent authority.

Completion of construction works – At the completion of construction works all TPZ measures are to remain in place until the project arborist is able to inspect the condition of the trees, all resulting debris from construction is to be removed as well as any construction vehicles and temporary buildings removed prior to final inspection.

Milestone four (4) upon completion of works the project arborist is to complete a final inspection, at this time an assessment of all retained trees is to be completed and all relevant documentation completed. This documentation is to detail any remedial care required to ensure the longevity of retained trees. All relevant documentation is to be submitted to the respective consent authority

Appendix 8 – Tree Significance Assessment Criteria

Per the IACA Significance of a Tree, Assessment Rating System (STARS):

1. High Significance in landscape

- The tree is in good condition and food vigour
- The tree has a form typical for the species
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register.
- The tree is visually prominent and visible form a considerable distance when viewed from most directions within the landscape due to is size and scale and makes a position contribution to the local amenity
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical to the taxa in situ – tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour
- The tree has form typical or atypical of the species
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is not visible or is partly visible form surrounding properties as obstructed by other vegetation or buildings when viewed from the street
- The tree provides a fair contribution to the visual character and amenity of the local area
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour
- The tree has form atypical of the species
- The tree is not visible or is particularly visible from surrounding properties as obstructed by other vegetation or buildings
- The tree provides minor contribution or has a negative impact on the visual character and amenity of the local area
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can be easily replaced by a suitable specimen.
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimension typical of the taxa in situ – tree is appropriate to the site conditions
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms
- The tree has a wound or a defect that has potential to become structurally unsound

Environmental Pest / Noxious Weed Species

- The tree is an Environment Pest Species due to its invasiveness or poisonous / allergenic properties
- The tree is declared an anxious weed by legislation

Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Appendix 9 – Tree Retention Value