Arborist Report

Client: Coho Property Pty Ltd

Address: Corner Stockton & Tomaree Streets, NELSON BAY N.S.W 2315

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1.0 Executive Summary

- Abacus Tree Services have been requested to undertake a site inspection on ten (10) trees in relation to the proposed development at Corner Tomaree and Stockton Streets, Nelson Bay. The applicant proposes to undertake a multi – unit residential development as outlined in Appendix 1. In order for the development to proceed in its current format will require the removal of Trees 1 & 3 - 10. Tree 2 can be retained and incorporated into the development. Conditions and recommendations are outlined in section 7 of the report.

2.0 Arborist Details

Bradley Magus **Contact Details:** P.O Box 333 Newcastle 2300 Ph: 0425 203 049 Email: abacustrees@gmail.com or bradmagus1@bigpond.com Web: www.abacustreeservices.com	**Qualifications** 1. Diploma Horticulture (1993) 2. Bachelor of Horticulture Science (1996) 3. Masters Land Economics (2002) 4. Diploma Horticulture (Arboriculture) (AQF 5) 2007 (Dux) 5. International Society of Arboriculture Certified Arborist (2007) 6. QTRA Assessor – 2011 & 2013

2.1 Introduction

Abacus Tree Services was commissioned by Coho Property Ptd Ltd to assist in the preparation of an arborist report. An assessment was made on ten (10) trees (Trees 1 – 10) located within the confines of 8 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. There is in total ten (10) trees located at 8 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay that were assessed as per the applicant's instructions.

The purpose of this report is to provide information and guidance to the applicant in relation to ten (10) trees only. The information in this report is to be used in correlation with other reports identified by Port Stephens Council and will provide Port Stephens Council with a framework for determining the development application (D.A).

This report and its recommendations are based upon a physical site inspection undertaken on the 26 September 2024.

The photographs included in this report were taken at the time of the inspection on the 26 September 2024.

2.2 Aims of this report/Procedure

The aim of this report is to assess the health and condition of ten (10) trees (Trees 1 - 10). The condition of the trees was assessed from ground level using the VTA (Visual Tree Assessment) method as outlined by Mattheck & Breloer (1999). The following criteria will be assessed within this report –

- An assessment of the dimensions (age, class, height and Diameter at Breast Height (D.B.H)
- An assessment of the health and condition of the trees; an assessment of the Useful Life Expectancy (U.L.E)
- Compilation of an appropriate report detailing the results of the above assessments
- Trees earmarked for retention to be assessed as per Australian Standards 4970-2009
- Hazard Rating, Recommendations for each tree

The (U.L.E) method of tree assessment, as outlined by Jeremy Barrell (1999) has been adopted within this report. U.L.E categories give an indication of the useful life expectancy anticipated for the tree that has been adopted for this report. Several factors are considered in determining this rating such as species, location, age, condition and health of the tree. The five U.L.E categories are outlined in detail within Appendix 2.

3.0 Disclaimer

This assessment has been prepared for the exclusive use of the applicant (Coho Property Ptd Ltd), for the preparation of a development application submission. Information in this report relates to ten (10) trees (Trees 1 – 10) within the premises of 8 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay only and should not be used in conjunction with any other property.

This assessment was carried out from the ground, and covers what was reasonably able to be assessed and available to the assessor at the time of the inspection. The assessor carried out no aerial inspections. Information contained in this report covers only the trees that were examined and reflects the condition of the trees at the time of the inspection; furthermore the inspection was limited to a visual examination of the subject trees without dissection, excavation, probing or coring. Trees are living things and there condition will change over time. Therefore there is no guarantee that problems or deficiencies of the subject tree may not arise in the future.

3.1 Site Map

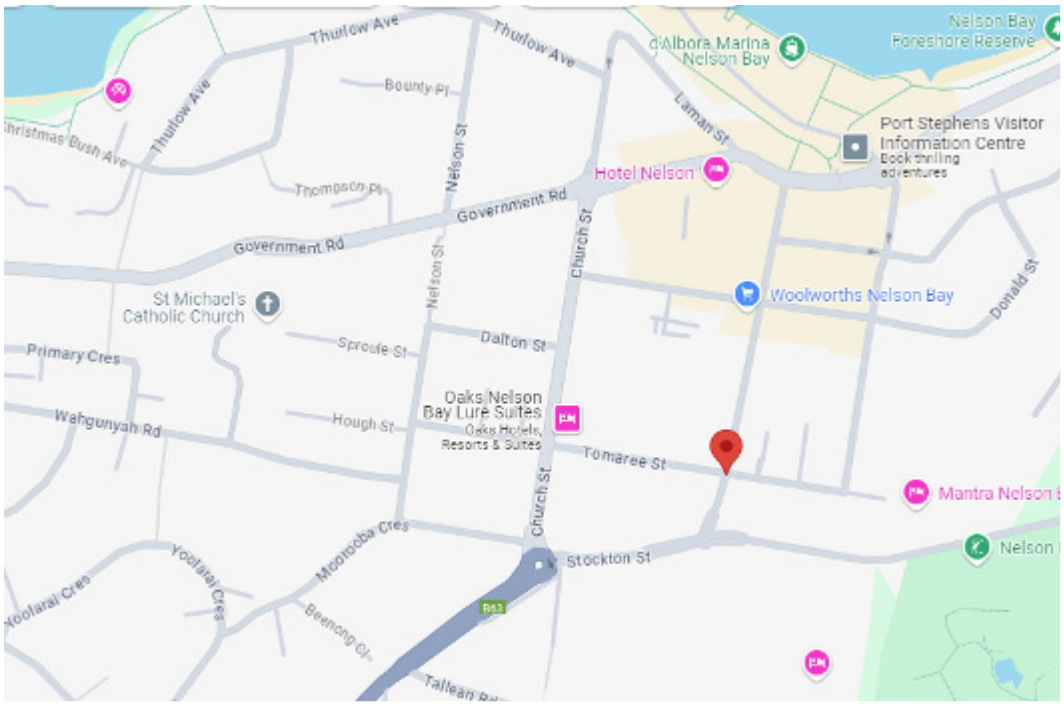


Figure 1
Location: Location of the subject property identified as Corner Tomaree and Stockton Streets, Nelson Bay
Source: www.googlemaps.com.au

3.2 Site Description

Trees 1 – 10 are located wholly within 8 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. The site is located in the municipality of Port Stephens Council. Trees 1 & 2 have been assessed against the requirements set out in Port Stephens Council's Local Environmental Plan (2013) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2014) pursuant to Part B1. I have assessed the property against Schedule 5 (Environmental Heritage) within Port Stephens Council LEP. The property is not listed in accordance with Part 1 (Heritage Items) and is not listed in Part 2 (Heritage Conservation Area).

The subject property has also been assessed against the SEPP Policy (Biodiversity and Conservation) 2021. This property or council area is listed as being within Part 2 (Section 2.3) of the SEPP (Biodiversity and Conservation) 2021. All councils have items of local government and state heritage significance. These items are found in the NSW heritage website. The subject property has been assessed against the Heritage NSW database. In accordance with Heritage NSW listed items there are no listings (Items listed by Local Government & State Agencies) for the subject property. This also includes no trees of heritage significance for the subject property.

The site is set on a flat block with the immediate area being dominated by residential houses. The nearest major arterial road is Stockton Street. Trees 1 - 10 are located within the subject property identified as 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. Trees 1 - 10 are located within the vacant allotment identified as Corner Tomaree and Stockton Streets, Nelson Bay within close proximity to the subject property & proposed development. The site is currently a vacant allotment as highlighted in Figure 2.

Figure 2 – Location of subject property identified as 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay
Source: Google Maps

4.0 Tree Schedule

Species & dimension requirements on Page 10. This page intentionally left blank

Tree No	Scientific Name	Common Name	DBH (MM)	Height (M)	AGE CLASS	Vigour	SPREAD N.E.S.W.	ULE	Comments
1	Cinnamomum camphora	Camphor Laurel	470,290.340	11	YM	G	3,6,5,4	2d	Located 2.2 metres to the neighbours building, Symmetrical, LCR = 95 – 100%
2	Cinnamomum camphora	Camphor Laurel	MS (580)	8	YM	G	2,4,4,4	2d	Previous pruning works to N quadrant, Symmetrical, LCR = 95 – 100%
3	Schefflera actinophylla	Umbrella Tree	MS (280)	7	SM	G	1,3,1,3	2d	Symmetrical, LCR = 95 – 100%
4	Melia azaderach	White Cedar	140	6.5	SM	F	4,2,0,0	3d	Symmetrical, LCR = 75 – 80%
5	Cinnamomum camphora	Camphor Laurel	MS (760)	10	YM	G	7,6,6,5	2d	Tropism to the NE quadrant, Symmetrical, LCR = 95 – 100%
6	Phoenix canariensis	Date Palm	490	4.5	SM	G	2,2,2,2	2d	Symmetrical, LCR = 95 – 100%
7	Leptospermum patersonii	Lemon Scented Tea Tree	MS (360)	4.5	YM	G	4,3,1,0	2d	Symmetrical, LCR = 95 – 100%
8	Callistemon citrinus	Bottlebrush	170, 235	4.5	YM	G	2,3,2,2	2d	Bifurcated at 0.5 metres above ground level, Symmetrical, LCR = 95 – 100%
9	Callistemon citrinus	Bottlebrush	MS (410)	5.5	YM	G	2,3,4,2	2d	Symmetrical, LCR = 95 – 100%
10	Cinnamomum camphora	Camphor Laurel	MS (175)	5.5	YM	G	2,3,1,2	2d	Topped at 0.5 metres, Extensive epicormic growth, Symmetrical, LCR = 95 – 100%

Key:

Age class: Young = Y, Semi mature = SM, Mature = M, YM = Young Mature, Over mature = OM
DBH = Diameter at Breast Height LCR = Live Crown Ratio
Vigour = E = Excellent, G = Good, F = Fair, P = Poor, D = Dead, Do = Dormant
LDW = large deadwood over 40mm, MDW = Minor deadwood less than 40mm
N = north, E = east, W = west, S = south MS = multiple Stems
ULE = Useful Life Expectancy (See appendix 2 for guidelines)
MS = Multiple Stems S = Shrub
PSC = Port Stephens Council UFTM + Urban Forestry Technical Manual
SRZ = Structural Root Zone TPZ = Tree Protection Zone

4.1 Trees & Impact on Development

Trees are living organisms and their root systems play an integral role in stability and providing nutrient storage as well as water uptake. The majority of tree roots for Dicotyledons occur within the first metre of the soil. Therefore construction works can have a profound effect on their health and longevity as well as their structural stability. Tree distances from excavation works must be taken into consideration at the planning stage to ensure that the tree is not damaged.

There are several main factors that occur at the construction phase that can have a negative impact on the trees health and stability. These practices can include but are not limited to –

- Parking of vehicles and heavy machinery within the drip line of the tree.
- Stockpiling of materials within the drip line of the tree.
- Excavating within the drip line and damaging the structural root system.
- Raising soil levels in and around the base of the tree therefore reducing the trees ability for gaseous exchange.
- Damage to the tree due to heavy machinery and equipment resulting in large bark tears or loss of branches and scaffolds.

To reduce the effects of construction it is imperative to provide an area underneath the tree where no works are undertaken. The area where supervised works are undertaken is referred to as the structural root zone (SRZ). The S.R.Z/T.P.Z is an area where no to minimal activities listed above should occur. All trees require an S.R.Z/T.P.Z and will vary from species to species but for the purposes of this report the Australian Standards 4970 has now been adopted.

In conclusion the Australian Standards like similar methods for protecting trees is only a guide. To ensure the health and longevity of trees within construction sites it is imperative to provide a large protection zone taking into consideration that the tree will also grow over time. The greater area that can be put aside where no works occur will aid in the preservation of the tree. The activities listed above should be kept to a minimum and encroachment within the SRZ/TPZ will require the supervision by a qualified AQF 5 arborist. These impacts will be taken into consideration in the discussion & recommendations section of this report.

5.0 Discussion & Compliance to Australian Standards 4970 – 2009, 4373 – 2007 & Rural Fire Service (RFS) 10:50 Code

Abacus Tree Services has been approached by Coho Property Ptd Ltd to undertake an arborist (assessment) report on trees that come under the requirements of Port Stephens Council DCP (Section B1 & Tree Technical Specification) & trees that will be affected by the proposed development. There are ten (10) trees that have been assessed within the subject properties identified as 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. Trees 1, & 3 - 10 are located within the vacant allotment identified as the subject property. Tree 2 is located near the boundary with other shrubbery within 8 Tomaree Street, Nelson Bay. The applicant proposes to construct a residential complex within the subject property identified as Corner Tomaree and Stockton Streets, Nelson Bay (Appendix 1).

Abacus Tree Services has relied upon the sketch drawings provided by Brooke Holdsworth Design (Drawing number – Issue L) to formulate distances and setbacks in accordance with Australian Standards 4970 – 2009. I have relied upon this information to be true and accurate. Any changes to the sketching and drawings will require the calculations to be reassessed in accordance with Australian Standards 4970 – 2009.

The table below represents the S.R.Z (Structural Root Zone) and TPZ (Tree Protection Zone) figures based on Australian Standards 4970 - 2009.

Tree No	SRZ (metres)	TPZ (metres)
1	3.14	7.80
2	2.85	6.96
3	2.08	3.36
4	1.61	2.00
5	3.01	9.12
6	2.67	3.00
7	2.30	4.32
8	2.23	3.48
9	2.26	4.92
10	1.63	2.10

All trees require a S.R.Z and a T.P.Z with Australian Standards 4970- 2009 being used as a guideline. Tree 1 has been given an SRZ and TPZ of 3.14 & 7.80 metres in accordance with Australian Standards 4970 - 2009. Tree 1 will be located 5 metres to the proposed development. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 5.44 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 9.52% that complies with AS 4970 – 2009. This is based on the proviso that no soil changes occur from the trunk to the proposed development inside the TPZ. Tree 1 is classified as a noxious weed in Port Stephens Council. Tree 1 is earmarked for removal before commencement of building works on site.

Figure 3 – showing the location of Tree 1 that is located inside the subject property. Tree 1 has three main leaders. Tree 1 is identified as a noxious weed

Tree 2 has been given an SRZ and TPZ of 2.85 & 6.96 metres in accordance with Australian Standards 4970 - 2009. Tree 2 is located on the boundary fence however the site survey indicates that this species is located in the neighbour's property. Tree 2 is located 6 metres to the proposed dwelling. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 6.35 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 1.18% that complies with AS 4970 – 2009. This is based on the proviso that the existing soil levels are retained between the trunk and the development inside the TPZ. This species is also classified as a noxious weed in PSC however due to its location on the boundary within the neighbouring property will be retained. Tree 2 is earmarked for retention.

Figure 4 – showing the location of Trees 1, 2 & 5.

Tree 3 has been given an SRZ and TPZ of 2.08 & 3.36 metres in accordance with Australian Standards 4970 - 2009. Tree 3 is located inside the subject property. Tree 3 is identified as a noxious weed in Port Stephens Council. This species is in a young mature phase of its life cycle. This species is located 4.1 metres to the proposed development. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 4.27 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 0% that complies with AS 4970 – 2009. The development is located outside of the TPZ. This is based on the proviso that the existing soil levels are retained between the trunk and the development inside the TPZ. Tree 3 is earmarked for removal before commencement of building works on site.

Figure 5 – showing the location of Tree 3. This species is classified as a noxious weed.

Tree 4 has been given an SRZ and TPZ of 1.61 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 4 is classified as a semi mature White Cedar. Tree 4 is located 1.8 metres to the proposed development. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 1.87 metres to the proposed development. The overall loss of TPZ has been calculated at 0.98% that complies with AS 4970 – 2009. All building works are located at the edge of the TPZ. This species can reach a TPZ of 7 to 8 metres (minimum) when fully mature. This also includes canopy spreads of 7 to 8 metres to each quadrant. This species will outgrow its available growing space when in a mature phase of its life cycle. Two (2) smaller species would be better suited within the landscape plan. Tree 4 is earmarked for removal before commencement of building works on site.

Figure 6 – showing the location of Tree 4 inside the subject property.

Tree 5 has been given an SRZ and TPZ of 3.01 & 9.12 metres in accordance with Australian Standards 4970 - 2009. Tree 5 is identified as a noxious weed in Port Stephens Council. Tree 5 is located 2.5 metres to the proposed development and associated civil works. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 2.9 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 30.10% that doesn't comply with AS 4970 – 2009. Tree 5 is earmarked for removal before commencement of building works on site.

Figure 7 – showing the location of the shrubbery and Tree 5. Tree 5 is the larger tree identified as a Camphor Laurel.

Tree 6 has been given an SRZ and TPZ of 2.67 & 3.00 metres in accordance with Australian Standards 4970 - 2009. Tree 6 is classified as a monocotyledon in accordance with AS 4970 – 2009. The minimum TPZ requirement for a monocotyledon is 1 metre outside of the crown projection. Tree 6 is located 1.8 metres to the proposed development. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 2.1 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 9.41% that complies with AS 4970 – 2009. This species can reach a TPZ of 5 to 6 metres (minimum) when fully mature. This also includes canopy spreads of 5 to 6 metres to each quadrant. This species would outgrow its available growing space when in a mature phase of its life cycle. Two (2) smaller species would be better suited within the landscape plan. Tree 6 is earmarked for removal before commencement of building works on site.

Figure 8 – showing the location of Trees 6 - 8

Tree 7 has been given an SRZ and TPZ of 2.30 & 4.32 metres in accordance with Australian Standards 4970 - 2009. Tree 7 is located 1.70 metres to the proposed development. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 1.91 metres from the centre of the trunk to the proposed development. The overall loss of TPZ has been calculated at 22.80% that doesn't comply with AS 4970 – 2009. Tree 7 has a tropism to the northern quadrant. The canopy is to the north and eastern quadrants only. To allow a spatial separation of 1 metre to the development will require 30 – 35% of the canopy being removed. This is an extensive amount of pruning works. Tree 7 is earmarked for removal before commencement of building works on site.

Figure 9 – showing the location of Trees 6 & 7. Tree 7 has canopy only to the north and eastern quadrants. Extensive pruning works would be required for Trees 6 & 7.

Tree 8 has been given an SRZ and TPZ of 2.23 & 3.48 metres in accordance with Australian Standards 4970 - 2009. Tree 8 is located inside the proposed development. In order for the development to proceed in its current format will require the removal of Tree 8. Tree 8 is earmarked for removal before commencement of building works on site.

Tree 9 has been given an SRZ and TPZ of 2.26 & 4.92 metres in accordance with Australian Standards 4970 - 2009. Tree 9 is located inside the proposed development. In order for the development to proceed in its current format will require the removal of Tree 9. Tree 9 is earmarked for removal before commencement of building works on site.

Figure 10 – showing the location of Trees 9 & 10. Tree 9 comes under council requirements. Tree 10 is classified as a noxious weed and can be removed. Trees 9 & 10 will be located inside the proposed development.

Tree 10 has been given an SRZ and TPZ of 1.63 & 2.10 metres in accordance with Australian Standards 4970 - 2009. Tree 10 is located inside the proposed development. In order for the development to proceed in its current format will require the removal of Tree 10. Tree 10 is earmarked for removal before commencement of building works on site.

5.2 Tree Retention Values

Tree retention and values are part of the process when evaluating trees within Port Stephens Council. The significance and the assessment criteria are to be assessed within attachments 1 & 2 of the Tree Technical Specification (TTS). The 7 step criteria for assessing trees is set out within the TTS. Attachments 1 & 2 of the TTS highlights the guide to compensatory planting on development sites. After determining the tree retention value requires replacement plantings. Table 4 of the TTS outlines the amount of trees to be compensated for as per the retention value (Table 3 – TTS). This report will follow those guidelines as per Table 4 (TTS).

Table 4 (TTS) outlines the number of trees that will be required to be planted when trees are unable to be retained unless otherwise conditioned by, or negotiated with, Council. The pot size of the replacement trees will be determined by Council and is dependent on site characteristics, the species of the tree to be replated and stock availability. The tree retention table below outlines only those trees that are being removed in order to calculate the appropriate amount of trees for compensatory replanting. Trees of very low to low retention value do not require replacement plantings. Trees that are being retained do not require replacement plantings. Trees 1, 3, 5 & 10 are noxious weeds and therefore require no replacement plantings. Tree 2 is being retained therefore requires no replacement plantings. Trees 4 & 6 – 8 are semi mature to young mature trees. Trees 4 – 6 are 4.5 – 6.5 metres in height with small canopies less than 40m2. These trees have a landscape significance of 5 as they have a crown size less than 40m2 and can be replaced within the short term with new tree plantings (TTS – Table 3). A suitable landscape plan would suffice for the subject property. The applicant will need to replace with twelve (12) trees to adhere to Table 4 – TTS.

Tree Retention Value – As per 7 step criteria (Port Stephens Council - TTS)

Tree	ULE	Landscape Significance	Retention Value
1 – 3, 5 & 10	2a, 2d	7	VL
4	3d	5	L
6 – 9	2d	4	M

6.0 Conclusions

- Abacus Tree Services has been approached by Coho Property Ptd Ltd to undertake an arborist (assessment) report on trees that come under the requirements of Port Stephens Council DCP (Section B1 & Tree Technical Specification) & trees that will be affected by the proposed development. There are ten (10) trees that have been assessed within the subject properties identified as 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. Trees 1, 2 & 4 - 10 are located within the vacant allotment identified as the subject property. Tree 3 is located near the boundary with other shrubbery within 8 Tomaree Street, Nelson Bay. The applicant proposes to construct a residential complex within the subject property identified as Corner Tomaree and Stockton Streets, Nelson Bay (Appendix 1). Trees 1 - 10 have been assessed in accordance with Australian Standards 4970 – 2009.

- Trees 1 – 10 are located wholly within 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay. The site is located in the municipality of Port Stephens Council. Trees 1 - 10 have been assessed against the requirements set out in Port Stephens Council's Local Environmental Plan (2013) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2014) pursuant to Part B1. I have assessed the property against Schedule 5 (Environmental Heritage) within Port Stephens Council LEP. The property is not listed in accordance with Part 1 (Heritage Items) and is not listed in Part 2 (Heritage Conservation Area).

- The subject property identified as 87 Tomaree Street & Corner Tomaree and Stockton Streets, Nelson Bay is not located in a Rural Fire Service (RFS) 10:50 area. Therefore all trees have been assessed in accordance with council requirements with no exemptions under RFS 10:50 legislation. The search was undertaken on the 21 October 2024. Rules and regulations in relation to the RFS 10:50 can change and it is therefore up to the applicant to ensure they comply with the 10:50 code and any updates that may occur.

- Protection fencing for Tree 2 (1 in total) has been considered as it is on an adjoining property. Tree 2 will require retention in accordance with Australian Standards 4970 – 2009. A detailed tree protection plan report will accompany the arborist report that will outline the measures required to retain the tree.

- Tree 2 has the potential for future growth and therefore the canopy and root plate have the potential for future growth. All measures have been taken to minimise damage to the proposed buildings and hardstand areas however future growth has the potential to cause damage to the proposed buildings and/or hardstand areas.

- The applicant has therefore assessed all trees within 5 metres of the proposed development. This includes all trees on neighbouring properties within 5 metres of the proposed development. The applicant has assessed all trees necessary for the development to meet the requirements of PDC DCP & Australian Standards 4970 – 2009.

- In order for the development to proceed in its current format will require the removal of Trees 5 & 7 - 10 (5 in total). Trees 1 & 3 are classified as noxious weeds and earmarked for removal. Tree 4 is only in a semi-mature phase of its life cycle. Trees 4 & 6 will outgrow the available growing space and is earmarked for removal. In total it is recommended to remove Trees 1 & 3 – 10. (9 in total). This includes all trees inside the proposed development, hardstand areas and those that do not pass the requirements of AS 4970 – 2009. Tree 2 (1 in total) can be retained and incorporated into the development. Conditions and recommendations in relation to retained trees will be outlined in section 7 of the report.

7.0 Recommendations

- It is recommended that Coho Property Pty Ltd embark on a management program for ten (10) trees (Trees 1 – 10) before commencement of the proposed building and constructions works as follows:

- It is recommended that Trees 1 & 3 - 10 (9 in total) be removed immediately (before commencement of building works) by a qualified arborist (minimum certificate 2 in arboriculture). It is recommended that professional indemnity and public liability insurances be current and sighted before commencement of works begin. The level of cover has to be one in agreement between Coho Property Pty Ltd and the arborist.

- It is recommended that Tree 2 (1 in total) be retained and incorporated into the development. It is recommended that no change in the soil profile occur from 4.45 metres from the trunk to the development inside the TPZ. The remaining three sides are to remain at existing soil levels inside the TPZ. This will include no change to the soil profile above or below ground inside the TPZ's as outlined above. No hardstand or civil works are to occur inside the 4.45 metres and remaining three sides of the TPZ. Soil amelioration is allowed within the TPZ on the proviso that it doesn't disturb or alter the soil levels inside the TPZ. The landscaping zone will need to be undertaken by non-mechanised methods.

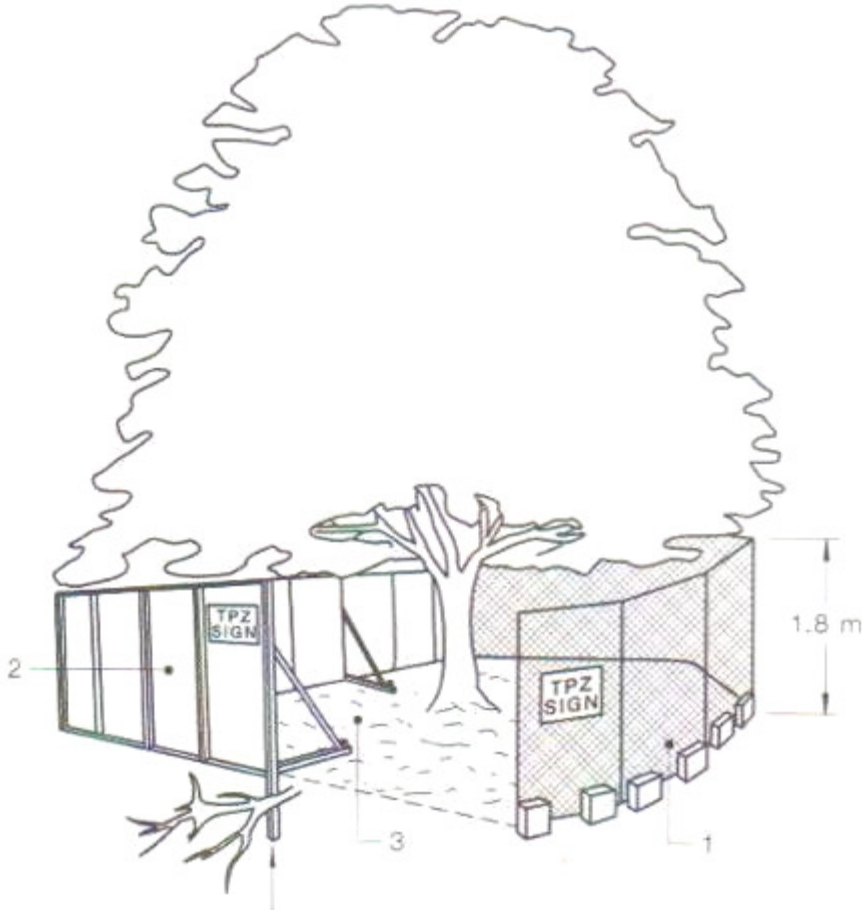
- It is recommended that protection measures be put in place that aid in the preservation of Tree 2 (1 in total). It is recommended that 1.8 metre inter locking chain wire fencing be installed before commencement of all civil and building works on site as indicated in Figure 11. Protection fencing is to be installed at 4.45 metres from the trunk on the side of the development and the remaining two sides inside the subject property to the edge of the TPZ. The fencing is to remain intact on the western side that will protection of the TPZ. Protection fencing is to be installed before commencement of all civil & building works and remain in place until the release of the occupation certificate.

- It is recommended that all civil contractors that enter the site are made aware of the importance of preserving Tree 2 and understand the tree protection measures that are put in place to preserve Tree 2.

- All stockpile sites are to be maintained outside the TPZ (Tree 2).

- It is recommended that all parking of vehicles and use of machinery be kept outside of the designated TPZ during all civil and construction works associated with the development. No placement or use of machinery is allowed within the designated TPZ fenced area.

- This report is not for publication to the internet and submission of this report in the submission phase set out by Council is to be taken down upon completion of the development application.



- Figure 11 – showing the proposed fencing that is to be put in place before the commencement of building works on site (Tree 2 only).
  Source: Australian Standards 4970 - 2009

Bradley Magus (Member ISAAC & LGTRA)
Consulting Arborist/Certified Arborist (ISAAC 2007)
Diploma in Horticulture (Arboriculture) (AQF 5) (Dux)
Bachelor of Horticulture Science

8.0 References

AS4373-2007 Pruning of Amenity Trees. Standards Australia

AS 4970 – 2009 Protection of trees on development sites

Clark R.J & Matheny N (1998) Trees & Development – A technical guide to Preservation of trees during land development: International Society of Arboriculture

Mattheck C., Breloer, (1999) The Body Language of Trees – a handbook for failure analysis 5th ed., London: The Stationery Office, U.K

Internet Sites

www.googlemaps.com.au

www.heritagensw.gov.au

www.rfs.nsw.gov.au

www.portstephens.nsw.gov.au

www.planningportal.nsw.gov.au

9.0 APPENDIX 1 Site Maps

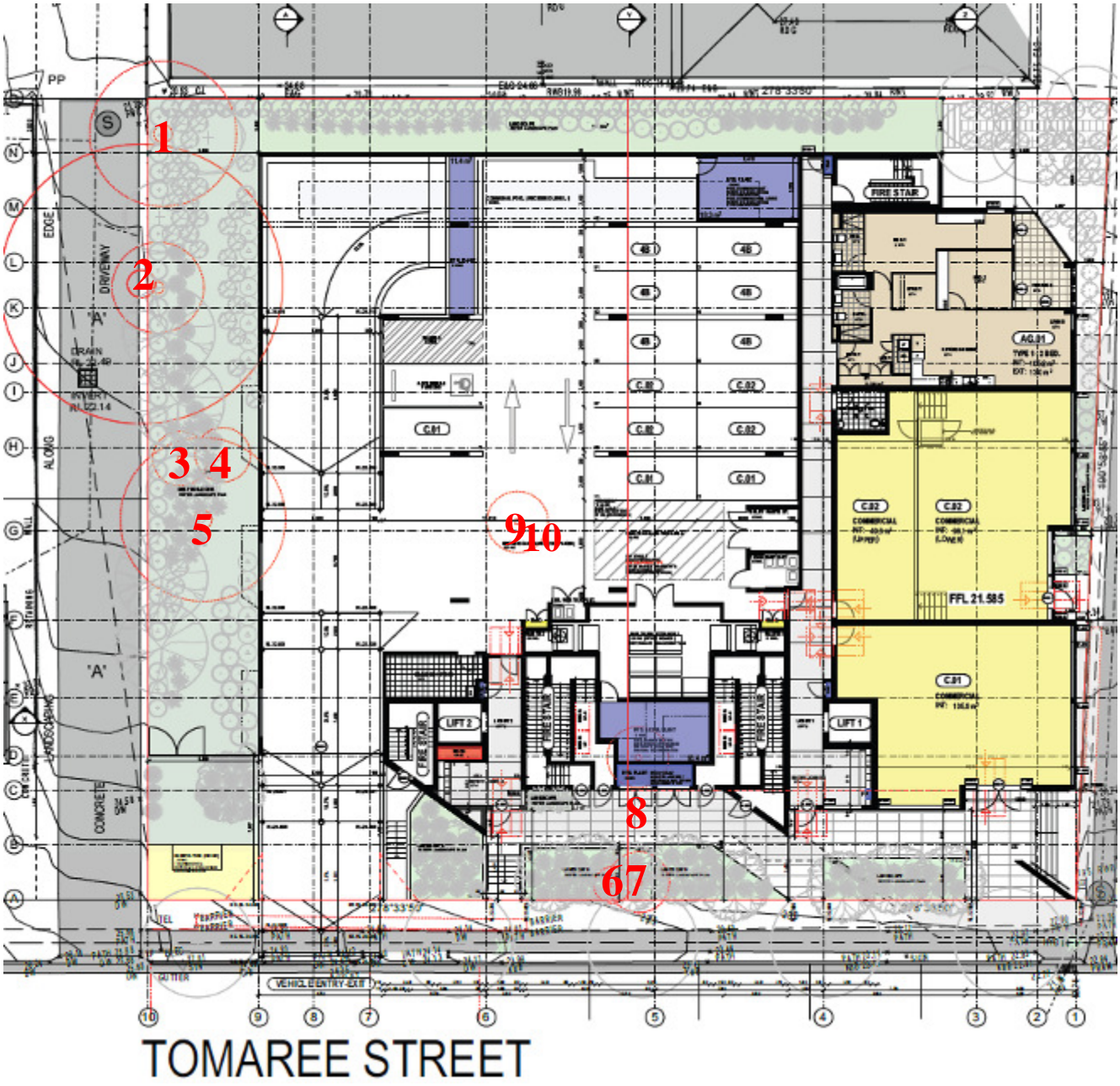


Figure 12 - Close up of the subject property and canopy area of Trees 1 - 10. Not to scale
Source: Brooke Holdsworth Design

APPENDIX 2 U.L.E (Useful Life Expectancy) Categories and Subgroups

Useful Life Expectancy – Classification

1. Long ULE > 40 Years

a. Structurally sound and can accommodate future growth
b. Long term potential with minor remedial treatment
c. Trees of special significance which warrant extra care

2. Medium ULE of 15-40years

a. Will live between 15 – 40 years
b. Will live for more than 40 years but would be removed for safety or other reasons
c. May live for more than 40 years but will interfere with more suitable specimens and need removal eventually
d. More suitable for retention in the medium term with some remedial care

3. Short ULE of 5-15 years

a. Trees that may only live between 5 – 15 more years
b. May live for more than 15 years but would need removal for safety or other reasons
c. Will live for more than 15 years but will interfere with more suitable specimens or provide space for replacement plantings
d. Require substantial remedial care but are only suitable for short term retention

4. Remove tree within 5 years

a. Dead, dying or seriously diseased
b. Dangerous trees through instability or loss of adjacent trees
c. Structural defects such as cavities
d. Damaged that are clearly not safe to retain
e. May live for more than 5 years but will need replacement to prevent interference or make space for more suitable trees
f. May or are causing damage to structures
g. That will become dangerous

5 Trees suitable to transplant

a. Small trees can be reliably moved or replaced
b. Young trees between 5 – 15 years
c. Trees that have been regularly pruned to control growth

APPENDIX 3 Notes on Tree Assessment

Key	Criteria	Comments
Tree no		
Species	Relates to the ten on the site plan	
Remnant /planted Self Sown	May be coded – See Key for details	
Special Significance	A – Aboriginal C- Commemorative Ha- Habitat Hi- Historic M- Memorial R- Rare U- Unique form O- Other	May require specialist knowledge
Age Class	Y- Young- Recently Planted S-Semi mature (<20% of life expectancy M- Mature (20-80% of life expectancy) O- Over mature (>80% of life expectancy)	
Height	In Metres	
Spread	Average diameter of canopy in metres	
Crown Condition	Overall vigour and vitality 0 – Dead 1 – Severe decline (<20% canopy, major deadwood 2 – Declining 20-60% canopy density, twig dieback 3- Average/low vigour (60-90% canopy density, twig dieback) 4- Good (90-100% crown cover, little or no dieback or other problems) 5- Excellent (100% crown cover, no deadwood or other problems	
Failure Potential	Identifies the most likely failure and rates the likelihood that the structural defects will result in failure within the inspection period. 1- Low – Defects are minor (eg dieback of twigs, small wounds with good wound development) 2 – Medium – Defects are present and obvious egg Cavity encompassing 10-25% of the circumference of the trunk) 3 High- Numerous and/or significant defects present (eg cavity encompassing 30-50% of the circumference of the trunk, major bark inclusions) 4- Severe- Defects are very severe (eg fruiting	Requires specialist knowledge

	bodies, cavity encompassing more than 50% of the trunk)	
Size of defective part	Rates the size of the part most likely to fail. The larger the part that fails the greater the potential for damage. 1- Most likely failure less than 150mm in diameter 2- Most likely failure 150-450mm in diameter 3- Most likely failure 450-750mm in diameter 4- Most likely failure more than 750mm in diameter	
Target rating	Rates the use and occupancy that would be struck by the defective part: 1. Occasional use (jogging, cycle track 2. Intermittent use (e.g picnic area, day use parking 3. Frequent use, secondary structure (eg seasonal camping, storage facilities) 4. Constant use structures (year round use for a ten of hours each day, residences)	
Hazard rating	Failure potential + size of part + target rating Add each of the above sections for a ten out of 12	The final ten identifies the degree of risk. The next step is to determine a management strategy. A rating in this column does not condemn a tree but may indicate the need for more investigation and a risk management strategy.
Root Zone	C-Compaction D- Damaged/wounded roots E- Exposed roots Ga- Tree in graded bed Gi- Girdled roots Gr- Grass K-Kerb close to tree L+- Raised soil level L- Lowered soil level M- Mulched Pa- Paving concrete bitumen	

	Pr- Roots pruned O-Other	
Defects	B-Borers C-Cavity D-Decay Dw-Deadwood E-Epicormics I-Inclusions L- Lopped LDCMP- Leaf damage by chewing mouthpiece insects M- Mistletoe/parasites MBA- Multi branch attachments PD- Parrot damage PFS- Previous failure sites S-Splits/Cracks T-Termites TL- Trunk lean TW- Trunk wound O-Other	
Services/adjacent structures	Bs- Bus stop Bu- Building within 3 metres Hvo- High voltage open wire construction Hvb- High voltage bundled (ABC) Lvo- Low voltage open wire construction Lvb- Low voltage bundled (ABC) Na- No services above Nb- No services below ground Si- Signage SL- Street light T- Transmission U- Underground services O- Other	More than one of these may apply