Arborist Report

Client: Uday Bonu & Kavita Bonu

Address: 141 Riverview Road,

AVALON BEACH N.S.W 2107

Bradley Magus

Valuation Solutions PTY LTD

Trading as ***Abacus Tree Services***

ABN: 63 163 718 631

ACN: 108 515 859

P.O Box 333 Newcastle 2300

(Ph 0425 203 049)

Email: abacustrees@gmail.com

www.abacustreeservices.com

Tafe RTO Provider Number: 90002

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1.0 Executive Summary

- It is recommended that Trees 1 – 3, 5, 7 – 19, 25, 27, 29, 30, 31, 35 & 37 (24 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 Uday Bonu & Kavita Bonu and the arborist.

- It is recommended that Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36 (13 in total) be retained and incorporated into the development.

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 Uday Bonu & Kavita Bonu to assist in the preparation of an arborist report. An assessment was made on thirty seven (37) trees located within the confines of 137, 141 & 143 Riverview Road, Avalon Beach. There is in total thirty seven (37) trees located at 137, 141 & 143 Riverview Road, Avalon Beach 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 thirty seven (37) trees only. The information in this report is to be used in correlation with other reports identified by Northern Beaches Council and will provide Northern Beaches 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 10 December 2020.

The photographs included in this report were taken at the time of the inspection on the 10 December 2020.

2.2 Aims of this report/Procedure

The aim of this report is to assess the health and condition of thirty seven (37) trees (Trees 1 - 37). 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 (Uday Bonu & Kavita Bonu), for the preparation of a development application submission. Information in this report relates to thirty seven (37) trees (Trees 1 – 37) within the premises of 137, 141 & 143 Riverview Road, Avalon Beach 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

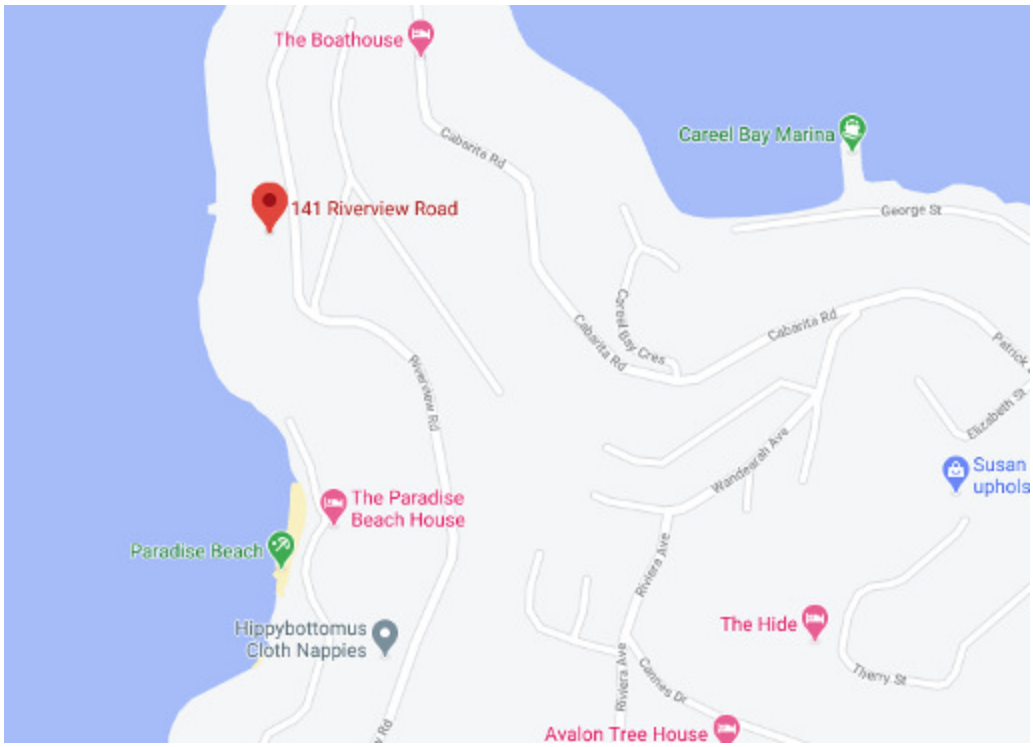


Figure 1
Location: All trees are located within 141 Riverview Road, Avalon Beach
Source: www.googlemaps.com.au

3.2 Site Description

Trees 1 – 37 are located wholly within 137, 141 & 143 Riverview Road, Avalon Beach. The site is located in the municipality of Northern Beaches Council. The species on site have been assessed against the requirements set out in Northern Beaches Council Tree Preservation Order. The species on site have been assessed against the requirements set out in Northern Beaches Council's Local Environmental Plan (2014) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2019 - B4.22). I have assessed the property against Schedule 5 (Environmental Heritage) within NB LEP. The property is not listed in accordance with Part 1 (Heritage Items) and/or Part 2 (Heritage Conservation Area). For the purposes of this report in accordance with Northern Beaches Council a tree is designated as 5 metres in height.

The subject property has also been assessed against the SEPP Policy (Vegetation in Non-Rural-Areas) 2017. This property or council area is listed as being within Part 1 (Section 5) of the SEPP (Vegetation in Non-Rural-Areas) 2017. 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 steep with the immediate area being dominated by residential houses. The nearest major arterial road is Barrenjoey Road. The trees are located within the subject property identified as 137, 141 & 143 Riverview Road, Avalon Beach. Trees 1 - 37 are located within close proximity to the subject property & proposed development.

Figure 2 – Location of subject property identified as 141 Riverview Road, Avalon Beach

Figure 3 – showing the location of the subject property identified as 141 Riverview Road, Avalon Beach
Source: www.northernbeaches.nsw.gov.au/eplanning

4.0 Tree Schedule

Species & dimension requirements on Pages 10 – 12. 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	Eucalyptus siderophloia	Ironbark	275	13	YM	G	4,5,3,1	2d	Minor sparse canopy, LCR = 85 – 90%
2	Corymbia maculata	Spotted Gum	300	13	YM	F	5,5,4,6	2d	Minor sparse canopy, LCR = 70 – 75%
3	Allocasuarina torulosa	Black Sheoak	205,235	8.5	YM	G	3,6,2,1	2d	Bifurcated at ground level, Symmetrical, LCR = 95 – 100%
4	Jacaranda mimisifolia	Jacaranda	195,110	7	YM	G	5,4,1,3	2d	Bifurcated at ground level, symmetrical, LCR = 95 – 100%
5	Ligistrum lucidum	Privet	125	6	YM	G	3,4,2,3	2d	Symmetrical, LCR = 95 – 100%
6	Allocasuarina torulosa	Black Sheoak	240	7.5	YM	G	4,3,3,2	2d	Symmetrical, LCR = 95 – 100%, MDW in all four quadrants
7	Allocasuarina torulosa	Black Sheoak	145	8	YM	G	3,2,1,1	3d	Lost apical dominant leader, Symmetrical, LCR = 95 – 100%
8	Jacaranda mimisifolia	Jacaranda	125	9	YM	G	3,6,0,0	2d	Tropism to E quadrant, LCR = 95 – 100%
9	Allocasuarina torulosa	Black Sheoak	375	10	M	G	2,4,3,2	2d	Bifurcated at 1.4 metres above ground level, located 2.3 metres to the guard rail, Symmetrical, LCR = 95 – 100%
10	Allocasuarina torulosa	Black Sheoak	240	11	M	G	5,3,3,2	2d	Located 2.4 metres to the guard rail, Symmetrical, LCR = 95 – 100%
11	Allocasuarina torulosa	Black Sheoak	250	5	M	G	0,1,6,1	2d	Extensive tropism to the S quadrant, Pruned previously to S quadrant, Symmetrical, LCR = 95 – 100%
12	Brachychiton acerifolius	Illawara Flame Tree	280	12	M	G	3,3,3,4	2d	Symmetrical, LCR = 95 – 100%
13	Allocasuarina torulosa	Black Sheoak	205,155	11	M	G	3,4,3,3	2d	Bifurcated at 1.4 metres above ground level, Symmetrical, LCR = 95 – 100%
14	Brachychiton acerifolius	Illawara Flame Tree	190	8.5	YM	G	2,3,4,2	2d	Symmetrical, LCR = 95 – 100%
15	Corymbia maculata	Spotted Gum	200	15	YM	G	6,6,6,3	3d	Moderately sparse canopy, Symmetrical, LCR = 60 – 65%
16	Allocasuarina torulosa	Black Sheoak	335	9.5	M	G	7,6,1,5	2d	Termite nest noted to W quadrant at 8.5 metres above ground level, Symmetrical, LCR = 95 – 100%
17	Pittosporum undulatum	Sweet Pittosporum	130	8.5	YM	G	2,3,2,2	2d	Symmetrical, LCR = 95 – 100%
18	Pittosporum undulatum	Sweet Pittosporum	160,150	9.5	M	G	3,3,4,2	2d	Bifurcated at 0.3 metres above ground level, Symmetrical, LCR = 95 – 100%
19	Allocasuarina torulosa	Black Sheoak	125	7.5	YM	G	4,0,2,4	2d	Minor sparse canopy, Symmetrical, LCR = 85 – 90%
20	Allocasuarina torulosa	Black Sheoak	255	10.5	M	G	3,4,5,3	2d	Tree 20 is nearest the road beside the existing wooden stairs, Symmetrical, LCR = 95 – 100%

21	Brachychiton acerifolius	Illawara Flame Tree	155	7	YM	G	3,2,2,2	2d	Symmetrical, LCR = 95 – 100%
22	Brachychiton acerifolius	Illawara Flame Tree	230	7.5	M	G	3,4,3,3	2d	Tree 21 is located within 10 metres to the neighbours dwelling, Symmetrical, LCR = 95 – 100%
23	Corymbia maculata	Spotted Gum	510	22	M	G	7,8,9,9	2d	Pruned to NW corner. Located beside the metal pole. LDW at 16 metres above ground level, If species is located in neighbours' property than it is 2.65 metres to the dwelling.
24	Corymbia maculata	Spotted Gum	450	20	M	G	6,5,7,8	2d	Tree 24 located near stairs near water tank (neighbours property). Located 1.4 metres to neighbours dwelling, Symmetrical, LCR = 95 – 100%
25	Corymbia maculata	Spotted Gum	450	22	YM	G	6,5,4,4	2d	Branch fused at 9 metres above ground level, located 4.35 metres to the neighbours dwelling, Symmetrical, LCR = 95 – 100%
26	Araucaria cunninghamii	Hoop Pine	160,250	17	YM	G	4,3,3,4	2d	Located 4 metres to the neighbours dwelling, Symmetrical, LCR = 95 – 100%
27	Araucaria cunninghamii	Hoop Pine	415	19	M	G	4,5,2,3	2d	Located 8 metres to the neighbors dwelling, Symmetrical, LCR = 95 – 100%
28	Araucaria cunninghamii	Hoop Pine	240	18	M	G	4,3,3,4	2d	Located 7 metres to the neighbours dwelling, Symmetrical, LCR = 95 – 100%
29	Livistona australis	Cabbage Tree Palm	310	6.5	YM	G	3,3,3,3	2d	Symmetrical, LCR = 95 – 100%, Monocotyledon
30	Corymbia maculata	Spotted Gum	330	21	OM	P	7,2,2,7	4a	Extensive sparse canopy, Symmetrical, LCR = 30 – 35%
31	Pittosporum undulatum	Sweet Pittosporum	170	7	YM	G	1,3,4,1	2d	Symmetrical, LCR = 95 – 100%
32	Araucaria cunninghamii	Hoop Pine	320	17	M	G	4,3,3,3	2d	Symmetrical, LCR = 95 – 100%
33	Araucaria cunninghamii	Hoop Pine	430	19	M	G	5,5,4,6	2d	Symmetrical, LCR = 95 – 100%
34	Pittosporum undulatum	Sweet Pittosporum	220	7	M	F	5,3,4,2	3d	Tropism to N quadrant, Moderately sparse canopy, Symmetrical, LCR = 55 – 60%
35	Corymbia maculata	Spotted Gum	290	13	M	F	6,7,0,0	3d	Tropism to N quadrant, Moderately sparse canopy, Symmetrical, LCR = 55 – 60%
36	Corymbia maculata	Spotted Gum	495	14.5	M	P	7,6,6,6	2d	Extensive epicormic growth, severe sparse canopy, Tropism to N quadrant, Moderately sparse canopy, Symmetrical, LCR = 20-25%
37	Corymbia maculata	Spotted Gum	310	19	YM	F	6,6,3,2	2d	Symmetrical, LCR = 70 – 75%

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 = Excellent = E, Good = G, Fair = f, Poor = P
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
NBC = Northern Beaches Council

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 Uday Bonu & Kavita Bonu to undertake an arborist (assessment) report on trees that come under the requirements of Northern Beaches Council DCP & trees that will be affected by the proposed development. There are thirty seven (37) trees that have been assessed within the subject properties identified as 137, 141 & 143 Riverview Road, Avalon Beach. Trees 1 - 3, 5 & 7 - 35 & 37 are located within the vacant allotment identified as 141 Riverview Road, Avalon Beach. Trees 30 & 36 are located right near the boundary line of 137 & 141 Riverview Road, Avalon Beach. Trees 4 & 6 are located in the subject property identified as 143 Riverview Road, Avalon Beach. Trees 9 – 12, 20 & 21 are located at the front of the subject property on council's easement. The applicant proposes to construct a residential dwelling within the subject property identified as 141 Riverview Road, Avalon Beach. (Appendix 1).

Abacus Tree Services has relied upon the sketch drawings provided by FYFFE Design (Drawing No 02 Issue 03) 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	2.13	3.30
2	2.08	3.60
3	2.32	3.72
4	1.94	2.40
5	1.68	2.00
6	1.82	2.88
7	1.67	2.00
8	1.57	2.00
9	2.13	4.50
10	1.97	2.88
11	2.00	3.00
12	2.06	3.36
13	2.39	3.12
14	1.68	2.28
15	1.79	2.40
16	2.30	4.02
17	1.51	2.00
18	2.13	2.64
19	1.53	2.00
20	1.91	3.06
21	1.57	2.00
22	1.89	2.76
23	2.61	6.12
24	2.46	5.40
25	2.49	5.40
26	2.18	3.60
27	2.37	4.98
28	1.89	2.88
29	2.22	4.00
30	2.37	3.96
31	1.79	2.04
32	2.10	3.84
33	2.43	5.16
34	1.91	2.64
35	2.08	3.48
36	2.59	5.94
37	2.18	3.72

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 2.13 & 3.30 metres in accordance with Australian Standards 4970 - 2009. Tree 1 will be located inside the proposed deck. In order for the development to proceed in its current format will require removal of Tree1. Tree 1 is earmarked for removal before commencement of building works on site.

Figure 4 – showing the location of Trees 1 & 2 in the backyard of the subject property. Trees 1 & 2 will be located inside the proposed deck area and will require removal before commencement of building works on site.

Tree 2 has been given an SRZ and TPZ of 2.08 & 3.60 metres in accordance with Australian Standards 4970 - 2009. Tree 2 is located towards the back of the subject property. Tree 2 will be located inside the proposed deck area as indicated in Figures 4 & 5. Tree 2 will also be located on the edge of the proposed development. In order to construct the deck & building will require the removal of Tree 2. Tree 2 is earmarked for removal before commencement of building works on site.

Tree 3 has been given an SRZ and TPZ of 2.32 & 3.72 metres in accordance with Australian Standards 4970 - 2009. Tree 3 will be located inside the proposed building footprint near the entrance to Bedroom 3. In order to construct the proposed development will require the removal of Tree 3. Tree 3 is earmarked for removal before commencement of building works on site.

Figure 5 – showing the location of Tree 3 that will require removal to construct the proposed development.

Tree 4 has been given an SRZ and TPZ of 1.94 & 2.40 metres in accordance with Australian Standards 4970 - 2009. Tree 4 has been identified as a non-native species that is located near the boundary fence. Tree 4 is located in the neighbour's property as indicated in Figure 6. This is a young mature species with the potential for extensive future growth. The proposed development is located 1.2 metres to the proposed development. Tree 4 will be located 3.1 metres to the development from the centre of the trunk. The proposed development will be located outside of the TPZ. This species can be retained and incorporated into the development on the proviso that there is no soil changes within the TPZ. This would require the first 1.5 metres inside the subject property from the boundary to be retained inside the TPZ. Tree 4 is earmarked for retention and incorporation into the development.

Figure 6 – showing the location of Tree 4 that can be retained and incorporated into the development.

Tree 5 has been given an SRZ and TPZ of 1.68 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 5 is located 0.4 metres to the proposed storeroom/garage. This is an incursion into the SRZ on one side by 70.24% taken from the centre of the trunk. AS 4970 – 2009 indicates that the TPZ radius is taken from the centre of the trunk. The overall area of TPZ has been calculated at 12.57m2. The overall loss of TPZ has been calculated at 34.25% that doesn't comply with AS 4970 - 2009. Major pruning works would also need to be undertaken due to the proximity to the development. The pruning works would need to be in the vicinity of 35 – 40% to allow a spatial separation of 0.5 metres to the building. This amount of pruning is deemed too large and would not pass AS 4373 – 2007. Tree 5 is earmarked for removal before commencement of building works on site.

Figure 7 – showing the location of Trees 4 & 5. Trees 4 is located on the neighbour's property. Tree 5 is located inside the subject property in accordance with the survey.

Tree 6 has been given an SRZ and TPZ of 1.82 & 2.88 metres in accordance with Australian Standards 4970 - 2009. Tree 6 is located on the neighbour's property. This species is located 2.5 metres to the proposed garage. This species is located 2.62 metres to the proposed development from the centre of the trunk. The overall loss of TPZ has been calculated 1.61%. The loss of TPZ can be compensated for within the neighbours property with the loss of TPZ complying with AS 4970 – 2009. This species has the potential to be retained and incorporated into the development. No soil changes or impacts are allowed between the proposed development and the trunk of Tree 6.

Tree 7 has been given an SRZ and TPZ of 1.67 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 7 is located towards the front of the subject property. Tree 7 is a young mature species with the potential for moderate future growth. Tree 7 will be located within 1 metre to the proposed building footprint. AS 4970 – 209 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 1.0976 metres to the centre of the trunk. The overall loss of TPZ has been calculated at 16.91%. The loss of TPZ doesn't comply with AS 4970 – 2009. The incursion into the SRZ has been calculated at 34.28%. This species would also require major pruning works due to the proximity to the development. Tree 7 will require removal before commencement of building works on site.

Figure 8 – showing the location of Trees 7 – 10. Trees 7 – 10 will require removal in order for the development to proceed in its current format.

Tree 8 has been given an SRZ and TPZ of 1.57 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 8 is located within the proposed vehicular access crossing. In order to construct the driveway will require the removal of Tree 8

Tree 9 has been given an SRZ and TPZ of 2.13 & 4.50 metres in accordance with Australian Standards 4970 - 2009. Tree 9 is located an estimated 0.6 metres to the proposed vehicular access crossing. AS 4970 – 209 indicates that the TPZ radius is taken from the centre of the trunk. This leaves a spatial separation of 0.76 metres to the centre of the trunk. The overall loss of TPZ has been calculated at 39.09%. The loss of TPZ doesn't comply with AS 4970 – 2009. The incursion into the SRZ has been calculated at 63.62%. This species would also require major pruning works due to the proximity to the development that would not pass AS 4373 – 2007. Tree 9 will require removal before commencement of building works on site.

Tree 10 has been given an SRZ and TPZ of 1.97 & 2.88 metres in accordance with Australian Standards 4970 - 2009. Tree 10 will be located within 0.8 metres to the main entrance as it extends to the front of the house. Tree 10 would require extensive pruning works to the northern quadrant. A minimum of 35 – 40% would be required to allow pedestrian movement through the walkway. The amount of pruning works would not pass AS 4373 – 2007. Tree 10 is earmarked for removal before commencement of building works on site.

Figure 9 – showing the location of Trees 11 – 13 in the front setback of the subject property. Tree 11 has a severe tropism to the eastern quadrant.

Tree 11 has been given an SRZ and TPZ of 2.00 & 3.00 metres in accordance with Australian Standards 4970 - 2009. Tree 11 is located 2.3 metres from the guard rail at the very top of the subject property. This species is not growing true to form with majority of its canopy extending over the road. This species has an extensive tropism to the eastern quadrant. Tree 11 is outside of all building works and could be retained and incorporated into the development on the proviso that there are no changes to the soil profile within the TPZ. If this can be achieved than Tree 11 can be retained and incorporated into the development. This species is earmarked for removal due to its shorter life span. The removal of Tree 11 will require permission from NBC.

Tree 12 has been given an SRZ and TPZ of 2.06 & 3.36 metres in accordance with Australian Standards 4970 - 2009. Tree 12 is a young mature species that can be retained and incorporated into the development. The TPZ is located outside of all building works. The pedestrian path associated with the development will equate to a loss less than 10%. This species can be retained and incorporated into the development on the proviso that the existing soil levels are maintained between the trunk and the proposed stairs within the TPZ.

Figure 10 – showing the location of Trees 13 – 15.

Tree 13 has been given an SRZ and TPZ of 2.39 & 3.12 metres in accordance with Australian Standards 4970 - 2009. Tree 13 will be located on the edge of the proposed stairs/pedestrian path at the front of the subject property. There will be major soil changes in this region at the front of the subject property. This species would also require major pruning works due to the proximity to pedestrian path. The pruning works would be an estimated 35 - 40% that would not comply with AS 4373 - 2007. In order to construct the stairs will require the removal of Tree 13. Tree 13 is earmarked for removal before commencement of building works on site.

Tree 14 has been given an SRZ and TPZ of 1.68 & 2.28 metres in accordance with Australian Standards 4970 - 2009. Tree 14 will be located within 0.4 metres to the pedestrian path at the front of the subject property on one side and inside the stairs on the other side. There will be major soil changes in this region at the front of the subject property. This species would also require major pruning works due to the proximity to pedestrian path. The pruning works would be an estimated 35 - 40% that would not comply with AS 4373 - 2007. Tree 14 is earmarked for removal before commencement of building works on site.

Tree 15 has been given an SRZ and TPZ of 1.79 & 2.40 metres in accordance with Australian Standards 4970 - 2009. Tree 15 is located right on the edge of the proposed development. A loss of 50% (minimum) would be required to construct the development. The loss of TPZ would not comply with AS 4970 – 2009. In order for the development to proceed in its current format requires the removal of Tree 15.

Figure 11 – showing the location of Tree 16 within the proposed building footprint.

Tree 16 has been given an SRZ and TPZ of 2.30 & 4.02 metres in accordance with Australian Standards 4970 - 2009. Tree 16 is located inside the proposed building footprint. Tree 16 will require removal in order for the development to proceed in its current format.

Tree 17 has been given an SRZ and TPZ of 1.51 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 17 is located right on the edge of the proposed development. A loss of 50% (minimum) would be required to construct the development. The loss of TPZ would not comply with AS 4970 – 2009. In order for the development to proceed in its current format requires the removal of Tree 17.

Tree 18 has been given an SRZ and TPZ of 2.13 & 2.64 metres in accordance with Australian Standards 4970 - 2009. Tree 18 is a self-sown tree at the front of the subject property. This species will be located outside of the proposed development. This species being at the front of the subject property may require removal. If required to be retained will require an area of 2.64 metres where no excavation works are carried out on site. This species has a low landscape significance and is earmarked for removal before commencement of building works on site.

Tree 19 has been given an SRZ and TPZ of 1.53 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 19 is located at the front of the subject property. This species is located at the front of the subject property and may require removal due to its position. The development is located outside the TPZ. If retained this species would require an area set aside of 2 metres to all four quadrants. This species is earmarked for removal before commencement of building works on site.

Tree 20 has been given an SRZ and TPZ of 1.91 & 3.06 metres in accordance with Australian Standards 4970 - 2009. Tree 20 is located on council's easement at the front of the subject property. Tree 20 is located on council's easement at the front of the subject property. Tree 20 is located closest to the old timber steps. This species could be retained on the proviso that the soil levels are unchanged within the TPZ. If this can be achieved than this species could be retained and incorporated into the development.

Figure 12 – showing the location of Trees 20 – 22 at the front of the subject property near the existing stairs. Trees 20 – 22 have the potential to be retained on the proviso that the existing soil levels for a minimum of 2 metres in all directions are maintained.

Tree 21 has been given an SRZ and TPZ of 1.57 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 22 has been given an SRZ and TPZ of 1.89 & 2.76 metres in accordance with Australian Standards 4970 - 2009. Trees 21 and 22 are both identified as Illawarra Flame Trees. Trees 21 & 22 are located next to the exiting stairs as highlighted in Figure 12. Trees 21 & 22 are both in a semi mature to young mature phase of their life cycle. These species have the potential to be retained as they are located outside of all development works. Trees 21 & 22 have the potential to be retained and incorporated into the development on the proviso that the existing soil levels can be maintained for a minimum of 2 metres in all directions. The current layout and design would allow for the retention of Trees 21 & 22.

Tree 23 has been given an SRZ and TPZ of 2.61 & 6.12 metres in accordance with Australian Standards 4970 - 2009. Tree 23 is identified as a young mature Corymbia maculata. This species is located on the southern side of the proposed development. This species can reach a TPZ of 10 – 12 metres (minimum) when fully mature. This species will be located 2 metres to the corner of 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 2.285 metres to the proposed development. This section of the development is on bearers and joists. An estimated 6 piers within the TPZ at 450mm in diameter is a net loss of 2.7m2. The overall area of TPZ has been calculated at 117.67m2. The loss of TPZ has been calculated 2.29% that complies with AS 4970 - 2009. This is only based on bearers and joists with no other construction works to occur in the TPZ. This includes no other below ground excavation works for services or retaining walls. This area is also to avoid strip footings within the TPZ. Tree 23 has the potential to be retained and incorporated into the development on the proviso that the existing soil levels can be maintained up to the proposed development.

Figure 13 – showing the location of Trees 23 – 25 towards the southern boundary.

Tree 24 has been given an SRZ and TPZ of 2.46 & 5.40 metres in accordance with Australian Standards 4970 - 2009. Tree 24 is located next to the neighbours water tank and 1.4 metres to the neighbours dwelling. Tree 24 is located next to the existing boundary stairs as indicated in Figure 14. Trees 23 & 24 are located near the boundary as highlighted in Figure 14. Tree 24 is identified as a young mature Corymbia maculata. This species is located on the southern side of the proposed development. This species can reach a TPZ of 10 – 12 metres (minimum) when fully mature. This species will be located 3.485 metres to the corner of the proposed development from the centre of the trunk. The overall loss of TPZ has been calculated at 6.2%. The overall loss of TPZ complies with AS 4970 – 2009 on the proviso that the existing soil levels are retained within the TPZ. This will include bearers and joists on this side of the development within the TPZ. If this can be achieved than Tree 24 can be retained and incorporated into the development.

Figure 14 – showing the location of Trees 23 & 24 at the front of the subject property. These trees are located near the boundary fence. Trees 23 & 24 have the potential to be retained and incorporated into the development. The existing soil levels need to be retained up to the edge of the proposed development in order to retain Tree 24.

Tree 25 has been given an SRZ and TPZ of 2.49 & 5.40 metres in accordance with Australian Standards 4970 - 2009. Tree 25 is located on a lower tier to Trees 23 & 24 and will be within close proximity to the proposed development. Tree 25 will be located 1.5 metres to the corner of 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 1.755 metres from the proposed development to the centre of the trunk. This is a large incursion into the TPZ on one side of the tree. The incursion into the TPZ has been calculated at 67.5%. This species can reach a diameter of 1000mm when fully mature. This would leave the trunk 1.05 metres to the proposed building when fully mature. This species may also require removal due to the proximity to the development and RFS requirements. This species is earmarked for removal before commencement of building works on site.

Figure 15 – showing the location of Trees 25 – 27 near the boundary.

Tree 26 has been given an SRZ and TPZ of 2.18 & 3.60 metres in accordance with Australian Standards 4970 - 2009. Tree 26 is a semi mature species that has the potential to be retained. No excavation work are to occur within 2.18 metres from the trunk of Tree 26. This is to include to all excavation works associated with the bearers and joists construction. If this can be achieved than Tree 26 can be retained and incorporated into the development.

Tree 27 has been given an SRZ and TPZ of 2.37 & 4.98 metres in accordance with Australian Standards 4970 - 2009. Tree 27 is a young mature species located near the boundary. This species is the last of the Hoop Pines and the closest to the proposed development. This species will be located on the edge of the proposed development. This species will require removal in order for the development to proceed in its current format. Tree 27 is earmarked for removal before commencement of building works on site.

Tree 28 has been given an SRZ and TPZ of 1.89 & 2.88 metres in accordance with Australian Standards 4970 - 2009. Tree 28 is one of the smaller Hoop Pines that has the potential to be retained. The proposed development will be located on bearers and joists in this section of the development. No excavation work are to occur within 1.89 metres from the trunk of Tree 28. This is to include to all excavation works associated with the bearers and joists construction. If this can be achieved than Tree 28 can be retained and incorporated into the development.

Tree 29 has been given an SRZ and TPZ of 2.22 & 4.00 metres in accordance with Australian Standards 4970 - 2009. Tree 29 is identified as a monocotyledon and therefore the minimum TPZ is calculated as 1 metre outside the crown projection (minimum) in accordance with AS 4970 – 2009. Tree 29 is located within 0.5 metres to the proposed development. This is considered a large incursion into the TPZ on one side of the tree. Extensive pruning works would be required by 40 – 45% to remove foliage off the proposed building envelope. The amount of pruning works would not comply with AS 4373 – 2007. Tree 29 is earmarked for removal before commencement of building works on site.

Tree 30 has been given an SRZ and TPZ of 2.37 & 3.96 metres in accordance with Australian Standards 4970 - 2009. Tree 30 has a severe sparse canopy and is in poor health and condition. Tree 30 has a live crown ratio of 30 – 35% and is not suited for long term retention. Tree 30 is earmarked for removal before commencement of building works on site.

Tree 31 has been given an SRZ and TPZ of 1.79 & 2.04 metres in accordance with Australian Standards 4970 - 2009. Tree 31 is a young mature species that is another self-sown species. Tree 31 will be located inside the proposed building footprint. In order for the development to proceed in its current format will require the removal of Tree 31.

Figure 16 – showing the location of Trees 29 – 31

Tree 32 has been given an SRZ and TPZ of 2.10 & 3.84 metres in accordance with Australian Standards 4970 - 2009. Tree 33 has been given an SRZ and TPZ of 2.43 & 5.16 metres in accordance with Australian Standards 4970 - 2009. Trees 32 & 33 are located further down the slope and are located 2 metres to the proposed development. Bearers and joists construction has the potential to retain these trees. No excavation works are to occur within the SRZ of Trees 32 & 33 and no strip footings are allowed on this side of the development in order to retain Trees 32 & 33. If this can be achieved than the net loss of TPZ will be less than 10% and comply with AS 4970 – 2009.

Tree 34 has been given an SRZ and TPZ of 1.91 & 2.64 metres in accordance with Australian Standards 4970 - 2009. Tree 34 is a small native species that is located close to the boundary fence. This species is located outside of the proposed development. No excavation or building works are to be located inside the TPZ (2.64 metres). This species has the potential to be retained and incorporated into the development on the proviso that the existing soil levels between the trunk and the proposed development are retained within the TPZ.

Figure 17 – showing the location of Trees 35 & 36 that are located in the neighbour's property.

Tree 35 has been given an SRZ and TPZ of 2.08 & 3.48 metres in accordance with Australian Standards 4970 - 2009. Tree 36 has been given an SRZ and TPZ of 2.59 & 5.94 metres in accordance with Australian Standards 4970 - 2009. Both these trees are located near the boundary with Tree 36 being right on the boundary line as per the site survey. These trees especially Tree 36 is in poor health and condition. Tree 36 appears to be more on the neighbour's property and therefore will require retention. This species will require retention as it is in the neighbour's property however it is noted that it is in poor condition before commencement of building works. No excavation works is to be undertaken within the TPZ. The current design and outlay factors in the trees and therefore they can be retained. No strip footings for proposed fences and retaining walls are allowed in this zone (TPZ).

Tree 37 has been given an SRZ and TPZ of 2.18 & 3.72 metres in accordance with Australian Standards 4970 - 2009. Tree 37 is an over mature species in fair health and condition. This species will be located inside the proposed building footprint. In order for the development to proceed in its current format will require the removal of Tree 37.

Figure 18 – showing the location of Tree 37 in the backyard of the subject property. This species will be located inside the proposed building footprint.

6.0 Conclusions

- Abacus Tree Services has been approached by Uday Bonu & Kavita Bonu to undertake an arborist (assessment) report on trees that come under the requirements of Northern Beaches Council DCP & trees that will be affected by the proposed development. There are thirty seven (37) trees that have been assessed within the subject properties identified as 137 & 141 Riverview Road, Avalon Beach. Trees 1 - 3, 5 & 7 - 35 & 37 are located within the vacant allotment identified as 141 Riverview Road, Avalon Beach. Trees 30 & 36 are located right near the boundary line of 137 & 141 Riverview Road, Avalon Beach. Trees 4 & 6 are located in the subject property identified as 143 Riverview Road, Avalon Beach. Trees 9 – 12, 20 & 21 are located at the front of the subject property on council's easement. The applicant proposes to construct a residential dwelling within the subject property identified as 141 Riverview Road, Avalon Beach. (Appendix 1).

- Trees 1 – 37 are located wholly within 137 & 141 Riverview Road, Avalon Beach. The site is located in the municipality of Northern Beaches Council. The species on site have been assessed against the requirements set out in Northern Beaches Council Tree Preservation Order. The species on site have been assessed against the requirements set out in Northern Beaches Council's Local Environmental Plan (2014) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2019 - B4.22). I have assessed the property against Schedule 5 (Environmental Heritage) within NB LEP. The property is not listed in accordance with Part 1 (Heritage Items) and/or Part 2 (Heritage Conservation Area). For the purposes of this report in accordance with Northern Beaches Council a tree is designated as 5 metres in height.

- In accordance with State Environmental Planning Policy (SEPP) 2008 indicates that exemptions apply to new residential developments greater than 200m2. Trees within the subject property that are less than 6 metres in height have the potential to be removed without council consent provided they meet all of council requirements. Section 3A (Part C) indicates that a separate permit is not required under SEPP 2008 on the proviso that the tree or vegetation has a height that is less than 8 metres for a new dwelling or 6 metres for any other development. The species is not threatened and/or is not on councils significant tree register. The height requirements only applies to new developments such as the one that is taking place at the subject property. This has the potential to exclude Trees

- The subject property identified as 141 Riverview Road, Avalon Beach is located in a Rural Fire Service (RFS) 10:50 area. Therefore all trees have been assessed in accordance with council requirements with potential exemptions under RFS 10:50 legislation. This report doesn't outline the trees that are within 10 metres as the current allotment is vacant land. Once the development is constructed there will be several trees that will be within 10 metres to the proposed dwelling. It is noted that the applicant will require as a minimum pruning works and tree removal to comply with the FRS 10:50 Code. The search was undertaken on the 15 February 2020. 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.

- In order for the development to proceed in its current format including all hardstand areas and decks will require the removal of Trees 1 – 3, 5, 7 – 10, 13 – 17, 25, 27, 29 – 31 & 37 (19 in total). This is the minimum amount of trees that require removal to construct all building and allow the excavation works associated with the development to proceed in its current format.

- Tree 18 has low landscape significance and therefore is earmarked for removal. It is noted that Trees 35 & 36 are in poor health and condition. Tree 36 is located in the neighbour's property and therefore will require retention. Tree 35 is earmarked for removal due to its condition before commencement of building works on site.

- There are several other trees on site that could be retained and these include 4, 6, 12, 18 – 24, 26, 28, 32, 33 & 34 (15 in total). It is noted that Trees 4, 6, 34 & 36 are located on adjoining properties and therefore earmarked for retention. Several trees will be located within 10 metres to the proposed dwelling. This will include Trees 4, 6, 12, 18 – 23, 24, 26, 28, 32, 33 & 34 (15 in total). Trees at the front of the subject property include 11, 12, 18 & 19 that may also require removal to allow for space and for placement of materials and storage when construction commences. The site is constrained in this area and therefore Trees 11, 12, 18 & 19 are earmarked for removal before commencement of building works on site.

- Protection fencing for Trees 4, 6, 34 & 36 (4 in total) has not been considered as they are located on an adjoining property. The existing layout and vegetation will act as a barrier for the trees and will minimise damage to these trees. Providing protection fencing to these trees would see major fencing in the neighbour's properties that would be impractical. Trees 20 – 24, 26, 28, 32, 33 & 34 will require retention in accordance with Australian Standards 4970 – 2009. Due to the site constraints especially on the side boundary will require reduced protection fencing in some instances.

- Retained trees have 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. Further tree removal may be required to comply with the RFS 10:50 Code.

7.0 Recommendations

- It is recommended that Uday Bonu & Kavita Bonu embark on a management program for thirty seven (37) trees (Trees 1 – 37) before commencement of the proposed building/constructions works as follows:

- It is recommended that Trees 1 – 3, 5, 7 – 19, 25, 27, 29, 30, 31, 35 & 37 (24 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 Uday Bonu & Kavita Bonu and the arborist.

- It is recommended that Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36 (13 in total) be retained and incorporated into the development. It is recommended that bearers and joists or similar method of construction be used within the TPZ of Trees 19 – 24, 26, 28, 32 – 34 & 36. It is recommended that pilot holes be dug before commencement of building works to determine the pier locations. No strip footings are allowed in the TPZ of retained trees. All retaining walls if required will need to be constructed using a lintel system to avoid strip footings, It is recommended that no structural roots greater than 90mm in diameter be pruned. Upon finding roots greater than 90mm will require the pier to be dug to an alternative location. All pilot holes/piers are to be dug by non-mechanised methods to the required depth within the TPZ of Trees 19 – 24, 26, 28, 32 – 34 & 36. It is recommended that final pier placement be a minimum of 100mm to all structural roots to allow for spatial separation and expansion of the root plate.

- It is recommended that no change in the soil profile occur between the development and the trunk of Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36. This includes no excavation works or underground services are to occur in this zone. If this cannot be achieved than these trees will require removal.

- It is recommended that all debris and waste on site that is located within the TPZ of retained trees be removed by non-mechanised methods being wheel barrow and shovel and/or similar method. All other areas outside of the TPZ could be utilised with machinery.

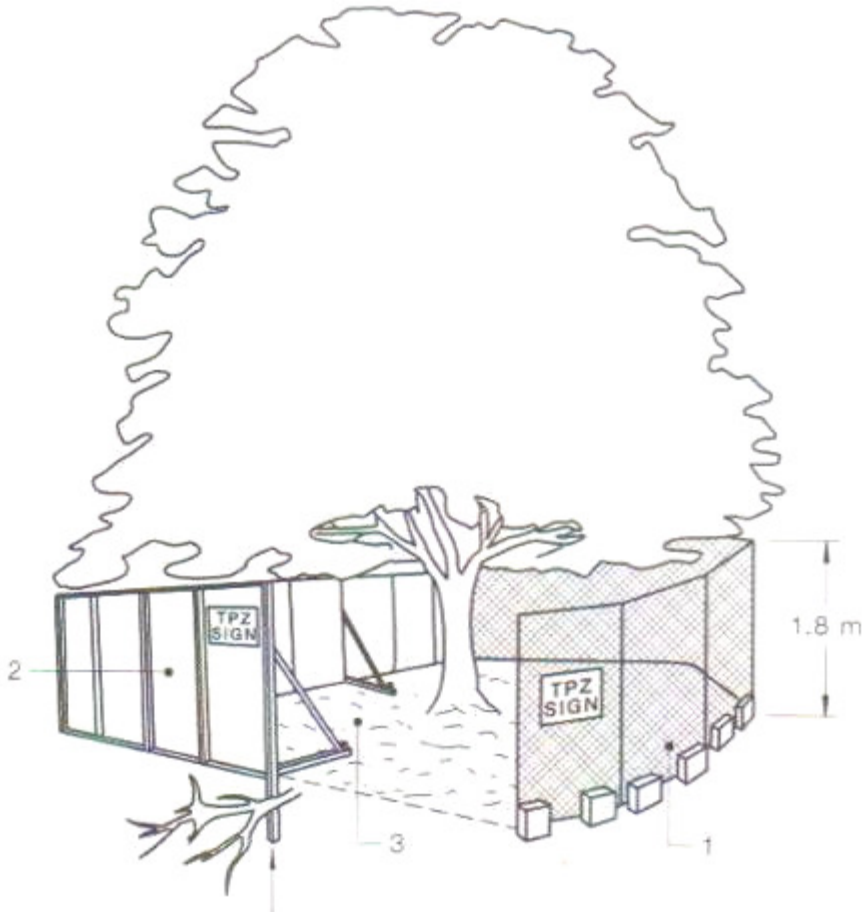
- It is recommended that protection measures be put in place that aid in the preservation of Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36. It is recommended that 1.8 metre inter locking chain wire fencing be installed before commencement of building works on site as indicated in Figure 19. Protection fencing is to be installed on the boundary fence to protect Trees 4 & 6. Protection fencing is to be installed where practical to Trees 20 – 24, 26, 28, 32 – 34 & 36. This is to include to the boundary to the southern quadrant and to the outer edge of the development to the other quadrant. A minimum of three metres is recommended to the east and western quadrants. Protection fencing is to be installed before commencement of 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 Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36 and understand the tree protection measures that are put in place to preserve Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36.

- All stockpile sites to be maintained a minimum 3 metres away from the trunk of Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36.

- It is recommended that all parking of vehicles be kept a minimum 3 metres from retained trees during construction works except on designated parking along Riverview Road.

- 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 19 – showing the proposed fencing that is to be put in place before the commencement of building works on site (Trees 4, 6, 20 – 24, 26, 28, 32 – 34 & 36 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.northernbeaches.nsw.gov.au

www.planningportal.nsw.gov.au

9.0 APPENDIX 1 Site Maps

Figure 20 - Close up of the subject property and canopy area of Trees 1 - 37. Not to scale
Source:

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

Key	Criteria	Comments
Tree no		
Species	Relates to the thirty seven 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 thirty seven of hours each day, residences)	
Hazard rating	Failure potential + size of part + target rating Add each of the above sections for a thirty seven out of 12	The final thirty seven 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