Arborist Report

Client: ICONFM Australia Pty Ltd

Address: 1 Larapinta Place,

Glenhaven N.S.W 2156

Bradley Magus

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1.0 Executive Summary

- It is recommended that ICONFM Australia Pty Ltd embark on a management program for sixty six (66) trees (Trees 1 – 66) before commencement of the proposed building/constructions works as follows:

- It is recommended that Trees 1 – 3, 5, 6, 10 – 18, 23 – 30, 37, 48 – 50 & 52 - 62 (37 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 ICONFM Australia Pty Ltd and the arborist.

- It is recommended that Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) be retained and incorporated into the development.

- It is recommended that the soil changes be kept to a minimum within the TPZ of Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total).and be raised by no more than 100mm. No soil changes are to occur within the SRZ of retained trees. 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, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total). 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 26. Protection fencing is to be installed a minimum of 1 metre inside the TPZ to all four quadrants or to boundary fences to enclose the TPZ. In relation to clusters of trees it is recommended to fence off the area as one tree protection zone. This is to include Trees 34 – 36 & 38 – 40 to place a TPZ to the outer most tree and enclose the space to the southern and western boundary fences. 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, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) and understand the tree protection measures that are put in place to preserve Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total).

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- All stockpile sites to be maintained a minimum 5 metres away from the trunk of Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) and all other trees that come under the requirements of The Hills Shire Councils' Tree Preservation order.

- It is recommended that all parking of vehicles be kept a minimum five (5) metres from retained trees during construction works. It is recommended that no parking of vehicles be allowed within 5 metres from the trunk of Tree 66.

- To avoid injury or damage, Tree 66 must have its trunk protected by 2 metre lengths of 75mm X 25mm hardwood spaced at 80mm secured with galvanised wire (not fixed or nailed to the tree in any way) before commencement of building works and remain in place until the release of the occupation certificate.

- 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.

2.0 Arborist Details

Bradley Magus **Contact Details:** PO Box 333 Newcastle NSW 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 ICONFM Australia Pty Ltd to assist in the preparation of an arborist report. An assessment was made on sixty five (65) trees located within the confines of 1 Larapinta Place, Glenhaven and one nature strip tree (66 in total). There is in total sixty five (65) trees located at 1 Larapinta Place, Glenhaven 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 sixty five (65) trees only. The information in this report is to be used in correlation with other reports identified by The Hills Shire Council and will provide The Hills Shire 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 1 June 2018.

The photographs included in this report were taken at the time of the inspection on the 1 June 2018.

2.2 Aims of this report/Procedure

The aim of this report is to assess the health and condition of sixty five (65) trees (Trees 1 - 65). 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 (ICONFM Australia Pty Ltd), for the preparation of a development application submission. Information in this report relates to sixty six (66) trees within the premises of 1 Larapinta Place, Glenhaven 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

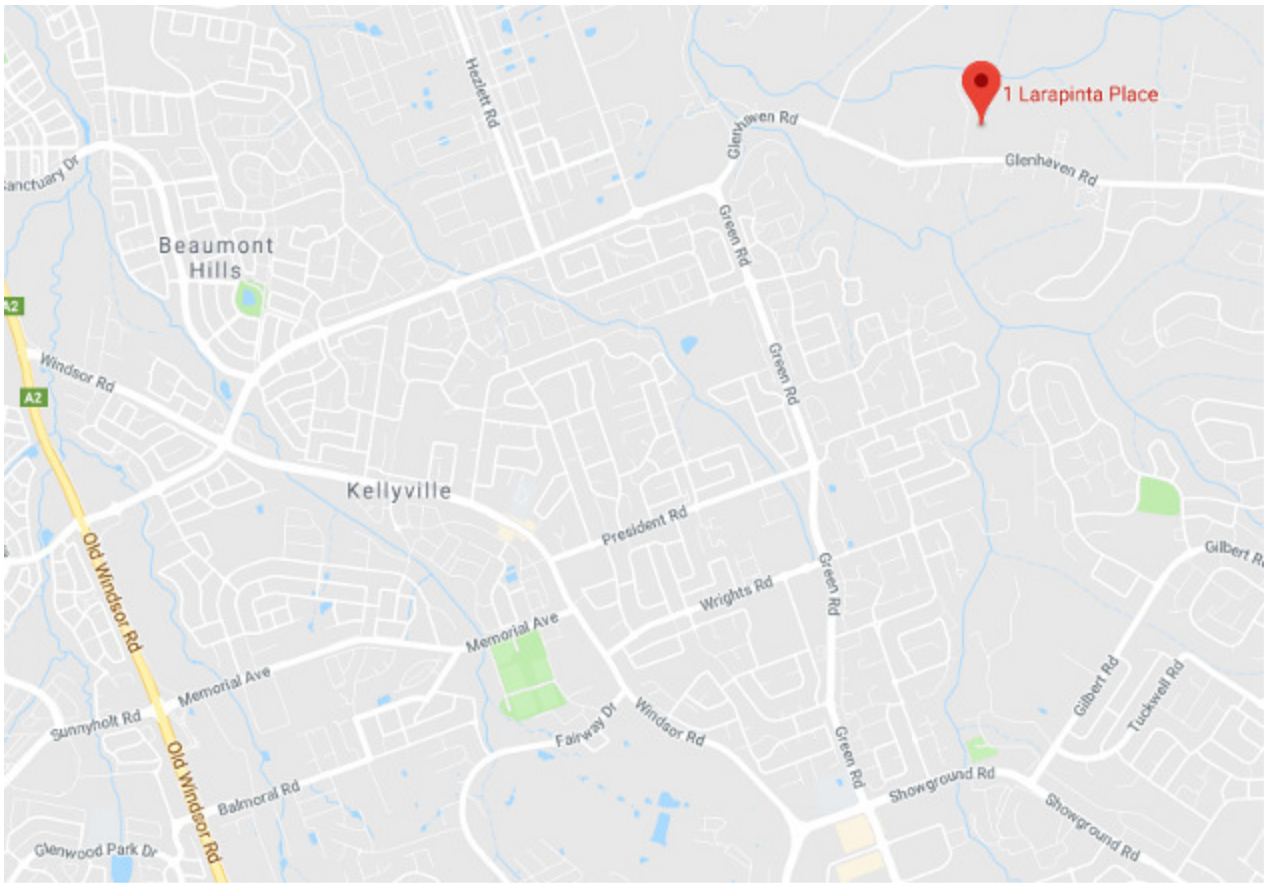

Figure 1
Location: All trees are located within 1 Larapinta Place, Glenhaven
Source: www.googlemaps.com.au

3.2 Site Description

The site is located in the municipality of The Hills Shire Council. The species on site has been assessed against the requirements set out in The Hills Shire Council's Tree Preservation Order. The species on site have been assessed against the requirements set out in The Hills Shire Council's Local Environmental Plan (2012) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2012). All information is assessed per the requirements of the SEPP (State Environmental Planning Policy) Vegetation in Non-Rural Areas 2017. The Hills Shire Council comes under the requirements of SEPP (Vegetation in Non-Rural Areas) as per Part 1 – Section 5. I have assessed the property against Schedule 5 (Environmental Heritage) within The Hills Shire Council LEP. The property is not listed in accordance with Part 1 (Heritage Items).

Trees 1 - 65 have also been assessed against The Hills Shire Council (Tree Management Guidelines for Trees on Private Land 2014). The site is set on a flat block that gently slopes to the northern quadrant. The nearest major arterial road is Old Windsor Road to the east. Trees 1 - 65 are located within the subject property identified as 1 Larapinta Place, Glenhaven within close proximity to the subject property & proposed development.

Figure 2 – Location of subject property identified as 1 Larapinta Place, Glenhaven
Source: Google Maps

4.0 Tree Schedule

Species & dimension requirements on Pages 9 - 13.

Tree No	Scientific Name	Common Name	DBH (MM)	Height (M)	AGE CLASS	Vigour	SPREAD N.E.S.W.	ULE	Comments
1	Pinus radiata	Radiata Pine	655	10	YM	G	5,4,4,3	2d	Symmetrical, LCR = 95 – 100%. Located in garden bed.
2	Jacaranda mimisifolia	Jacaranda	75	5	Y	G	1,1,1,0	2a	Symmetrical, LCR = 95 – 100%. Located in garden bed.
3	Jacaranda mimisifolia	Jacaranda	135	5	SM	G	2,2,2,1	2d	Symmetrical, LCR = 95 – 100%. Located in garden bed.
4	Jacaranda mimisifolia	Jacaranda	165,170	5	SM	G	3,4,2,2	2a	Symmetrical, LCR = 95 – 100%. Located in garden bed.
5	Glochidion ferdinandi	Cheese Tree	100	4	SM	G	1,2,2,2	2a	Symmetrical, LCR = 95 – 100%. Located in garden bed.
6	Jacaranda mimisifolia	Jacaranda	140	4	SM	G	0,0,0,6	2a	Asymmetrical, LCR = 75 - 80%. Located in garden bed. Major tropism to the W quadrant.
7	Angophora floribunda	Rough Barked Apple	390	6.5	M	F	3,4,6,2	3d	Top end of maturity, Symmetrical, LCR = 95 – 100%. Located in garden bed.
8	Eucalyptus haemastoma	Scribbly Gum	150,210, 180	5	M	G	4,4,2,1	2a	Symmetrical, LCR = 85 - 90%. Dead leader to the S quadrant
9	Eucalyptus siderophloia	Grey Ironbark	155, 115	7	Y	G	2,2,2,2	2a	Symmetrical, LCR = 95 – 100%. Located in the front yard
10	Corymbia maculata	Spotted Gum	480	14	M	G	4,4,5,5	2a	Symmetrical, LCR = 95 – 100%. Located in the front yard of the subject property
11	Pinus patula	Mexican Weeping Pine	300	8	YM	G	4,6,4,4	2a	Symmetrical, LCR = 95 – 100%. MDW in all four quadrants.
12	Pinus patula	Mexican Weeping Pine	310	6.5	YM	G	5,1,1,2	2a	Intermediate, suppressed species due to surrounding trees. Minor tropism.
13	Lophostemon confertus	Brushbox	240	9	YM	G	4,4,4,3	2a	Symmetrical, LCR = 95 – 100%. Located in the garden bed in the front yard
14	Eucalyptus punctata	Grey Gum	410	13	M	G	3,5,6,5	2d	Symmetrical, LCR = 95 – 100%. MDW in all four quadrants. MDW to the E quadrant at 5 & 6 metres above ground level (2 metres long).
15	Eucalyptus haemastoma	Scribbly Gum	440	8	M	F	1,3,3,1	3d	Symmetrical, LCR = 65 – 70%, Moderately sparse canopy. LDW to W quadrant at 3 metres above ground level (3.5 metres long)
16	Eucalyptus haemastoma	Scribbly Gum	300	6	YM	F	1,8,0,0	3d	Major tropism to the E quadrant, MDW in all four quadrants. Asymmetrical, LCR = 95 – 100%.
17	Eucalyptus haemastoma	Scribbly Gum	280	6	YM	F	3,6,2,1	3d	Minor tropism to the E quadrant. MDW in all four quadrants. Moderate tropism to the E quadrant.
18	Eucalyptus haemastoma	Scribbly Gum	290	6.5	YM	F	2,4,2,1	3d	MDW in all four quadrants, Moderate tropism to the E quadrant. Symmetrical, LCR = 95 – 100%.
19	Angophora floribunda	Rough Barked Apple	200	5.5	M	G	2,5,3,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works

20	Allocasuarina torulosa	Forest Oak	360	6	M	G	4,4,3,3	2d	Symmetrical, LCR = 95 – 100%. No immediate works
21	Eucalyptus haemastoma	Scribbly Gum	300	8	M	F	0,5,6,0	3d	Decay in the fork union, major tropism to the SE quadrant, Symmetrical, LCR = 95 – 100%.
22	Eucalyptus haemastoma	Scribbly Gum	230	10	M	G	3,7,4,3	2a	Bifurcated at ground level, located on the fence line, Symmetrical, LCR = 95 – 100%.
23	Eucalyptus haemastoma	Scribbly Gum	160	6	SM	G	2,2,2,3	2d	Minor sparse canopy, small tree, Symmetrical, LCR = 95 – 100%.
24	Eucalyptus siderophloia	Grey Ironbark	490	14	M	G	7,7,6,7	2a	Symmetrical, LCR = 95 – 100%. No immediate works
25	Eucalyptus haemastoma	Scribbly Gum	260	6.5	M	G	6,3,4,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works
26	Eucalyptus haemastoma	Scribbly Gum	295	6	M	F	1,4,1,1	2a	Decay in the trunk at 4 metres above ground level, Basal decay to the NE quadrant, Symmetrical, LCR = 95 – 100%.
27	Eucalyptus siderophloia	Grey Ironbark	515,600	17	M	G	4,9,7,7	2d	Bifurcated at ground level, Symmetrical, LCR = 95 – 100%. Large specimen near the gates
28	Eucalyptus haemastoma	Scribbly Gum	450	7	M	F	4,3,0,4	2d	Previously pruned due to the power lines, Symmetrical, LCR = 95 – 100%.
29	Eucalyptus haemastoma	Scribbly Gum	360	8	M	F	6,0,0,0	2d	Previous major pruning works, Symmetrical, LCR = 95 – 100%.
30	Eucalyptus haemastoma	Scribbly Gum	225	5	M	F	6,3,1,2	2d	Previous major pruning works, Symmetrical, LCR = 95 – 100%.
31	Eucalyptus haemastoma	Scribbly Gum	280,190, 245,215	6.5	M	G	3,5,6,3	2a	Symmetrical, LCR = 95 – 100%. No immediate works
32	Harpephyllum caffrum	Kaffir Plum	205,210, 200	8	YM	G	2,4,4,3	2a	Symmetrical, LCR = 95 – 100%. No immediate works
33	Eucalyptus haemastoma	Scribbly Gum	220	5.5	YM	F	0,0,7,0	3d	Minor tropism to the S quadrant, Symmetrical, LCR = 75 – 80%, MDW less than 40mm in diameter in all four quadrants, Major tropism to the S quadrant.
34	Eucalyptus haemastoma	Scribbly Gum	210,205	8.5	M	G	1,5,3,2	2a	Trifurcated at ground level, Symmetrical, LCR = 95 – 100%.
35	Eucalyptus haemastoma	Scribbly Gum	130,180	5	YM	G	2,4,2,3	2a	Located in garden bed, Symmetrical, LCR = 95 – 100%. Trees 35 – 39 located in small garden bed area to the SW
36	Eucalyptus haemastoma	Scribbly Gum	240	5	YM	G	0,2,3,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works

37	Eucalyptus haemastoma	Scribbly Gum	490	10	OM	P	2,5,5,2	4a	Basal decay in the trunk at ground level, Extensive decay through the entire trunk, Symmetrical, LCR = 85 – 90%
38	Eucalyptus haemastoma	Scribbly Gum	420,250	11	M	G	5,4,4,1	2d	MDW in all four quadrants, Symmetrical, LCR = 95 – 100%.
39	Eucalyptus haemastoma	Scribbly Gum	355	8	M	G	2,5,2,4	2d	Symmetrical, LCR = 95 – 100%. No immediate works
40	Eucalyptus haemastoma	Scribbly Gum	300	6	M	G	9,6,0,0	2d	Minor tropism to the N quadrant, Symmetrical, LCR = 95 – 100%.
41	Angophora floribunda	Rough Barked Apple	330	10	M	G	5,8,2,2	2d	MDW in all four quadrants, no immediate works
42	Eucalyptus haemastoma	Scribbly Gum	360	7	M	G	3,4,4,4	2a	Symmetrical, LCR = 95 – 100%. No immediate works
43	Angophora floribunda	Rough Barked Apple	155	11	M	G	4,4,3,4	2d	MDW less than 40mm in diameter in all four quadrants, Symmetrical, LCR = 95 – 100%.
44	Eucalyptus haemastoma	Scribbly Gum	405	7	M	G	6,3,3,3	2d	MDW less than 40mm in diameter in all four quadrants, Symmetrical, LCR = 95 – 100%.
45	Jacaranda mimisifolia	Jacaranda	150,120	5	SM	G	4,3,2,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works
46	Quercus robur	English Oak	125	5.5	Y	G	1,2,1,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works
47	Quercus robur	English Oak	325,760	7	M	G	4,5,6,4	2d	Symmetrical, LCR = 95 – 100%. Large specimen, previously crown raised over driveway.
48	Melia azaderach	White Cedar	110,200	6	M	G	4,5,6,4	2d	In deciduous phase, Symmetrical
49	Melia azaderach	White Cedar	315,160	6	M	G	6,4,3,3	2d	In deciduous phase, Symmetrical
50	Archontophenix cunninghamiana	Bangalow Palm	290	8	M	G	3,3,3,3	2a	Symmetrical, LCR = 95 – 100%. No immediate works
51	Glochidion ferdinandi	Cheese Tree	270	7	M	G	3,3,2,2	2d	MDW in all four quadrants, Symmetrical, LCR = 95 – 100%.
52	Harpephyllum caffrum	Kaffir Plum	460	6	M	G	4,5,5,5	2a	Symmetrical, LCR = 95 – 100%. No immediate works
53	Picea albies	Spruce	235	7	Y	G	3,3,3,3	2a	Symmetrical, LCR = 95 – 100%. No immediate works
54	Cupressocyparis leylandii	Leighton Pine	195	7	YM	G	2,2,2,2	2a	Symmetrical, LCR = 95 – 100%. No immediate works
55	Harpephyllum caffrum	Kaffir Plum	410,220, 150	6	M	G	8,5,4,6	2a	Trifurcated at ground level, Symmetrical, LCR = 95 – 100%.
56	Glochidion ferdinandi	Cheese Tree	500	9	M	G	6,4,5,6	2a	Symmetrical, LCR = 95 – 100%. No immediate works

57	Glochidion ferdinandi	Cheese Tree	200,130, 130	5	YM	G	3,4,4,4	2a	Symmetrical, LCR = 95 – 100%. No immediate works
58	Corymbia eximia	Yellow Bloodwood	570	10	M	G	6,6,5,6	2a	Symmetrical, LCR = 95 – 100%. No immediate works
59	Eucalyptus haemastoma	Scribbly Gum	360,270, 365,190	8	M	G	6,4,4,5	2d	Symmetrical, LCR = 95 – 100%. Located 8.1 metres to the existing building brick wall. Potential to be considered exempt species in accordance with the RFS 10:50 Code.
60	Eucalyptus haemastoma	Scribbly Gum	520	5	M	G	5,4,5,4	2d	Symmetrical, LCR = 95 – 100%. Located 6.8 metres to the existing building brick wall. Potential to be considered exempt species in accordance with the RFS 10:50 Code.
61	Glochidion ferdinadi	Cheese Tree	MS	5.5	M	G	5,4,5,4	2a	Symmetrical, LCR = 95 – 100%., Located 5.8 metres to the existing building brick wall. Potential to be considered exempt species in accordance with the RFS 10:50 Code.
62	Erythrina crista-galli	Cockspur	MS	4	M	F	3,1,1,2	3d	Symmetrical, LCR = 95 – 100%. Topped previously. Weed species. Located 4.7 metres to the existing building brick wall. Potential to be considered exempt species in accordance with the RFS 10:50 Code.
63	Allocasuarina torulosa	Forest Oak	280	6	YM	G	2,3,3,4	2a	Symmetrical, LCR = 95 – 100%. No immediate works
64	Eucalyptus haemastoma	Scribbly Gum	370	7	M	G	1,3,4,1	2a	Symmetrical, LCR = 95 – 100%. No immediate works.
65	Allocasuarina torulosa	Black Sheoak	235	7.5	M	G	4,2,2,2	2d	Symmetrical, LCR = 95 – 100%. No immediate works.

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
THSC = The Hills Shire 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 is an area where no to minimal activities listed above should occur. All trees require a S.R.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 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 behalf of their ICONFM Australia Pty Ltd to undertake an arborist (assessment) report on trees that come under the requirements of The Hills Shire Council tree preservation order (HSCTPO) & trees that will be affected by the proposed development. There are sixty five (65) trees that have been assessed within the subject property identified as 1 Larapinta Place, Glenhaven. Trees 1 - 45 are located within the front yard and Trees 46 - 65 are located within the backyard of the subject property. Tree 66 is located on the nature strip out the front of the subject property along Larapinta Place. The applicant proposes to erect/construct a development that will include a new dwelling to accommodate a worship facility within the subject property identified as 1 Larapinta Place, Glenhaven. (Appendix 1). All trees have been tagged for identification purposes.

Abacus Tree Services has relied upon the sketch drawings provided by ICONFM Australia Pty Ltd (Drawing number - 1001) 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.

Figure 3 – showing the garden bed that accommodates Trees 1 - 7

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	2.93	7.86
2	1.50	2.00
3	1.51	2.00
4	2.18	2.88
5	1.50	2.00
6	1.65	2.00
7	2.30	4.68
8	2.47	3.72
9	1.68	2.64
10	2.60	5.76
11	2.19	3.60
12	2.10	3.72
13	2.00	2.88
14	2.63	4.92
15	2.51	5.28
16	2.05	3.60
17	2.19	3.36
18	2.13	3.48
19	1.91	2.40
20	2.42	4.32
21	2.13	3.60
22	2.37	2.76
23	1.72	2.00
24	2.53	5.88
25	2.00	3.12
26	2.00	2.94
27	3.27	9.48
28	2.71	5.40
29	2.30	4.32
30	1.85	2.70
31	2.43	5.64
32	2.25	5.04
33	1.82	2.64
34	2.05	3.48
35	2.22	2.64
36	1.88	2.88
37	2.63	5.88
38	2.53	5.88
39	2.23	4.02
40	2.08	3.60
41	2.20	3.96

42	2.28	4.32
43	2.56	5.46
44	2.41	4.86
45	2.02	2.28
46	1.61	2.00
47	3.11	9.96
48	2.39	3.72
49	2.28	4.20
50	2.13	2.40
51	2.04	3.24
52	2.45	5.52
53	2.45	2.82
54	1.79	2.34
55	2.81	5.88
56	2.73	6.00
57	2.36	3.24
58	2.36	6.84
59	3.06	7.32
60	2.63	6.24
61	2.41	4.80
62	2.15	3.84
63	2.12	3.36
64	2.37	4.44
65	2.15	2.82

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 2.93 & 7.86 metres in accordance with Australian Standards 4970 - 2009. This species is outside of 10 metres to an approved structure. Tree 1 will be located on the edge of the building footprint. This type of species is noted as being exempt when it is less than 10 metres in height. This species is on the cusp of being exempt due to species type and height as identified in the HSC tree management guidelines for trees on private land. Tree 1 will require removal in order for the development to proceed in its current format.

Figure 4 – showing the location of Tree 1 that will require removal in order for the development to proceed in its current format.

Tree 2 has been given an SRZ and TPZ of 1.50 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 2 is a small species that doesn't meet the criteria of a tree in accordance with the tree preservation guidelines. This species located next to Tree 1 will require removal in order for the development to proceed in its current format.

Tree 3 has been given an SRZ and TPZ of 1.51 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 3 is a small species that doesn't meet the criteria of a tree in accordance with the tree preservation guidelines. This species is outside the proposed development and hardstand areas. This species has the potential to be removed as an exempt species.

Tree 4 has been given an SRZ and TPZ of 2.18 & 2.88 metres in accordance with Australian Standards 4970 - 2009. Tree 4 is a small tree that would have been planted at the same time as Trees 2 – 4. This species doesn't meet the height or diameter definition of a tree in accordance with council guidelines however has a spread of greater than 3 metres and therefore comes under council requirements. This species provides no visual buffer to the neighbouring properties and is earmarked for removal along with Trees 2 & 3.

Figure 5 – showing the location of Trees 3 – 5 within the eastern quadrant of the backyard. These trees have been earmarked for removal before commencement of building works on site. Trees 3 & 4 are considered exempt species and Tree 5 meets 1 of the criteria for the definition of a tree.

Tree 5 has been given an SRZ and TPZ of 1.50 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 5 is a small tree that doesn't meet the criteria set out in accordance with council guidelines. Tree 5 is located outside the scope of works however is earmarked for removal before commencement of building works. Tree 5 has the potential to be removed as an exempt species.

Tree 6 has been given an SRZ and TPZ of 1.65 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 6 meets one of the criteria for the definition of a tree as it has a spread greater than 3 metres. This species is asymmetrical and not growing true to form. This species will also be located on the edge of the proposed building footprint and therefore will require removal in order for the development to proceed in its current format.

Figure 6 – showing the location of Tree 6 that is on a major tropism to the north western quadrant. This species is earmarked for removal before commencement of building works on site.

Tree 7 has been given an SRZ and TPZ of 2.30 & 4.68 metres in accordance with Australian Standards 4970 - 2009. Tree 7 is located outside of the proposed development and hardstand areas associated with the development. This species is at the top end of its maturity and would only be suitable to short term retention. This species is located 10.6 metres to the proposed development and therefore is outside the scope of works. This species has been identified for removal due to being at the top end of its maturity.

Tree 8 has been given an SRZ and TPZ of 2.47 & 3.72 metres in accordance with Australian Standards 4970 - 2009. Tree 8 is located 8.4 metres to the proposed development and is outside the scope of works. The diameter and height do not meet the definition of a tree in accordance with council guidelines however this species has a spread greater than 3 metres and therefore comes under council requirements. If retained this species will require pruning the dead leader to the southern quadrant just above ground level as shown in Figure 8.

Figure 7 – showing the location of Trees 7 – 9 in the front yard of the subject property.

Tree 9 has been given an SRZ and TPZ of 1.68 & 2.64 metres in accordance with Australian Standards 4970 - 2009. Tree 9 has a height of 7 metres and therefore comes under council requirements. Tree 9 is located 5 metres from the proposed development. This species has the potential to be retained and incorporated into the development on the proviso that the 2.64 metre radius from the trunk of Tree 9 can be retained at existing ground levels.

Figure 8 – showing the secondary leader associated with Tree 7 that if retained would benefit from pruning to just above ground level. This species is outside the scope of works.

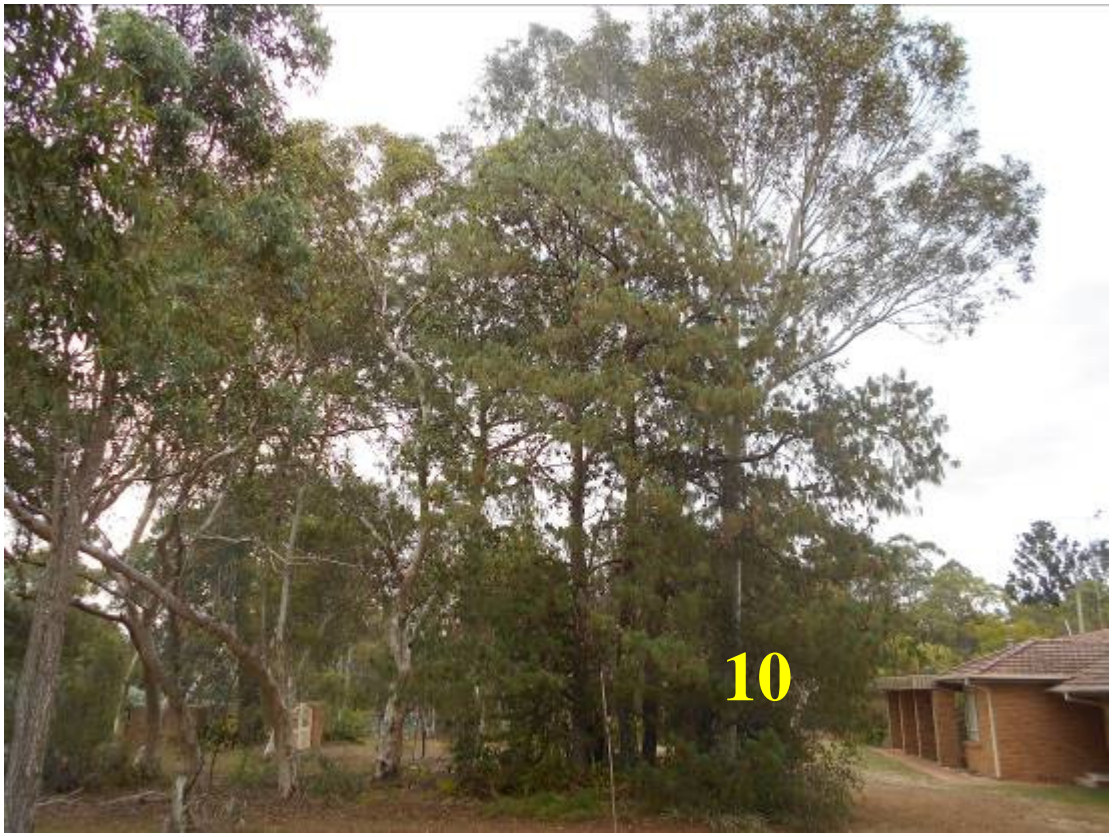

Figure 9 – showing the cluster of trees at the front of the subject property that will require removal. Tree 10 is the closest of the trees to the existing residential dwelling.

Tree 10 has been given an SRZ and TPZ of 2.60 & 5.76 metres in accordance with Australian Standards 4970 - 2009. Tree 10 is the start of the species in a garden bed located to the south of the existing building as shown in Figure 9. This species is located inside the main entrance/atrium of the proposed development. This species will require removal in order for the development to proceed in its current format.

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

Tree 11 has been given an SRZ and TPZ of 2.19 & 3.60 metres in accordance with Australian Standards 4970 - 2009. Tree 11 is located on the edge of the proposed development. This species is located on the edge of the main entrance/atrium of the proposed development. This species will require removal in order for the development to proceed in its current format.

Tree 12 has been given an SRZ and TPZ of 2.10 & 3.72 metres in accordance with Australian Standards 4970 - 2009. Tree 12 is located inside the proposed atrium/entrance area and will require removal in order for the development to proceed in its current format.

Tree 13 has been given an SRZ and TPZ of 2.00 & 2.88 metres in accordance with Australian Standards 4970 - 2009. Tree 13 is located inside the proposed atrium/entrance area and will require removal in order for the development to proceed in its current format.

Tree 14 has been given an SRZ and TPZ of 2.63 & 4.92 metres in accordance with Australian Standards 4970 - 2009. Tree 14 is located inside the proposed atrium/entrance area and will require removal in order for the development to proceed in its current format.

Tree 15 has been given an SRZ and TPZ of 2.51 & 5.28 metres in accordance with Australian Standards 4970 - 2009. Tree 15 will be located inside the proposed water feature inside the proposed development. This species also has a moderately sparse canopy and is in fair health and condition. Tree 15 will require removal in order for the development to proceed in its current format.

Tree 16 has been given an SRZ and TPZ of 2.05 & 3.60 metres in accordance with Australian Standards 4970 - 2009. Tree 16 is located 2.6 metres to the proposed development and is outside of the hardstand areas leading into the atrium. This species has a major tropism to the eastern quadrant. Tree 16 has large deadwood in all four quadrants. The proposed building and hardstand area associated with the development will remove an estimated 8.41% of the TPZ. This sits below the 10% acceptable threshold in accordance with Australian Standards 4970 – 2009. This species has a major tropism to the eastern quadrant and due to its position to the proposed development is earmarked for removal. Tree 16 has been earmarked for removal before the commencement of building works on site.

Tree 17 has been given an SRZ and TPZ of 2.19 & 3.36 metres in accordance with Australian Standards 4970 - 2009. Tree 17 has minor deadwood in all four quadrants. Tree 17 has a minor tropism to the eastern quadrant. Tree 17 is in fair health and condition. This species is located 3.2 metres to the proposed development. The development will be located on the edge of the TPZ that complies with Australian Standards 4970 – 2009. This species has the potential to be retained however due to its position to the path and building is earmarked for removal before commencement of building works on site.

Tree 18 has been given an SRZ and TPZ of 2.13 & 3.48 metres in accordance with Australian Standards 4970 - 2009. Tree 18 has a moderate tropism to the eastern quadrant and minor deadwood in all four quadrants. Tree 18 is in fair health and condition. Due to its location to the proposed path and building it has been earmarked for removal before commencement of building works on site.

Figure 11 – showing the location of Trees 19 & 20 at the front of the subject property.

Tree 19 has been given an SRZ and TPZ of 1.91 & 2.40 metres in accordance with Australian Standards 4970 - 2009. Tree 19 is a small tree that meets the requirements of the tree preservation order. Tree 19 is located more than 10 metres to the proposed development and could be retained and incorporated into the development on the proviso that the TPZ radius is retained and the existing soil levels are maintained within the TPZ.

Tree 20 has been given an SRZ and TPZ of 2.42 & 4.32 metres in accordance with Australian Standards 4970 - 2009. Tree 20 is the first tree along the fence line as shown in Figure 11. This TPZ of the species is outside of the proposed development and therefore could be retained and incorporated into the development on the proviso that the TPZ radius is retained and the existing soil levels are maintained within the TPZ.

Tree 21 has been given an SRZ and TPZ of 2.13 & 3.60 metres in accordance with Australian Standards 4970 - 2009. Tree 21 has decay in the fork union and a major tropism to the south eastern quadrant. Tree 21 is outside of the scope of works and has the potential to be retained and incorporated into the development.

Tree 22 has been given an SRZ and TPZ of 2.37 & 2.76 metres in accordance with Australian Standards 4970 - 2009. Tree 22 is located on the proposed fence line and is bifurcated at ground level. Tree 22 will be located next to the proposed internal path and therefore will require removal in order for the development to proceed in its current format.

Tree 23 has been given an SRZ and TPZ of 1.72 & 2.00 metres in accordance with Australian Standards 4970 - 2009. Tree 23 is a small species that meets the requirements of the tree preservation order due to the height that is measured at 6 metres. Tree 23 will be located within 1.5 metres of the proposed path leading to the building. The loss of TPZ has been calculated at 7.1%. This is a small loss of TPZ that meets the requirements of Australian Standards 4970 – 2009. I have also taken into consideration that this species has the potential to reach a TPZ of 5 – 6 metres when fully mature. Due to the location to the proposed internal path it would be beneficial to remove Tree 23 before commencement of building works on site.

Figure 12 – showing the location of Trees 24 & 27 in the front yard of the subject property.

Tree 24 has been given an SRZ and TPZ of 2.53 & 5.88 metres in accordance with Australian Standards 4970 - 2009. Tree 24 is located just outside the building footprint. This species would have an estimated 45% of the root plate removed on the northern side to accommodate the proposed development. Normal footings and excavation works would place it on the edge of the trunk. There is the potential to remove majority of the SRZ on one side to accommodate the proposed development. In order for the development to proceed in its current format will require the removal of Tree 24.

Tree 25 has been given an SRZ and TPZ of 2.00 & 3.12 metres in accordance with Australian Standards 4970 - 2009. Tree 25 is estimated at 1.6 metres to the proposed path and associated excavation works. This proposed internal path will require 20% of the SRZ removed on the eastern side. The proposed path has the potential for a loss of 18.85%. Due to the proposed driveway it would be beneficial to remove Tree 25 before the commencement of building works on site.

Tree 26 has been given an SRZ and TPZ of 2.00 & 2.94 metres in accordance with Australian Standards 4970 - 2009. Tree 26 is a small tree located along the fence line of the subject property. Tree 26 will be located along the edge of the proposed internal road. Majority of the SRZ on the eastern side will require removal in order to accommodate the proposed internal footpath. In order for the development to proceed in its current format will require the removal of Tree 26.

Tree 27 has been given an SRZ and TPZ of 3.27 & 9.48 metres in accordance with Australian Standards 4970 - 2009. Tree 27 is a large mature tree that is located 8.6 metres to the proposed development. The proposed development will create a loss of 0.9% and is outside the SRZ. The western quadrant has the potential to be unaffected by the proposed development and the northern quadrant a loss of 0.9%. The proposed internal path is 4.9 metres away and the proposed fence is four metres away. The fence is considered minor works and the loss due to the fence and the internal path represents less than 10% of the TPZ and all works will be outside of the SRZ. There is the potential to retain Tree 27 and incorporate into the development on the proviso that the existing soil levels can be maintained to the footpath and the internal fence.

Tree 28 has been given an SRZ and TPZ of 2.71 & 5.40 metres in accordance with Australian Standards 4970 - 2009. Tree 28 is located outside of the existing internal brick fence at the front of the subject property. The survey indicates that this species is within the subject property. Tree 28 has been extensively pruned due to the power lines along the southern quadrant. Majority of the southern quadrant has been removed. All building and internal paths/hardstand areas are outside of the TPZ of Tree 28. The proposed internal fence will be situated within 0.1 – 0.2 metres from the trunk. Due to its location to the proposed fence and the location to the power lines and previous pruning history it has been earmarked for removal before commencement of building works on site.

Tree 29 has been given an SRZ and TPZ of 2.30 & 4.32 metres in accordance with Australian Standards 4970 - 2009. Tree 30 has been given an SRZ and TPZ of 1.85 & 2.70 metres in accordance with Australian Standards 4970 - 2009. The trunk of Tree 29 will be located 0.5 metres to the proposed internal fence with Tree 30 being a similar distance. Both of these trees have been extensively pruned previously due to their location to the power lines. All building and internal paths/hardstand areas are outside of the TPZ of Tree 28. The proposed internal fence will be situated within 0.1 – 0.2metres from the trunk. Due to its location to the proposed fence and the location to the power lines and previous pruning history it has been earmarked for removal before commencement of building works on site.

Figure 13 – showing the location of Trees 28 – 30 that have been earmarked for removal to accommodate the proposed internal fence. Trees 28 – 30 have been extensively pruned previously due to the power lines.

Tree 31 has been given an SRZ and TPZ of 2.43 & 5.64 metres in accordance with Australian Standards 4970 - 2009. Tree 31 is outside of the scope of works for all internal paths, hardstand areas and buildings. This species has the potential to be retained and incorporated into the development on the proviso that the existing soil levels within the TPZ are maintained at current levels. No grade changes are to occur within the TPZ of Tree 31. Tree 31 is earmarked for retention and incorporation into the development.

Figure 14 – showing the location of Trees 31 – 33 within the front yard of the subject property. Trees 31 – 33 have been earmarked for retention and incorporation into the development.

Tree 32 has been given an SRZ and TPZ of 2.25 & 5.04 metres in accordance with Australian Standards 4970 - 2009. Tree 32 is outside of the scope of works for all internal paths, hardstand areas and buildings. This species has the potential to be retained and incorporated into the development on the proviso that the existing soil levels within the TPZ are maintained at current levels. No grade changes are to occur within the TPZ of Tree 32. Tree 32 is earmarked for retention and incorporation into the development.

Tree 33 has been given an SRZ and TPZ of 1.82 & 2.64 metres in accordance with Australian Standards 4970 - 2009. Tree 33 is outside of the scope of works for all internal paths, hardstand areas and buildings. This species has the potential to be retained and incorporated into the development on the proviso that the existing soil levels within the TPZ are maintained at current levels. No grade changes are to occur within the TPZ of Tree 33. Tree 33 is earmarked for retention and incorporation into the development.

Tree 34 has been given an SRZ and TPZ of 2.05 & 3.48 metres in accordance with Australian Standards 4970 - 2009. The SRZ and TPZ measurements have been outlined above in the TPZ schedule. Trees 34 – 40 are outside of the proposed development and all associated hardstand areas. Trees 34- 40 have all been assessed on their health and condition. Tree 37 is located on the corner of the subject property along the south western corner of the front yard. This species has major basal decay at ground level. There is large resonance associated with this species at ground level. The decay extends from ground level up the trunk and decay is evident at 6 metres above ground level to the south eastern side of the trunk. Tree 37 would benefit from removal due to its over maturity and location to the power lines. All other species (Trees 34 – 36 & 38 – 40) have the potential to be retained and incorporated into the development.

Figure 15 – showing the location of the garden bed that accommodates Trees 34 – 39. Tree 37 near the western boundary fence has been earmarked for removal.

Figure 16 – showing the basal decay associated with Tree 37. This species is located next to the internal boundary fence and power lines. This species has been earmarked for removal.

Tree 41 has been given an SRZ and TPZ of 2.20 & 3.96 metres in accordance with Australian Standards 4970 - 2009. Trees 41 – 46 have been assessed in accordance with Australian Standards 4970 – 2009. Trees 41 – 46 are located on the western side of the existing house. Trees 41 – 46 are outside of the scope of works for all internal paths, hardstand areas and buildings. These trees have the potential to be retained and incorporated into the development on the proviso that the existing soil levels within the TPZ are maintained at current levels. No grade changes are to occur within the TPZ of Trees 41 - 46. Trees 41 – 46 are earmarked for retention and incorporation into the development. All the remaining trees and shrubs on the survey plan have been looked at and are too small to be considered to come under the requirements of THSC. Some of these trees have been earmarked with a rex X on the plans in Appendix 1. Majority of the trees along the fence line were planted Callistemon viminalis, Camellia japonica and other exotic shrubs as highlighted in Figure 18.

Figure 17 – showing the location of Trees 41 – 44 that have the potential to be retained and incorporated into the development.

Tree 47 has been given an SRZ and TPZ of 3.11 & 9.96 metres in accordance with Australian Standards 4970 - 2009. Tree 47 is a large non-native tree that is located next to the driveway edge. This species will be located 8.2 metres to the proposed development from the centre of the stem. Tree 47 is a large oak tree has been previously crown raised up to 4 – 5 metres above ground level. Tree 47 may require minor pruning works to allow a spatial separation of 1 metre to the proposed development. This species has the potential to be retained on the proviso that the existing soil levels are maintained for a minimum of 6 metres in all four directions. The existing driveway can be raised by 100 mm outside to landscape only in the SRZ.

Figure 18 – showing the perimeter trees along the western boundary. These trees are primarily Camellia japonica and Callistemon viminalis that have all been planted. All these specimens are too small and do not come under council requirements.

Figure 19 – showing the location of Tree 48 that is situated next to the existing internal driveway. This species has the potential to be retained and incorporated into the development.

Tree 48 has been given an SRZ and TPZ of 2.39 & 3.72 metres in accordance with Australian Standards 4970 - 2009. Tree 49 has been given an SRZ and TPZ of 2.28 & 4.20 metres in accordance with Australian Standards 4970 - 2009. Trees 48 & 49 have been assessed against the exempt species list. This type of species although is native can be removed as exempt if less than 10 metres in height. Both Trees 48 & 49 fall under that height erquirement. Trees 48 & 49 can be removed as exempt species in accordance with HSC tree preservation order guidelines.

Tree 50 has been given an SRZ and TPZ of 2.13 & 2.40 metres in accordance with Australian Standards 4970 - 2009. Tree 50 is a monocotyledon and therefore the TPZ would be within the vicinity of 4 metres as per the Australian Standards requirement. This species is considered a species that doesn't require development consent and therefore be removed without prior consent from council.

Tree 51 has been given an SRZ and TPZ of 2.04 & 3.24 metres in accordance with Australian Standards 4970 - 2009. Tree 51 is a small native species that has a current TPZ of 3.24 metres. This species is located in between the proposed car parking area and building. The proposed car park and building will be outside of the TPZ of Tree 51. This species has the potential to be retained and incorporated into the development on the proviso that the existing soil levels can be maintained. This may not be feasible to due to its location.

Tree 52 has been given an SRZ and TPZ of 2.45 & 5.52 metres in accordance with Australian Standards 4970 - 2009. Tree 53 has been given an SRZ and TPZ of 2.45 & 2.82 metres in accordance with Australian Standards 4970 - 2009. Tree 54 has been given an SRZ and TPZ of 1.79 & 2.34 metres in accordance with Australian Standards 4970 - 2009. Trees 52 – 54 are small non-native species that have been planted. These species will all be located within the proposed car parking area. In order for the development to proceed in its current format will require the removal of Trees 52 – 54.

Figure 20 – showing the location of Trees 52 – 55 within the backyard of the subject property. Trees 52 – 54 are located within the proposed driveway and will require removal to construct the development.

Tree 55 has been given an SRZ and TPZ of 2.81 & 5.88 metres in accordance with Australian Standards 4970 - 2009. Tree 55 will be located 1.5 metres to the proposed visitor parking. The overall loss of TPZ associated with the parking has been calculated at 33.72%. The overall loss of TPZ is greater than the acceptable limit in accordance with Australian Standards 4970 – 2009. . In order for the development to proceed in its current format will require the removal of Tree 55

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Tree 56 has been given an SRZ and TPZ of 2.73 & 6.00 metres in accordance with Australian Standards 4970 - 2009. Tree 56 will be located inside the proposed visitor parking area. In order for the development to proceed in its current format will require the removal of Tree 56.

Figure 21 – showing the location of Tree 57 that is towards the rear of the backyard. This species is located in the visitor parking area and will require removal in order for the development to proceed in its current format.

Tree 57 has been given an SRZ and TPZ of 2.36 & 3.24 metres in accordance with Australian Standards 4970 - 2009. Tree 57 will be located inside the proposed visitor parking area. In order for the development to proceed in its current format will require the removal of Tree 57.

Tree 58 has been given an SRZ and TPZ of 2.36 & 6.84 metres in accordance with Australian Standards 4970 - 2009. Tree 58 is located inside the proposed development. In order for the development to proceed in its current format will require the removal of Tree 58.

Figure 22 – showing the location of Tree 58 that will be located inside the proposed development.

Tree 59 has been given an SRZ and TPZ of 3.06 & 7.32 metres in accordance with Australian Standards 4970 - 2009. Tree 60 has been given an SRZ and TPZ of 2.63 & 6.24 metres in accordance with Australian Standards 4970 - 2009. Trees 59 & 60 are located 8.1 metres and 6.8 metres to the existing building. Both these species have the potential to be considered exempt development as they are within 10 metres to a residential dwelling on the proviso that they meet all other council requirements. Trees 59 and 60 are considered exempt species in accordance with the RFS 10:50 Code.

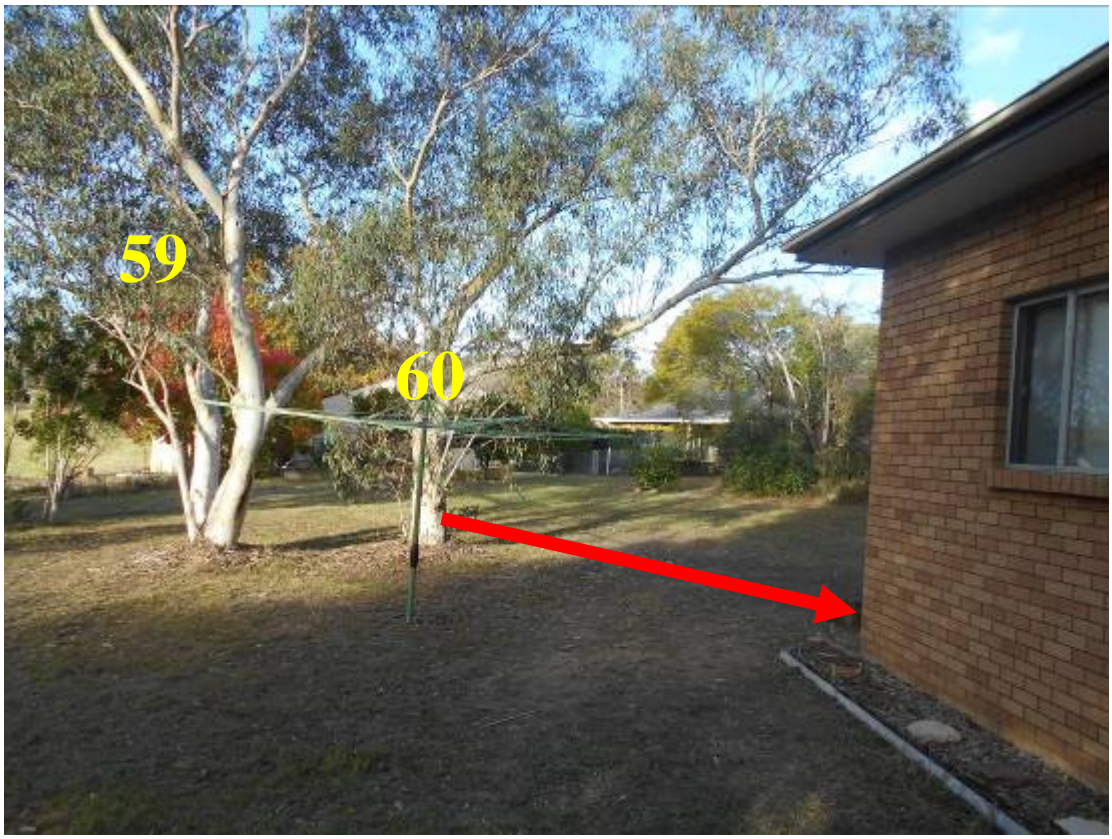

Figure 23 – showing the location of Trees 59 & 60 that are within 10 metres to the existing dwelling. These species are located inside the proposed dwelling and will therefore require removal in order for the development to proceed in its current format.

Tree 61 has been given an SRZ and TPZ of 2.41 & 4.80 metres in accordance with Australian Standards 4970 - 2009. Tree 61 is located inside the proposed dwelling and will therefore require removal in order for the development to proceed in its current format. This species is earmarked for removal before commencement of building works on site. This species is located 5.8 metres to the existing dwelling. This species has the potential to be considered exempt development as they are within 10 metres to a residential dwelling on the proviso that they meet all other council requirements.

Figure 24 – showing the location of Trees 61 & 62 that are within the proposed building footprint. Trees 61 & 62 are also within 10 metres to the existing residential dwelling.

Tree 62 has been given an SRZ and TPZ of 2.15 & 3.84 metres in accordance with Australian Standards 4970 - 2009. This species is considered a weed in most council areas. This species is not listed on councils weed species list however can endanger native populations due to its prolific growing habits. This species is located inside the proposed dwelling and will therefore require removal in order for the development to proceed in its current format. This species is earmarked for removal before commencement of building works on site.

Tree 63 has been given an SRZ and TPZ of 212 & 3.36 metres in accordance with Australian Standards 4970 - 2009. This species has the potential to be retained and incorporated into the development.

Tree 64 has been given an SRZ and TPZ of 2.37 & 4.44 metres in accordance with Australian Standards 4970 - 2009. This species has the potential to be retained and incorporated into the development.

Tree 65 has been given an SRZ and TPZ of 2.15 & 2.82 metres in accordance with Australian Standards 4970 - 2009. This species has the potential to be retained and incorporated into the development.

Figure 25 – showing the location of the nature strip tree next to the boundary fence. The trunk to the boundary fence has been calculated at 2.9 metres.

Tree 66 is located on councils nature strip. This species is located 4.3 metres to the proposed vehicular access crowing. The proposed visitor parking is 7.8 metres from the trunk of Tree 66. It would be prudent to allow the first 2 metres be retained at existing soil levels to allow a buffer of 4.9 metres to the proposed car parking area. No pruning will be required to construct the driveway or vehicular access crowing. Tree 66 can be retained and incorporated into the development.

6.0 Conclusions

- Abacus Tree Services has been approached by behalf of their ICONFM Australia Pty Ltd to undertake an arborist (assessment) report on trees that come under the requirements of The Hills Shire Council tree preservation order (HSCTPO) & trees that will be affected by the proposed development. There are sixty five (65) trees that have been assessed within the subject property identified as 1 Larapinta Place, Glenhaven. Trees 1 - 45 are located within the front yard and Trees 46 - 65 are located within the backyard of the subject property. Tree 66 is located on the nature strip out the front of the subject property along Larapinta Place. The applicant proposes to erect/construct a development that will include a new dwelling to accommodate a worship facility within the subject property identified as 1 Larapinta Place, Glenhaven. (Appendix 1). All trees have been tagged for identification purposes. Trees 1 - 65 have been assessed in accordance with Australian Standards 4970 – 2009.

- The site is located in the municipality of The Hills Shire Council. The species on site has been assessed against the requirements set out in The Hills Shire Council's Tree Preservation Order. The species on site have been assessed against the requirements set out in The Hills Shire Council's Local Environmental Plan (2012) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2012). All information is assessed per the requirements of the SEPP (State Environmental Planning Policy) Vegetation in Non-Rural Areas 2017. The Hills Shire Council comes under the requirements of SEPP (Vegetation in Non-Rural Areas) as per Part 1 – Section 5. I have assessed the property against Schedule 5 (Environmental Heritage) within The Hills Shire Council LEP. The property is not listed in accordance with Part 1 (Heritage Items).
- Trees 1 - 65 have also been assessed against The Hills Shire Council (Tree Management Guidelines for Trees on Private Land 2014). The site is set on a flat block that gently slopes to the northern quadrant. The nearest major arterial road is Old Windsor Road to the east. Trees 1 - 65 are located within the subject property identified as 1 Larapinta Place, Glenhaven within close proximity to the subject property & proposed development. Tree 66 is located on councils nature strip.

- The subject property identified as 1 Larapinta Place, Glenhaven is located in a Rural Fire Service (RFS) 10:50 area. Therefore all trees within 10 metres to an approved structure have been assessed against the RFS 10:50 code. The search was undertaken on the 5 & 6 June 2018. 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. Trees that have the potential to comply with the RFS 10:50 Code include 59, 60, 61 & 62 (4 in total) on the proviso that all other council requirements have been fulfilled. Trees 59 – 62 have the potential to be removed in accordance with the RFS 10:50 Code.

- Trees that have been assessed against the tree preservation guidelines and do not meet the criteria as outlined as a definition of a tree include Trees 2, 3, 5, 8 & 62 (5 in total). Trees 2, 3, 5, 8 & 62 have the potential to be removed as exempt development on the proviso that they meet all other council requirements. Other species that are invasive or weed like characteristics that do not have high retention value include 52, 55 & 62. Tree 62 is an Erythrina crista-galli. This species has invasive weed like characteristics and would benefit from removal.

- Trees that are considered for removal as they are weed species include 1, 32, 48, 49 & 50 (5 in total). Trees 1, 32, 48, 49 & 50 are all listed as trees that are exempt and can be removed without council permission. Trees 48 & 49 can be removed as they are less than 10 metres in height and therefore meet the requirements of the tree preservation guidelines.

- Trees that are not growing true to form and/or are in an over mature phase have been assessed on site. These trees would not be considered for long term retention due to their condition and short U.L.E. The trees that have been included in this category are 6 & 37 (2 in total). Tree 6 is on a major lean and is not growing true to form. Tree 37 has major basal decay and is considered for short term retention and have been given an ULE of 4a. There are several other trees that have been given an ULE of 3a however Trees 6 & 37 are the two prominent trees that have been given short term retention.

- The proposed development and hardstand areas have been assessed to determine the amount of tree removal on site. I have considered the trees in accordance with Australian Standards 4970 – 2009. Trees that have not complied with Australian Standards 4970 – 2009 have been outlined in the list of trees below. In order for the development and proposed hardstand areas to be constructed in its current format will require the removal of Trees 10 – 15, 22, 24 – 26, 28 & 52 – 62 (22 in total)

- I have considered several other trees for removal due to their location to hardstand areas and/or proximity to the heavily pedestrian areas. Species that would benefit from removal to accommodate the development include Trees 16 – 18, 23 & 27, 29 & 30 (7 in total).

- Tree 16 is located 2.6 metres to the proposed development and is outside of the hardstand areas leading into the atrium. This species has a major tropism to the eastern quadrant. Tree 16 has large deadwood in all four quadrants. The proposed building and hardstand area associated with the development will remove an estimated 8.41% of the TPZ. This sits below the 10% acceptable threshold in accordance with Australian Standards 4970 – 2009. This species has a major tropism to the eastern quadrant and due to its position to the proposed development is earmarked for removal. Tree 16 has been earmarked for removal before the commencement of building works on site.

- Tree 17 has minor deadwood in all four quadrants. Tree 17 has a minor tropism to the eastern quadrant. Tree 17 is in fair health and condition. This species is located 3.2 metres to the proposed development. The development will be located on the edge of the TPZ that complies with Australian Standards 4970 – 2009. This species has the potential to be retained however due to its position to the path and building is earmarked for removal before commencement of building works on site.

- Tree 18 has a moderate tropism to the eastern quadrant and minor deadwood in all four quadrants. Tree 18 is in fair health and condition. Due to its location to the proposed path and building it has been earmarked for removal before commencement of building works on site.

- Tree 23 is a small species that meets the requirements of the tree preservation order due to the height that is measured at 6 metres. Tree 23 will be located within 1.5 metres of the proposed path leading to the building. The loss of TPZ has been calculated at 7.1%. This is a small loss of TPZ that meets the requirements of Australian Standards 4970 – 2009. I have also taken into consideration that this species has the potential to reach a TPZ of 5 – 6 metres when fully mature. Due to the location to the proposed internal path it would be beneficial to remove Tree 23 before commencement of building works on site.

- Tree 27 is a large mature tree that is located 8.6 metres to the proposed development. The proposed development will create a loss of 0.9% and is outside the SRZ. The western quadrant has the potential to be unaffected by the proposed development and the northern quadrant a loss of 0.9%. The proposed internal path is 4.9 metres away and the proposed fence is four metres away. The fence is considered minor works and the loss due to the fence and the internal path represents less than 10% of the TPZ and all works will be outside of the SRZ. There is the potential to retain Tree 27 and incorporate into the development on the proviso that the existing soil levels can be maintained to the footpath and the internal fence.

- Tree 28 is located outside of the existing internal brick fence at the front of the subject property. The survey indicates that this species is within the subject property. Tree 28 has been extensively pruned due to the power lines along the southern quadrant. Majority of the southern quadrant has been removed. All building and internal paths/hardstand areas are outside of the TPZ of Tree 28. The proposed internal fence will be situated within 0.1 – 0.2 metres from the trunk. Due to its location to the proposed fence and the location to the power lines and previous pruning history it has been earmarked for removal before commencement of building works on site.

- The trunk of Tree 29 will be located 0.5 metres to the proposed internal fence with Tree 30 being a similar distance. Both of these trees have been extensively pruned previously due to their location to the power lines. All building and internal paths/hardstand areas are outside of the TPZ of Tree 28. The proposed internal fence will be situated within 0.1 – 0.2metres from the trunk. Due to its location to the proposed fence and the location to the power lines and previous pruning history it has been earmarked for removal before commencement of building works on site.

- All other trees on site have the potential to be retained on the proviso that their SRZ/TPZ requirements can be satisfied. This will also include retaining the existing soil levels within the TPZ that can be achieved for these trees. Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total).

- Tree 66 is located on councils nature strip. This species is located 4.3 metres to the proposed vehicular access crowing. The proposed visitor parking is 7.8 metres from the trunk of Tree 66. It would be prudent to allow the first 2 metres be retained at existing soil levels to allow a buffer of 4.9 metres to the proposed car parking area. No pruning will be required to construct the driveway or vehicular access crowing. Tree 66 can be retained and incorporated into the development.

- Protection fencing for all retained trees will be undertaken in accordance with Australian Standards 4970 – 2009. Tree 66 is located on councils nature strip and therefore is to be protected by hardwood planks fastened to the tree as highlighted in Figure 26.

- Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) 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.

7.0 Recommendations

- It is recommended that ICONFM Australia Pty Ltd embark on a management program for sixty six (66) trees (Trees 1 – 66) before commencement of the proposed building/constructions works as follows:

- It is recommended that Trees 1 – 3, 5, 6, 10 – 18, 23 – 30, 37, 48 – 50 & 52 - 62 (37 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 ICONFM Australia Pty Ltd and the arborist.

- It is recommended that Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) be retained and incorporated into the development.

- It is recommended that the soil changes be kept to a minimum within the TPZ of Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total).and be raised by no more than 100mm. No soil changes are to occur within the SRZ of retained trees. 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, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total). 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 26. Protection fencing is to be installed a minimum of 1 metre inside the TPZ to all four quadrants or to boundary fences to enclose the TPZ. In relation to clusters of trees it is recommended to fence off the area as one tree protection zone. This is to include Trees 34 – 36 & 38 – 40 to place a TPZ to the outer most tree and enclose the space to the southern and western boundary fences. 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, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) and understand the tree protection measures that are put in place to preserve Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total).

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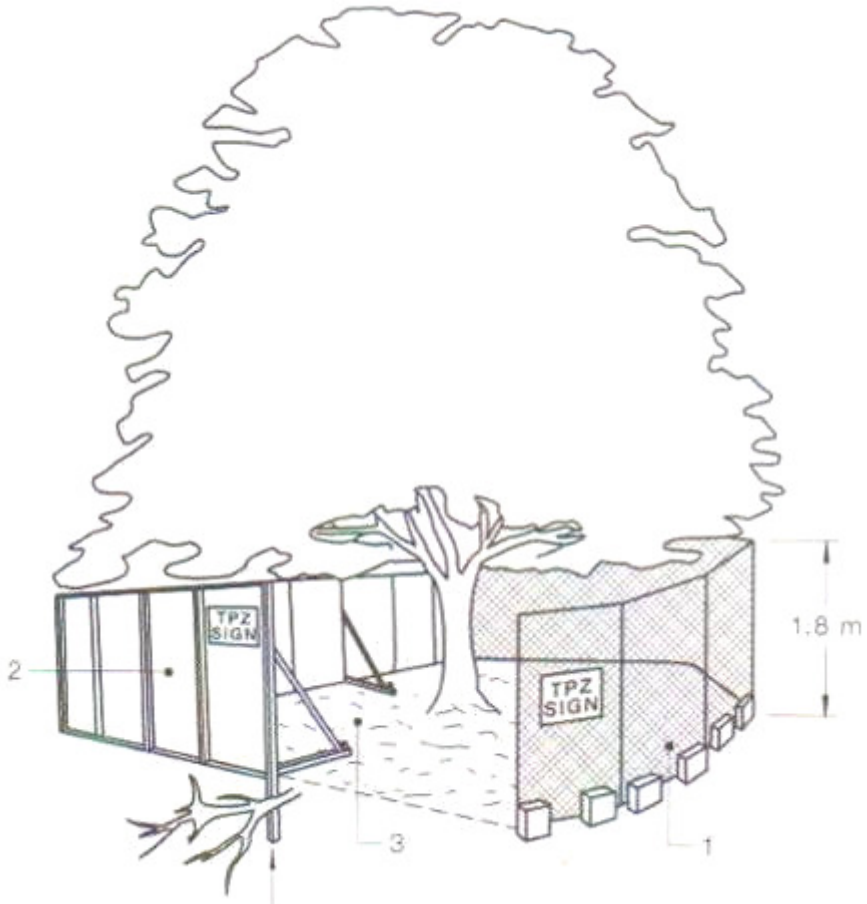
- All stockpile sites to be maintained a minimum 5 metres away from the trunk of Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total) and all other trees that come under the requirements of The Hills Shire Councils' Tree Preservation order.

- It is recommended that all parking of vehicles be kept a minimum five (5) metres from retained trees during construction works. It is recommended that no parking of vehicles be allowed within 5 metres from the trunk of Tree 66.

- To avoid injury or damage, Tree 66 must have its trunk protected by 2 metre lengths of 75mm X 25mm hardwood spaced at 80mm secured with galvanised wire (not fixed or nailed to the tree in any way) before commencement of building works and remain in place until the release of the occupation certificate

- 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 26 – showing the proposed fencing that is to be put in place before the commencement of building works on site (Trees 4, 7, 8, 9, 19 – 22, 31 – 36, 38 – 47, 51 & 63 – 66 (29 in total only).

  Source: Australian Standards 4970 - 2009

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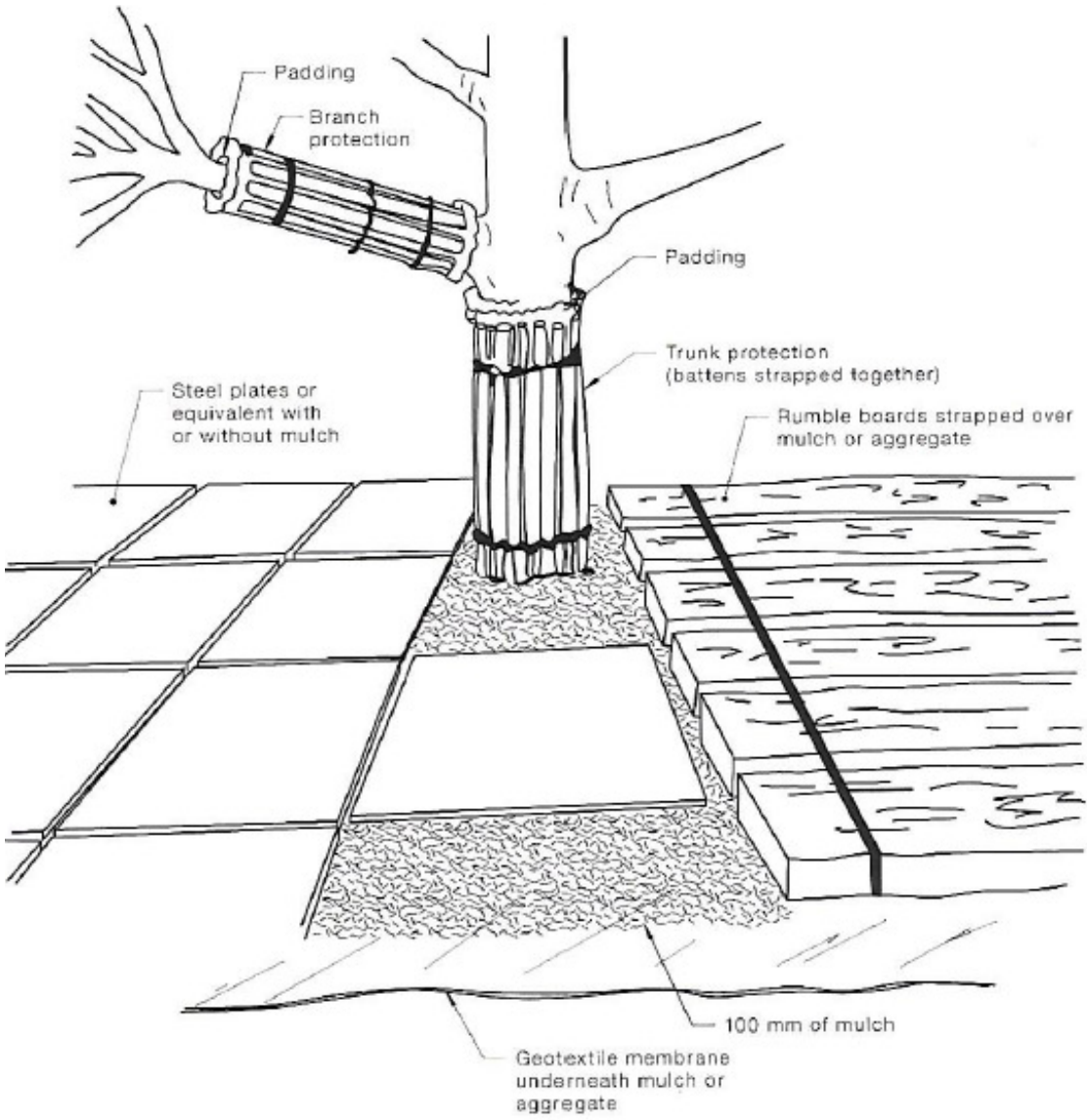
Consulting Arborist/Certified Arborist (ISAAC 2007)
Diploma in Horticulture (Arboriculture) (AQF 5) (Dux)
Bachelor of Horticulture Science



- Figure 27 – showing the proposed fencing that is to be put in place before the commencement of building works on site (Tree 66 only).

  Source: Australian Standards 4970 - 2009

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.rfs.nsw.gov.au

www.thehillsshire.nsw.gov.au

www.olg.nsw.gov.au

9.0 APPENDIX 1 Site Maps

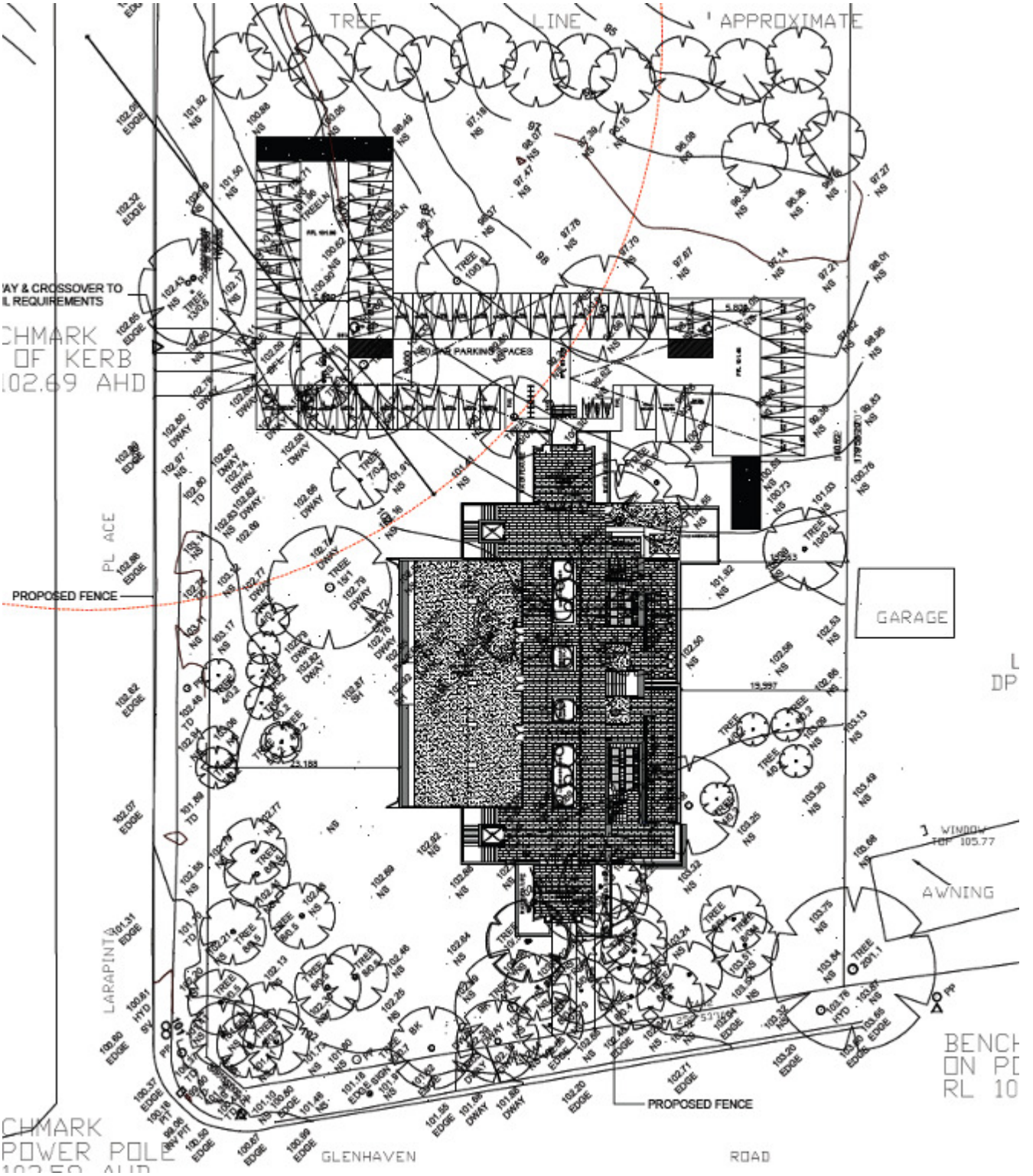


Figure 28 – The proposed development in relation to the subject property

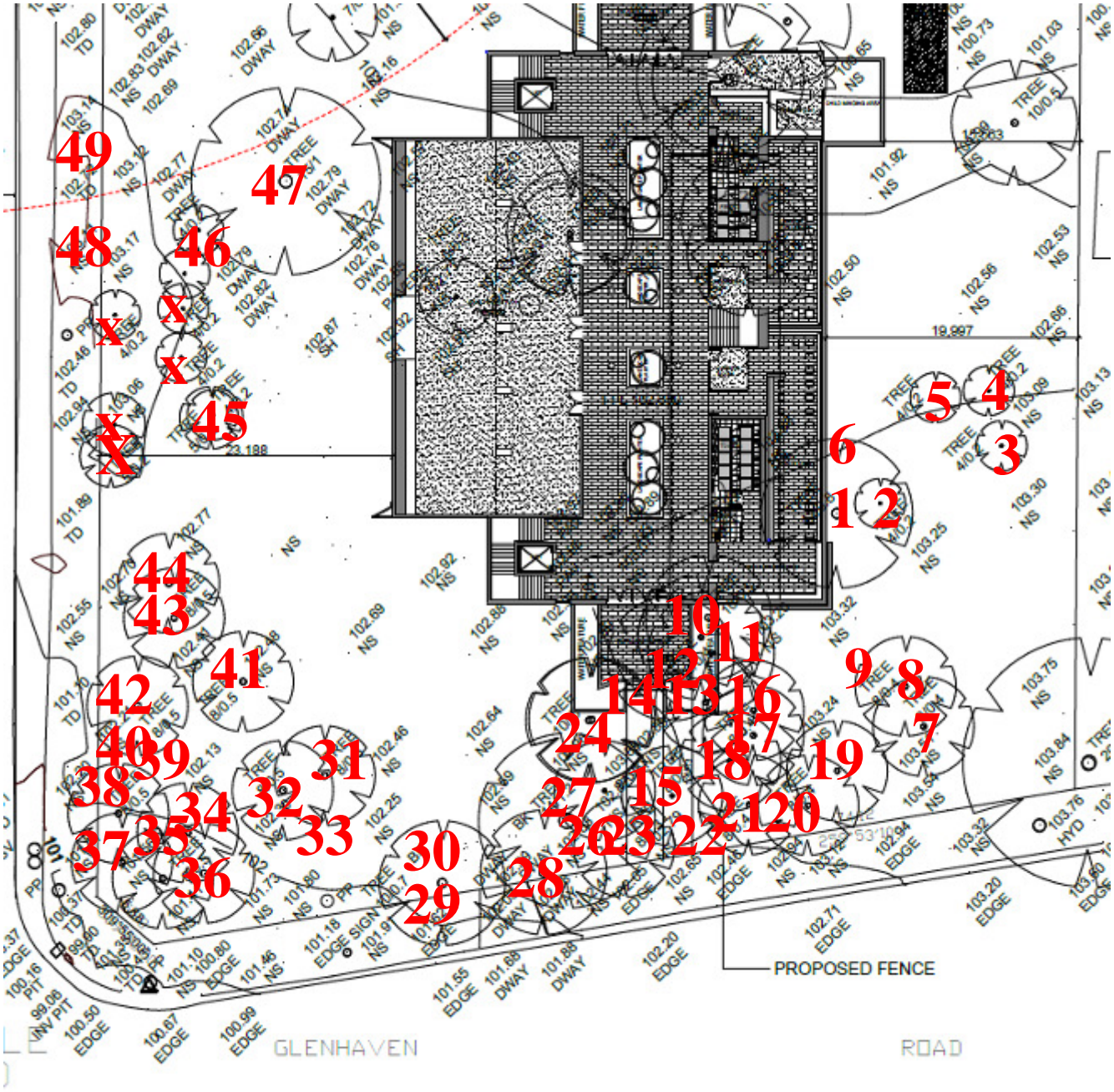


Figure 29 - Close up of the subject property and canopy area of Trees 1 - 49. Trees marked with an X are those that are too small to come under council requirements as shown in Figure 18. These marked X on the survey were small shrubs consisting of Callistemon viminalis and Camellia japonica. Not to scale

Source: ICONFM Australia Pty Ltd

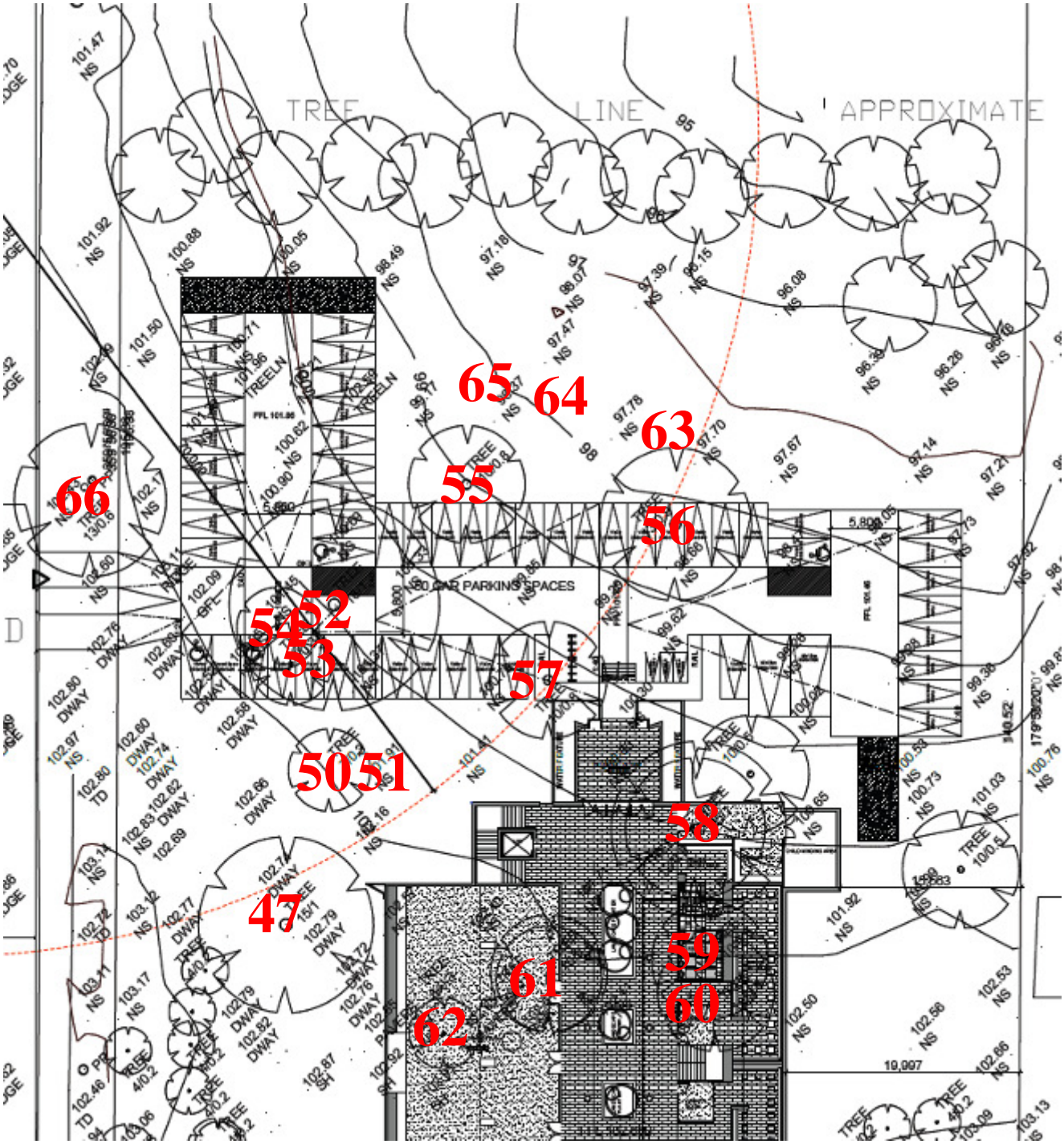


Figure 30 - Close up of the subject property and canopy area of Trees 50 - 66. Not to scale

Source: ICONFM Australia Pty Ltd

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 sixty five 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 sixty five of hours each day, residences)	
Hazard rating	Failure potential + size of part + target rating Add each of the above sections for a sixty five out of 12	The final sixty five 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