



# **JACKSONS NATURE WORKS**

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## **ARBORICULTURAL IMPACT ASSESSMENT REPORT**

**At**

**25 Kevin Avenue  
Avalon Beach**

**Prepared for**

**Sixjay Developments**

**12<sup>th</sup> March 2020**

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Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However, Ross Jackson – Consulting Arborist can neither guarantee nor be responsible for the accuracy of information provided by others. Unless stated otherwise:

- Information contained in this report covers only the trees examined and reflects the health and structure of the trees at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions.
- The inspection was limited to visual examination from the base of the subject tree without dissection, probing or coring.
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future; &
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Ross Jackson.

Consulting Arborist

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# 1. BACKGROUND and METHODOLOGY

- 1.1 The purpose of this Tree Report is to inform and accompany the development application works at 25 Kevin Avenue, Avalon Beach – The Site.
- 1.2 The report was commissioned by Sixjay Developments to respond to Council's requirements to consider the development impacts on trees located on and around the Site.
- 1.3 This report outlines the health and condition of the subject trees, the remaining life expectancy of the trees, identifies any visible defects or other problems, describes which trees require pruning, removal, retention or represent a potential hazard and comments on the impact on these trees in relation to the works proposed. The report also provides recommended tree protection measures (Tree Management Plan) to ensure the long-term preservation of the trees to be retained where appropriate.
- 1.4 The Site is a residential site with gardens at Avalon Beach.
- 1.5 The trees were identified by ground level Visual Tree Assessment (VTA) <sup>1</sup> only in the data collection, taken on 6.6.2019. No aerial (climbing) was undertaken.
- 1.6 All site photographs were taken by the author at the site. All photographs were taken using a digital camera (Canon 7D) with no image enhancement either within the camera or on computer.
- 1.7 The subject trees were located on plans supplied. The trees have been plotted and can be found on Annexure B – Tree Location Plan.
- 1.8 The trees were identified and their genus species and common name used. The trees were identified by the use of data collected and compared to G Burnie, S Forrester et al (1997) **Botanica** Random House, Milsons Point, NSW, Australia.
- 1.9 DBH. The Trunk Diameter at Breast Height (1.4 metres above ground level) in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.10 DRB. The trunk Diameter above Root Buttress in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.11 Height. Estimated overall height in metres.
- 1.12 Spread. Measured with a metal tape measure and shown in metres.
- 1.13 Useful Life Expectancy (ULE)<sup>2</sup>.  
A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. It gives a length of time that the Arborist feels a

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<sup>1</sup> Mattheck, Dr. Clause & Breloer, Helge (1994) – Sixth Edition (2001) **The Body Language of Trees – A Handbook for Failure Analysis** The Stationery Office, London, England

<sup>2</sup> Barrell, Jeremy (1996, 2001) **Pre-development Tree Assessment** Proceedings of the International Conference on Trees and Building Sites (Chicago) International Society of Arboriculture, Illinois, USA

particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium, (retainable for 16 – 39 years), Short (retainable for 5 – 15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

1.14 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been calculated in terms of AS 4970 – 2009 Protection of trees on development site Section 3.

1.15 To prepare this report we have reviewed the following documents:

- Detail survey by Bee & Lethbridge Pty Ltd dated Aug 2019.
- Plan of Subdivision dated February 2020.
- Northern Beaches Council, B4.22 Preservation of Trees or Bushland Vegetation (TPO); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

## **2. OBSERVATIONS as seen on the days of inspection (6.6.2019)**

2.1 Our tree observations can be found in Annexure A.

## **3. DISCUSSIONS**

3.1 We have been commissioned by Sixjay Developments, to examine the health and condition of the trees on and around this development site.

It is proposed to subdivide the site into two lots with Right of Carriageway & Easement for Services on Site (development works).

3.2 We have examined the trees on site and can suggest the following considerations for the development works:

1. The following trees are not impacted by the proposed subdivision and can be retained:

- a. Tree 1, 33 *Angophora costata*.
- b. Tree 2, 8 *Eucalyptus haemastoma*.
- c. Tree 3, 32 *Glochidion ferdinandi*.
- d. Tree 9, 12, *Corymbia maculata*.
- e. Tree 13, 14, 34 *Corymbia gummifera*.
- f. Tree 15, 16, 17, 18, 19, 20 *Syncarpia glomulifera*.
- g. Tree 21, 22, 23 *Archontophoenix cunninghamiana*.
- h. Tree 25 *Erythrina sp.*
- i. Tree 26, 27 *Syzygium smithii*.
- j. Tree 28 *Jacaranda mimosifolia*.
- k. Tree 29 & 30 *Livistona australis*.
- l. Tree 31 *Callistemon viminalis*.
- m. Tree 35 *Ulmus parvifolia*.
- n. Tree 36 *Grevillea robusta*.

Note these trees for retention in the Tree Management Plan (TMP).

2. The following trees will need to be removed to undertake the Right of Way & Easement for Services:

- a. Tree 4, 5, 10 *Glochidion ferdinandi*.
- b. Tree 7 *Corymbia gummifera*.
- c. Tree 11 *Corymbia maculata*.
- d. Tree 24 *Archontophoenix cunninghamiana* (Exempt species).

The removal of these trees is supported to allow the Subdivision to proceed, noting the retention of the majority of the trees on site.

There is ample space in the nature strip to replant 2 Cheese Trees to compensate for the removal of Trees 4 & 5.

#### 4. RECOMMENDATIONS

The following recommendations are advised:

1. The removal of the following trees to allow the Subdivision to proceed and the establishment of the Right of Way & Easement for Services: Tree 4, 5, 7, 10, 11 & 24.
2. The retention of the following trees in and around this site: Tree 1, 2, 3, 8, 9, 12 – 23, 25 – 36.
3. That at least 2 *Glochidion ferdinandi* (Cheese Tree) be replanted in Council's nature strip to compensate for the removal of Trees 4 & 5.
4. Tree removal work shall be carried out by an experienced tree surgeon in accordance with *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal (2016)*.
5. Install the following Tree Protection Measures around the retained trees, tree protection measures shall be a temporary fence of chain wire panels 1.8 metres in height (or equivalent), supported by steel stakes or concrete blocks as required and fastened together and supported to prevent sideways movement. A sign is to be erected on the tree protection fences of the trees to be retained that the trees are covered by Council's tree preservation orders and that "No Access" is permitted into the tree protection zone – refer Annexure D.
6. That a Tree Management Plan be prepared as part of the Construction Certificate by a consulting arborist who holds the Diploma in Horticulture (Arboriculture), Level 5 or above under the Australian Qualification Framework.
7. An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures.
8. The tree location plan can be found on Annexure B; &
9. The tree impact plan can be found on Annexure C.



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## Annexure A: Observations as seen on the day of inspection of trees

Tree No	Botanical Name	Age Class	Height (m)	Spread (m)	D.B.H. (cm)	D.R.B. (cm)	TPZ (radius m)	SRZ (radius m)	Condition comments as seen on site	ULE
1	<i>Angophora costata</i>	M	6	5	33	35	4.0	2.1	G vitality, ST, OHPL > distorted canopy to street	2a
2	<i>Eucalyptus haemastoma</i>	M	6	5	23	25	2.8	1.8	G vitality, ST, OHPL > distorted canopy	2a
3	<i>Glochidion ferdinandi</i>	M	6	8	45	48	5.4	2.4	G vitality, ST, OHPL > 'V' shaped canopy > ER	2a
4	<i>Glochidion ferdinandi</i>	M	5	3	15, 10	30	2.2	2.0	G vitality, ST, OHPL	2a
5	<i>Glochidion ferdinandi</i>	M	5	4	2 x 15	28	2.5	1.9	G vitality, ST, OHPL	2a
6	<i>Not found</i>	-	-	-	-	-	-	-	-	-
7	<i>Corymbia gummifera</i>	M	8	4	23	32	2.8	2.1	G vitality, ST, OHPL > topped @ 5m > ER	2a
8	<i>Eucalyptus haemastoma</i>	M	18	10	51	56	6.1	2.6	G vitality, <10% DW, existing driveway 1m from trunk	2a
9	<i>Corymbia maculata</i>	M	7	4	26	30	3.1	2.0	G vitality, suppressed form	2a
10	<i>Glochidion ferdinandi</i>	M	8	5	16, 18	37	2.9	2.2	G vitality, crown-lifted to 4m	2a
11	<i>Corymbia maculata</i>	M	22	18	62	68	7.4	2.8	G vitality	2a
12	<i>Corymbia maculata</i>	M	22	16	77	86	9.2	3.1	G vitality	2a
13	<i>Corymbia gummifera</i>	M	7	2	24	29	2.9	2.0	F vitality, suppressed	2a
14	<i>Corymbia gummifera</i>	M	7	2	17	20	2.0	1.7	F vitality, suppressed	2a
15	<i>Syncarpia glomulifera</i>	M	10	4	30	38	3.6	2.2	G vitality, suppressed by T16 & T17	2a
16	<i>Syncarpia glomulifera</i>	M	12	6	30	35	3.6	2.1	G vitality	2a
17	<i>Syncarpia glomulifera</i>	M	12	6	40	56	4.8	2.6	G vitality	2a
18	<i>Syncarpia glomulifera</i>	M	12	5	20	42	2.4	2.3	G vitality	2a
19	<i>Syncarpia glomulifera</i>	M	12	1	17	23	2.0	1.8	G vitality, pole-like, suppressed	2a
20	<i>Syncarpia glomulifera</i>	M	12	4	30	36	3.6	2.2	G vitality	2a
21	<i>Archontophoenix cunninghamiana</i>	M	6	-	-	-	-	-	Exempt species	2b
22	<i>Archontophoenix cunninghamiana</i>	M	9	-	-	-	-	-	Exempt species	2b

23	<i>Archontophoenix cunninghamiana</i>	M	6	-	-	-	-	-	Exempt species	2b
24	<i>Archontophoenix cunninghamiana</i>	M	8	-	-	-	-	-	Exempt species, tree has 3 trunks	2b
25	<i>Erythrina sp</i>	M	7	7	42	46	5.0	2.4	G vitality, ND	2b
26	<i>Syzygium smithii</i>	M	6	2	2 x 10	24	2.0	1.8	G vitality, but endocormic from stump	3b
27	<i>Syzygium smithii</i>	M	6	3	3 x 10	23	2.1	1.8	G vitality, but endocormic from stump, ND	3b
28	<i>Jacaranda mimosifolia</i>	M	14	10	50	56	6.0	2.6	G vitality	2b
29	<i>Livistona australis</i>	M	6	3	38	48	4.6	2.4	G vitality	2b
30	<i>Livistona australis</i>	M	3	3	36	45	4.3	2.4	G vitality	2b
31	<i>Callistemon viminalis</i>	M	2	1	3 x 16	33	3.3	2.1	G vitality, topped > ER	2b
32	<i>Glochidion ferdinandi</i>	M	8	7	2 x 16	30	2.7	2.0	G vitality, ND	2a
33	<i>Angophora costata</i>	M			30	34	3.6	2.1	G vitality, ND	2a
34	<i>Corymbia gummifera</i>	M	10	8	30	32	3.6	2.1	G vitality, ND	2a
35	<i>Ulmus parvifolia</i>	M	7	7	30	38	3.6	2.3	G vitality, ND	2b
36	<i>Grevillea robusta</i>	M	16	10	48	58	5.7	2.6	G vitality, ND	2b

### Terms used in Tree Survey & Report:

#### Age Class

**(Y) – Young** refers to a well-established but juvenile tree. Less than 1/3 life expectancy

**(SM) – Semi-mature** refers to a tree at growth stages between immaturity and full size. A tree has reached First Adult Form i.e. displays adult characteristics. 1/3 to 2/3 life expectancy

**(M)- Mature** refers to a full size tree with some capacity for future growth. Older than 2/3 life expectancy

**(OM) – Over-mature** refers to a tree approaching decline or already declining. Older than 2/3 life expectancy and showing signs of irreversible decline.

**Health** refers to a tree's vigour, growth rate, disease and/or insects.

**Vitality** summarises observations about the health and structure of the tree on a scale of: **(G) Good, (F) Fair, (P) Poor & (D) Dead.**

**Good:** Tree is generally healthy and free from obvious signs of structural weaknesses or significant effects of pests and diseases or infection;

**Fair:** Tree is generally vigorous although has some indication of being adversely affected by the early effects of disease or infection or environmental or mechanical damage. Appropriate tree maintenance can usually improve overall health and halt decline;



**Poor:** Tree in decline and is not likely to improve with reasonable maintenance practices or has a structural fault such as bark inclusion;

**Dead:** Tree no longer capable of sustained growth.

**Deadwood (DW)** – deadwood found in canopy as a percentage.

**Over Head Power Lines (OHPL)** – upper canopy pruned to accommodate power lines at a given height.

**Height** expressed in metres refers to estimated overall height of tree.

**Next Door tree (ND)** – tree located in the neighbour's property.

**Street Tree (ST)** – tree located in Councils footpath reserve.

**Spread** expressed in metres refers to estimated spread of crown at the drip line.

**(DBH) Diameter at Breast Height** expressed in millimetres refers to the trunk diameter at 1.4 metres above ground level. Where there are multiple trunks the combined diameter has been calculated in terms of Appendix A – AS 4970 – 2009, shown in brackets.

**(DRB) Diameter above Root Buttress** expressed in millimetres refers to the trunk diameter above root buttress.

**(TPZ) Tree Protection Zone & Structural Root Zone (SRZ)** as defined by AS 4970 – 2009 Section 3

**(ULE)** The various ULE categories indicate the useful life anticipated for an individual tree or trees assessed as a group. Factors such as the location, age, condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on better specimens and the economics of managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995, 2001).

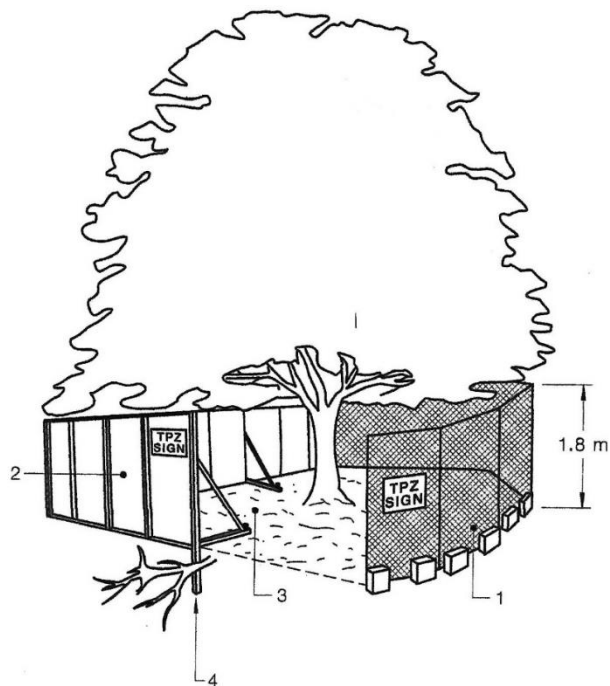
**ULE RATING (UPDATED 1/4/01) BARRELL**

<b>1.Long ULE:</b> Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	<b>2.Medium ULE:</b> Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	<b>3.Short ULE:</b> Trees that appear to be retainable at the time of assessment for more than 5-15 years with an acceptable level of risk.	<b>4.Remove:</b> Trees that should be removed within the next 5 years.	<b>5.Small, young or regularly pruned:</b> Trees that can be reliably moved or replaced.
(A) Structurally sound trees located in positions that can accommodate future growth	(A) Trees that may only live between 15 and 40 more years.	(A) Trees that may only live between 5 and 15 more years.	(A) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.	(A) Small trees less than 5 Metres in height.
(B) Trees that could be made suitable for retention in the long term by remedial tree care.	(B) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.	(B) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.	(B) Dangerous trees because of instability or recent loss of adjacent trees.	(B) Young trees less than 15 years old but over 5 metres in height.
(C) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	(C) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.	(C) Formal hedges and trees intended for regular pruning to artificially control growth.
	(D) Trees that could be made suitable for retention in the medium term by remedial tree care.	(D) Trees that require substantial remedial tree care and are only suitable for retention in the short term.	(D) Damaged trees that are clearly not safe to retain.	
			(E) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	
			(F) Trees that are damaging or may cause damage to existing structures within 5 years.	
			(G) Trees that will become dangerous after removal of other trees for the reasons given in (A) to (F).	
			(H) Trees in categories (A) to (G) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.	





## Annexure D: Tree protection detail



### LEGEND:

- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING