Arboricultural Impact Assessment

Prepared for Laraine Boguradzki
Site Address: 185 Prince Alfred Parade Newport

17th June 2020

Member of Arboriculture Australia No. 1286

Member of International Society of Arboriculture No. 157768

Bachelor of Horticultural Science, University Sydney.

AQF Level 2, 3 & 5 Diploma in Arboriculture

Graduate Certificate AQF Level 8 University Melbourne

Tree Risk Assessment Qualification (TRAQ)

Statement

Bradshaw Consulting Arborists is a company that exclusively provides tree consultancy within the tree industry. There is no conflict of interest concerning the recommendations outlined in this report.

Bradshaw Consulting Arborists (Tristan Bradshaw)

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Contents

1 Introduction

This report has been prepared by Tristan Bradshaw of Bradshaw Consulting Arborists for Laraine Boguradzki for the property 185 Prince Alfred Parade Newport. The report request was to inspect eight trees around the perimeter of the proposed alterations to the site.

Northern Beaches council has requested an Arboricultural Impact Statement for development application 2020/0219.

The trees characteristics have been listed in Table 1 page 6. The aim is to determine the health and condition of the trees and the impact of the proposed development. The inspection of the site was undertaken on 9th June 2020.

The report was completed on 17th June 2020.

Plans Supplied by Ausdecon dated 24th August 2019 have been used in this assessment.

See appendix B Section 6 for tree locations and tree protection plan

The sites trees are managed under Northern Beaches Councils Urban Tree Management Policy.

The property is not heritage or within a heritage conservation area. The property is within the endangered ecological community, Pittwater and Wagstaffe Spotted Gum Forest.

1.1 The Site

The site is composed of a dwelling and surrounding garden.

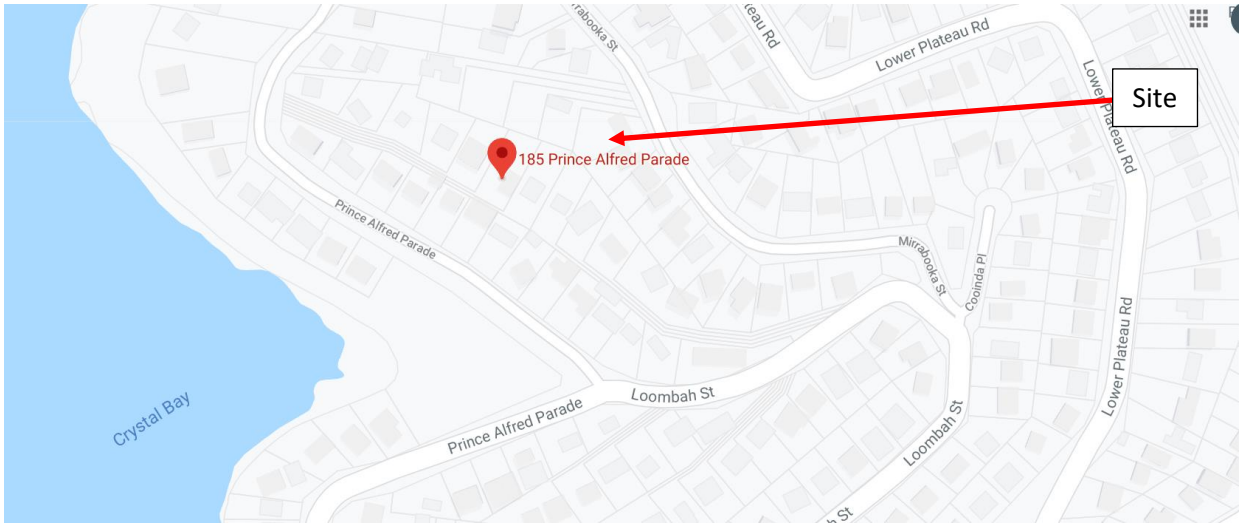


Figure 1 Site location (Google Maps 2020)

1.2 Method

The inspection of the site was undertaken in 9th June 2020.

The inspection method used was the Visual Tree Assessment (VTA) method (Mattheck & Breloer 2010). This method involves inspecting the trees from ground level, using binoculars to aid in

identification of any external's signs of decay, physical damage, growth related structural defects and the site conditions where the tree is growing. This method will ascertain whether there is need for a more detailed inspection of any part of the tree. No aerial or subterranean inspections were carried out. See appendix A for the complete flow chart.

The Diameter at Breast Height (DBH) was estimated. The height of the measurement was at 140 cm above the ground.

The height of the tree was estimated.

The canopy spread of the tree was estimated.

Health: Based on vigour, callus development, % of deadwood, dieback, fruiting levels, internode lengths

(E) Excellent

(G) Good

(F) Fair

(P) Poor

(D) Dead

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

Condition: Based on the structural integrity of the tree, cavities, fungal decay, branch failure, branch taper, sap or Kino exudate, fruiting bodies, root condition.

(E) Excellent

(G) Good

(F) Fair

(P) Poor

(D) Dead

Visual Habitat

This assessment is based on a visual observation of the tree, included in the VTA method.

Habitat trees are trees that provide microhabitats, these can include hollows, deeply fissured bark, cracks, epiphytes or forms of decay (Bütler, R., Lachat, T., Larrieu, L., & Paillet, Y., 2013).

2 Body Observations Results

Table 1 Individual tree characteristics

Tree Number	Botanical Name	DBH (mm)	DAB (mm)	Canopy N	Canopy S	Canopy E	Canopy W	Height	Health	Age	Condition	SULE	Visual Habitat	Landscape significance	Retention Value	Structural Root Zone (SRZ)	Tree Protection Zone (TPZ)	Percentage TPZ Incursion	Retain or Remove. notes
1	*Eucalyptus botryoides* (Bangalay)	550	600	5	5	5	5	15	E	M	G	>40	No	Very High	High	2.7	6.6	Total excavation 9.2%	Retain
2	*Eucalyptus botryoides* (Bangalay)	300	310	4	4	4	4	13	E	M	E	>40	No	Very High	High	2.0	3.6	3%	Retain
3	*Allocasuarina torulosa* (Forest She-Oak)	240	240	3	3	3	3	10	G	M	G	>40	No	Very High	High	1.8	2.9	0%	Retain
4	*Allocasuarina torulosa* (Forest She-Oak)	250	280	0	5	1	4	10	G	M	F	15-40	No	Very High	High	1.9	3.0	<10%	Retain
5	*Allocasuarina torulosa* (Forest She-Oak)	180	230	0	4	0	3	10	G	M	F	15-40	No	Very High	High	1.8	2.2	0%	Retain
6	*Eucalyptus botryoides* (Bangalay)	350	380	5	5	5	5	13	E	M	E	>40	No	Very High	High	2.2	4.2	<10%	Retain

Tree Number	Botanical Name	DBH (mm)	DAB (mm)	Canopy N	Canopy S	Canopy E	Canopy W	Height	Health	Age	Condition	SULE	Visual Habitat	Landscape significance	Retention Value	Structural Root Zone (SRZ)	Tree Protection Zone (TPZ)	Percentage TPZ Incursion	Retain or Remove. notes
7	*Cyathea cooperi* (Scaly Tree Fern)	50	50	1	1	1	1	4	P	M	F	<5	No	Low	Very Low	1.5	2	5%	Retain
8	*Cyathea cooperi* (Scaly Tree Fern)	50	50	1	1	1	1	4	P	M	F	<5	No	Low	Very Low	1.5	2	5%	Retain

3 Discussion

Eight trees surrounding the proposed garage, lift and steps have been included in this assessment.

It is proposed all trees are retained and protected.

The proposed impact to the TPZ for all eight trees is no impact to less than 10 percent impact. This is in accordance with Australian Standard 4970-2009.

Proposed works are at the perimeter of the TPZ of many of the trees and there are existing structures that are proposed to be renewed.

Much of the structure will be pier and beam, this significantly reduces the impact to any surrounding trees. Figure 2 below shows the 3 metre wide concrete slab proposed to be retained and the existing driveway concrete slab to be removed and replaced.

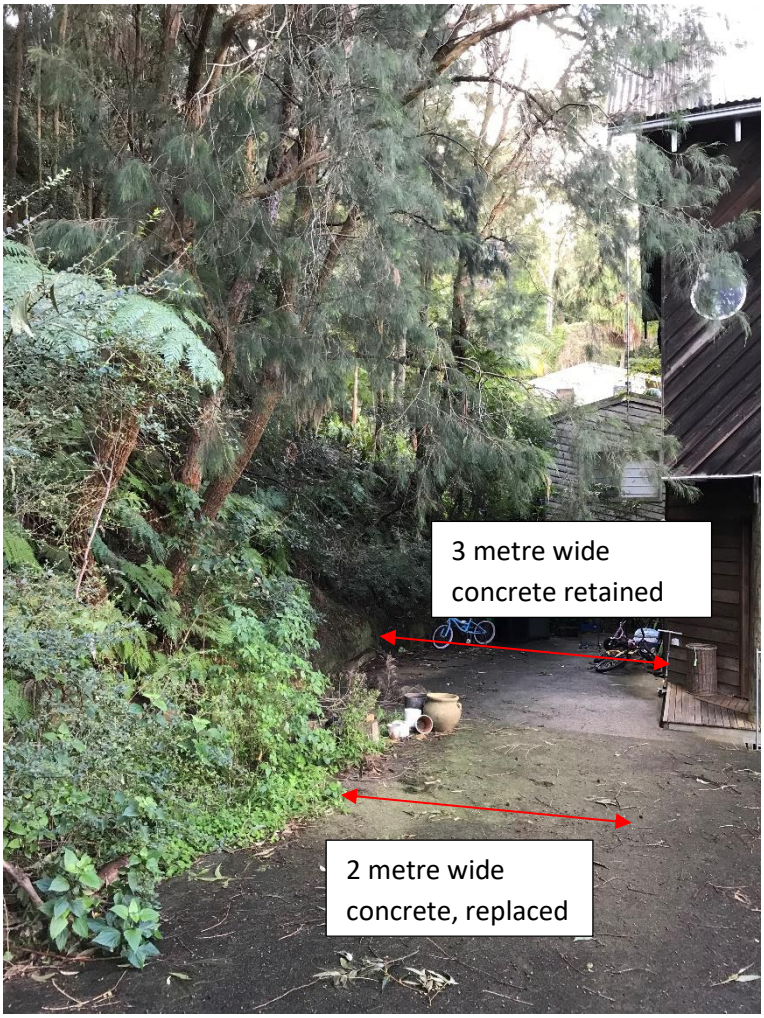


Figure 2 Existing concrete sections to be retained and re-newed.

Figure 4 Prune trees 4 and 5, canopy lift

Figure 3 Tree 6. Existing concrete driveway to be removed and replaced

Figure 4 above shows recommended pruning to lift the canopies of trees 4 and 5. This is less than 10% and does not require council approval.

Figure 3 above shows the existing concrete driveway in front of tree 6. It is proposed this is removed and replaced in the same position. This reduces the impact.

4 Recommendations

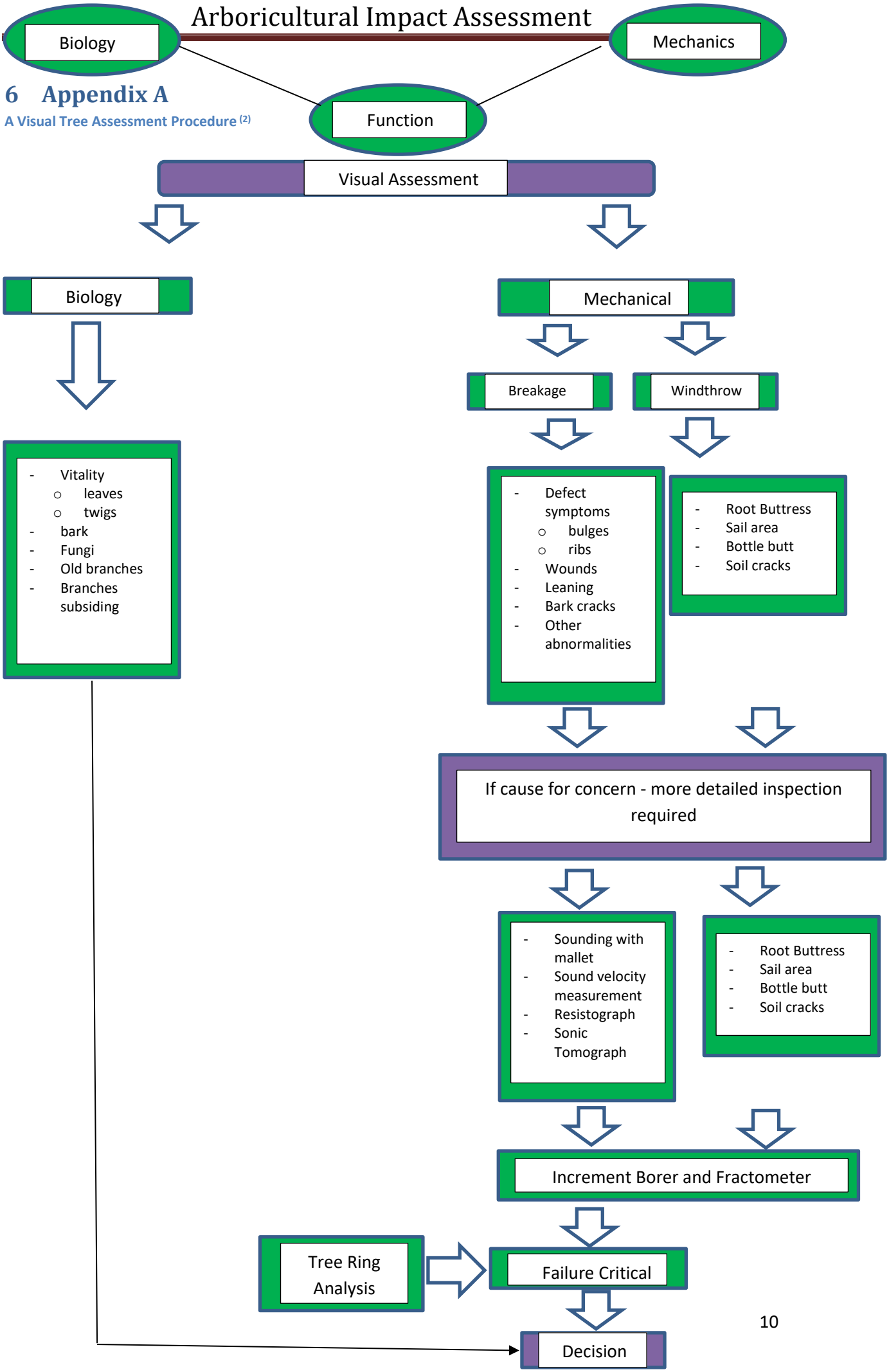
1. Retention of trees 1-8
2. Appoint project arborist minimum AQF level 5.
3. Install trunk protection on all trees. See section 7 appendix G for specifications. See section 6.1 tree protection plan. Project arborist must certify tree protection prior to any demolition works.
4. Project arborist must supervise the removal of existing structures within the TPZ of the retained trees.
5. Project arborist must supervise piering when within the TPZ of the retained trees.

5 References

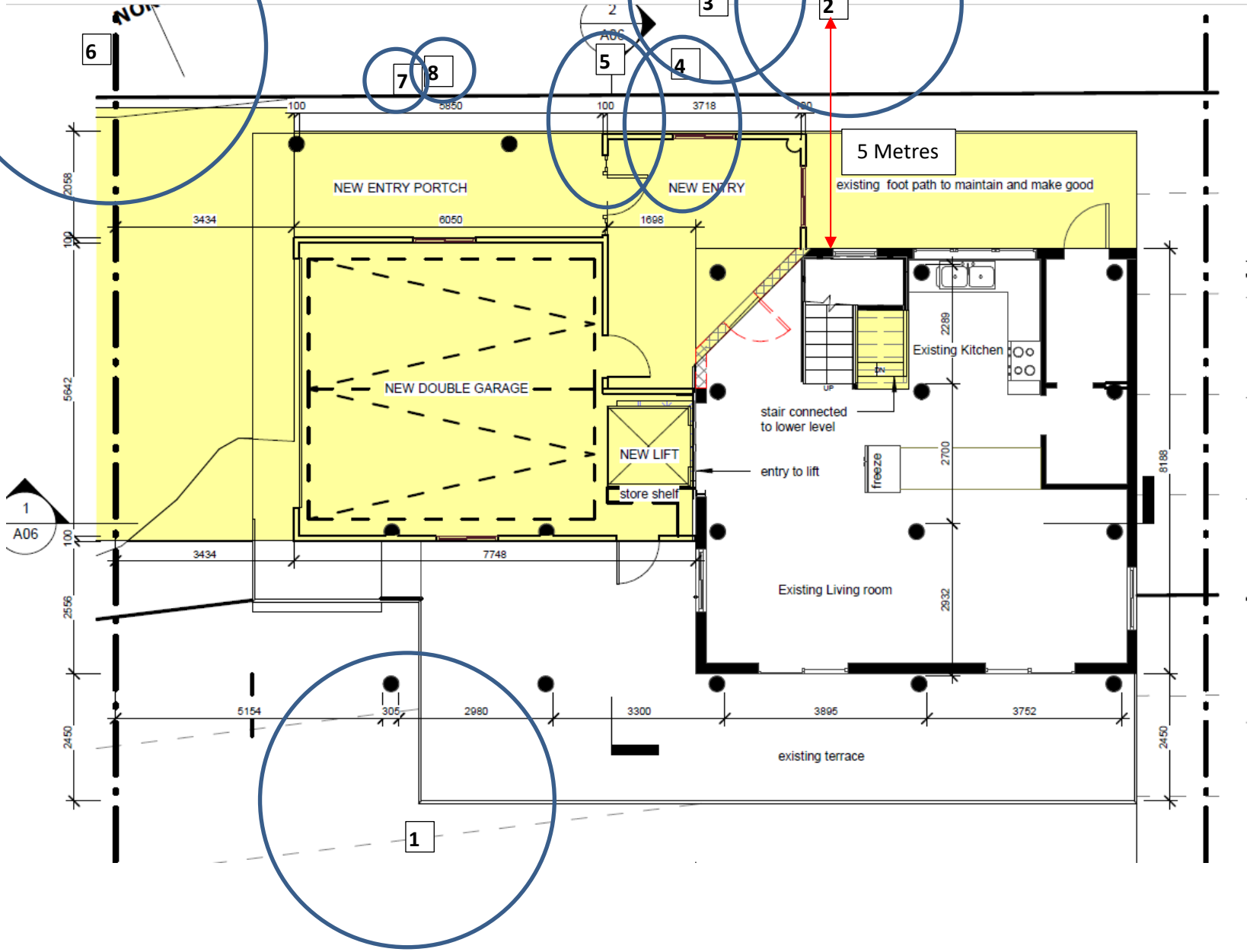
1. Bütler, R., Lachat, T., Larrieu, L. and Paillet, Y., 2013. 2.1 Habitat trees: key elements for forest biodiversity. *Integrative approaches as an opportunity for the conservation of forest biodiversity*, p.84.
2. https://www.google.com/maps/place/185+Prince+Alfred+Parade,+Newport+NSW+2106/@-33.645222,151.308682,17.54z/data=!4m5!3m4!1s0x6b0d533ec328f1e9:0x6c89f69757f50cd0!8m2!3d-33.6446661!4d151.308096. Viewed 13th June 2020.
3. Mattheck & Breloer 2010. *The Body Language of Trees – a handbook for failure analysis*. Research for Amenity Trees series published by The Stationery Office, Norwich, United Kingdom.
4. NSW Government e planning spatial viewer, 2020. https://www.planningportal.nsw.gov.au/propertyreports/9de60642-47ca-4f2d-a485-19a7c1d9cbe8.pdf. Viewed 13th June 2020.
5. Northern Beaches Council Mapping. https://services.northernbeaches.nsw.gov.au/icongis/index.html. Viewed 13th June 2020.

6 Appendix A

A Visual Tree Assessment Procedure [2]



6.1 Appendix B Tree locations (Not to scale)



6.2 Appendix C Methodology for Determining Tree Retention Value

The aim of this process is to determine the relative value of each tree for retention (i.e. its Retention Value) in the context of development. This methodology assists in the decision-making process by using a systematic approach. The key objective of process is to ensure the retention of good quality trees that make a positive contribution to these values and ensure that adequate space is provided for their long term preservation. The Retention Value of a tree is a balance between its sustainability in the setting in which it is located (the 'landscape') and its significance within that setting (landscape significance).

Step 1: Determining the Landscape Significance Rating

The 'landscape significance' of a tree is a measure of its contribution to amenity, heritage and ecological values. While these values are fairly subjective and difficult to assess consistently, some measure is necessary to assist in determining the Retention Value of each tree. To ensure in a consistent approach, the assessment criterion shown in Table 2 should be used. A Tree may be considered 'significant' for one or more reasons. A tree may meet one or more of the criteria in any value category (heritage, ecology or amenity) shown in Table 2 to achieve the specified rating. For example, a tree may be considered 'significant' and given a rating of 1, even if it is only significant based on the amenity criteria.

Based in the criterion in this table, each tree should be assigned a landscape significance rating as follows:

1. Significant
2. Very High
3. High
4. Moderate
5. Low
6. Very Low
7. Insignificant

Step 2: Determining Safe Useful Life Expectancy (SULE)

The sustainability of a tree in the landscape is a measure of its remaining lifespan in consideration of its current health, condition and suitability to the locality and site conditions. The assessment of the remaining lifespan of a tree is a fairly objective assessment when carried out by a qualified Consulting Arborist. Once a visual assessment of each tree is completed (using the Visual Tree Assessment criteria), the arborist can make an informed judgement about the quality and remaining lifespan of each tree. The Safe Useful Life Expectancy (SULE) methodology (refer to Table 3) can be used to categorise trees as follows:

- Long (Greater than 40 years)
- Medium (Between 15 and 40 years)
- Short (Between 5 and 15 years)
- Transient (less than 5 years)
- **Dead or Hazardous (no remaining SULE)**

The SULE of a tree is calculated based on an estimate of the average lifespan of the species in an urban area, less its estimated current age and then further modified where necessary in consideration of its current health, condition (structural integrity) and suitability to the site.

6.3 Appendix D Table 2 Step 1 Landscape Significance Rating

RATINGS	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register.	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conversation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999.	The subject tree has a very large live crown size exceeding 100m2 with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species.
	The subject tree forms part of the curtilage of a Heritage Item (building/structure/artefact as defined under the LEP) and has a known or documented association with that item.	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species.	The Subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity.
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event.	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area.	The tree is visually prominent in view form surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 60m2, a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence.	The tree is a locally indigenous and representative of the original vegetation of the area and the tree is located within a defined vegetation link/wildlife corridor or has known wildlife habitat value.	The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible form the street and/or surrounding properties and makes a positive contribution to the visual character and the amenity of the area.
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of the DCP.	The subject tree has a medium live crown size exceeding 25m^2; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal).
			The tree is visible from surrounding properties, but is not visually prominent- view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values and diminishes the value of the heritage item.	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown of less than 25m^2 and can be replaced within the short term (5-10 years) with new tree planting.
6. VERY LOW	The subject tree is causing significant damage to a heritage item.	The subject tree is listed as an Environment Weed Species in the Local Government Area, being invasive, or is a nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50%.

6.4 Appendix E Table 3 Estimating Safe Useful Life Expectancy (SULE) Step 2

1	Estimate the age of the tree
2	Establish the average life span of the species
3	Determine whether the average life span needs to be modified due to local environmental situation
4	Estimate remaining life expectancy

Life Expectancy	=	average modified life span of species - age of tree

5	Consider how health may affect safety (& longevity)
6	Consider how tree structure may affect safety
7	Consider how location will affect safety
8	Determine safe life expectancy

Safe Life Expectancy	=	life expectancy modified by health, structure and location

9	Consider economics of management (cost vs benefit of retention)
10	Consider adverse impacts on better trees
11	Consider sustaining amenity - making space for new trees
12	Determine SULE

Safe Useful Life Expectancy	=	safe life expectancy modified by economics, effects on better trees and sustaining amenity

Ref: Barrell, Jeremy (1996)
Pre-development Tree Assessment
Proceedings of the International Conference on Trees and Building Sites (Chicago)
International Society of arboriculture, Illinois, USA

6.5 Appendix F Table 4 Determining Tree Retention Values

The Retention Value of a tree is increased or diminished based on its sustainability in the landscape, which is expressed as its SULE. A tree that has a high Landscape Significance Rating, but low remaining SULE, has a diminished value for retention and therefore has an appropriate Retention Value assigned. Conversely a tree with a low Landscape Significance Rating even with a long remaining SULE, is also considered of low Retention Value. This logic is reflected in the matrix shown in Table 1.

Once the landscape Significance Rating and SULE category have been determined, the following matrix can be used to determine a relative value (or priority) for retention:

TABLE 1 – DETERMINING TREE RETENTION VALUES

	Landscape Significance Rating						
SULE	1	2	3	4	5	6	7
Long - greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years				Low Retention Value			
Transient - less than 5 years				Very Low Retention Value			
Dead or Hazardous							

7 Appendix G Tree Protection specifications

Tree Protection Fencing (See figure 2 below)

Tree protection is to be carried out on all trees to be retained on site.

All fencing should be at the perimeter of the Tree Protection Zone (TPZ).

The TPZ must be enclosed with a fully supporting chainmesh protective fencing. The fencing shall be secure and fastened to prevent movement. The fencing shall have a lockable opening for access. Roots greater than 30mm diameter are not to be damaged/severed during the construction of the fence. See Figure 5 Drawing taken from AS 4970-2009below.

The enclosed area must be free of weeds and grass, the application of a 75mm layer of leaf mulch to the tree protection zone (TPZ) must be maintained for the duration of works.

Two signs on either side of the fencing are to be erected showing the name and contact details of the site Arborist and the words NO ENTRY clearly written.

No work is to be undertaken within this Tree Protection Zone; this includes:

-No removal or pruning of trees

-No construction, stockpiling or storage of chemicals, soil, and cement. Or the movement of machinery, parking and personnel is to occur within the TPZ.

-No refuelling, dumping of waste, placement of fill or soil level changes.

-No lighting of fires or physical damage to protected trees.

-No temporary or permanent installation of utilities or signs.

-No service trenches should pass through the TPZ.

Example of tree protection fencing

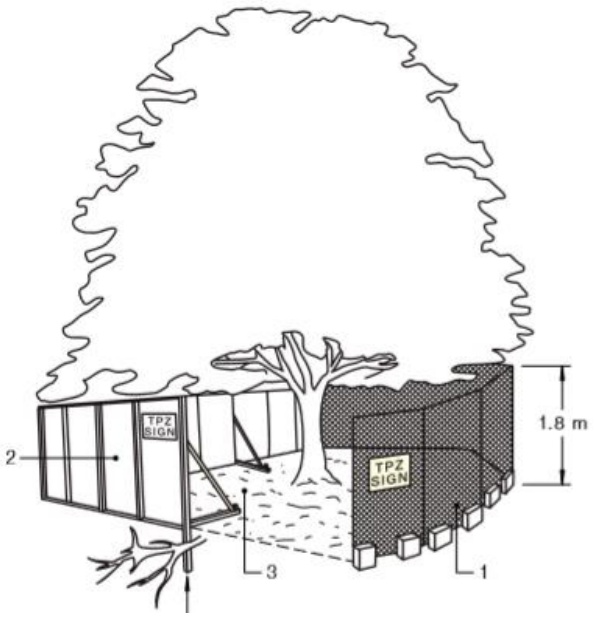
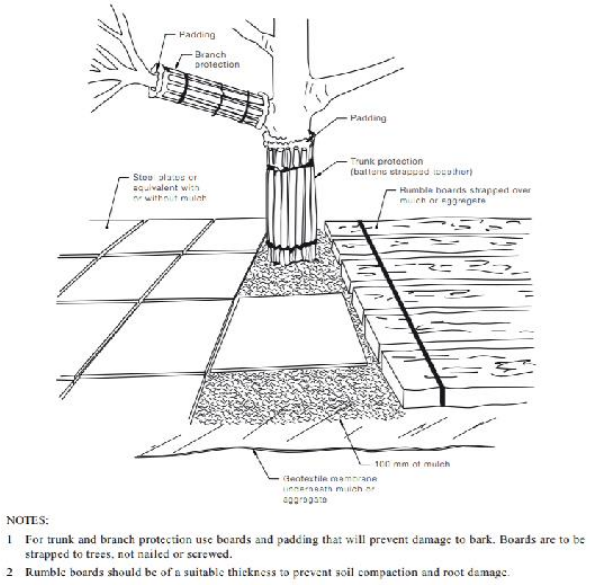


Figure 5 Drawing taken from AS 4970-2009

Figure 6 Trunk Protection



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Figure 7 Trunk and branch Protection (AS 4970-2009)

Trunk Protection

Hessian or similar material is used as a wrap around the trunk to a height of 2.6 metres from the base of the tree. Covering the hessian are timbers 100x50x2500mm These are to be spaced around the trunk with gaps of approximately 100mm. The timbers are to be secured with metal strapping. These materials are not to be directly fastened to the tree. See Figure 6 and Figure 7 above.

8 Qualifications and Experience

TRISTAN BRADSHAW

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Professional Memberships

Member of the International Society of Arboriculture. No: 157768

Member of Arboriculture Australia No. 1286

Qualifications

2016-2018 Graduate Certificate in Arboriculture AQF8 at Melbourne University.

2015 Tree Risk Assessment Qualification (TRAQ)

2013-2014 Diploma of Arboriculture AQF5 at Ryde TAFE. Distinction

2012 Certificate III in Arboriculture at Ryde TAFE

2011 Certificate IV in Occupational Health and Safety

2010 Aboriginal Sites Awareness Course by Aboriginal Heritage Office

1996-1999 Bachelor of Horticultural Science at University of Sydney. Honours+

Tristan Bradshaw has been involved in the Horticultural and Arboricultural Industry since 1995. From a young age this was an interest and the business Bradshaw Horticultural Services incorporated Horticultural consulting work and landscaping. In 2000 Tristan undertook the Level 2 Arboriculture course at Ryde TAFE. The business progressively specialised in consulting, tree removal, pruning and stump grinding works. Extensive hands on knowledge was developed during the climbing of trees undertaking pruning or removal and during storm events understanding the tolerances of trees.

In 2009 the new business name Bradshaw Tree Services was registered to reflect works only being undertaken in the tree industry. The business operated throughout Sydney employing up to 25 people. Tristan Bradshaw's main role was as a consultant advising clients and writing reports. In 2019 Bradshaw Tree Services ceased operations and Tristan Bradshaw opened Bradshaw Consulting Arborists exclusively undertaking tree consultancy.

Tristan Bradshaw with continued education has attained a Level 8 qualification, attends the annual Arboriculture conferences taking part in the seminars to broaden his knowledge.

This assessment was carried out from the ground and covers what was reasonably able to be assessed and available to this assessor at the time of inspection. No subterranean inspections were carried out. The preservation methods recommended where applicable are not a guarantee of the tree survival but are designed to reduce impacts and give the trees the best possible chance of adapting to new surroundings.

Limitations on the use of this report:

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole or the original report is referenced in, and directly attached to that submission, report or presentation.

Assumptions:

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible: however, Bradshaw Consulting Arborists 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 tree/s that was/were examined and reflects the condition of the tree at the time of the assessment: and
-The inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree may not arise in the future.
-The assessment does not identify hazards and associated risk, this report is not a risk assessment.

Yours sincerely,

Tristan Bradshaw (BHort Sci (USYD), Dip Arb AQF 5 (TAFE), Grad Cert AQF 8 (UMELB), TRAQ