
Arboricultural Impact Assessment Report

Prepared for: Kim & Charmaine Burke

Site Address: 35 Earl Street, Beacon Hill, NSW, 2100

Date: 11/10/17

Prepared by: Damian Green
Diploma of Arboriculture, Ryde TAFE 2015



Email: greend Damian@gmail.com
Phone: +61450575677

Contents

1	Summary	3
2	Introduction	4
3	Location of Trees	5
4	Method	6
5	Provided Documents.....	6
6	Observations	7
7	Discussion.....	7
8	Impact Assessment	11
9	Conclusions.....	12
10	Recommendations	12
10	Tree Protection and Management	13
11	Works Cited.....	16
12	Limitations on the use of this report:	16
13	Appendix:.....	17
14	Plans:	26

1 Summary

This report was commissioned by Kim & Charmaine Burke, Damian Green attended an onsite inspection on 13/03/17 and again on 06/07/17. The report is an assessment of Eleven (11) trees located within the rear garden of 35 Earl Street Beacon Hill. A development has been proposed to subdivide 35 Earl Street.

Prior to land sale an overland flow path to aide in a 1 in 100-year storm is required to be constructed.

The planned overland flow path proposal requires excavation at a maximum depth of 300mm and a width of 500mm to run from the road storm water drain to 3x 5000litre overflow tanks. Soil shall also be built on existing levels to further reduce excavation depth and damage to root systems where possible. The proposed development requires alterations to existing soil levels within the Tree Protection Zones of trees 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10.

At the time of inspection T1, 3, 4, 5, 6, 7, 8, 9, 10 & 11 displayed good health and vigour. T2 was considered to have poor health and low vigour.

All trees were exempt under the terms of local council Tree and Vegetation Policy. (NSW rural fire service, 10/50 vegetation entitlement clearing area.)

Development and construction of the proposed over land flow path has been identified to have minor impact to long term tree health and tree stability of T2, 3, 4, 7, 8, 9 & 10. T1, 5 & 6 have been identified to have moderate impact to tree health and tree stability. Construction has been highlighted as having no impact to T11.

For the purpose of the overland flow path all trees assessed have been recommended for retention and a Tree Protection and Management Plan has been created to protect them during the excavation and development process.

2 Introduction

This report was commissioned by Kim & Charmaine Burke, Damian Green attended an onsite inspection on 13/03/17 and again on 06/07/17. The report is an assessment of Eleven (11) trees located within the rear garden of 35 Earl Street Beacon Hill.

The owners of 35 Earl Street Beacon Hill have proposed to sub-divide their property, the development will dissect the existing block in half from east-west. Prior to subdivision or land sale an arborist report is required to address tree removal and whether any trees situated at least 2m from the proposed building envelope can be retained and also to discuss impacts that maybe caused by the construction of a overland flow path to aide in a 1 in 100-year storm is required to be constructed.

Several mature, mixed native and exotic tree species have been identified either within the land parcel or on the proposed sub-division boundary.

The aim of the assessment is to identify the subject trees, comment on the current health and condition of all trees assessed, comment on the proposed development impacts of all trees assessed and to provide recommendations for tree retention and removal taking into consideration The Northern Beaches Council (Warringah) tree management controls and AS4970-2009 (Protection of trees on development sites).

3 Location of Trees

The subject property and trees are located at 22 Herbert Avenue, NSW 2106 Figure 1 Figure 2

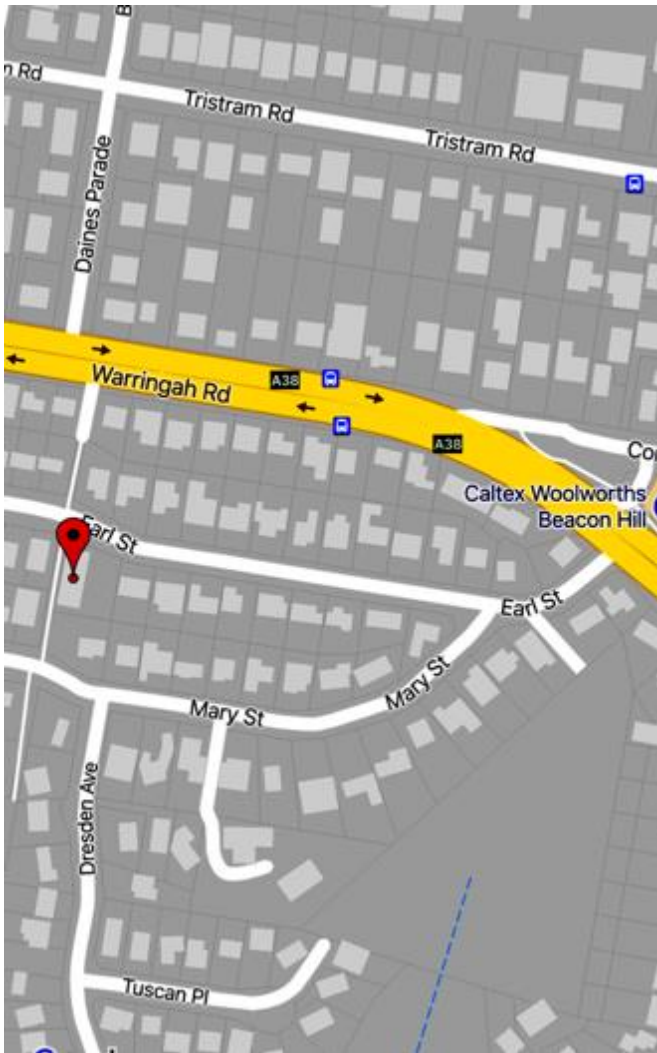


Figure 1 Site location



Figure 2 Aerial image of site and approximate tree locations.

4 Method

- 4.1 An onsite inspection was undertaken by Damian Green on 13/03/2017 and again on 06/07/17, comments and recommendations in this report are based on findings from the site inspection.
- 4.2 The subject trees were assessed by the process of a stage one visual tree assessment (VTA) as formulated by Mattheck & Broloer (1994) and practices consistent with modern arboriculture. The trees were inspected from ground level without the use of any invasive or diagnostic tools or testing. No aerial inspections or root mapping were undertaken.
- 4.3 Tools used to take measurements and photographs.
 - iPhone 7 Plus
 - 5m Diameter measuring tape
- 4.4 Tree heights and canopy dimensions were estimated.

5 Provided Documents

- Plan showing of proposed subdivision of Lot 22, DP 25164 known as No 35 Earl Street, Beacon Hill. Prepared by Bee & Lethbridge Pty Ltd, 25/11/2015.
- Flood study plan, prepared by Civil & Structural Engineering Design Services Pty Ltd, 28/07/2016.
- Storm water management plan, prepared by Civil & Structural Engineering Design Services Pty Ltd, 28/07/2017.

6 Observations

- 6.1 Eleven (11) trees were assessed in preparing this report. Details of the trees, their dimensions, condition, Safe Useful Life Expectancy (SULE) and landscape significance (STARS) are attached in **Appendix A**. Images of trees are attached in **Appendix B**.

7 Discussion

7.1 Tree Preservation

- 7.1.1 The Sydney Basin Bioregion is one of the most species diverse areas in Australia. This is a result of the variety of rock types, topography and climates in the bioregion. Trees 3, 4, 5, 6, 7, 8, 9, 10 & 11 belong to this group.
- 7.1.2 There are 2 tree vegetation policies for Warringah council, Warringah Local Environmental Plan (WLEP 2011) and the Warringah Development Control Plan (WDCP 2011). The policies generally protect any tree with a height greater than 6m or a canopy spread of greater than 7m.
- 7.1.3 At the time of search, this parcel of land is located in a designated NSW rural fire service, 10/50 vegetation entitlement clearing area. Any trees located within 10m of a dwelling or any shrubs or ground vegetation located within 50m of a dwelling and on a gradient with less than an 18° fall maybe removed to mitigate the risk of fire damage caused by a bush fire event. This is valid for the time of search, a search prior to any works undertaken is required. Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11 fall within 10m of the dwelling, the land has a 10° gradient fall.
- 7.1.4 No trees were listed within the Significant Tree Register, also the property was not listed within a Heritage Conservation Area.
- 7.1.5 At the time of search, applying the above T1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11 (all trees) were exempt under the terms of local council Tree and Vegetation Policy.

7.2 AS4970-2009 Protection of Trees on Development Sites

The standard was established to provide appropriate guidelines to ensure the long-term viability and stability of trees to be retained on development sites.

7.3 Tree Protection Zone (TPZ)

- 7.3.1 The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains un-damaged during development and remains viable. (Minor encroachment = less than 10%, major encroachment = 10-35%)

Table 1 Flood flow path TPZ encroachment.

Tree number	1	2	3	4	5	6	7	8	9	10	11
TPZ encroachment %	25	47	35	35	40	25	25	23	20	27	0

7.3.2 All trees except T11 have a major TPZ encroachment

7.3.3 T5 falls within the construction footprint.

7.4 Structural Root Zone (SRZ)

7.4.1 The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when major encroachment into a TPZ is proposed (Any works within the SRZ is considered major encroachment).

Table 2 SRZ encroachment.

Tree number	1	2	3	4	5	6	7	8	9	10	11
SRZ encroachment %	21	37	20	26	40	14	3	10	0	10	0

7.4.2 All trees except T9 & 11 have encroachment into the SRZ.

7.4.3 When determining the impacts of an encroachment into the TPZ, some consideration maybe given to the following.

- The potential loss of root mass resulting from the encroachment determined by root mapping (number, size, percentage)
- Species tolerance to root disturbance
- Age and vigour of trees
- The presence of existing or past structures (with solid footings) or obstacles which may affect root growth

7.4.4 Tree sensitive construction techniques such as pier and beam, suspended slab systems or discontinuous footings can minimize the impact upon a tree's root system and must be adopted should a major encroachment into the TPZ be contemplated. These maybe implemented during the design process of the proposed dwelling.

7.5 Restrictions within the TPZ

- machine excavation including trenching;
- excavation for silt fencing;
- storage including fill;
- preparation of chemicals, including preparation of cement products;
- parking of vehicles and plant;
- refuelling;
- dumping of waste;
- wash down and cleaning of equipment;
- Placement to fill;

- Soil level changes;
- Temporary or permanent installation of utilities and or signs;
- lighting of fires;
- physical damage to the tree, above and below ground level

7.6 Trees that fall within the proposed dwelling footprint

- 7.6.1 A pre-lodgement meeting with Warringah council 12/11/15 requested an arborist report to address tree removal and whether any trees that are at least 2m from the building envelope can be retained.
- 7.6.2 T1, 2, 3 & 4 are located over 2m from the proposed dwelling footprint.
- 7.6.3 T5, 6 & 7 fall within 2m of the proposed dwelling footprint.
- 7.6.4 T8, 9, 10 & 11 fall within the proposed dwelling footprint.
- 7.6.5 For the purpose of this report, all trees will be assessed for impacts caused by the Over Land Flow Path.

7.7 Soil Excavation for Over Land Flow Path

- 7.7.1 The overland flow path is required to run from the street drainage pit adjacent to the north-west boundary to the centre of the eastern boundary where it is connected to 3x 5000 litre storm water tanks. It is to aide in a 1 in 100-year storm event. Approximate dimensions are a maximum depth of 300mm x 500mm wide. Where possible depth will be minimized by soil being built up on the edges of the flow path instead of excavation.
- 7.7.2 The area to be impacted at this point is the minor excavation and build-up of soil for the proposed overland flood flow path. A maximum depth of 300mm shall be excavated to create the flood flow path.
- 7.7.3 During processes of excavation and trenching heavy machinery is regularly used, heavy machinery may disturb the root system through compaction, excavation, and soil level changes.
- 7.7.4 T1, 2, 3, 4, 5, 6, 8 & 10 have major TPZ encroachment within the excavation footprint.
- 7.7.5 There are no other options of over land flow path placement.

7.8 Soil Compaction

- 7.8.1 Apart from the actual removal of roots during excavation or trenching, soil compaction is one of the major causes of root damage on development sites. Compaction is defined as the loss of large pore spaces (macropores) within the soil with a net loss of total pore space. Macropores are essential for the exchange of gases between the soil air and the atmosphere (aeration) and the removal of excess water from the soil (drainage).
- 7.8.2 To reduce soil compaction within the TPZ methods such as plastic bog mats or the spreading of a thick layer of wood mulch maybe implemented.
- All work undertaken within the TPZ shall be done under the supervision of the project arborist.

7.9 Tree Retention Value and Landscape Significance

- 7.9.1 It is possible to determine a tree's significance and retention value based upon several factors including size, condition and maturity coupled with methodologies STARS and SULE. See: **Appendix C & D**
- 7.9.2 Trees identified with a medium SULE and medium landscape value are considered less critical and may be marked for retention where possible.
- **T1, 3, 4, 5, 6, 7, 8, 9 & 10 meet these criteria**
- 7.9.3 While trees assessed with short or young/small SULE and a medium to low STARS value These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
- **T2 & 11 meet these criteria**

8 Impact Assessment

- 8.1 The proposed over land flow path requires an excavation area approximately 300mm maximum depth and 500mm in width, tree roots are most commonly found within the first 1m of soil. To excavate an area such as this may expose and potentially damage large woody roots commonly found in the Structural Root Zone. The proposed over land flow path is required to run between existing property and the proposed land parcel. There are no other options for relocation.
- 8.2 Additional soil fill maybe used in the construction of the overland flow path to build up edges, adding to existing soil levels may cause minor compaction and may minimally affect long term tree health.
- 8.3 T1, 2, 3, 4 & 5 have major Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) incursions for the development of the proposed over land flow path, these incursions may have a negative impact on long term tree health due to the minor excavation. The potential of building up of existing soil levels instead of excavation greatly reduces the potential to create instability issues. Impact to T2, 3, 4 is considered minor. Due to the proximity to the trunk of T1 & 5 Impact is considered moderate.
- 8.4 T6 is located on the fringe of a grove of trees consisting of T6, 7, 8, 9 & 10. T6 is closest to the excavation area for the proposed over land flow path. Minor excavation and the use of heavy machinery within the TPZ and SRZ may have a negative impact on long term tree health. Impact to tree 6 is also considered moderate.
- 8.5 T7, 8, 9 & 10 also have a manageable TPZ encroachment with low SRZ encroachment, encroachment into these zones is still major. As the trees within this group are from the same species *Angophora* it is likely that the root systems are connected providing strength and stability. Minor excavation and the use of heavy machinery within the TPZ of this grove of trees may have a negative impact on tree health. Impact to T7, 8, 9 & 10 is considered minor.
- 8.6 T11 has no impact from the proposed over land flow path.
- 8.7 To reduce damage to root zones of trees during construction, an AQF level 5 Arborist shall be required to observe and monitor works within the TPZ.
- 8.8 Methods such as plastic bog mats and trunk protection shall be utilized to reduce root damage from machinery.

9 Conclusions

- 9.1 Eleven (11) trees were assessed as part of this report, at the time of inspection all trees with the exception of T2 showed signs of good health and condition typical of species and age class.
- 9.2 35 Earl Street has been proposed to be subdivided into two blocks divided east-west.
- 9.3 At the time of search, this parcel of land is located in a designated NSW rural fire service, 10/50 vegetation entitlement clearing area.
- 9.4 T1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11 (all trees) were exempt under the terms of local council Tree and Vegetation Policy.
- 9.5 T1, 2, 3 & 4 fall outside the proposed dwelling footprint.
- 9.6 T5, 6, 7, 8, 9, 10 & 11 fall within the proposed dwelling footprint.
- 9.7 The proposal requires the construction of an over land flow path to accommodate a 1 in 100year storm.
- 9.8 Development and construction of the proposed over land flow path, may have a negative impact on long term tree health, impact to T2, 3, 4, 7, 8, 9 & 10 is considered minor
- 9.9 T1, 5 & 6 also have TPZ and SRZ encroachment with works in close proximity to their trunks, encroachment levels have been highlighted as manageable. Impact to T5 & 6 is considered moderate.
- 9.10 Over land flow path construction has been highlighted in the impact assessment as having no impact to T11.
- 9.11 Root zones maybe impacted by though compaction, soil level changes and mechanical damage, supervision and protection measures may need to be put in place to reduce damage within the TPZ.

10 Recommendations

- 9.12 **Trees recommended for retention T1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11** See: Trees Recommended for Retention or Removal Plan & Tree Protection Zone Plan
- 9.12.1 Refer to the **Section 11 Tree Protection and Management**.

10 Tree Protection and Management

Prior to excavation and construction works, a Site Arborist shall be appointed to supervise all tree protection procedures detailed in this specification. The Site Arborist shall have a minimum level 5 AQF qualification in Arboriculture.

10.1 Pre-determined Arborist Supervision- Witness Points

The following pre-determined Site Arborist stages are witness points and will require the attendance of the site arborist who will document the works and provide their signature stating an inspection has taken place and all works are completed in accordance to this report and AS4970-2009 Protection of Trees on Development Sites.

Table 3 Witness points for Site Arborist Inspections

Witness Point	Action	Check Box
Tree Protection Zones	The Site Arborist shall inspect the trunk and ground protection prior to construction.	Inspected, documented & certified by Site Arborist. YES/NO
Work within the TPZ	The Site Arborist is to monitor any works within the TPZ including earthworks and construction.	Inspected, documented & certified by Site Arborist. YES/NO
Practical Completion	The Site Arborist to inspect and assess the condition of T7, 8, 9, 10 & 11 and provide certification of all above mentioned Supervision stages.	Inspected, documented & certified by Site Arborist. YES/NO

10.2 Agreement

The Site Arborist and the Site Foreman shall agree upon and designate storage, dumping, and wash areas prior to excavation and construction.

Contractors and site workers shall be informed of the Tree Protection and Management specifications and the significance of the trees to be retained.

The Site Foreman is responsible for all tree protection procedures on site as per this document and whenever the arborist is not on site.

It is the responsibility of the site foreman to provide a **minimum '3 days' notice** the Site Arborist for the pre-determined witness points.

Any breaches to the Tree Protection Plan shall be reported immediately.

10.3 Tree Protection Zone construction

(Pre-determined Witness Point)

- The Site arborist shall inspect, document and certify trunk & ground protection.

10.4 Ground protection:

- Ground protection within the TPZ shall be required for the use of a small excavators to operate atop off, plastic bog mats shall be utilized to reduce soil disturbance, protect roots and reduce compaction.

10.5 Trunk Protection

- T1, 5, 6, 7 & 8
- Trunk protection: hessian shall be placed around trunk with 2m wooden palings securely fastened at 100mm intervals. Care should be taken to avoid fastening screws or nails damaging tree tissues.

10.3, 10.4 & 10.5 Refer to: Tree Protection Zone Plan

10.6 Restricted Activities

The area within the Tree Protection Zone shall exclude the following works.

- Storage of plant
- Installation of temporary site offices or amenities
- Wash down areas
- Excavation by large machinery
- Preparation of chemicals including paint cement and mortar
- Pedestrian access
- Excavation unless under the supervision of the Site Arborist

10.7 Works within the Tree Protection Zone

(Pre-determined Witness Point)

Any proposed work within the TPZ shall be undertaken by hand tool use only unless authorized and observed by the Site Arborist. If or when a root has been exposed it will be of the Site Arborists discretion whether pruning shall take place. Pruning of roots shall be done with a sharp implement such as a chainsaw or handsaw.

10.8 Completion of Works within the Tree Protection Zone

Only after the completion of works within the TPZ shall fencing and plastic bog mats be removed.

10.9 Tree damage

Any damage to a protected tree shall be reported to the site arborist immediately.

10.10 Post Construction

(Pre-determined Witness Point)

The Site Arborist shall make a final inspection to assess tree health and condition.

11 Works Cited

- Barrell Tree Consultancy,. (1993). Pre-Planning tree surveys: Safe Useful Life Expectancy (SULE) is the natural progression. TreeAZ.
- Clark, M. a. (1994). *Evaluation of Hazard Trees in the Urban Areas* (Second ed.). Illinois, USA: International Society of Arboriculture.
- Institute of Australian Consulting Arboriculturists. (2010). *IACA Significance of a Tree, Assessment Rating System (STARS)*. Retrieved 10 2016, from www.iaca.org.au.
- John Roberts, N. J. (2006). *Tree Roots in the Built Environment*. Norwich, England: TSO.
- Northern Beaches Council (Warringah). (2017). *Trees and Development*. Retrieved 07 08, 2017, from <http://www.warringah.nsw.gov.au>: <http://www.warringah.nsw.gov.au/planning-and-development/trees-and-development>
- NSW Rural Fire Service. (n.d.). *10/50 vegetation clearing*. Retrieved 07 08, 2017, from www.rfs.nsw.gov.au: <http://www.rfs.nsw.gov.au/plan-and-prepare/1050-vegetation-clearing>
- Standards Australia. (2009). *AS 4970-2009 Protection of trees on development sites*. Retrieved from www.standards.org.au.
- Standards Australia Limited. (2007). *Australian Standard® Pruning of amenity trees*. Sydney, NSW, AU.

12 Limitations on the use of this report:

This report is to be used 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 original report (or a copy) is referenced to and directly attached to that submission, report or presentation. Information contained in this report covers only the trees that were inspected and reflects the trees condition at the time of the inspection.

Trees are living organisms. As such, their health and structure may alter, they will grow and their environmental circumstances may change from the time of the site inspection upon which this assessment is based. Trees, as with all living things, pose some level of risk.

Trees fail in ways that the arboricultural community are yet to fully understand. There is no guarantee expressed or implied that failure or deficiencies may not arise of the subject trees in the future. No responsibility is accepted for damage to property or injury/death caused by the nominated trees.

13 Appendix:

Appendix A: Tree assessment schedule A & B

Appendix B: Images

Appendix C: Safe Useful Life Expectancy description and categories

Appendix D: Significance of a Tree Assessment Rating System (STARS)

Arboricultural Impact Assessment Report

Appendix A: Tree assessment schedule A & B

Tree assessment schedule A

Tree number	Tree name		Tree dimensions			
	Botanical name	Common name	Height (m)	Spread (N,E,S,W)	D.B.H (mm)	DAB (mm)
1	<i>Jacaranda mimosifolia</i>	Jacaranda	7	3,3,5,5	350	430
2	<i>Pittosporum undulatum</i>	Sweet Pittosporum	6	3,3,3,3	500	560
3	<i>Angophora costata</i>	Sydney Red Gum	13	7,3,0,5	440	320
4	<i>Angophora costata</i>	Sydney Red Gum	13	4,2,9,9	810	920
5	<i>Angophora costata</i>	Sydney Red Gum	14	5,2,9,6	690	1100
6	<i>Angophora costata</i>	Sydney Red Gum	12	4,4,4,4	250	330
7	<i>Angophora floribunda</i>	Rough Barked Apple	12	4,4,4,4	490	640
8	<i>Angophora costata</i>	Sydney Red Gum	12	4,4,4,4	310	390
9	<i>Angophora costata</i>	Sydney Red Gum	12	4,4,4,4	520	560
10	<i>Angophora costata</i>	Sydney Red Gum	12	4,4,4,4	580	580
11	<i>Melaleuca quinquenervia</i>	Broad-leaved Paper Bark	8	3,3,3,3	440	480

Arboricultural Impact Assessment Report

Tree assessment schedule B

Tree number	Vigour <small>Low, Normal, Excellent</small>	Condition <small>Poor, Fair, Good</small>	Age class <small>Young, Mature, Old, Dead</small>	Crown Form <small>Dominant, Forest, Codominant, Emergent, Intermediate, Suppressed</small>	SULE category	TPZ radius (m)Approx.	SRZ radius (m)Approx.	Landscape significance	Retention Value	Comments
1	N	G	M	D	M(c)	4	2.3	M	M	
2	L	P	M	C	R(b)	6	2.6	L	L	Poor condition
3	N	G	M	C	M(c)	5.3	2.5	M	M	Close proximity to structure.
4	N	T	M	C	M(c)	9.7	3.2	M	M	Close proximity to structure., heavy lean over house, Armillaria fruiting bodies at base of tree.
5	N	T	M	C	L(a)	8.2	3.4	M	M	Falls within 2m of the proposed building footprint.
6	N	G	M	C	L(a)	3	2	M	M	Forms part of a grove in center of lawn. Falls within 2m of the proposed building footprint.
7	N	G	M	C	L(a)	5.8	2.7	M	M	Forms part of a grove in center of lawn. Falls within 2m of the proposed building footprint.
8	N	G	M	C	L(a)	3.7	2.2	M	M	Forms part of a grove in center of lawn, falls within the proposed building footprint.
9	N	G	M	C	L(a)	6.2	2.5	M	M	Forms part of a grove in center of lawn, falls within the proposed building footprint.
10	N	G	M	C	L(a)	6.9	2.6	M	M	Forms part of a grove in center of lawn, falls within the proposed building footprint.
11	N	G	Y	D	Y(b)	5.2	2.4	M	M	Falls within the proposed building footprint.

- Trees highlighted in **Green** are of high landscape and SULE and should be retained and protected.
- Trees highlighted in **Blue** are considered less critical for retention, however their retention should be a priority with removal considered only if adversely affecting the proposal.
- Trees highlighted in **pink** are not considered important for retention, nor require special works or design modification to be implemented for their retention.
- Trees highlighted in **Yellow** are considered hazardous or in irreversible decline or environmental weeds and should be removed irrespective of development.

Appendix B: Images



Figure 3 T1 *Jacaranda mimosifolia*



Figure 4 T2 *Pittosporum undulatum*



Figure 5 T3 *Angophora costata*



Figure 6 T4 *Angophora costata*



Figure 7 T5 *Angophora costata*



Figure 8 T6 *Angophora costata*



Figure 9 T7 *Angophora floribunda*



Figure 10 T8 *Angophora costata*



Figure 11 T9 *Angophora costata*



Figure 12 T10 *Angophora costata*



Figure 13 T11 *Melaleuca quinquenervia*

Appendix C: Safe Useful Life Expectancy description and categories

Safe Useful Life Expectancy (SULE)

SULE is the length of time that the arboriculturist assesses an individual tree can be retained with an acceptable level of risk based on the information available at the time of inspection. It is a snapshot in time of the potential an individual tree has for survival in the eyes of the assessor. SULE is not static – it is closely related to tree health and the surrounding conditions. Alterations in these variables may result in changes to the SULE assessment. Consequently, the reliability all SULE assessments have will decrease as time passes from the initial assessment and the potential for changes in variables increases.

SULE Assessment Categories

Long SULE: Trees that appear to be retainable with an acceptable level of risk for more than 40 years.

- (a) Structurally sound trees located in positions that can accommodate future growth.
- (b) Storm damaged or defective trees that could be made suitable for retention in the long term by remedial tree surgery.
- (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

Medium SULE: Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.

- (a) Trees that may only live between 15 and 40 more years.
- (b) Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals.
- (c) Trees that may live for more than 40 years but would be removed during normal management for safety or nuisance reasons.
- (d) Storm damaged or defective trees that can be made more suitable for retention in the medium term by remedial work.

Short SULE: Trees that appear to be retainable with an acceptable level of risk for 5 to 15 years.

- (a) Trees that may only live between 5 and 15 more years.
- (b) Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals.
- (c) Trees that may live for more than 15 years but would be removed during normal management for safety or nuisance reasons.
- (d) Storm damaged or defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.

Remove: Trees with a high level of risk that would need removing within the next 5 years.

- (a) Dead trees.
- (b) Dying or suppressed and declining trees through disease or inhospitable conditions.
- (c) Dangerous trees through instability or recent loss of adjacent trees.
- (d) Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.
- (e) Damaged trees that are considered unsafe to retain.
- (f) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (e).

Young or Small Trees:

- (a) Trees which are less than 5 meters (m) in height.
- (b) Trees which are over 5m in height but less than 25 years old.

Appendix D: Significance of a Tree Assessment Rating System (STARS)

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria



1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

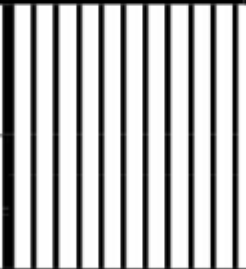
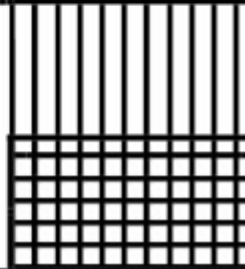




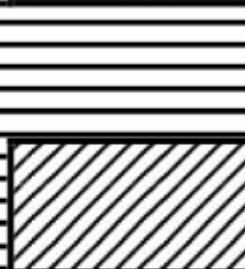


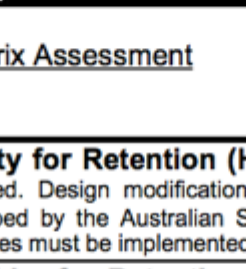
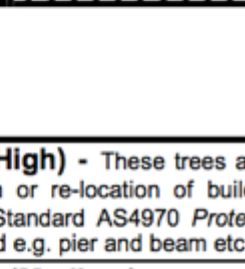
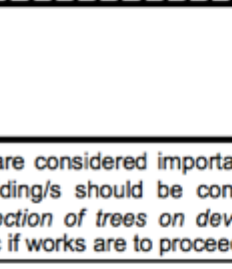
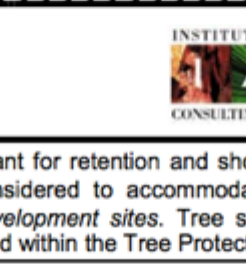
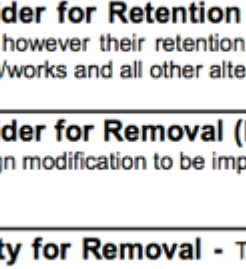
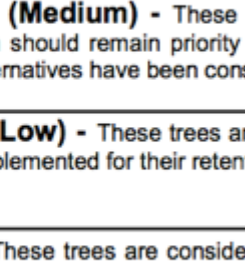
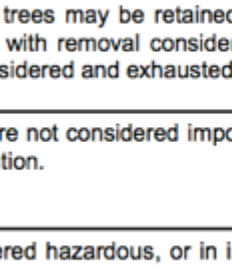
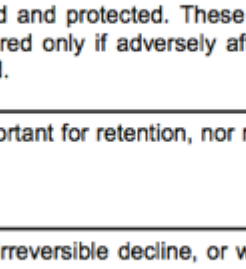
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

Hazardous/Irreversible Decline


- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.





The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					

Legend for Matrix Assessment



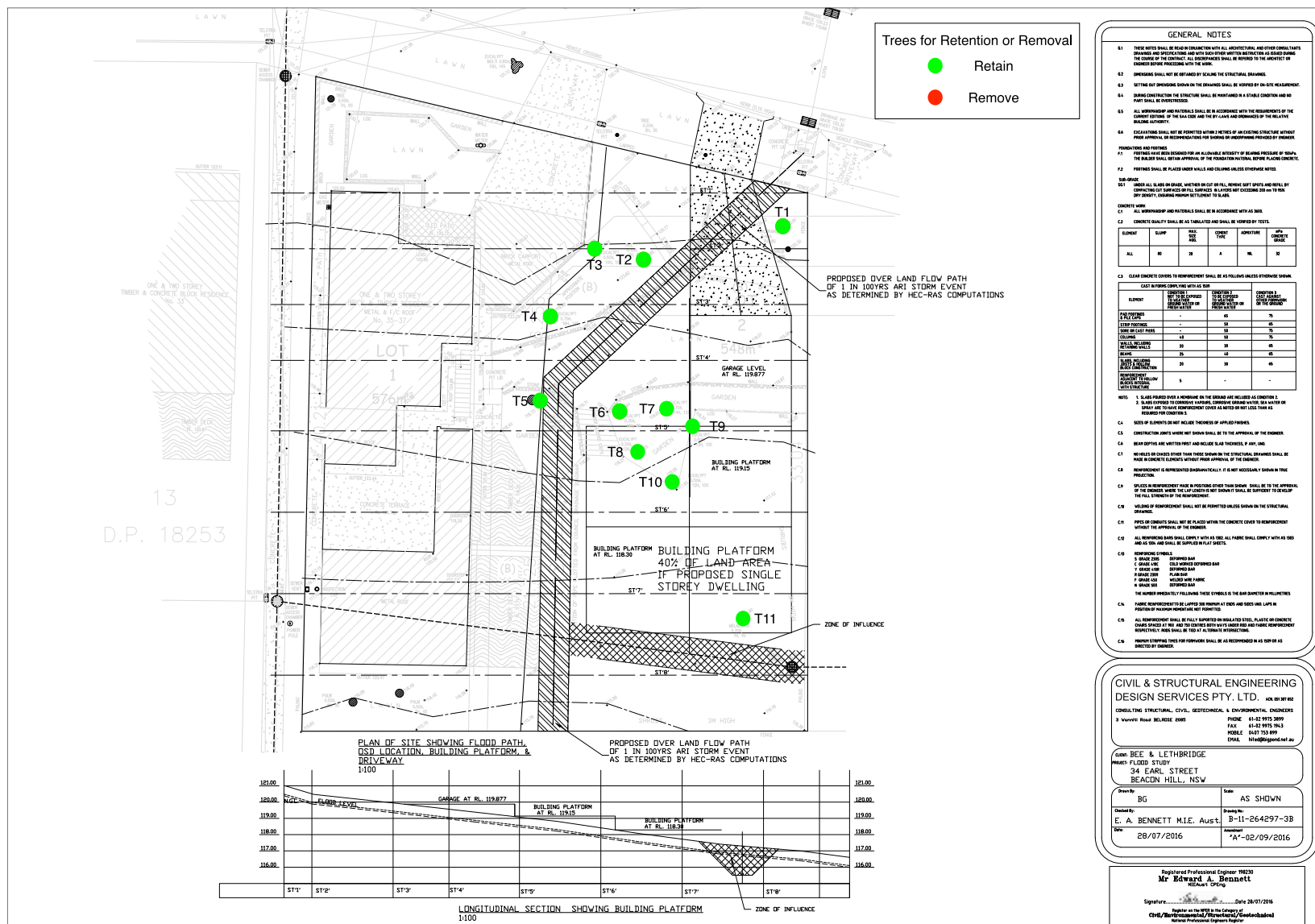
	Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.
	Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

14 Plans:

Trees Recommended for Retention or Removal Plan

Tree Protection Zone Plan

Trees Recommended for Retention or Removal Plan



Tree Protection Zone Plan

