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Arboricultural Assessment

To
General Manager
Northern Beaches Council
Attention to the Tree Preservation Officer
Natural Resources Department

15 February 2021. REF 150221

45 Park Ave Avalon Beach
Lot 55 DP 13325

Contents

ARBORIST ASSESSMENT

15th February 2021

45 Park Ave Avalon NSW

1.0 Introduction

1.1) This report has been prepared to assess the condition and significance of a tree and shrubs of the property at **45 Park Ave Avalon** for the Architects Andy Lehman Design (See location Survey Plan and SULE Rating system). The report has been commissioned by the architects, Andy Lehman Design, and will form part of the Development Application for Building Works to commence. The local governing authority is **Northern Beaches Council**

1.2). All Trades associated with this development should read this report particularly in relation to tree protection. The proposal shall require the removal of some of the existing garden and two mature Eucalyptus Trees: Tree 8 and Tree 9. Tree 6 and 7 will have minor excavation work within their critical root zone. Tree 14 will have critical excavation within its primary root zone for the footings of the new granny flat.

1.3) Tree 1, T2,T3,T4,T5,T6,T7,T10,T11,T12,T13,T14 are to be retained and preserved for the life of the development.

1.4) The endemic trees on-site are protected under **Northern Beaches Council** Tree Preservation Order and the Threatened Species Conservation Act 1995. The site was visited, and all information collected on the 15th/2/21. Trees have been tagged, numbered, and identified on the survey plan; P7.

1.5) The proposed project involves the addition of a new driveway/carport /off street car parking for two cars and the building of a Granny Flat; new landscaping and tree planting.

1**.5)** This report assesses the condition of a number of trees on the adjacent property and nature strip (see survey and Appendix A: Tree Identification and Assessment)). The information obtained in this Arboricultural assessment covers only the trees that were examined and reflects the condition of the trees at the time of inspection. No weed species have been assessed for this.

1.6) Care has been taken to ensure all information is from reliable sources. All data has been verified as far as possible however, I can neither guarantee nor be responsible for the accuracy of information provided by others. Trees are living structures and their health and condition may change from season to season. It is recommended to have trees in an urban environment checked by an Arborist annually for health and safety.

2.0 Method of Inspection (See Appendix A)

2.1) Inspection of the tree was from the ground using the VTA (visual tree assessment method (Matheck 1994) on February the 18th 2021. Site history was obtained from the architect. No aerial inspection, woody tissue testing on trees. No root investigation was undertaken. Photographs were taken from my iPhone 12 Pro. Tree height was estimated and expressed in metres. Trunk diameter was measured at 1.4metres and is expressed in millimetres.

2.2) No significant fauna was noted for this assessment however native birds were witnessed visiting tree branches.

2.3) Plans and/or documents used to prepare this Arboriculture Assessment include:

- Survey by ATS Land & Engineering Surveyors PTY. LTD., Dated 20/10/2020, Ref: 10188-ident
- Alterations and Additions/Drawing Plans by Andy Lehman Design, Drawings 1-17 dated December 2000.

2.4) Each Tree has been referenced by numbering and maybe located on the survey 14 Tree Plan. Tree Plan, page 7.

3.0 Original Native Vegetation

3.1 Based on the visual inspection of surrounding vegetation and bushland reserves i.e., Stapleton Park and Jamison Park, it can be seen that the original endemic vegetation on the site was Tall Open Forest. This comprises species consistent with that described by Benson and Howell 1994) as Spotted Gum Blackbutt Forest. Much of the groundcover is absent, (cleared) with varying degrees of weed infestation.

4.0 Tree Condition and Life Expectancy

4.1) (See STARS Rating) The assessment of the trees condition was undertaken by visual inspection of the trees themselves, surrounding vegetation and the site.

4.2) An Assessment of the tree is undertaken considering the condition of the tree's roots, trunk, branches, foliage, previous pruning, pest and disease, nesting hollows, fauna scratching and the surrounding environment that may influence the condition of the tree. They were given either a high, medium, or low significance in the landscape.

5.0 Safe Useful Life expectancy SULE

5.1) The condition information is used to determine the Safe Useful Life Expectancy (SULE) of each tree and considers the age of the tree, the lifespan of the species, local environmental conditions, estimated life expectancy, the location of the tree and the safety aspects.

5.2) The SULE method considers whether a tree can be retained with an acceptable level of risk, based on the information available at the time of inspection. A SULE assessment is not static, as it relates to the tree's health and the surrounding conditions. Whilst it is recognised that changes to the trees condition will affect the assessment, changes to the surrounding environment may result in changes to the SULE assessment. (See SULE categories, page 10.)

6.0 Development Impacts

6.1) Direct impacts: The proposed development will require boundary shrub removal and pruning. This pruning is to be undertaken by a qualified Arborist with a minimum Certificate 3 and follow Australian standards (As 4373) Pruning of Amenity Trees.

6.2) The design also requires the removal of two mature Trees T8 and T9. This is because the Council compliance guidelines require off street carparking for two cars and the current parking is on the driveway or the nature strip, crown land (See Photo: 45 Park Ave Avalon Page 8). There is no existing garage attached to the house. There is no immediate street parking due to the location of the now dilapidated speed hump directly in front of the property. There is no designated path to the front door. The new design calls for a complete redesign of the front and rear garden.

6.3) There is no way of saving or not damaging the root system of trees 8 and 9, to install the new driveway and carport and path. The alternative design locating the driveway and carport on the other western side of the property would also require the removal of Trees. These Trees would be T6 and T7. The carport would be too close to the lounge room. The current proposal is more acceptable.

7.0 Recommendations

7.1) After reviewing the site and the information provided by the client, the works are proposed to proceed with the following actions:

7.2) To allow the works to proceed it is recommended that **trees 8 and 9 are removed** and replaced within a new landscape plan. It is recommended that the trees be drought tolerant native species suited to the local growing conditions, attaining a height of 8m or more at maturity. There is a preferred native tree list on the Council website. I suggest that 4 replacement canopy trees be planted by the site Arborist. They are to be planted in suitable locations on the property at a minimum distance of 3 meters from any built structure. They are to be in an advanced size, have a tree guide and be guaranteed to live for the life of the development.

7.3) It Is recommended that construction proceeds using the Australian Standard AS4970 2009 Protection of Trees on Development Sites as a basis for tree protection on the site as well as the site-specific instructions listed in this report.

Tree Protection Generally (See figure 1 on page 15)

1(See Table1 British Standards) Tree protection zones (TPZ's) are required to significant trees located close to the development proposal such as Tree6,7 and 14. Prior to works commencing erect a 1800mm chain mesh to protect the tree's trunk at 12x DBH or as specified in this report. The Tree Protection zones as nominated should be marked with line marking paint and observed as an area free from machinery for the duration of the works. Do not remove alter or relocate these without the approval of NB Council or the Arborist employed for this site.

2 Trees to be protected in the works contract are items entrusted to the Contractor/Owner by NB Council for carrying out the work under the Contract. The Contractor/Owner has obligations to protect these trees as part of the care of the work in the contract conditions.

3 Prior to commencing work on site, confirm with NB Council all trees to be protected for the duration of the works. Also confirm all access and haulage, storage areas, tree protection measures and work procedures. Ensure that the protection measures are in place prior to commencing work. Tree 14 will require a reduction of canopy branches towards the new granny flat roof line and be sympathetic to natural tree design. The reduction is only expected to be minimal. Pier footing placement for the column construction must be located between significant root systems and of the lightest design possible to reduce the size of the footings and they should be hand dug. The design must remain flexible in footing placement yet capable of supporting the column load.

4 Use suitably qualified Arborist (level 5) to supervise earthworks or activities within the Structural Root Zone of tree 6 and 14. Do not sever roots 50mm or greater which may cause damage to or affect the health of trees. Pruning of trees by the contractor is not permitted. Pruning works are required and a suitably qualified (Minimum Level 3) arborist will complete all works in the tree crown. This applies to Trees 3,6,7 and11 and 14. All root pruning must be completed and documented by the level 5 site arborist. This might also apply to Tree 7 for the new front steps.

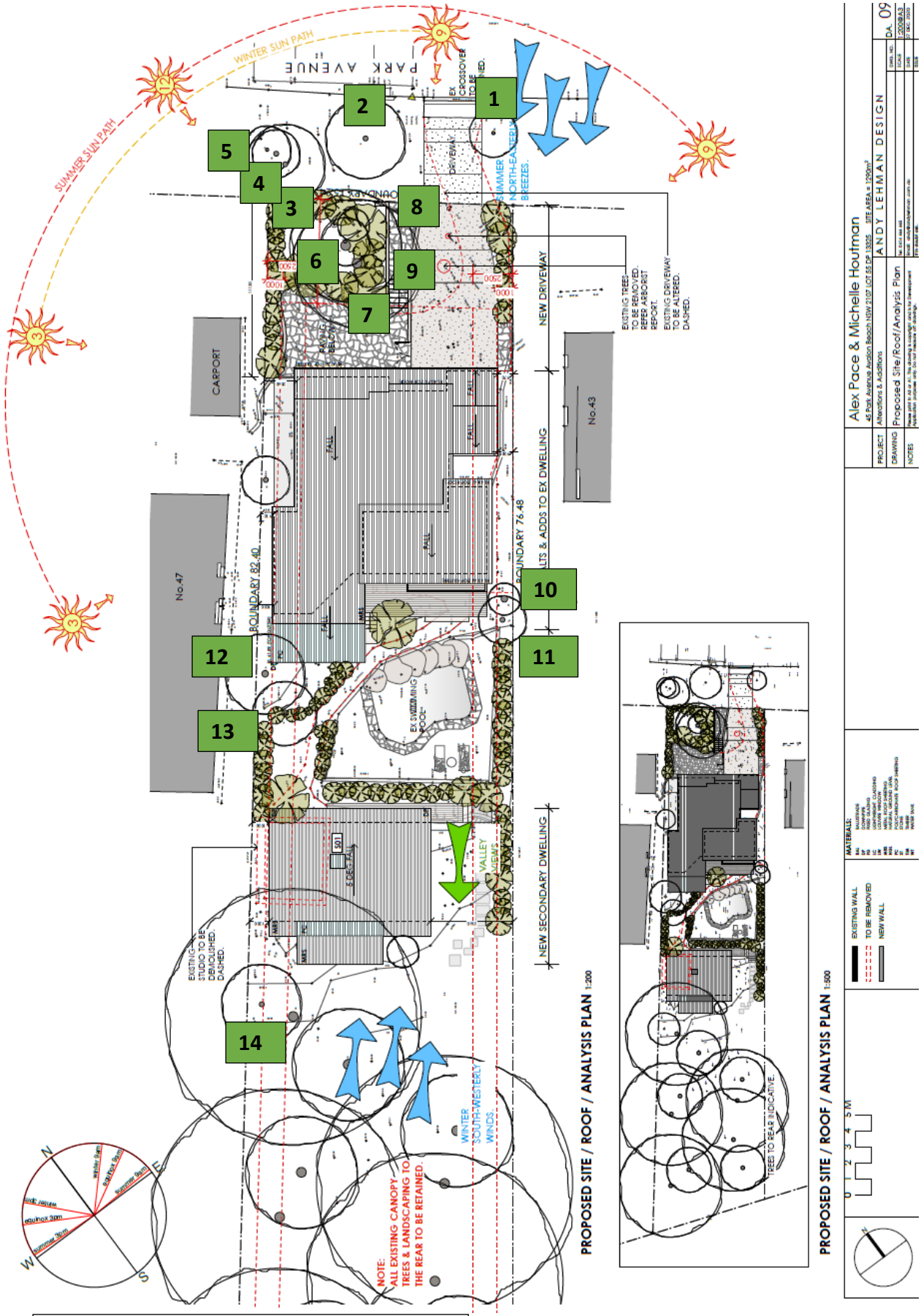
5 Ensure construction trailers, vehicles and equipment do not come in contact with any tree at any time. Do not locate storage areas within the nominated Tree Protection Zone. Do not deposit or store materials, spoil, contaminants and waste or washout water within Tree Protection Zones.

6 Take all reasonable precautions to protect trees to be retained on site from damage and decline, maintaining their health during the contract. Implement recognised best practice industry standards to satisfy horticultural requirements for tree care.

7 Assess and monitor water stress in relation to trees on site. This is of particular importance if earthworks have occurred. Apply sufficient water to the tree on site as required to keep the trees healthy. Immediately report to the Council and sire arborist any trees on site that are injured damaged or are in decline.

8 The site arborist is to certify that all tree protection works are installed as specified within this report. Certification is then to be forwarded to the principal certifying authority (NB Council), to initiate the commencement of the demolition and construction works.

NOTE: Failure to comply with any part of these tree protection guidelines or the Australian Standard AS4970 or AS4373 will result in the party breaching the Tree protection Guidelines taking responsibility for all associated consequences.



14 trees on site plan

45 Park Ave Avalon

45 Park Avenue, Avalon

TERMS AND DEFINITIONS

The following relates to terms or abbreviations that have been used in this report and provides the reader with a detailed explanation of those terms.

Age classes

- (I) = immature and refers to a well established but juvenile tree.
- (S) = semi-mature and refers to a tree at growth stages between immaturity and full size.
- (M) = mature and refers to a full sized tree with some capacity for further growth.
- (O) = over-mature and refers to a tree about to enter decline or already declining.

Condition refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (ie trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height (1.4 metres above ground level)

Epicormic Shoots which arise from adventitious or latent buds. These shoots often have a weak point of attachment. They are often a response to stress in the tree.

Health refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

SAFE USEFUL LIFE EXPECTANCY (SULE)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. SULE ie a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner.

SULE categories are easily verifiable by experienced personnel without great disparity.

A tree's SULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy), then by economics (ie cost of maintenance: retaining trees at an excessive management cost is not normally acceptable), effects on better trees, and sustained amenity (ie establishing a range of age classes in a local population).

SULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short SULE may be at present be making a contribution to the landscape but their value to the local amenity will decrease rapidly towards the end of this period, prior to their being removed for safety or aesthetic reasons.

For details of SULE categories see Appendix B, adapted from Barrell 1996.

Tree Protection Zone (TPZ), generally the minimum distance from the center of the tree trunk where protective fencing or barriers are to be installed to create an exclusion zone.

SULE CATEGORIES (after Barrell 1996, Updated 01/04/01)

The five categories and their sub-groups are as follows:

1. **Long SULE** - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:

    A. structurally sound trees located in positions that can accommodate future growth
    B. trees which could be made suitable for long term retention by remedial care
    C. trees of special significance which would warrant extraordinary efforts to secure their long term retention

2. **Medium SULE** - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:

    A. trees which may only live from 15 to 40 years
    B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
    C. trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    D. trees which could be made suitable for retention in the medium term by remedial care

3. **Short SULE** - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:

    A. trees which may only live from 5 to 15 years
    B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
    C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    D. trees which require substantial remediation and are only suitable for retention in the short term

4. **Removal** - trees which should be removed within the next 5 years

    A. dead, dying, suppressed or declining trees
    B. dangerous trees through instability or recent loss of adjacent trees
    C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
    D. damaged trees that are clearly not safe to retain.
    E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
    F. trees which are damaging or may cause damage to existing structures within the next 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.

5. **Small, young or regularly pruned** - Trees that can be reliably moved or replaced.
    A. small trees less than 5m in height.
    B. young trees less than 15 years old but over 5m in height.
    C. formal hedges and trees intended for regular pruning to artificially control growth.

SUMMARY

The proposed driveway/carport/path and granny flat are acceptable in the context of the residential housing surrounding the site: Twelve Trees will be retained indicated on the survey however this is not a complete survey of the whole property. There are a further 4 mature trees on the property away from the proposed development area. This is an underutilised/semi bushland area that contributes to the biodiversity of Avalon. With the implementation of the Landscaping, Tree planting and the retention of the other 16 canopy trees, the amenity of the site will be enhanced.

In the tree survey, trees 2,3,4,6,10,11,12 and 14 are identified as significant and are all to be retained under the current proposal. These provide the greatest amenity to the locality.

The tree population assessed varied in species, age, vigour, and condition. Generally, the trees were in excellent to good condition and vigour, the extent of deadwood in some trees were however a cause for concern. Deadwood formation is typical of these native species and should be removed at regular intervals (provided this does not necessitate the removal of potential habitat hollows for wildlife). Deadwood is not a sign of irreversible decline in tree health.

The smaller of the subject trees were suppressed by the mature trees and as a result, had poor form. Restricted light will continue to be a limiting factor for the establishment of additional trees on the sight.

Additional arboricultural assessment will be required when trenching for drainage and services are required throughout the site (within the protection zone of the retained trees), as this work may impact on the health and stability of the trees. The specific retention requirements of these trees are outlined in recommendations.

Given the retention of 12 out of the 14 trees on site, and the type of development, it is not anticipated that privacy issues are a main consideration of this proposal. Some screen planting will be provided along the site boundaries; however, it should not be a condition of development consent. With the replanting of 4 canopy Trees and other landscape plants the result will be a net gain for the environment

CERTIFICATION

This Arborist Report complies with **Northern Beaches Council (Pittwater) l DCP 21**. I am a qualified Horticulturalist, holding an Associate Diploma (Horticulture) from Hawkesbury Agricultural College NSW and a Diploma in Arboriculture from Ryde TAFE NSW. I am also a member of the Australian Institute of Horticulture and the International Society of Arboriculture. Further, I am appropriately qualified to certify this component of this project.

Geoff Burton

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Appendix A: Tree Identification and Assessment

T	Common Name	DBH	H	Health	SULE	Comments
1	Eucalyptus paniculata	200mm	5m	L	M	Not significant Street Tree
2	Eucalyptus botryoides	300mm	17m	L	M	Street Tree Significant Less than 5% deadwood
3	Corymbia maculata	250mm	16m	L	L	Street Tree Significant Less than 5% deadwood
4	Stringy Bark	300mm	15m	L	S	Street Tree More than 10% deadwood
5	Stringy Bark	250mm	14m	M	S	Street Tree Not Significant Signs of decay at base
6	Angophora costata	330mm	18m	L	L	Significant Suppressed on one side Healthy
7	Corymbia maculata	1000mm	19m	L	M	Significant. major cavity! Extinct Bee Hive Otherwise healthy
8	Eucalyptus paniculata	600mm	18m		R	Significant For Removal *
9	Corymbia maculata	550mm	18m		R	Significant For Removal *
10	Casuarina sp	400mm	18m	L	M	Significant East side Neighbors Tree Healthy
11	Cabbage Tree Palm	300mm	5m	L	L	Locally Native
12	Melaleuca quinquenervia	300mm	16m	L	M	Healthy
13	Leptospermum personii	500mm	15m	Short Life Span	S	Less than 5% deadwood

14	**Brush Box**	**250mm**	**5m**	**Healthy**	**L**	**Healthy good vigor**

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

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.

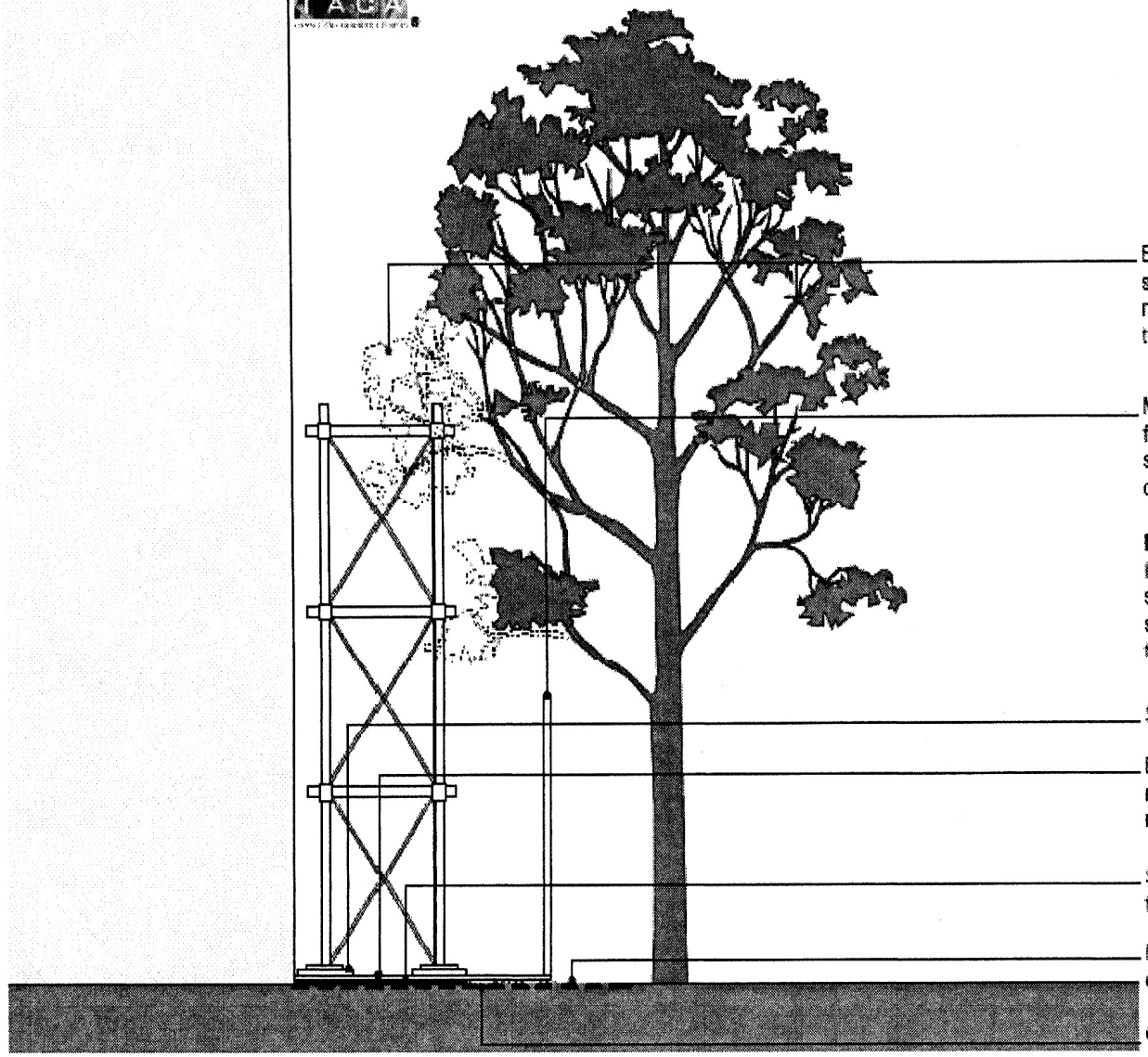
BRITISH STANDARD BS 5837:1991 (excerpt)

Table 1. Protection of trees: minimum distances for protective fencing around trees

Tree age	Tree vigour	Trunk diameter	Minimum distance
		mm	m
Young trees (age less than 1/3 life expectancy)	Normal vigour	< 200	2.0
		200 to 400	3.0
		> 400	4.0
Young trees	Low vigour	< 200	3.0
		200 to 400	4.5
		> 400	6.0
Middle age trees (1/3 to 2/3 life expectancy)	Normal vigour	< 250	3.0
		250 to 500	4.5
		> 500	6.0
Middle age trees	Low vigour	< 250	5.0
		250 to 500	7.5
		> 500	10.0
Mature trees	Normal vigour	< 350	4.0
		350 to 750	6.0
		> 750	8.0
Mature trees and overmature trees	Low vigour	< 350	6.0
		350 to 750	9.0
		> 750	12.0

NOTE 1. It should be emphasized that this table relates to distances from centre of tree to protective fencing. Other considerations, particularly the need to provide adequate space around the tree including allowances for future growth, and also working space will usually indicate that structures should be further away.
NOTE 2. With appropriate precautions, temporary site works can occur within the protected area e.g. for access of scaffolding.

Figure 1



Indicative Scaffolding within a Tree Protection Zone (TPZ)

Not to Scale