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23 May 2011.

Mr Anthony Witherdin
Department of Planning
23-33 Bridge Street
SYDNEY NSW 2000

Dear Mr Witherdin

STATEMENT OF ENVIRONMENTAL EFFECTS: SECTION 75W APPLICATION TO MAJOR PROJECT MP NO. 08_0258 – EARLY WORKS PACKAGE – 61 MOBBS LANE, EPPING

INTRODUCTION

Pursuant to Section 75W (1) (a) of the Environmental Planning and Assessment Act 1979, a 'modification of approval' is sought to vary Condition A2 and Condition C19 to Major Project MP No. 08_0258 – Early Works Package, as approved on the 14 July 2010. The modification seeks to clarify which trees are to be retained and which trees are to be removed, on the site.

THE SITE

Site Context

The subject is located at 61 Mobbs Lane, Epping in the Parramatta local government area. The site is 89,190 sqm in extent and is situated approximately 1.4km from both Epping and Eastwood rail stations. The site has close to 500m frontage to Mobbs Lane which is accessed via Midson Road to the east, and Marsden Road to the west.

The site is bounded to the south by Mobbs Lane, to the east by single houses fronting Edenlee Street, to the north by a branch of Ryde Horticultural TAFE, to the northwest by rear yards of single houses and some dual occupancies, and to the west by Mobbs Lane Reserve open space bushland. Stage 2 of this Project comprises three sites, Sites 1, 2 and 3. The site is located approximately 5k from Macquarie Shopping Centre and approximately 3k from Eastwood Shopping Centre where a full range of goods and services are available to the community.

The site is legally comprised of several allotments described as Lots 1 & 2 DP732070, Lot 2 DP582172, Lots 1 & 2 DP129023 and Lot 1 DP57089. Currently the site is under demolition.

Approvals Background

On 1 August 2006, State Environmental Planning Policy (Major Projects) 2005 (Amendment No.6) was gazetted which amended the Major Projects SEPP by listing the site as a State Significant Site in Schedule 3. This effectively rezoned the site and established design parameters.

On 22 August 2008, the Minister approved a Concept Plan (MP 05-0086) for residential development, landscaped open space, and associated facilities. In June 2009, an Environmental Assessment Report for Epping Park – Early Works Package (MP 08_0258) was submitted to the Minister of Planning for approval. On the 14th July 2010 the Early Works Package was approved, for the following works;

- *Demolition of existing structures and tree removal;*
- *Construction of final landforms and landscaping of the public and private domains;*
- *Internal and external road works;*
- *Services, utilities and stormwater management works;*
- *A child care facility and private communal resident facilities; and*
- *Consolidation of existing lots and subdivision into a community title allotment and Torrens title lot for the proposed child care centre.*

PROPOSED AMENDMENTS

Conditions A2 and C19 are sought to be amended as follows:

Existing Condition A2

Drawing No.	Revision	Name of Plan	Date
Early Works Landscape Package prepared for the Environmental Assessment/Preferred Project Report by ASPECT studios.			
EW-PA05	01	Tree Removal Plan	22/04/2009

Proposed Condition A2

Drawing No.	Revision	Name of Plan	Date
Early Works Landscape Package prepared for the Environmental Assessment/Preferred Project Report by ASPECT studios.			
EW-PA05	03	Tree Removal Plan	**02/03/2011**

Existing Condition C19

"A Tree Restoration Plan is to be prepared in accordance with the "Best Practice Guidelines: Sydney Turpentine Forest" (DECC 2009). Details are to be submitted to the Accredited Certifier for approval prior to commencement of works in the vicinity of the restoration area in accordance with the recommendations of Anne Clements and Associates report dated 2 July 2010"

Proposed Condition C19

"A Tree Restoration Plan is to be prepared in accordance with the "Best Practice Guidelines: Sydney Turpentine Forest" (DECC 2009). Details are to be submitted to the Accredited Certifier for approval prior to commencement of works in the vicinity of the restoration area in accordance with the recommendations of Anne Clements and Associates report dated 2 July 2010 ***and updated report prepared by Tree and Landscape Consultants (TALC) dated the 13th December 2010".***

JUSTIFICATION FOR THE MINOR CHANGES

Principally, the proposed amendment has occurred for the following reasons:

- The arborist has inspected trees to be retained and found them to be in a poor state of natural decay (refer to Arborist Report in Annexure 1). These trees are show as black circles 1, 2 and 3 on the amended tree removal plan dated 2 March 2011 (refer to Annexure 2).

- Trees within black circle 4 as shown on the amended Tree Removal Plan require removal (refer to Annexure 2). These trees are located in the vicinity of the approved Mobbs Lane upgrade works and approved bio-retention basin (refer Annexure 3). The subject trees are not endemic to the locality.

- Trees with black circle 5 are located within the route of the approved stormwater and services infrastructure and therefore require removal (refer to Annexures 2 and 3).

CONCLUSION

Proposed trees to be removed primarily are located within the approved location for services, road upgrade works to Mobbs Lane or are in a poor state. None of the trees are endemic to the locality and can therefore be subsequently removed.

The proposal does not amend the building footprints, height or density, as such the development as modified is considered to be substantially the same development as originally granted development in Early Works Package MP 08_0258 on the 14th July 2010. Therefore the Ministers support in this regard is cordially requested.

Yours faithfully
MERITON APARTMENTS PTY LIMITED

WALTER GORDON
Manager Planning and Development

ANNEXURE 1

Arboricultural Assessment Report

TALC
TREE AND LANDSCAPE CONSULTANTS

Prepared 13th December, 2010

Site Location

61 Mobbs Lane
Epping NSW 2121

Client

Meriton Apartments Pty Limited

DISCLAIMER

The author and Tree & Landscape Consultants take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations pertaining to safety by way of exercising our responsibility to our client and the public as our duty of care commitment, to mitigate or prevent hazards from arising, from a failure moment in full or part, from a structurally deficient or unsound tree or a tree likely to be rendered thus by its retention and subsequent modification/s to its growing environment either above or below ground contrary to our advice.

Peter Richards
Tree & Landscape Consultants

Contents

TREE & LANDSCAPE CONSULTANTS

Site Analysis, Arboricultural Assessments

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13th December 2010

Meriton Apartments Pty Limited
Level 11, 528 Kent Street
Sydney NSW 2000

Our reference: 1619

Arboricultural Assessment Report:
61 Mobbs Lane
Epping NSW 2121

1. INTRODUCTION

The site was inspected on the 8th December 2010 to specifically access 3 x trees initially identified for retention as part of the proposed re-development of the land (see appendix C). Hollows and various wounds were evident from a ground assessment (see section 4). In response to this an aerial inspection was undertaken to closely assess the amount of wood present to adequately support the tree in part with a view to closely assessing their suitability for retention within the final landscape of a proposed re- development of the land.

2.0 AIMS & OBJECTIVES

Aims

Detail the condition of the trees and provide as an outcome of the assessment, the following: a description of the trees, observations made, and make recommendations required for remedial or other works to the trees, if and where appropriate or recommend removal and replacement where appropriate.

Objectives

Assess the condition of the subject trees.

Provide recommendations for removal or management of the subject trees.

3. METHODOLOGY

3.1 The method of assessment of tree/s is applied from the ongoing knowledge and development of the author and considers but is not confined to:

- Tree health and subsequent stability, both long and short term
- Sustainable Retention Index Value (S.R.I.V.)© IACA 2009)
- Amenity values
- Significance

3.2 This assessment is undertaken using a standard tree assessment criteria for each tree based on the values above and is implemented as a result of at least one comprehensive and detailed site inspection.

3.3 In this report the dimensions of the tree recorded by the author for the trunk *diameter at breast height* (DBH) measurement is calculated at 1.4m above ground from the base of the tree. Where a tree is trunkless or branches at or near ground such as a mallee formed tree, an average diameter is determined by recording the radial extent of the stem mass at its narrowest and widest dimensions, adding the two dimensions together and dividing them by 2 to record an average.

3.4 Crown spreads are expressed as length by breadth measurements to accurately record their dimensions. Where appropriate, *crown spread orientation* is described along the length of the crown spread e.g. North/South, or as *radial* if the crown is distributed at an approximately even radius from the trunk e.g. 6x6m.

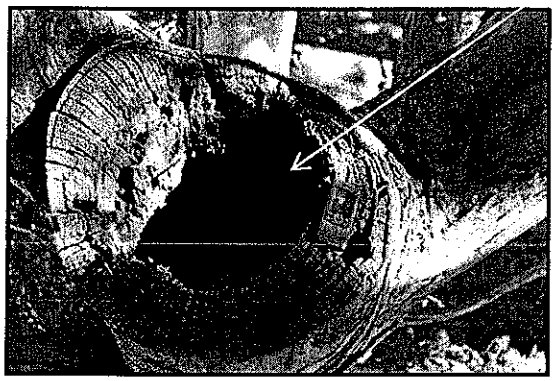
4. TREE ASSESSMENTS

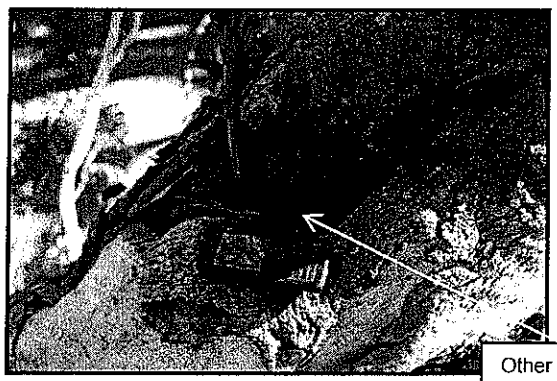
Table 1

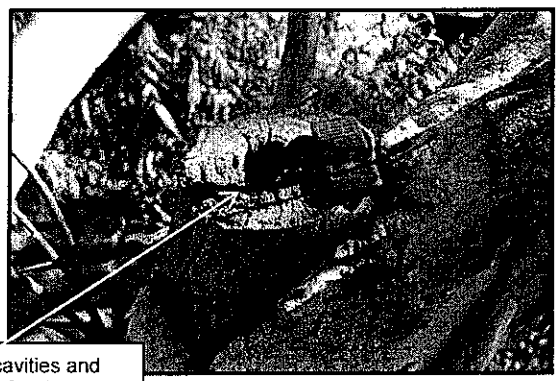
Tree No.	Genus & species Common Name	Age S- Sapling Y- Young M- Mature O-Overmature	Condition D-Dead P-Poor F-Fair G-Good	Pest & Disease N = No or Y = Yes (If yes see comments)	Branch Bark Included N = No or Y = Yes (If yes see comments)	Canopy Orientation A-Asymmetrical Sy-Symmetrical N,S,E,W Orientation	DBH (mm)	Height/Spread	Vigour L-Low G-Good A-Abnormal	Trunk Lean X - Straight or Slightly Leaning A - Accelescent M - Moderate S - Severe C - Critical	SRIV Age,Vigour,Condition, Index Rating (See Appendix A)
1	**Eucalyptus saligna** *Sydney Blue Gum*	M	P	N	N	Sy	1000	18 9x9	G	X	MGVP6
Comments: Crown comprises predominately epicormic growth making up it current habit. A majority of the crown has previously been lopped and the centre leader has previously failed. A major cavity has formed at this point and the downward spread of decay is evident extending at least 500mm down into the tree trunk. Smaller other wounds and cavities are present as can be seen in the following photographs.											
2	**Eucalyptus pilularis** *Blackbutt*	M	P	N	N	Sy	1200	20 9x9	G	X	MGVP6
Comments: The crown overall supports approximately 50% epicormic growth. Several hollows are present with the main ones appearing in the following photographs. The mid trunk cavities measures 700 x 600 x 500 in width and takes affects most of the stem width at the point of decay. Probing inside the cavity indicates extensive build up of mud and the decay would extend further down the stem. Upper crown hollows are extensive as can be seen from the imaged below.											
3	**Eucalyptus saligna subsp botryoides** *Blue Gum*	M	P	N	N	A/S	1500	18 7x12	G	X	MGVP6
Comments: The crown is asymmetrical with a distinct crown projection to the south. Crown is thinning and supports dieback of lower order branching. No significant hollows were found during the aerial inspection.											

Tree Photos (Tree 1)

Previously failed centre leader and inward spread of decay

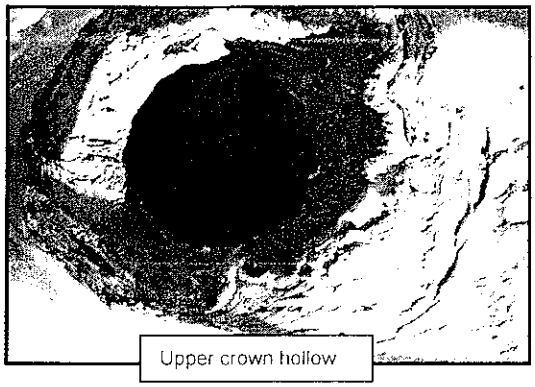




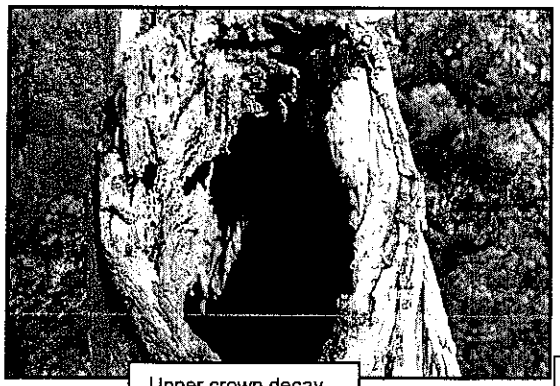


Other cavities and decay of stubs

Tree Photos (Tree 2)

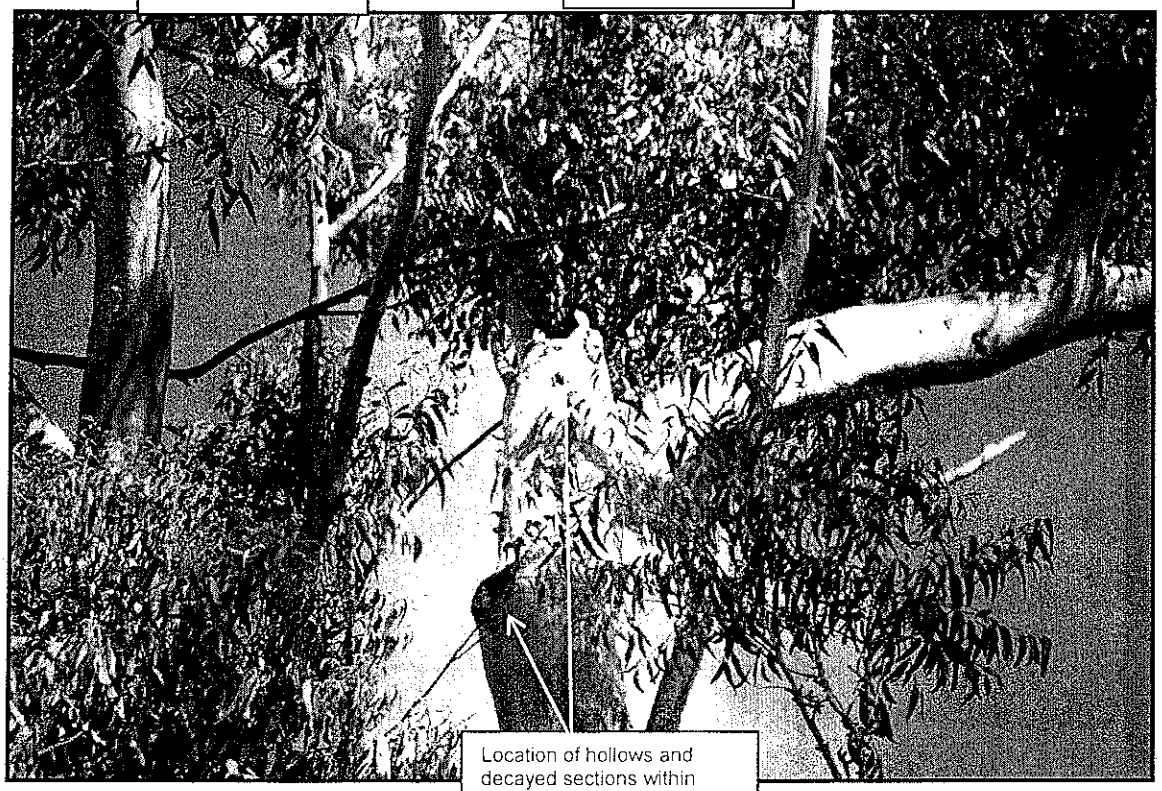


Upper crown hollow



Upper crown decay

Upper crown decay



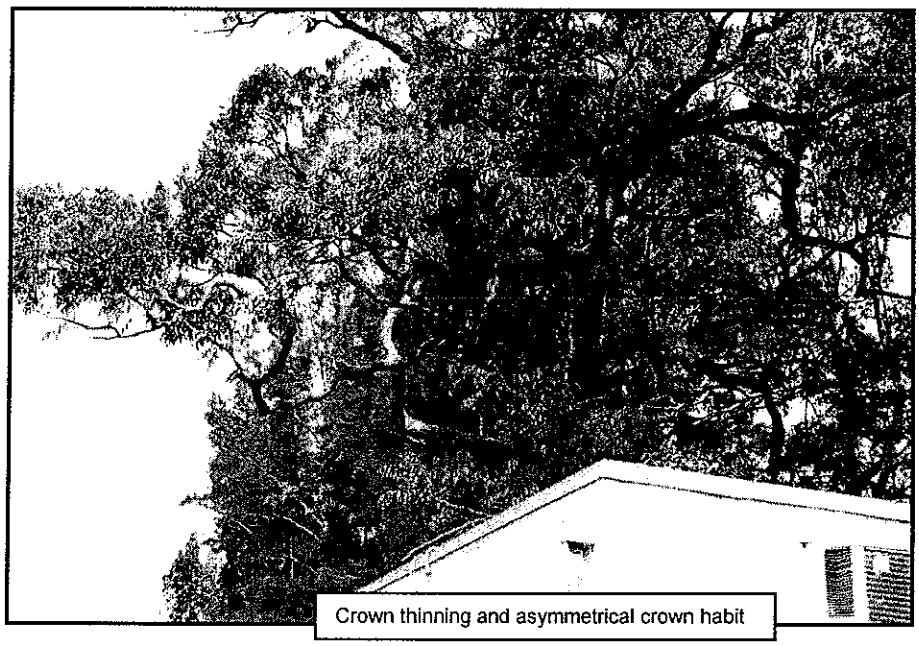
Location of hollows and decayed sections within upper crown

Tree Photos cont. (Tree 2)

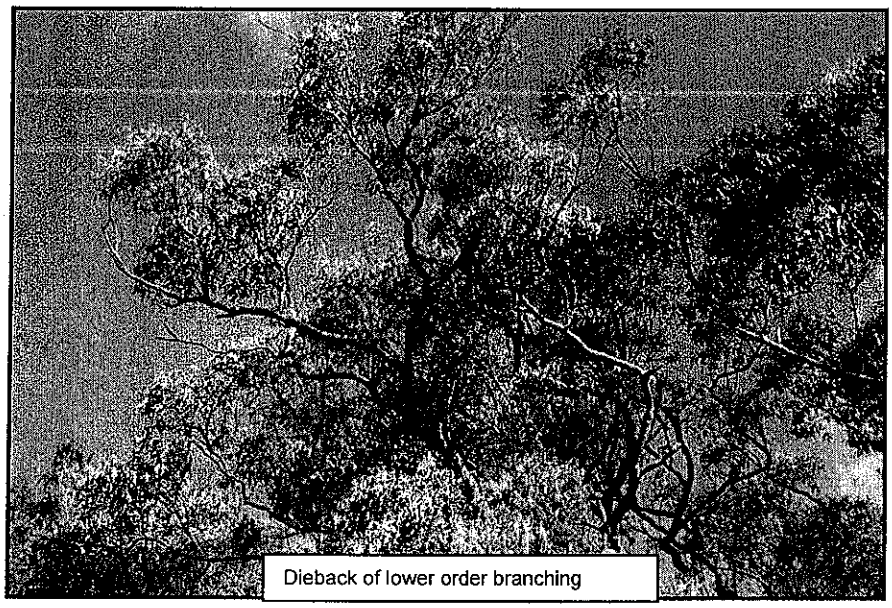
Location of Mid trunk cavity

Close up of mid trunk cavity

Tree Photos (Tree 3)



Crown thinning and asymmetrical crown habit



Dieback of lower order branching

5. DISCUSSION

Of the three trees assessed Tree 1 appears to have previously been lopped and the centre leader has previously failed. The inward spread of decay is evident extending downwards into the tree trunk. The tree has an inability to fight this decay and several other wounds and cavities are present. The current crown habit comprises predominantly epicormic re-growth as a response to either stress and or as a result of previous lopping. The tree is likely to fail in part and is not considered suitable for retention within an urban setting, particularly over the proposed playground area, as this would pose a risk to persons or property.

Tree 2 supports a relatively normal crown habit but also approximately 50% of the crown is epicormic in origin. The inward spread of decay is also evident extending downwards at several points into the tree trunk and as with tree 1 it has an inability to fight this decay and several other wounds and cavities are present. The tree is likely to fail in part and is not considered suitable for retention within an urban setting as this tree would also pose a risk to persons or property.

Tree 3 is asymmetrical in habit with a thinning crown supporting dieback of lower order branching. No significant hollows or cavities were noted but the tree is passing maturity and is expected to have short to potentially medium term life span if its surrounding growing environment were left relatively unchanged. Any immediate changes to its immediate growing environment would be better managed through its removal and replacement with an alternate new tree planting so as to provide long term amenity for the immediate area.

6. RECOMMENDATIONS

a. That trees 1, 2 & 3 be removed and replaced with alternate tree plantings within the property boundaries as part of landscape works for the development.

b. That removal works be undertaken by a qualified Arboriculturist with appropriate competencies recognised within the Australian Qualification Framework, with a minimum of 5 years of continual experience within the industry of operational amenity arboriculture, and covered by appropriate and current types of insurance to undertake such works and in accordance with Work Cover NSW 2007, Code of Practice Tree Work.

c. That the replacement tree species to be planted, be an advanced specimen with stem gradually tapering, with crown symmetrical and roots established and proportional to the crown but not pot bound in at least a 25 litre volume bag, having been propagated to the standards of Specifying Trees a Guide to assessment of tree quality (2nd edition) by Ross Clark 2003, or approved similar.

Peter Richards
Tree & Landscape Consultants

Appendix A
Matrix - Sustainable Retention Index Value (S.R.I.V.)©

Developed by IACA – Institute of Australian Consulting Arboriculturists www.iaca.org.au (2009)

To be used with the values defined in the Glossary.
An Index value as indicated where ten (10) is the highest value.

Age Class	Vigour Class and Condition Class					
	Good Vigour & Good Condition (GVG)	Good Vigour & Fair Condition (GVF)	Good Vigour & Poor Condition (GVP)	Low Vigour & Good Condition (LVG)	Low Vigour & Fair Condition (LVF)	Low Vigour & Poor Condition (LVP)
	Able to be retained if sufficient space available above and below ground for future growth. No remedial work or improvement to growing environment required. May be subject to high vigour. Retention potential - Medium – Long Term.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work may be required or improvement to growing environment may assist. Retention potential - Medium Term. Potential for longer with remediation or favourable environmental conditions.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work unlikely to assist condition, improvement to growing environment may assist. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. No remedial work required, but improvement to growing environment may assist vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment may assist condition and vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	Unlikely to be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment unlikely to assist condition or vigour. Retention potential - Likely to be removed immediately or retained for Short Term. Potential for longer with remediation or favourable environmental conditions.
Young (Y)	**Index Value 9** Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height <5m. High potential for future growth and adaptability. Retain, move or replace.	**Index Value 8** Retention potential - Short – Medium Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Medium-high potential for future growth and adaptability. Retain, move or replace.	**Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**Index Value 1** Retention potential - Likely to be removed immediately or retained for Short Term. Likely to provide minimal contribution to local amenity if height <5m. Low potential for future growth and adaptability.
Mature (M)	**Index Value 10** Retention potential - Medium - Long Term.	**Index Value 9** Retention potential - Medium Term. Potential for longer with improved growing conditions.	**Index Value 6** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 2** Retention potential - Likely to be removed immediately or retained for Short Term.
Over-mature (O)	**Index Value 6** Retention potential - Medium - Long Term.	**Index Value 5** Retention potential - Medium Term.	**Index Value 4** Retention potential - Short Term.	**Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions.	**Index Value 2** Retention potential - Short Term.	**Index Value 0** Retention potential - Likely to be removed immediately or retained for Short Term.

Appendix B

Definitions & Terminology

From

Dictionary for Managing Trees in Urban Environments

Institute of Australian Consulting Arboriculturists (IACA) 2009.

Condition of trees

Condition A tree's *crown form* and growth habit, as modified by its *environment* (aspect, suppression by other trees, soils), the *stability* and *viability* of the *root plate*, trunk and structural branches (first (1st) and possibly second (2nd) order branches), including structural defects such as wounds, cavities or hollows, *crooked* trunk or weak trunk/branch junctions and the effects of predation by pests and diseases. These may not be directly connected with *vigour* and it is possible for a tree to be of *normal vigour* but in *poor condition*. Condition can be categorized as *Good Condition*, *Fair Condition*, *Poor Condition* and *Dead*.

Good Condition Tree is of good habit, with *crown form* not severely restricted for space and light, physically free from the adverse effects of *predation* by pests and diseases, obvious instability or structural weaknesses, fungal, bacterial or insect infestation and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it for its basic survival do not alter greatly. This may be independent from, or contributed to by vigour.

Fair Condition Tree is of good habit or *misshapen*, a form not severely restricted for space and light, has some physical indication of *decline* due to the early effects of *predation* by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or is faltering due to the modification of the *environment* essential for its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.

Poor Condition Tree is of good habit or *misshapen*, a form that may be severely restricted for space and light, exhibits symptoms of advanced and *irreversible decline* such as fungal, or bacterial infestation, major die-back in the branch and *foliage crown*, *structural deterioration* from insect damage e.g. termite infestation, or storm damage or lightning strike, ring barking from borer activity in the trunk, root damage or instability of the tree, or damage from physical wounding impacts or abrasion, or from altered local environmental conditions and has been unable to adapt to such changes and may decline further to death regardless of remedial works or other modifications to the local *environment* that would normally be sufficient to provide for its basic survival if in *good* to *fair* condition. Deterioration physically, often characterised by a gradual and continuous reduction in vigour but may be independent of a change in vigour, but characterised by a proportionate increase in susceptibility to, and *predation* by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processes, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be independent from, or contributed to by vigour..

Dead Tree is no longer capable of performing any of the following processes or is exhibiting any of the following symptoms;

Processes

Photosynthesis via its foliage crown (as indicated by the presence of moist, green or other coloured leaves);

Osmosis (the ability of the root system to take up water);

Turgidity (the ability of the plant to sustain moisture pressure in its cells);

Epicormic shoots or *epicormic strands* in Eucalypts (the production of new shoots as a response to stress, generated from latent or adventitious buds or from a *lignotuber*);

Symptoms

Permanent leaf loss;

Permanent wilting (the loss of turgidity which is marked by desiccation of stems leaves and roots);

Abscission of the *epidermis* (bark desiccates and peels off to the beginning of the sapwood).

Removed No longer present, or tree not able to be located or having been cut down and retained on a site, or having been taken away from a site prior to site inspection.

Description of Tree Dimensions

Height The distance measured vertically between the horizontal plane at the lowest point at the base of a tree, which is immediately above ground, and the horizontal plane immediately above the uppermost point of a tree.

Spread The furthest expanse of the crown when measured horizontally from one side of the tree to the other, generally through the centre of the trunk. Where the crown is not circular a measurement should be an average of the narrowest and widest diameters and this is dependent upon crown form and to a lesser extent its symmetry.

Crown Cover Percent of the homogenous distribution of foliage across the entire crown based upon that expected for a specimen of that species in good condition and of normal vigour, depending on form in situ, e.g. this may be influenced by crown die-back, proximity to other trees or structures, moisture stress, or overshadowing.

Vigour

Vigour Ability of a tree to sustain its life processes. This is independent of the *condition* of a tree but may impact upon it. Vigour can appear to alter rapidly with change of seasons (seasonality) e.g. *dormant*, deciduous or semi-deciduous trees. Vigour can be categorized as *Normal Vigour*, *High Vigour*, *Low Vigour* and *Dormant Tree Vigour.*

Normal Vigour Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

High Vigour *Accelerated growth* of a tree due to incidental or deliberate artificial changes to its growing *environment* that are seemingly beneficial, but may result in *premature aging* or failure if the favourable conditions cease, or promote *prolonged senescence* if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous *pollarding* practices over the life of the tree.

Low Vigour Reduced ability of a tree to sustain its life processes. This may be evident by the atypical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their functions with reduced resistance

to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

Dormant Tree Vigour Determined by existing turgidity in lowest order branches in the outer extremity of the crown, with good bud set and formation, and where the last extension growth is distinct from those most recently preceding it, evident by bud scale scars. Normal vigour during dormancy is achieved when such growth is evident on a majority of branches throughout the crown.
Poor Vigour See low vigour
Good Vigour See Normal Vigour

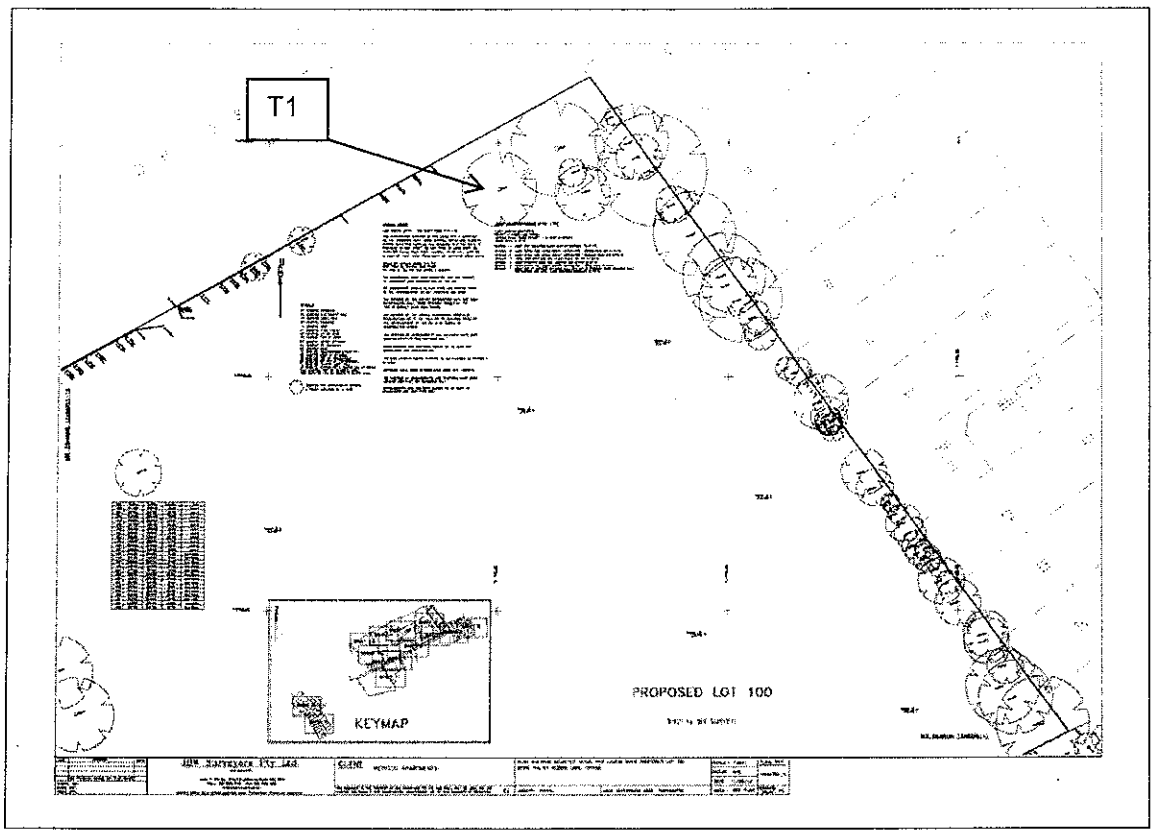
Age of Trees

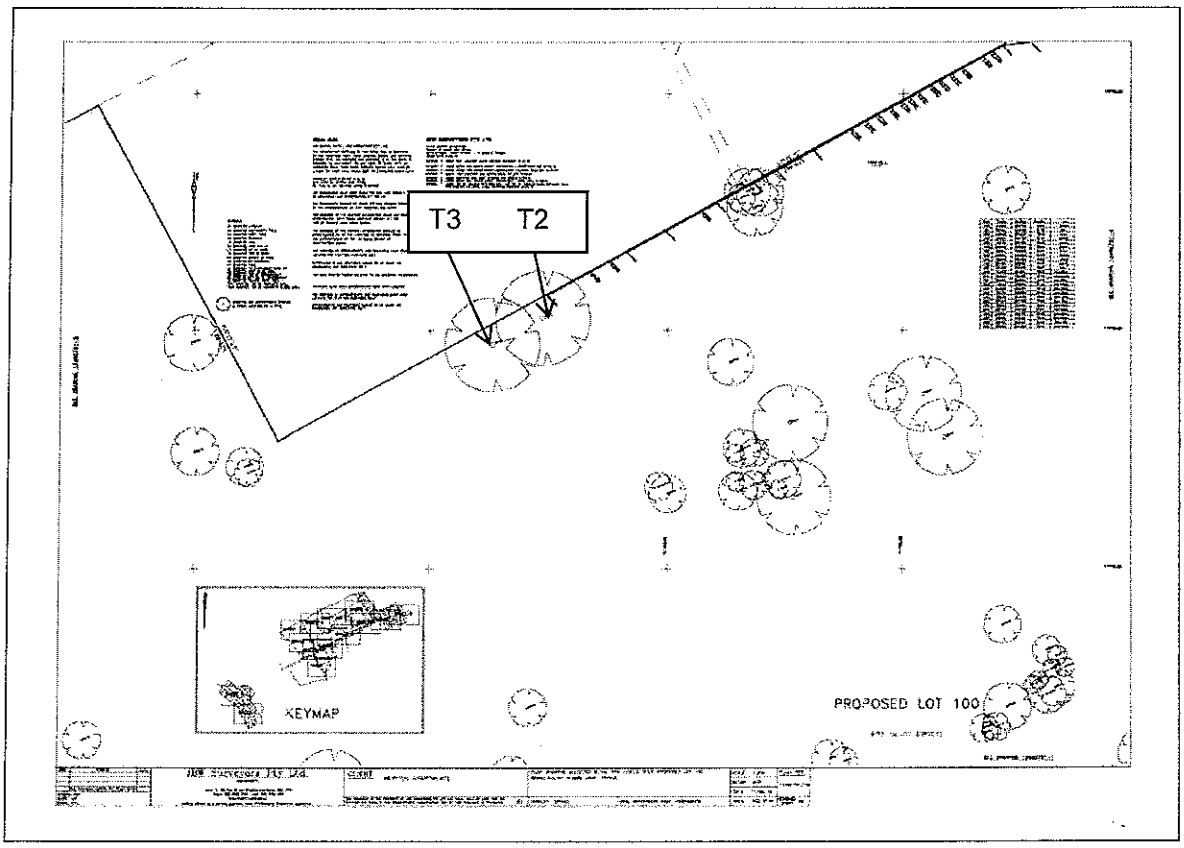
Age of Trees Most trees have a stable biomass for the major proportion of their life. The estimation of the age of a tree is based on the knowledge of the expected lifespan of the taxa in situ divided into three distinct stages of measurable biomass, when the exact age of the tree from its date of cultivation or planting is unknown. These increments are Young, Mature and Overmature.
Young Tree aged less than 20% of life expectancy.
Mature Tree aged 20-80% of life expectancy.
Over-mature Tree aged greater than 80% of life expectancy tending to senescent with or without reduced vigour, and declining gradually or rapidly but irreversibly to death.
Sapling A young tree, early in its development with small dimensions.
Senescent Advanced old age, over-mature.

General Terms

Significant Important, weighty or more than ordinary.
Significant Tree A tree considered important, weighty or more than ordinary. Example: due to prominence of location, or in situ, or contribution as a component of the overall landscape for *amenity* or aesthetic qualities, or *curtilage* to structures, or importance due to uniqueness of taxa for species, subspecies, variety, form, or as an historical or cultural planting, or for age, or substantial dimensions, or habit, or as remnant vegetation, or habitat potential, or a rare or threatened species, or uncommon in cultivation, or of aboriginal cultural importance, or is a commemorative planting.
Substantial A tree with large dimensions or proportions in relation to its place in the landscape.
Excurrent Tree where the crown is comprised of one (1) dominant first order structural branch which is usually an extension of the trunk, erect, straight and continuous, tapering gradually, with the main *axis* clear from base to apex, e.g. *Araucaria heterophylla* - Norfolk Island Pine. Note: some tree species of *typical* excurrent habit may be altered to deliquescent by physical damage of the *apical meristem*, or from top lopping, or from the propagation of inferior quality stock. However, *formative pruning* may be able to correct a *crown* to excurrent if undertaken when a tree is *young*.
Sustainable Retention Index Value (SRIV) A visual method of rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria. SRIV© is for the professional manager of urban trees to consider the tree in situ with an assumed knowledge of the taxa and its growing environment and is based on the physical attributes of the tree and its response to its environment considering its age class, vigour class, condition class and its sustainable retention with regard to the safety of people or damage to property and the ability to retain the tree with remedial work or beneficial modifications to its growing environment or removal and replacement. (IACA 2005)
Crown Spread Orientation Direction of the *axis* of *crown spread* which can be categorized as *Orientation Radial* and *Orientation Non-radial.*
Diameter at Breast Height (DBH) Measurement of trunk width calculated at a given distance above ground from the base of the tree often measured at 1.4 m. The trunk of a tree is usually not a circle when viewed in cross section, due to the presence of *reaction wood* or *adaptive wood*, therefore an average diameter is determined with a *diameter tape* or by recording the trunk along its narrowest and widest axes, adding the two dimensions together and dividing them by 2 to record an average and allowing the orientation of the longest axis of the trunk to also be recorded. Where a tree is growing on a lean the distance along the top of the trunk is measured to 1.4m and the diameter then recorded from that point perpendicular to the edge of the trunk. Where a *leaning* trunk is *crooked* a vertical distance of 1.4m is measured from the ground. Where a tree branches from a trunk that is less than 1.4m above ground, the trunk diameter is recorded perpendicular to the length of the *trunk* from the point immediately below the base of the flange of the *branch collar* extending the furthest down the trunk, and the distance of this point above ground recorded as *trunk* length. Where a tree is located on sloping ground the DBH should be measured at half way along the side of the tree to average out the angle of slope. Where a tree is *acaulescent* or *trunkless* branching at or near ground an average diameter is determined by recording the radial extent of the trunk at or near ground and noting where the measurement was recorded e.g. at ground.
Periods of Time The life span of a tree in the urban environment may often be reduced by the influences of encroachment and the dynamics of the environment and can be categorized as *Immediate*, *Short Term*, *Medium Term* and *Long Term*.
Short Term A period of time less than <1 – 15 years. See also *Periods of Time*, *Immediate*, *Medium Term* and *Long Term*.
Medium Term A period of time 15 ~ 40 years. See also *Periods of Time*, *Immediate*, *Short Term* and *Long Term*
Long Term A period of time greater than >40 years. See also *Periods of Time*, *Immediate*, *Medium Term* and *Short Term.*

Appendix C
Tree Locations





Appendix D
References

REFERENCES

1. IACA (2009), Sustainable Retention Index Value, Institute of Australian Consulting Arboriculturists, www.iaca.org.au .

2. Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

3. Work Cover NSW 2007, *Code of Practice Tree Work*, New South Wales Government, Australia.