Tree Assessment

2 Smith Street
Summer Hill NSW.

Prepared by:
Stuart Pittendrigh ***FAILA MAIH Arb. Aust.***
Registered Landscape Architect
Horticulturist / Registered Consultant Arborist
September 2012

Introduction

This Tree Report was prepared at the request of Hassell Landscape Architecture on behalf of their client.

The report is to assist the design and development of the site known as 2 Smith Street Summer Hill NSW.

The report addresses the two trees growing within the landscape area that surround the car park located at the intersection of Smith and Edward Street Summer Hill. Refer to the attached Survey Plan. Reference 07/0321 prepared by Watson Buchan dated 15-01-2008 marked Tree Location Plan TP 01 for the location of the tree assessed.

Information contained in this tree report covers only those trees that was examined and reflects the condition of the tree at the time of inspection.

The report is prepared in accordance with **Section 2 Planning and the Tree Management Process Cl. 2.3.2 Preliminary Tree Assessment of AS 4970-2009 Protection of tree on development sites.**

Stuart Pittendrigh *Consultant Arborist* conducted the site assessment on 25-09-2012

The Site

2 Smith Street Summer Hill NSW.

Aims

The aims of this report are to:

- Refer to Council's policies and Tree Protection Order regarding the preparation of Arboricultural Reports
- Identify the subject tree
- Appraise and assess the trees' condition, health & structure at the time of inspection
- Determine the Safe Useful Life Expectancy (SULE) of the tree (s)

Methodology

The comments and recommendations in this report are based on observations and findings from the site inspection.

The trees were assessed from ground observation using standard methods of visual assessment criteria. No probing or coring, testing of woody tissue. No non invasive root investigations were carried out

Tree health was determined by:

Canopy density, extension growth, foliage size applicable to the species, and colour.
Presence of pest and disease
Termite activity
The amount of deadwood and dieback throughout the crown
Small branch and twig dieback and
Presence of epicormics

Tree structure was assessed by:

Visual evidence of structural faults and potential points of failure
Evidence of past poor pruning practices
Physical and or storm damage

The heights of the trees were measured using an electronic clinometer; the crown spread and trunk diameters were measured at breast height (DBH). The stem diameters above the root buttress (DRB) were determined using a measuring tape in accordance with **AS 4970 –2009 Protection of trees on development sites.**

The nominated Tree Protection Zones and Structural Root Zones were determined by applying the methodology detailed in **Section 3 of AS 4070-2009 Protection of trees on development sites.** Refer to **Appendix A - Terms used in tree report.**

Individual Tree Assessment.

Tree 1

Botanical Name.	Callistemon viminalis
Common Name.	Weeping bottlebrush
Age class.	Mature
Height.	11m.
Spread.	12m.
Trunk DCH.	2 x 350mm, 375mm and 380mm.
TPZ	15m. radius
DRB	930 mm.dia.
SRZ	3.2m. radius
SULE	2a

Landscape Amenity Rating 2.

An evergreen native tree introduced to the site, the species is not considered rare or endangered. The tree is in good condition and displays a full broad crown of healthy foliage; the weeping form is typical of the species.

The tree is located within an area that is surrounded by raised concrete and sandstone capped brick edgings that have most likely acted as a root barrier to prevent the shallow surface roots from invading the adjacent grassed areas. Clipped evergreen shrubs are planted around the base of the tree.

Small branch and twig die back observed throughout the crown, the union of the co-dominant stems is strong. The structure and form of the tree has been modified by past pruning.

The proposed development exceeds an acceptable encroachment within the Structural Root Zones of the trees as defined by AS4970-2009 The Protection of Trees on Development Sites and would need to be removed to accommodate the proposed development.

Tree 2

Botanical Name.	Ulmus parvifolia
Common Name.	Chineese Elm
Age class.	Mature
Height.	11m.
Spread.	23m.
Trunk DCH.	490mm, 690mm, 940mm
TPZ	15m. radius
DRB	1400 mm.dia.
SRZ	3.8m. radius
SULE	2a

Landscape Amenity Rating 3.

A deciduous tree introduced to the site the species is not considered rare or endangered. The tree at the time of assessment was just coming into leaf following its winter dormant period.

The tree is located within an area that is surrounded by a sandstone capped low brick wall, a raised concrete kerb and areas of open lawn.

The tree is in average condition and appears to be approaching over maturity as indicated by the extent of epicormic growth, the thinning crown, small branch and twig die back, dead wood and declining vigour.

The union of the co-dominant stems on the western elevation displays sharp angles of attachment with included bark (weak union) whilst the union of the stem on the eastern elevation has a bark ridge up in the crotch is stronger. The structure and form of the tree has been modified by past pruning.

Given the current health and condition of the tree and that its roots are most likely growing beneath the driveway I am of the view that the tree will not survive the perceived construction impacts (22% encroachment into the TPZ).
Therefore I recommend that the tree will be removed to accommodate the proposed development.

Stuart Pittendrigh
Registered Consultant Arborist.

.

References

Fakes, J. (2004)
Introduction to Arboriculture RYDE TAFE

Hewett, P. in National Arborists Association of Australia (1997)
Assessing Hazardous Trees and their Safe Useful Life Expectancy, **NAAA Workshop, June 1997**

Jeremy Barrel SULE- Data collection & SULE 11 Presentation of Data in association with the National Arborists Association of Australia (2001)
Management of Mature Trees Seminar & Workshops 2001

Richard W. Harris
Arboriculture – Integrated Management of Landscape Trees

P.W. Hadlington & J.A. Johnston
Australian Trees – Their Care & Repair

Proceedings of an International Workshop on Trees & Buildings
Edited by Dr. Gary Watson and Dr. Dan Neely.
Trees & Building Sites

Standards Australia **AS 4970 Protection of trees on development sites.**

Appendix A

Terms used in Tree Report

Age Class

(Y)-*Young* *refers to a well established but juvenile tree.*
(SM)-Semi-mature *refers to a tree at growth stages between immaturity and full size. A tree that has reached First Adult Form i.e. displays adult characteristics.*
(M)-Mature *refers to a full size tree with some capacity for further growth.*
(OM)-Over-mature *refers to a tree approaching decline or already declining.*

Health *refers to the trees vigour, growth rate, disease and/or insects.*

Condition *summarises observations about the health and structure of the tree on a scale of 1-5*
(*G*) *Good, (F) Fair, (A) Average, (P) Poor* *and* **(*VP*) *Very Poor***
SRZ)
Height *expressed in metres refers to estimated overall height of tree*

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

Diameter at Breast Height (DBH) *expressed in millimetres refers to the trunk diameter at 1.4 meters above ground level.*

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

(TPZ) Tree Protection Zone (TPZ) *refers to a specific radial offset expressed in metres to provide a specified area above and below the ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.*
The TPZ shall be calculated as a radial measurement based on twelve times the Diameter at Breast Height (DBH). A TPZ shall not be less than 2m.radius nor greater than a 15m radius as measured from the centre of the stem at ground level.

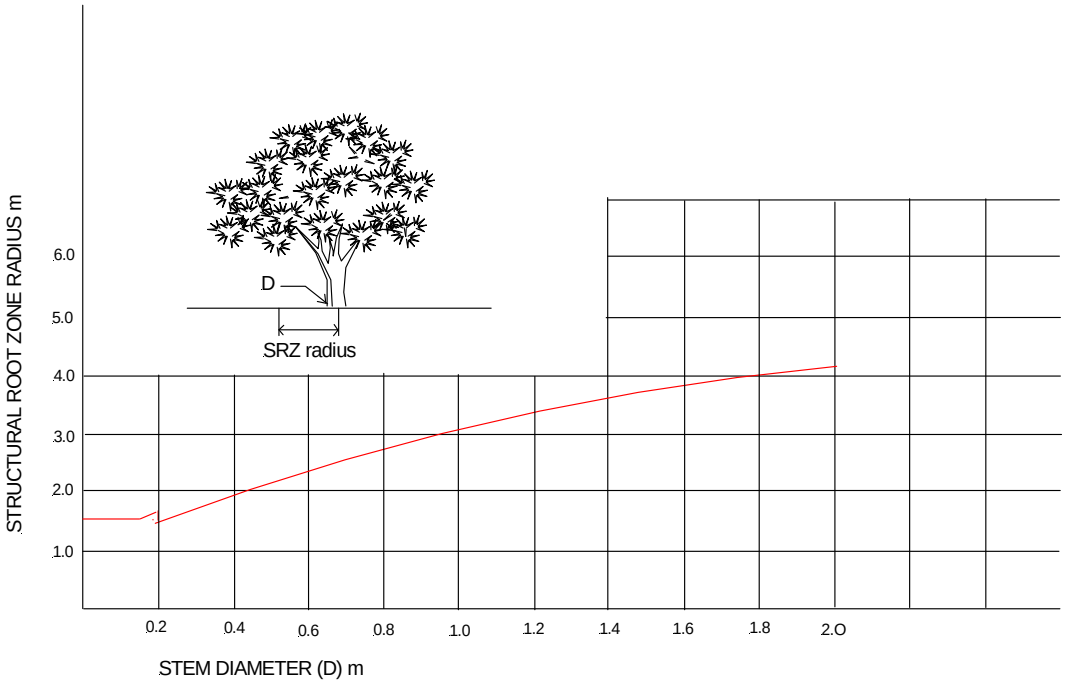
If an encroachment is less than 10% of the area of the TPZ and is outside the Structural Root Zone (SRZ) detailed root investigation should not be required. However if the proposed encroachment is greater than 10% or inside the SRZ root investigation by non-destructive methods may be required.

Non-destructive investigation methods may include pneumatic, hydraulic or penetrating radar.

Any encroachment should be compensated for elsewhere and be contiguous with the TPZ.

Structural Root Zone SRZ) *The area around the base of a tree required for the tree's stability in the ground that is necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.*

This zone considers a tree's structural stability only, ***not*** *the root zone required for a tree's vigour and long term viability, which will usually be a much larger area.*



The curve can be expressed by the following formula

$R_{SRZ} = (D \times 50)^{0.42 \times 0.64}$

NOTES

1. R_{SRZ} is the structural root zone radius
2. D is the stem diameter measured immediately above to root buttress
3. The SRZ for trees less than 0.15 m diamater is 1.5m
4. The SRZ formula and graph do not apply to palms, other monocots, cycads & tree ferns
5. This does not apply to trees with an asymmetrical root plate

STRUCTURAL ROOT ZONE

S.U.L.E. ***Safe useful Life Expectancy*** *Refer to attachment*

Landscape Amenity Rating Scale

The landscape amenity value provided by trees indicates:

- How highly the tree is regarded as part of the local landscape
- How the tree provides and enhances the visual quality of the site
- The importance of the tree's historical and cultural significance
- The provision of habitat and vegetation linkages within development sites, streetscapes, recreation areas or open space.

The protection, preservation and enhancement of the landscape amenity, particularly community and residential amenity are a core objective of site design, land use and planning.

The following rating scale is designed to assist in the site planning process for the proposed site works/development. Each tree in Schedule B is rated accordingly.

No 1 Rating

- ***Recognised landmark***
- ***Contributes to high visual amenity***
- ***Major contribution to the sites landscape amenity***
- ***Excellent condition, health, structure and form***
- ***Forms part of a listed Critically Endangered Ecological Community***
- ***Significant introduced native species that has successfully adapted to the site conditions and environment.***
- ***Significant introduced evergreen or deciduous species that has successfully adapted to the site conditions and environment***
- ***Indigenous to the locality***
- ***Significant remnant species indigenous to site and locality***
- ***Historic importance***
- ***Cultural importance***
- ***Recorded on significant tree register***
- ***Listed as a threatened species***
- ***Identified habitat tree***
- ***Contributes to the bio-diversity of native vegetation within the locality***

No 2 Rating

- ***Contributes to good visual amenity***
- ***Makes substantial contribution to the sites landscape amenity***
- ***Good/Fair condition, health, structure and form***
- ***Forms part of a listed Critically Endangered Ecological Community***
- ***Indigenous to the locality***
- ***Remnant species indigenous to site and locality***
- ***Introduced native species that has adapted to the site conditions and environment.***
- ***Introduced evergreen or deciduous species that has adapted to the site conditions and environment***
- ***Listed as a threatened species***
- ***Possible habitat tree***
- ***Contributes to the bio-diversity of native vegetation within the locality***

No 3 Rating

- ***Minor contribution to the sites landscape amenity***
- ***Fair/Average condition, health, structure and form***
- ***Average/poor visual amenity***
- ***Indigenous to the locality***
- ***Introduced species***
- ***Forms part of a listed Critically Endangered Ecological Community***
- ***Growth and development suppressed***
- ***Wounds, structural fault extensive storm damage***
- ***Observance of Pests and disease impacting on health and condition.***
- ***Hazardous trees***

No 4 Rating

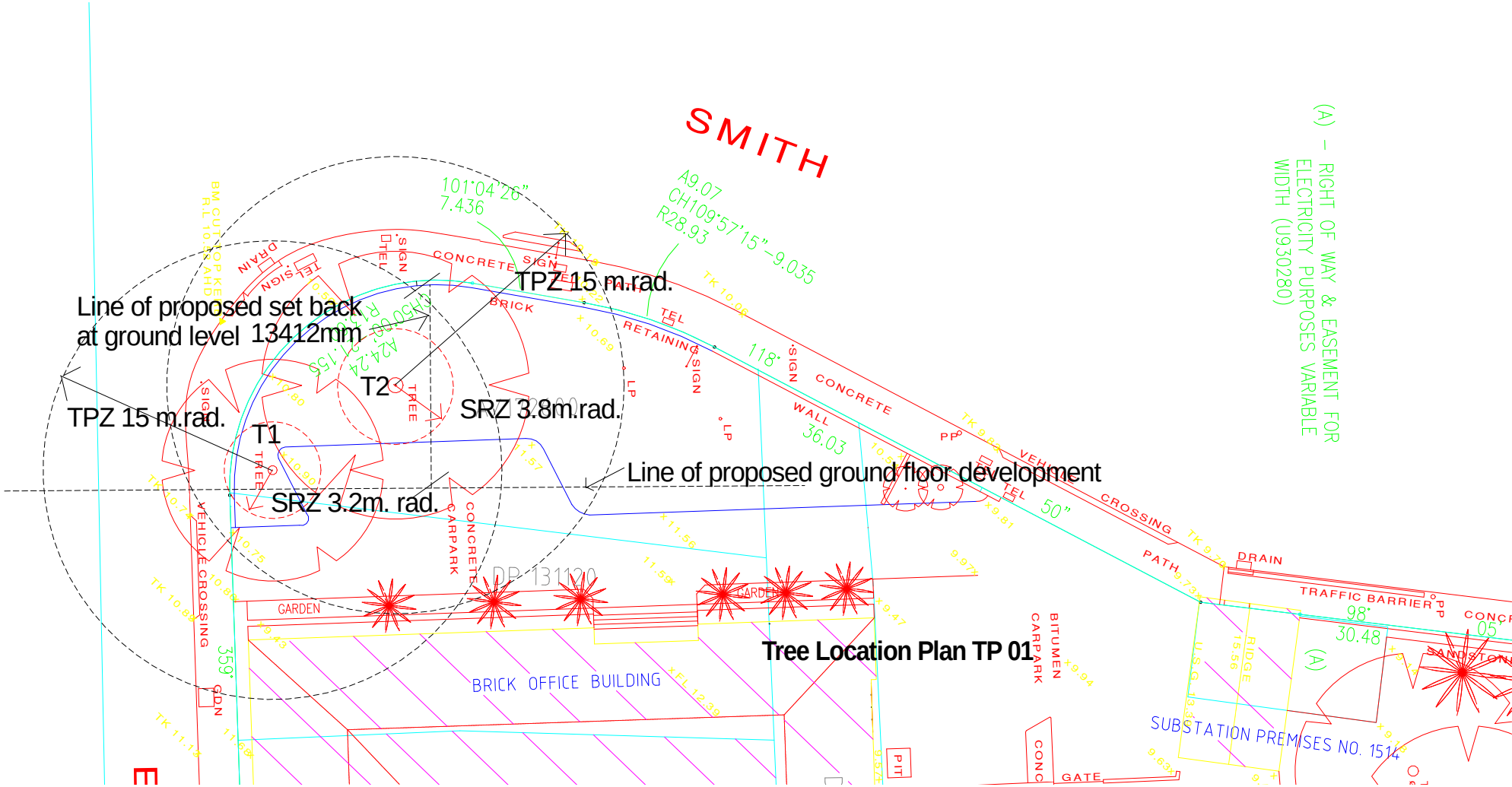
- ***Little or no contribution to the sites landscape amenity***
- ***Poor/very poor visual amenity***
- ***Growth and development over-mature / suppressed***
- ***Major structural faults that cannot be mitigated***
- ***Recognised invasive or weed species***
- ***Dangerous tree***
- ***Species unsuitable for site conditions and environment***
- ***Species exempt LGA Tree Protection Order/Management Plan***

NOTES ON SAFE USEFUL LIFE EXPECTANCY (SULE RATING) AS USED IN TREE DESCRIPTION TABLE

In a planning context the time a tree can expect to be usefully retained is the most important long-term consideration. Safe Useful Life Expectancy (SULE) 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, effects on better trees and sustained amenity (Barrel! 1993 and 1995). Trees with short SULE may 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.

SULE categories

	1 LONG SULE	2 MEDIUM SULE	3 SHORTSULE	4 REMOVALS	5 MOVED OR REPLACED
A	Long: appeared to be retainable alt the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Medium: appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Short- appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance.	Removal: trees which should be removed within the next 5 years.	Moved or Replaced: Trees which can be readily moved or replaced
B	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live between 15 and 40 more years	Trees that may only live between 5 and 1 5 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions	Small trees less than 5 metres (m) in height
C	Trees that could be made suitable for long-term retention by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through damage, structural defect, instability or recent toss of adjacent trees.	Young trees less than 1 5 years old but over 5m in height
D	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Dangerous trees through structural detects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth'
E		Trees that could be made suitable for retention in the medium term by remedial tree care	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are' clearly not safe to retain	
F				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting	
G				Trees that are damaging or may cause damage to existing structures within 5 years	
H				Trees that will become dangerous after removal of other trees for the reasons given in A) to F).	


SMITH
Line of proposed set back
at ground level 13412mm
TPZ 15 m.rad.
T2
SRZ 3.8m.rad.
TPZ 15 m.rad.
T1
SRZ 3.2m. rad.
Line of proposed ground floor development
Tree Location Plan TP 01
BRICK OFFICE BUILDING
SUBSTATION PREMISES NO. 1514
(A) – RIGHT OF WAY & EASEMENT FOR
ELECTRICITY PURPOSES VARIABLE
WIDTH (U930280)
DP 131120
101°04'26"
7.436
A9.07
CH109°57'15"-9.035
R28.93
118°
50"
98°
30.48
359°
36.03