Tree (Safety) Management Plan

Commissioned by:

ABC Example 2

Produced by:

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SUMMARY

Enviro Frontier Tree Management was engaged by ABC Site example 2 to produce this tree safety management plan.

The subject site was located at Neutral Bay NSW. The site is located within the Local Government Area of North Sydney. The local consent authority is North Sydney Council.

The client has requested this tree management plan as part of a pro-active approach to tree health and safety management for the subject site and an overview of budget requirements.

No written brief outlining the client's objectives was supplied for the purpose of producing this report.

The client's representative raised concerns regarding the health and condition of the tree population at the subject site. The client's representative requested that tree management issues relating to public safety/ liability, reduction of maintenance costs, suitable replacement species, site amelioration and appropriate tree placement be addressed.

The purpose of this tree management plan is to address client concerns and provide a reference guide for "best arboricultural practice" at the subject site for a five year period.

A site inspection for the purpose of gathering field notes was carried out by consulting arborist Glenn Holden (Level 5 Arborist) of Enviro Frontier Tree Management in the month of September 2011

Sixty seven trees/palms were surveyed for the purpose of producing this tree management plan. A number of the subject trees exhibited high landscape significance due primarily to the subject site history.

A tree management safety plan is a moderate to long term project where the initial capital outlay is rewarded with significantly reduced maintenance costs in the moderate to long term, and an open space area that is greatly enhanced in the areas of, safety, reduced maintenance costs, aesthetic appeal and ecological biodiversity.

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MAP 1. Site Location Map: The subject site. Not to scale. (Google Maps 2011.)

1. METHODOLOGY

1.1 Site Inspection Methodology:

A site inspection for the purpose of gathering field notes was carried out by consulting arborist Glenn Holden of Enviro Frontier Tree Management in the month of September 2011. Approximately 6 hours was spent onsite gathering field notes.

Field notes were recorded electronically on a PDA (Personal Digital Assistant). The summary of observations (table 1) was produced on an Excel® spread-sheet and is a duplicate of notes gathered whilst in the field.

1.2 Tree Survey Methodology:

My verbal brief from the client requested that trees be surveyed for the purpose of producing this tree (safety) management plan.

The subject trees were inspected from the ground only using VTA (Visual Tree Assessment).

The hazard rating, significance rating and retention value awarded the subject trees were calculated off site by utilising field notes.

Tree height and average crown diameter were estimated without the use of a clinometer. The DBH (Diameter at Breast Height) of the subject trees was measured with a metric measuring tape at 1.3 metres above ground level. Multi-stemmed specimens were measured at the widest stem.

I did not carry out drilling or Resistograph® assessment to assess stem/buttress structural integrity. I did not collect and send tissue samples for pathology testing. I did not conduct aerial inspections of the subject trees.

1.3 Research Methodology:

Site specific local government and other planning instruments relevant to the subject site and it' tree population were referenced online.

Every effort was made to obtain information from reliable sources.

2. ASSUMPTIONS

The comments and recommendations in this Tree Management Plan assume the following:

2.1 Any safety concerns relating to the existing health and condition of the subject trees needed to be identified.

The amenity of adjoining neighbours needed to be considered.

The retention of the subject trees and preservation of the streetscape and landscape character was desired.

Removal of trees is considered a last resort option.

Consideration for potential wildlife habitat and related ecological issues was to be considered.

Federal, state, local, cultural heritage and environmental planning instruments needed to be addressed.

Information obtained from the client's representative and sourced information was accurate.

3. OBSERVATIONS

3.1 The Site:

The site was located within the Local Government Area of North Sydney. The local consent authority was North Sydney Council.

3.2 Site Usage:

Site usage is for strata.

3.3 Relevant Planning & Environmental Instruments:

The following planning and environmental instruments were relevant to the subject site;

- Local Government Act (1993)
- EPA Act (1989)
- North Sydney Council LEP (1989)
- North Sydney Council Tree Preservation Order (2006)
- North Sydney DCP 2002

4. Age of Surveyed Tree Population as a Percentage (0-100%):

4.1 Tree Age:

Details the age class awarded to the relevant number and percentage of trees surveyed:

Juvenile/Young – 0 trees or 0% of the tree population surveyed
Semi-mature - 12 trees or 18% of the tree population surveyed
Mature - 55 trees or 82% of the tree population surveyed

4.2 Tree/Palm quantity

Details the relevant number and percentage of trees to palms surveyed:

Trees - 19 trees or 28% of the surveyed tree/palm population.
Palms - 48 trees or 72% of the surveyed tree/palm population.

4.3 Risk rating

Details the relevant number and percentage of hazard rating for individual/grouping of tree and palms surveyed:

Rating 1 (Very minor hazard) – 18 or 27%
Rating 2 (Minor hazard) – 12 or 18%
Rating 3 (Medium hazard) – 30 or 45%
Rating 4 (High hazard) – 6 or 9%
Rating 5 (Very high hazard) – 1 or 1%

4.3 Risk Review

Details the required risk as per assessment by the relevant number and percentage of trees/palms surveyed:

Canopy lift (pathway for pedestrians) – 9 trees or 13% of the surveyed tree population
Canopy thin& deadwood – 2 trees or 3% of the surveyed tree population
Clear from building & other works – 6 tree or 9% of the surveyed tree population
Seed pods and dead fronds – 38 trees or 57% of the surveyed tree population
Prune for wires – 2 trees or 3% of the surveyed tree population
Removal – 8 trees or 12% of the surveyed tree population
No work or monitor – 2 trees or 3% of the surveyed tree population

4.4 Works outline

Details the required works as per assessment by the relevant number and percentage of trees/palms surveyed:

Canopy lift (pathway for pedestrians) – 9 trees or 13% of the surveyed tree population
Canopy thin& deadwood – 2 trees or 3% of the surveyed tree population
Clear from building & other works – 6 tree or 9% of the surveyed tree

population
Seed pods and dead fronds – 38 trees or 57% of the surveyed tree population
Prune for wires – 2 trees or 3% of the surveyed tree population
Removal – 8 trees or 12% of the surveyed tree population
No work or monitor – 2 trees or 3% of the surveyed tree population

TABLE 1. Summary of Observations, Comments & Recommendations:

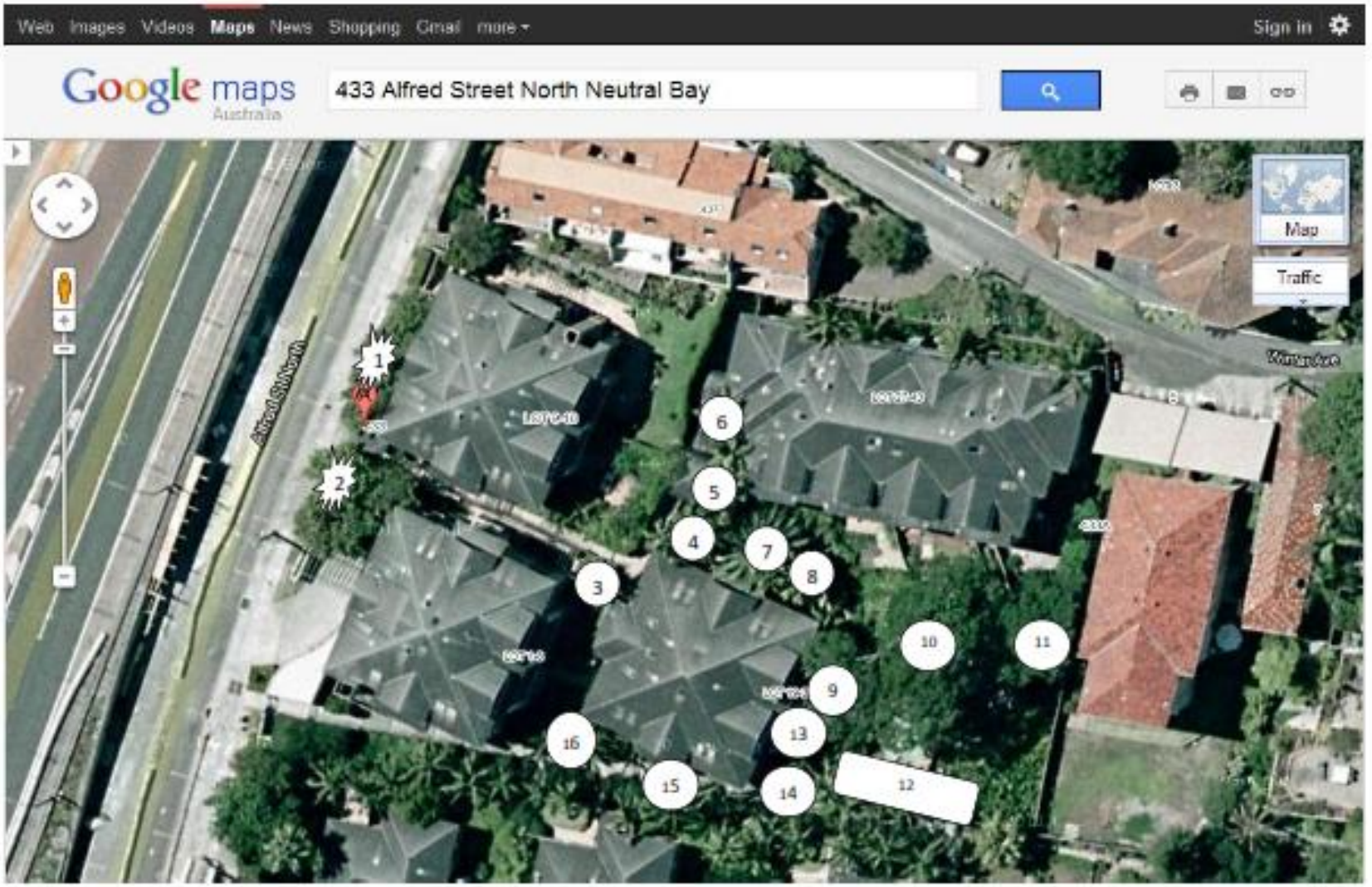
no.	Species	Age	Height (mtrs)	Trunks	DBH	Form	Crown spread	Crown class	live crown ratio	Vigour	Epicormic growth	Limb die back	Works to be done	Risk Rating	By years end 2011	Mid 2012	Annual Budget 2013 & each year after
1	Rainforest	semi-mature	4	5 x trees	120mm	symmetrical	4m each	Co-dominant	50%	normal	minor	0	Lift off foot path	3		$ 240.98	
2	Rainforest	semi-mature	5	5 x trees	200mm	symmetrical	4m each	Co-dominant	50%	normal	minor	1 tree	Remove 1 in decline - lift others over footpath	3	$ 321.30		
3	Bangalow Palm	semi-mature	6	1	200mm	symmetrical	4m	Dominant	80%	normal	seed pods	Seasonal	Remove seed pods & dead fronds	2		$ 160.65	$ 160.65
4	Washingtonian Palm	mature	15	1	250mm	symmetrical	4m	Dominant	60%	poor	-	Decline	Remove & stump grind - in decline and elevated root ball	4	$ 706.86		
5	Livastona Palm	mature	12	2 x Palms	250mm	symmetrical	4m	Dominant	80%	normal	-	Seasonal	Prune away from building & dead fronds	3		$ 240.98	$ 240.98
6	Bangalow Palm	mature	12	2 x Palms	250mm	symmetrical	4m	Dominant	80%	normal	seed pods	Seasonal	Prune off roof & seed pods	2		$ 160.65	$ 160.65

7	Phoenix Palm	mature	10	1	600mm	symmetrical	8m	Dominant	100%	normal	-	Seasonal	Pineapple shape so as to leave even & pruned away from roof	5	$ 642.60		$ 321.30
8	Washingtonia Palm	mature	16	2 x Palms	300mm	symmetrical	5m	Dominant	100%	normal	seed pods	Seasonal	Remove 1 x palm closest to Phoenix & seed pods & dead fronds on other	3	$ 963.90		$ 321.30
9	Bangalow Palm	mature	6-10m	5 x Palms	250mm	symmetrical	4m each	Co-dominant	80%	normal	seed pods	Seasonal	Prune off roof & seed pods	3		$ 321.30	$ 321.30
10	Moreton Bay Fig	mature	18m	1	750mm	asymmetrical	18m	Dominant	40%	normal	Deadwood	Annual	Deadwood & review	2	$ 642.60		$ 214.20
11	Cheese Tree	mature	10m	2	500mm	asymmetrical	10m	Dominant	50%	poor	Cavities	As required	Mulch base, minor deadwood canopy prune, monitor	1		$ 706.86	$ 235.62
12	Bangalow Palm	mature	6-10m	9 x Palms	200mm	symmetrical	4m each	Co-dominant	80	normal	seed pods	Seasonal	Remove 3 beside pool deck & dead fronds & seed pods on others	3	$ 963.90		$ 240.98

13	Bangalow Palm	mature	10m	1	200mm	symmetrical	4m each	Dominant	80%	normal	-	Seasonal	Prune off roof	2		$ 321.30	$ 160.65
14	Livastona Palm	mature	6m	1	200mm	symmetrical	4m	Dominant	80%	normal	-	Seasonal	Tidy up dead fronds	1		$ 321.30	$ 160.65
15	Bangalow Palm	mature	7m	2 x Palms	200mm	symmetrical	4m each	Dominant	80%	normal	seed pods	Seasonal	Seeds pods & roof & remove smaller trunk	3	$ 321.30		$ 160.65
16	Bangalow Palm	mature	7m	2 x Palms	200mm	symmetrical	4m each	Dominant	50%	normal	seed pods	Seasonal	Seed pods	1		$ 160.65	$ 160.65
17	Bottlebrush	mature	5m	multi	120mm	asymmetrical	5m	Co-dominant	70%	normal	minor	As required	Prune branches heading for wires	2		$ 240.98	$ 120.49
18	Cheese Tree	mature	7m	multi	350mm	asymmetrical	9m	Dominant	60%	normal	minor	As required	Prune from wires & pole	4	$ 240.98		$ 80.33
19	Washingtonia Palm	mature	15m	1	250mm	symmetrical	4m	Dominant	80%	normal	-	Seasonal	Prune out dead fronds	2		$ 642.60	$ 321.30
20	Bangalow Palm	mature	8-10m	4 x Palms	200mm	symmetrical	4m	Dominant	80%	normal	seed pods	Seasonal	Seed pods	2		$ 963.90	$ 321.30
21	Cypress Pine	semi mature	8m	multi	120mm	asymmetrical	5m	Co-dominant	60	normal	deadwood		Remove - lifting pathway & inclusions	4	$ 642.60		
22	Bangalow Palm	mature	6-10m	12 x Palms	200mm	symmetrical	4m each	Dominant	80%	normal	seed pods	Seasonal	Seed pods & dead fronds	1		$ 963.90	$ 321.30
23	Blueberry Ash	mature	8m	1	200mm	symmetrical	5m	Dominant	80%	normal		As required		1		$ -	
24	Magnolia	mature	6m	1	240mm	symmetrical	7m	Dominant	80%	normal	-	As required	Prune off building	4		$ 321.30	$ 160.65

25	Blue Gum	semi-mature	12m	1	220mm	symmetrical	8m	Dominant	70%	normal	good		Remove as to close to building - future foundation damage	4	$ 803.25		
26	Washingtonia Palm	mature	18m	1	320mm	symmetrical	4m	Dominant	60%	normal	fair	As required	monitor bend at top annually	2		$ -	
27	Magnolia	mature	6m	1	300mm	symmetrical	5m	Dominant	70%	normal	good	As required	Prune off building	4	$ 481.95		$ 240.98
														TOTAL	**$ 6,731.24**	**$ 5,767.34**	**$ 4,425.91**

MAP 2: SITE MAP OF TREE/PALM LOCATIONS



ABC Site Example 2 /Tree Management Plan.

ABC Site Example 2 /Tree Management Plan.

TREE HAZARD CLASSIFICATION

The Hazard categories listed below (provided by Australian Tree Consultants) are applicable under normal weather conditions – squails and storms have the capacity to destroy many trees regardless of their age and condition.

Hazard Category	Hazard Ratings	Description	Time Frame
1	Very minor hazard	The tree appears healthy but is of a type or condition to potentially develop minor branch drop of live or dead wood	Remedial tree works required at a time frame to be scheduled by client – some trees will/may require annual maintenance
2	Minor hazard	The tree appears healthy, minor defects that can be rectified by minor tree surgery	Remedial tree works required at a time frame to be scheduled by client – some tree will/may require annual maintenance
3	Medium hazard	Mature to aged tree in declining condition, and/or structure, and/or disease apparent, showing potential for branch drop	Remedial tree works required at a time frame to be scheduled by client – some tree will/may require annual maintenance
4	High Hazard	The tree shows signs of over weighted limbs, major deadwood/limb loss, root damage, other significant defects present	Remedial tree work required as soon as possible
5	Very high hazard	Defects are very severe, dangerous trees because of structural defetcts including cavities, decay, included bark, wounds or poor form	Remedial tree work required as soon as possible

5. DISCUSSION

5.1 The Management of Mature Trees:

A hazard assessment of the subject trees was conducted as part of this tree management plan. (Not all trees on-site were assessed.) Sometimes tree hazards are obvious and at other times the hazard is not made apparent until the tree has failed. It is therefore impossible to accurately assess the failure potential of each and every tree.

The key management aspect on this site is that of the 67 trees reported 72% were palms and 28% trees. Of the trees/palms reported on site 18% were semi-mature and 82% mature.

The majority of the palms on site are Bangalow variety –

"It is a slender graceful palm with prominent crown shaft of green or brownish green. On a mature palm the pink-mauve flowers cascade from the base of the shaft and are followed by the fruits, which redden on maturity. Unlike the common Cocos palm, the Bangalow palm is self-cleaning (naturally sheds old fronds) and has a shallow fibrous root system that doesn't attack building foundations, underground sewer or drainage pipes."

For this strata site the Palms will require an annual maintenance program. Even though the Bangalow fronds and seed pods are not excessive compared to Cocos or even Phoenix Palms, it is *their location* that demands the need for ongoing maintenance. The palms seed will produce annually and as the majority of palms outlined are over pathways, pool area or private entrance ways there is a risk factoring at certain periods of the year that will range from 2 to 4. The other risk factor with the palms is their close proximity to buildings. As noted in several cases specific palms fronds were causing or had potential to cause damage to tiles and guttering.

5.2 What are the risks?

"Although trees provide many benefits to people and environments, they also pose risks. Property can be damaged and people injured or killed when trees fail. Trees, however, cannot be neatly separated into hazardous and non hazardous groups. Nearly every tree has some potential to fail, particularly when exposed to a catastrophic storm. Complete tree safety could not be attained without removing most trees. (Arboricultural managers must not only be able to evaluate tree hazard potential, but also to convey the relative risk of failure to the tree owners. Together the arborist and owner can evaluate the situation and determine which treatment options combine suitable reduction in tree hazard with an acceptable level of risk.)

A tree is considered hazardous if it is structurally unsound and there is a target that would be injured or damaged if the tree failed. An unsound tree in

an area with no target is not considered a hazard; neither is a sound tree in an area with a target.

Some of the defects that may result in tree failure are weak branch attachments, decay of trunk and branches, excessive weight coupled with poor taper, and root loss or root decay. Strong winds can place excessive loads on trees and can cause breakage even in the absence of defects. Structures, vehicles, and people are possible targets. The potential for property damage depends on the likelihood of a tree or a part of a tree striking the property. Injury to people depends on the likelihood of a tree striking a specific area when people are present."

To not complete any regular maintenance on your trees/palms may lead to further costs associated with building repairs (gutters, tiles, railings, pool area etc) or even personal injury liability. In recommendations a consideration is provided for a systematic plan to be reviewed for removal over the next years of 50% of the palms on site. The vast quantity of palms and their location has also limited light into main common areas and the ground walkways can become slippery due to build-up of moss.

6. RECOMMENDATIONS:

6.1 Immediate:

- Carry out pruning and dead wooding as specified in the summary of observations schedule

- Submit a Tree Application for the removal of tree assets as outlined in the report. A Tree order provides works can be carried out within 12 months of consent.

- Take down and remove trees/palms as per the approval.

- Consider a replacement/removal strategy for all Bangalow Palms over the next five years. Consideration that 50% to be removed and replaced with easier maintenance Australian natives.

- Have all stumps on site where tree/palm removal has taken place ground to a minimum depth of 300mm. (Leaving stumps in the ground is not only unsightly; it also creates a trip hazard and promotes the breeding of destructive fungal pathogens. A schematic of underground services should be supplied to the contractor prior to the commencement of grinding works. The industry standard allows for stump grindings to remain on-site unless specified otherwise.)

- Consider a systematic removal program over the next years to reduce the number of palms on the site.

- Where practical, leaf mulch or wood chip should be applied within the PRZ of

all trees on site. The inclusion of leaf mulch will avoid damage to tree stem/roots, improve soil quality by the promotion of beneficial fungi sub-surface, and reduce compaction thereby improving soil quality and tree vigour. The application of mulch will also reduce maintenance costs via the reduction in mowing and water use. In short, it will reduce maintenance costs and reduce the incidence of disease and associated tree removals. (Mulch utilised should only be produced from native trees, be aged, free from seed/pests and be spread at a depth of 75mm. Mulch should be kept away from the stem of young plants.)

- All dead wood with a stem diameter in excess of 20mm should be removed from retained trees that are over public access frequently used areas.
- All tree work should be carried out by a qualified arborist to AS4373.
- The selected tree contractor should be a member of, or be eligible for membership with, the Tree Contractors Association or The National Arborist Association of Australia.

6.2 Reporting of Works

To have an appropriate Risk Management System for your tree inventory requires the ongoing and follow up documentation.

- Works undertaken, by what staff and qualifications
- Supporting Work Method Statements and appropriate Public and Workers Compensation Insurance
- Forward plan of works to be undertaken
- Documentation

TREE MANAGEMENT PLAN	
REGULATORY	Consult local ordinances and regulations including AS4373 (2007) regarding any limitations on tree maintenance and succession planting. Educate residents & contractors about the biology of trees, their life span, health and condition. Tree management plans are adopted as policy by local consent authorities under their LEP. This tree management plan provides a systematic best practice approach for the subject site and should be adopted as policy for the management of tree assets.
BIOLOGICAL	Develop a thorough understanding of the life cycle of the tree assets and the components of their individual mortality spiral.
CULTURAL	Prune to remove dead, dying diseased and other structurally unsound branches. Monitor for insects and diseases (including soil borne fungal pathogens.) Monitor for structural faults and defects.

	Reduce the impacts of soil compaction, reduced drainage and evapo-transpiration with the application of leaf mulch. Provide species appropriate irrigation and irrigate in times of drought or stress. (Do not over-irrigate.) Remove trees as required. (The tree removal strategy, number of trees removed and succession planting should be dictated by tree health, condition and specific site situations.) Carry out community consultation as required.
CHEMICAL	Selectively treat pests and diseases as required. (Determined via the monitoring process.)

6.3 TABLE 5. TREE MANAGEMENT PLAN (Part B - Five year timeline.)

2011- 2012	**Carry out recommendations as per report. Tree removals to be tailored to suit specific tree/site situations. Succession, additional planting & application of Seasol® to be carried out during Autumn. Pruning works to be carried out to AS4373 2007 & as per species and timing requirements.**
2012-2013	**Monitor all trees and carry out tree/remediation works as outlined. Succession planting & application of Seasol® to be carried out during Autumn. Carry out formative pruning of young plants and replace dead or underperforming succession plantings as required. All pruning works to be carried out to AS4373 & as per species and timing requirements.**
2013-2014	**Monitor all trees carry out tree/remediation works as required & top up mulch as required. Succession planting & application of Seasol® to be carried out during Autumn. Carry out formative pruning of young plants and replace dead or underperforming succession plantings as required. Pruning works to be carried out to AS4373 2007 & as per species and timing requirements.**
2014-2015	**Monitor all trees carry out tree/remediation works as required & top up mulch as required. Succession planting & application of Seasol® to be carried out during Autumn. Pruning works to be carried out to AS4373 2007 & as per species and timing requirements.**
2015-2016	**Monitor all trees carry out tree/remediation works as required & top up mulch as required. Succession planting & application of Seasol® to be carried out during Autumn. Carry out formative pruning of young plants and replace dead or underperforming succession plantings as required. Pruning works to be carried out to AS4373 2007 & as per species and timing requirements.**

Yours sincerely,

PETER DUBIEZ Dip. Hort. (Arb.) Enviro Frontier Tree Management
(Member - National Arborists Association of Australia.)

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Harris W. Clarke James R. Mattheny Nelda P. (2004), Arboriculture Integrated Management of Landscape Trees, Shrubs and Vines. Prentice Hall - New Jersey USA.

AUTHORS EXPERIENCE & QUALIFICATIONS:

Industry Experience:

- Manager – Enviro Frontier (all aspects of tree management) 2010-present
- Business Manager NSW – Citywide – Open Space Division 2009 - 2010.
- Manager Active Tree Services Residential/Commercial Division- 1990 - 2005.

Qualifications & Training:

- Tree Care & Maintenance Certificate - Ryde School of Horticulture - 1994
- Phil Hadlington Tree Course - 1989
- Working Committee for the first Amenity Tree Industry standards with WorkCover
- Working Committee for the first AS4373
- Founding Member for Tree Contractors Association

Professional Association:

- Member - National Arborist Association of Australia
- Member – Tree Contractors Association

APPENDIX 1

SULE (Safe Useful Life Expectancy)

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 moved or replaced;
A. Small trees less than 5m in height.
B. Young trees less than 15 years old but over 3m in height.
C. Formal hedges and trees intended for regular pruning to artificially control growth.

APPENDIX 2

GLOSSARY

Age Classes; (S) Semi-mature refers to a tree between immaturity and full size.
(M) Mature refers to a full sized tree with some capacity for further growth.
(LM) Late Mature refers to a tree that is entering decline.
(O) Over-mature refers to a tree already in decline.

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. Classes are Good (G), Fair (F), Declining (D), and Poor (P).

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 (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health, it is possible for a tree to be healthy but in poor condition. Classes are Good (G), Fair (F), Declining (D), and Poor (P).

Diameter at breast height (DBH); Tree stem diameter at 1.3 metres above ground.

Critical Root Zone (CRZ); Refers to a radial offset of five (5) times the trunk DBH measured for the centre of the trunk, rounded to the nearest 0.5 metres.

Primary Root Zone (PRZ); Refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk, rounded to the nearest 0.5 metres.

Visual Tree Assessment (VTA); Refers to visual inspection of tree only.

Aerial Inspection; Refers to climbing a tree to obtain more accurate information.

Remnant Stand or Tree; Refers to a stand of trees or tree which is a remaining specimen/s from an area of previous woodland or forest community.

Crown; Refers to the position of the tree consisting of branches and leaves and any part of the trunk from which branches arise.

Stem; Refers to an organ which supports branches, leaves, flowers and fruits.

Epicormic Growth; Refers to shoots produced by dormant buds within the bark or stem of a tree as a result of stress, incorrect pruning or increased light.

Resistograph® Drill; Refers to a specialised arboricultural tool used for drilling a tree to ascertain structural integrity.

AS4373; Refers to Australian Standard for Pruning of Amenity Trees. This certification commenced in 1996 and is a standard for correct arboricultural techniques. The standard takes into account tree biology and tree worker safety issues.

Co-Dominant Stems; Refers to stems on trunks of about the same size originating from the same position from the main stem.

Catena; Refers to the physical location of a site on a slope.

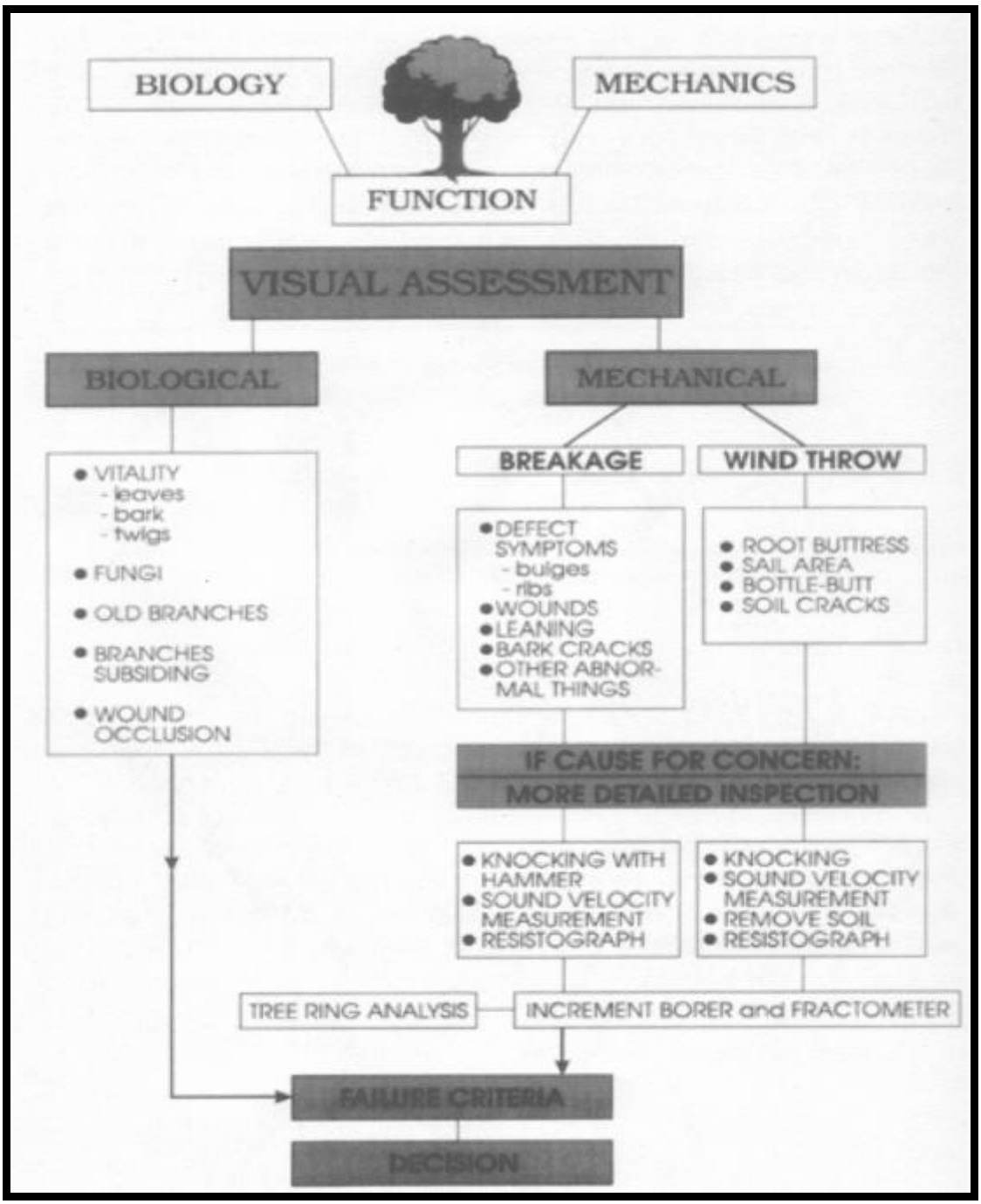
Endemic; Refers to locally indigenous species.

Significant Tree; Refers to mature trees assessed as having either high landscape significance or playing a significant role in the structure or 'playability' of the course.

Senescing Trees; Refers to trees that are in full decline.

Mycelium; Refers to fungal presence as exhibited by a floury white vein.

(VTA) Methodology Model; (Mattheck and Breloer 1994.)



DISCLAIMER

Limits of Scope Statement:

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Assumptions:

Care has been taken to obtain information from reliable sources. All data has been verified insofar as possible, however, Enviro Frontier Tree Management, can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless Stated Otherwise:

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