REDGUM Horticultural
Arboriculture & Horticulture Consultants

REPORT

A): ARBORICULTURAL IMPACT ASSESSMENT

and

B). TREE MANAGEMENT PLAN
(Trees to be retained and protected)

Hammondcare
Greenwich Hospital
River Road,
Greenwich NSW

Prepared 16 February 2018
Ref: 3521

PH/FAX 8824 8314 PO Box 3687, Rouse Hill NSW 2155 ABN 28116465304 E info@redgumhrt.com.au

Contents

1.0 PREFACE

Redgum Horticultural has prepared this report for Hammond Care (*the client*), for the Greenwich Hospital Concept Plan at 97-115 River Road, Greenwich NSW.

Mr. Craig Martin *(the author)* attended River Road, Greenwich (*the site*), on 18 & 19 September 2017 and the trees and their growing environment were examined. This interim report has been prepared as part of the Environmental Impact Statement (EIS) and any works recommended herein are subject to a final report following receipt of final detailed architectural plans, that require approval from the consenting authority, and are to be included in a Development application. This report takes into consideration the trees within the site and within five metres of the common boundary affected by the development.

2.0 INTRODUCTION

The land is situated in the Lane Cove Council (*the Council)* Local Government Area (*LGA*) and the trees are protected under Councils Development Control Plan (DCP). This report involves 235 trees (*the trees*), as indicated on Site Plan A - Survey of Subject Trees (Appendix C) and considers the removal of one hundred and thirty-one (131) trees within the property and the retention of one hundred and four (104) trees within the property and neighbouring properties. *The Arboricultural Impact Assessment only considers the developable areas of the site. The south-western corner of the site contains a densely vegetated area extending down a steep slope towards Gore Creek. This part of the site will remain largely intact and is considered under the Ecology Impact Assessment prepared by Keytone Ecological and included in support of the EIS*. When trees from this area are considered the tree retention on site will exceed required tree removal. The trees will be considered as 7 stands to encompass all trees within and immediately adjacent to the site, where appropriate, as marked on Appendix C, Survey of Subject Trees. ***Tree Protection Zone*** fences or works are marked on the Appendix F, Trees to be Retained and Tree Protection Zones.

The site is comprised of an existing hospital with the Heritage listed Pallister House to be retained and some of the hospital structures are to be demolished and are to be replaced with a proposed hospital re-development, construction of seniors' housing parking and associated infrastructure. As part of the Landscape Plan where appropriate, the tree cover on the site will be enhanced by planting with advanced specimens/s of appropriate tree species for the space available above and below ground being soil volumes available and to prevent future conflict between trees and built structures.

The current proposed building design and its configuration and infrastructure were arrived at following the undertaking of an arboricultural assessment of the trees on the site to determine their significance by Redgum Horticultural. The plans provided do not show the location of sewer, water or electricity supply to the proposed development.

Setbacks for the new works and associated infrastructure should provide sufficient space to protect the existing growing environments both above and below ground for trees to be retained, and so that trees within the property and on adjoining properties will not be adversely affected. The proposed design has considered the spatial requirements for the trees to be retained based on the information available or provided at the time of compiling this report, and those areas to be protected will be discussed further. The Summary lists the general condition of trees and a summary of works in Table 1.0. In section 7.0 each individual tree is described in greater detail including protective or remedial works. Tree maintenance works including pruning, removal or transplantation are detailed in section 14.0.

3.0 SUMMARY

This report considers 235 trees, 232 trees within the site, 1 boundary tree, and 2 trees on a neighbouring property with and 18 missing or dead specimens with Trees 1, 2, 4, 5, 6, 7, 8A, 10, 12, 13, 14, 14A, 15, 19, 20, 21, 21A, 22, 22A, 23, 24 25, 26, 29, 30, 31, 33, 34, 37, 41, 44, 45, 45A^{x2}, 46, 47, 48, 49, 50, 51, 60, 61, 75, 76, 79, 80, 81, 81A, 81B, 82, 83, 83A, 84, 85A*, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92*, 93, 94, 95, 102, 103, 104, 107, 108, 109, 110, 111, 112, 132, 133A, 133B, 134, 135, 136, 137, 138, 139, 142A^{x4},147, 147E, 148^{x5}, 151, 152, 154, 155, 156, 158, 159 & 199 (numbers in RED require further investigation) to be retained and protected and Trees 8, 9, 11, 11A, 16, 17, 18, 27, 28, 32, 35, 36, 38, 38A, 39, 40, 42, 43, 52, 53, 54, 57, 58, 59, 62, 63, 64, 65, 66, 67, 68, 71, 72, 73, 74, 74A, 77, 78, 85, 105, 107A, 107B, 107C, 113 to 130(18), 133, 142, 143, 144, 144A, 145, 146, 147A, 147B 147C, 147Dx3, 149, 150, 153, 153A, 157x3, 159A, 160, 160A, 161, 162, 162Ax2 , 163, 164, 165, 166, 167, 168, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 200, 201, 202, 203, 204, 205, 206, 207 & 208 are recommended to be removed.

For trees where the alignment of the driveway or works at or above existing ground levels are an encroachment to retained specimens, the section of the proposed works within the Tree Protection Zone (TPZ) of the specimens is to be constructed using tree sensitive excavation and construction techniques such as pier and beam construction with a suspended slab to reduce any impact on the stability with piers to be dug by hand with non-motorised machinery to further assist in their protection.

Where possible, for hard landscaping within the TPZ of retained specimens this is to be constructed using tree sensitive excavation and construction techniques such as either porous or permeable paving or pier and beam construction with a suspended slab to reduce any impact on the stability with piers to be dug by hand with non-motorised machinery to further assist in their protection.

For trees where excavation is required below existing ground level within the TPZ of retained specimens the section of the excavation within the TPZ of the specimens is to be constructed using tree sensitive excavation and construction techniques such as a vertical cut with shotcrete and contiguous pilings to reduce any impact on their stability.

If associated infrastructure (pipe works) are to be installed within the Tree Protection Zone of any retained specimen, they are to be installed by hand with non-motorised machinery. If structural roots are found within the trench, they are to be left intact and dug around retaining this specimen's structural integrity. Works are to be undertaken in consultation with the project arborist.

The impacts to specimens which are to be retained and protected as per AS 4970 (2009) Section 3, 3.3.3 *Major Encroachments* from development works within >10% of the area of the Tree Protection Zone and as per discussion points in section 14 in part B of this report will be detailed in the final Arboricultural Impact Assessment report following receipt of detailed plans. Any works within TPZ must be in consultation with and when required, certified by the Project Arborist in accordance with AS4970 (2009).

4.0 AIMS

Part A: (AIA) Arboricultural Impact Assessment

4.1 Detail the condition of the trees or large shrubs on the site or on adjoining sites where such trees or large shrubs may be affected by the proposed works, by assessment of individual specimens or stands.

4.2 Provide as an outcome of the visual tree assessment (VTA), the following: a description of the trees or large shrubs, observations made, discussion of the effects the location of the proposed building works may have on the trees or large shrubs and make recommendations required for remedial or other works to the trees or large shrubs, if and where appropriate.

Part B: (TPP) Tree Protection Specification & Tree Protection Plan

4.3 Provide a detailed specification for remedial works or protection measures for their retention in a safe and healthy condition, or a condition not less than that at the time of initial inspection for this report, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures able to be applied, and will consider the location and condition of the trees or large shrubs in relation to the proposed building works, or recommend removal and replacement where appropriate.

4.4 Determine from the assessment the works or measures required to ameliorate the impact upon the trees or large shrubs to be retained, by the proposed building works or future impacts the trees or large shrubs may have upon the new building works if and where appropriate, or the benefits of removal and replacement if appropriate for the medium to long term safety and amenity of the site.

5.0 OBJECTIVES

Part A: Arboricultural Assessment Report

5.1 Assess the condition of the subject trees.
5.2 Determine impact of development on the subject trees.
5.3 Provide recommendations for retention or removal of the subject trees.

Part B: Tree Protection Plan

5.3 Provide recommendations for retention or removal of the subject trees or large shrubs.

6.0 METHODOLOGY (This Methodology where utilised is applied to both Parts A and B).

6.1 The method of assessment of tree/s applied is adapted from the principles of visual tree assessment undertaken from the ground, which considers:

- Tree health and subsequent stability, both long and short term
- Sustainable Retention Index Value (SRIV) Version 4 (IACA 2010) ©
- Hazard potential to people and property
- Amenity values
- Habitat values
- Significance

6.2 This assessment is undertaken using 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 to undertake a visual tree assessment from the ground of each individual tree, or stand of trees, or a representative population sample. Any dimensions recorded as averages, or by approximation are noted accordingly.

6.3 This report adopts Australian Standard AS4970 2009 *Protection of trees on development sites* as a point of reference and guide for the recommended minimum setbacks (Table 2 – Part B) from the centre of a tree's trunk to development works and the distances may be increased or decreased by the author in accordance with AS4970 – Section 3.3.4 as a result of other factors providing mitigating circumstances or constraints as indicated by but not restricted to the following:

1. Condition of individual trees,
2. Tolerance of individual species to disturbance,
3. Geology e.g. physical barriers in soil, rock floaters, bedrock to surface
4. Topography e.g. slope, drainage,
5. Soil e.g. depth, drainage, fertility, structure,
6. Microclimate e.g. due to landform, exposure to dominant wind,
7. Engineering e.g. techniques to ameliorate impact on trees such as structural soil, gap graded fill, lateral boring,
8. Construction e.g. techniques to ameliorate impact on trees such as pier and beam, bridge footings, suspended slabs,
9. Root mapping,
10. Physical limitations - existing modifications to the environment and any impact to tree/s by development e.g. property boundaries, built structures, houses, swimming pools, road reserves, utility services easements, previous impact by excavation, or construction in other directions, soil level changes by cutting or filling, existing landscaping works within proximity, modified drainage patterns,
11. Extraneous factors e.g. potential future impacts from development on adjoining land when the tree is located on or near to a property boundary.

6.4 Trees in groups may be referred to as stands and a stand may exclusively contain specimens to be either retained or removed or a combination of both. A stand may be used to discuss all the trees on a given site to expedite their assessment or refer to trees growing proximate to one another or within a defined space. Stands may be comprised by mass boundary or screen plantings, to form a group of the same or a mixture of taxa. Each stand is considered as a single unit with each component tree assessed and expressed in tabular form or indicated by a given percentage as a population sample of each stand. Where it is appropriate for a stand of trees to be retained in full or part, the location and setback of Tree Protection Zone fences or works, are prescribed to provide for the preservation of the stand or selected component trees, in a condition not less than that at the time of initial inspection for its incorporation into the landscape works for the site, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures.

6.5 The meanings for terminology used herein are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009. An extract from the IACA Dictionary forms a glossary of terms included as Appendix E.

Table 1.0 General condition and Schedule of works of trees or large shrubs. Trees described in greater detail in section 7.0.

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
1	*Cinnamomum camphora*	Camphor Laurel	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
2	*Pinus radiata*	Radiata Pine	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
3	*MISSING*		M	
4	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
5	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
6	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
7	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
8	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
9	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
10	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
11	*Acacia*		D	Dead - Remove
12	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
13	*Pittosporum undulatum*	Native Daphne	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
14	*Agathis robusta*	Queensland Kauri Pine	G	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
15	*Eucalyptus pilularis*	Blackbutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
16	*Phoenix canariensis*	Date Palm	F	Remove – self-sown
17	*Eucalyptus saligna*	Sydney Blue Gum	F	Remove and replace with new plantings as per Landscape Plan
18	*Erythrina x sykesii*	Coral tree	F	Remove – Inappropriate species
19	*Angophora bakeri*	Small Leaf Apple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
20	*Glochidion ferdinandi*	Cheese Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
21	*Eucalyptus pilularis*	Blackbutt	F	Retain – Further investigation required
22	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
23	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
24	*Eucalyptus pilularis*	Blackbutt	F	Retain – Further investigation required
25	*Eucalyptus botryoides*	Bangalay Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
26	*Eucalyptus botryoides*	Bangalay Gum	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
27	*Eucalyptus saligna*	Sydney Blue Gum	F	Remove and replace with new plantings as per Landscape Plan
28	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	F	Remove and replace with new plantings as per Landscape Plan
29	*Eucalyptus saligna*	Sydney Blue Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
30	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
31	*Phoenix canariensis*	Date Palm	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
32	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
33	*Pittosporum undulatum*	Native Daphne	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
34	*Pittosporum undulatum*	Native Daphne	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
35	*Eucalyptus saligna x botryoides*	Wollongong Wollybutt	F	Remove and replace with new plantings as per Landscape Plan
36	*Erythrina x sykesii*	Coral tree	F	Remove and replace with new plantings as per Landscape Plan
37	*Eucalyptus pilularis*	Blackbutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
38	*Angophora costata*	Sydney Red Gum	P	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
39	*Eucalyptus pilularis*	Blackbutt	F	Remove and replace with new plantings as per Landscape Plan
40	*Eucalyptus saligna*	Sydney Blue Gum	F	Remove and replace with new plantings as per Landscape Plan
41	*Eucalyptus saligna*	Sydney Blue Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
42	*Eucalyptus resinifera*	Red Mahogany	F	Remove – Bracket fungi
43	*Pittosporum undulatum*	Native Daphne	P	Remove – overmature / cavity
44	*Glochidion ferdinandi*	Cheese Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
45	*Eucalyptus pilularis*	Blackbutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
46	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
47	*Glochidion ferdinandi*	Cheese Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
48	*Eucalyptus pilularis*	Blackbutt	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan. habitat tree that will require pruning
49	*Eucalyptus resinifera*	Red Mahogany	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
50	*Acacia falcata*	Hickory Wattle	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
51	*Eucalyptus resinifera*	Red Mahogany	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
52	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
53	*Eucalyptus resinifera*	Red Mahogany	F	Remove and replace with new plantings as per Landscape Plan
54	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
55	*Missing*		M	MISSING
56	*Missing*		M	MISSING
57	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
58	*Eucalyptus resinifera*	Red Mahogany	F	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
59	*Pittosporum undulatum*	Native Daphne	F	Remove and replace with new plantings as per Landscape Plan
60	*Cinnamomum camphora*	Camphor Laurel	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
61	*Cinnamomum camphora*	Camphor Laurel	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
62	*Grevillea robusta*	Silky Oak	F	Remove and replace with new plantings as per Landscape Plan
63	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
64	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
65	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
66	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
67	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
68	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
69	*Missing*		M	MISSING
70	*Missing*		M	MISSING
71	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
72	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
73	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
74	*Allocasuarina torulosa*	Forest She Oak	P	Remove and replace with new plantings as per Landscape Plan
75	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
76	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
77	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
78	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
79	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
80	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
81	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
82	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
83	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
84	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
85	*Erythrina x sykesii*	Coral tree	F	Remove – Inappropriate species
86	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
87	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
88	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
89	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
90	*Corymbia citriodora*	Lemon Scented Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
91	*Jacaranda mimosifolia*	Jacaranda	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
92	*Angophora costata*	Sydney Red Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
93	*Cedrus deodara*	Himalayan Cedar	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
94	*Camellia japonica*	Camellia	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
95	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
96	*Missing*		M	MISSING
97	*Missing*		M	MISSING
98	*Missing*		M	MISSING
99	*Missing*		M	MISSING
100	*Missing*		M	MISSING
101	*Missing*		M	MISSING
102	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
103	*Platanus digitata*	Plane Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
104	*Jacaranda mimosifolia*	Jacaranda	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
105	*Schefflera actinophylla*	Large Leaf Umbrella	P	Remove – exempt species
106	*Missing*		M	MISSING
107	*Thuja orientalis*	Bookleaf Conifer	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
108	*Eucalyptus pilularis*	Blackbutt	F	Retain – Further investigation required
109	*Eucalyptus microcorys*	Tallowwood	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
110	*Eucalyptus grandis*	Rose gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
111	*Liquidambar styraciflua*	Sweet Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
112	*Chamaecyparis lawsoniana*	Lawson Cypress	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
113	*Cupressus torulosa*	Bhutan Cypress	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
114	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
115	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
116	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
117	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
118	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
119	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
120	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
121	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
122	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
123	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
124	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
125	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
126	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
127	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
128	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
129	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
130	*Cupressus torulosa*	Bhutan Cypress	F	Remove and replace with new plantings as per Landscape Plan
131	*Missing*			MISSING
132	*Glochidion ferdinandi*	Cheese Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
133	*Pinus patula*	Mexican Weeping Pine	P	Remove - OVERMATURE
134	*Cupressus cashmeriana*	Kashmir Cypress	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
135	*Cedrus deodara*	Himalayan Cedar	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
136	*Cedrus deodara*	Himalayan Cedar	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
137	*Callistemon salignus*	Willow Bottlebrush	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
138	*Eucalyptus saligna*	Sydney Blue Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
139	*Livistona chinensis*	Chinese Fan Palm	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
140	*Missing*		M	MISSING
141	*Missing*		M	MISSING
142	*Eucalyptus scoparia*	Wallangarra White Gum	P	Remove – overmature / decay / borer - and replace with new plantings as per Landscape Plan
143	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
144	*Ginkgo biloba*	Maidenhair Tree	F	Remove and replace with new plantings as per Landscape Plan
145	*Ginkgo biloba*	Maidenhair Tree	F	Remove and replace with new plantings as per Landscape Plan
146	*Cinnamomum camphora*	Camphor Laurel	F	Remove and replace with new plantings as per Landscape Plan
147	*Eucalyptus saligna*	Sydney Blue Gum	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
148/2	*Hymenosporum flavum x5*	Native Frangipani	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
149	*Eucalyptus microcorys*	Tallowwood	F	Remove and replace with new plantings as per Landscape Plan
150	*Liquidambar styraciflua*	Sweet Gum	F	Remove and replace with new plantings as per Landscape Plan
151	*Acer negundo*	Box Elder Maple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
152	*Acer negundo*	Box Elder Maple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
153	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
154	*Magnolia grandiflora*	Bull Bay Magnolia	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
155	*Magnolia grandiflora*	Bull Bay Magnolia	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
156	*Jacaranda mimosifolia*	Jacaranda	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
157/3	*Acer negundo x2*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
158	*Triadica sebifera*	Chinese Tallowwood	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
159	*Brachychiton acerifolius*	Illawarra Flame Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
160	*Cedrus atlantica*	Atlantic Cedar	P	Remove and replace with new plantings as per Landscape Plan
161	*Pyrus*	Ornamental Pear	F	Remove and replace with new plantings as per Landscape Plan
162	*Pyrus*	Ornamental Pear	F	Remove and replace with new plantings as per Landscape Plan
163	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
164	*Jacaranda mimosifolia*	Jacaranda	F	Remove and replace with new plantings as per Landscape Plan
165	*Jacaranda mimosifolia*	Jacaranda	P	Remove and replace with new plantings as per Landscape Plan
166	*Cinnamomum camphora*	Camphor Laurel	P	Remove and replace with new plantings as per Landscape Plan
167	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
168	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	F	Remove and replace with new plantings as per Landscape Plan
169	*Missing*		M	MISSING
170	*Missing*		M	MISSING
171	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
172	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
173	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
174	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
175	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
176	*Eucalyptus pilularis*	Blackbutt	F	Remove and replace with new plantings as per Landscape Plan
177	*Eucalyptus pilularis*	Blackbutt	F	Remove and replace with new plantings as per Landscape Plan
178	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
179	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
180	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
181	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
182	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
183	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
184	*Eucalyptus pilularis*	Blackbutt	F	Remove and replace with new plantings as per Landscape Plan
185	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	F	Remove and replace with new plantings as per Landscape Plan
186	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	F	Remove and replace with new plantings as per Landscape Plan
187	*Syagrus romanzoffianum*	Cocos Palm	F	Remove and replace with new plantings as per Landscape Plan
188	*Syzygium smithii*	Lilly Pilly	F	Remove and replace with new plantings as per Landscape Plan
189	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
190	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
191	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
192	*Cinnamomum camphora*	Camphor Laurel	F	Remove – Inappropriate species
193	*Olea europaea var. africana*	African Olive	E	Remove – exempt species
194	*Populus deltoids*	Eastern Cottonwood	E	Remove and replace with new plantings as per Landscape Plan
195	*Celtis*	Hackberry	F	Remove – Inappropriate species

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
196	*Triadica sebifera*	Chinese Tallowwood	F	Remove and replace with new plantings as per Landscape Plan
197	*Triadica sebifera*	Chinese Tallowwood	F	Remove and replace with new plantings as per Landscape Plan
198	*Pittosporum undulatum*	Native Daphne	F	Remove and replace with new plantings as per Landscape Plan
199	*Acer negundo*	Box Elder Maple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
200	*Melia azedarach*	White Cedar	P	Remove and replace with new plantings as per Landscape Plan
201	*Triadica sebifera*	Chinese Tallowwood	F	Remove and replace with new plantings as per Landscape Plan
202	*Erythrina x sykesii*	Coral tree	P	Remove – Inappropriate species
203	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
204	*Ficus rubiginosa*	Port Jackson Fig	F	Remove and replace with new plantings as per Landscape Plan
205	*Erythrina x sykesii*	Coral tree	F	Remove – Inappropriate species
206	*Privet*		E	Remove – weed species
207	*Stenocarpus sinuatus*	Firewheel Tree	F	Remove and replace with new plantings as per Landscape Plan
208	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan
8A	*Glochidion ferdinandi*	Cheese Tree	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
11A	*Acacia falcata*	Hickory Wattle	P	Remove and replace – overmature specimen
14A	*Glochidion ferdinandi*	Cheese Tree	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
21A	*Pittosporum undulatum*	Native Daphne	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
22A	*Cupaniopsis anacardioides*	Tuckeroo	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
38A	*Angophora costata*	Sydney Red Gum	F	Remove – overmature specimen

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
45A/4	*Ficus rubiginosa x2*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
74A	*Angophora costata*	Sydney Red Gum	F	Remove and replace with new plantings as per Landscape Plan
81A	*Stenocarpus sinuatus*	Firewheel Tree	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
81B	*Acer negundo*	Box Elder Maple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
83A	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
85A	*Ficus rubiginosa*	Port Jackson Fig	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
91A	*Lagerstroemia indica*	Crepe Myrtle	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
91B	*Lagerstroemia indica*	Crepe Myrtle	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
91C	*Photinia glabra*	Photinia	P	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
107A	*Jacaranda mimosifolia*	Jacaranda	F	Remove – self-sown specimen
107B	*Robinia pseudoacacia*	Golden Rain Tree	F	Remove – self-sown specimen
107C	*Lagerstroemia indica*	Crepe Myrtle	F	Remove and replace with new plantings as per Landscape Plan
133A	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
133B	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
142A/5	*Phoenix canariensis x4*	Date Palm	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
144A	*X Cupressocyparis leylandii*	Leyland Cypress	F	Remove and replace with new plantings as per Landscape Plan
147A	*Phoenix canariensis*	Date Palm	F	Remove and replace with new plantings as per Landscape Plan

Tree / Stand No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed/Exempt	Description of work to be done
147B	*Celtis*	Hackberry	F	Remove and replace with new plantings as per Landscape Plan
147C	*Liquidambar styraciflua*	Sweet Gum	F	Remove and replace with new plantings as per Landscape Plan
147D	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
147E	*Acer negundo*	Box Elder Maple	F	Retain and protect within a Tree Protection Zone (TPZ) as per the Tree Protection Plan.
153A	*Magnolia grandiflora*	Bull Bay Magnolia	F	Remove and replace with new plantings as per Landscape Plan
162A/6	*Archontophoenix cunninghamiana x2*	Bangalow Palm	F	Remove and replace with new plantings as per Landscape Plan
160A	*Syzygium australe*	Lilly Pilly	F	Remove and replace with new plantings as per Landscape Plan
159A	*Syzygium australe*	Lilly Pilly	F	Remove and replace with new plantings as per Landscape Plan

7.0 TREE ASSESSMENT – 7.1 - Assessment of a stand of Trees

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
1	*Cinnamomum camphora*	MLVF - 4	12	12x10 N/S	800 R	2	**Medium**
	Camphor Laurel	Comment: Dieback upper crown, various young specimens of Privet, Camphor Laurel in understorey, hangers					
2	*Pinus radiata*	MGVF - 9	12	9x7 N/S	600 R	2	**Medium**
	Radiata Pine	Comment: Scalped surface roots to north east, wild olive understorey, localised dead stub decay.					
3	*Missing*						**MISSING**
		Comment: missing					
4	*Ficus rubiginosa*	MLVF - 4	9	10x9 N/S	1100 DARB R	1	**High**
	Port Jackson Fig	Comment: Shallow, soil exposed sandstone shelving. Fig psyllid/drought stress, moderate level.					
5	*Ficus rubiginosa*	MGVF - 9	10	14x13 E/W	1500# DARB R	1	**High**
	Port Jackson Fig	Comment: Low level Fig psyllid/drought stress, recommend remove Privet sapling from SRZ.					
6	*Ficus rubiginosa*	MLVF - 4	14	14 R	1800# DARB R	1	**High**
	Jackson Fig	Comment: Moderate level Fig psyllid/drought stress, moderate volume epicormics lower crown, surface root scalping (SRS)					
7	*Ficus rubiginosa*	MGVF - 9	11	12x10 N/S	1300# DARB R	1	**High**
	Port Jackson Fig	Comment: Low level Fig psyllid/drought stress, failing branch north west lower crown. Nest box lower crown requires repair/removal/replace.					
8	*Cinnamomum camphora*	Y/MGVF - 9.5	8	6x4 N/S	280 R	3	**Remove**
	Camphor Laurel	Comment: Self-sown SRZ of tree 7 – rubbing, damaging branches tree 7, competing water nutrients tree 6, tree 7 & tree 9.					
9	*Ficus rubiginosa*	MGVF - 9	16	14x13 E/W	1400# DARB R	1	**High**
	Port Jackson Fig	Comment: Moderate level drought stress, wound/cavity at 3m north west stem, storm damage hangers mid crown.					
10	*Ficus rubiginosa*	MLVF - 4	9	3x6 E/W	900 DARB R	2	**Medium**
	Port Jackson Fig	Comment: Extensive SRZ, Moderate high-volume epicormics throughout crown. Low volume Fig psyllid/drought stress					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
11	*Acacia*						**DEAD**
		Comment: Dead stump, borer.					
12	*Ficus rubiginosa*	MGVF - 9	12	11x8 E/W	1400# DARB R	1	**High**
	Port Jackson Fig	Comment: Recommend remove Privet SRZ.					
13	*Pittosporum undulatum*	MLVP - 2	7	5 R	R	3	**Low**
	Native Daphne	Comment: 6x basal stems, Psyllid/Honey dew, Drought stress.					
14	*Agathis robusta*	MGVG - 10	18	8x6 N/S	R	1	**High**
	Queensland Kauri Pine	Comment: Majority rest system likely truncated back into bank to north west.					
15	*Eucalyptus pilularis*	MLVF - 4	17	12x9 N/S	R	2	**Medium**
	Blackbutt	Comment: *Nastutitermes walkeri* termite nest in first branch union, Recommend further investigation.					
16	*Phoenix canariensis*	YGVF - 8	4	5 R	R	3	**Remove**
	Date Palm	Comment: Likely self-sown, recommend remove to reduce competition for locally indigenous species.					
17	*Eucalyptus saligna*	MGVF - 9	18	14 R	R	1	**Low**
	Sydney Blue Gum	Comment: Fill in SRZ, species less likely remnant than Eucalyptus pilularis.					
18	*Erythrina x sykesii*	Y/MGVF - 8.9	11	9x7 N/S	R	3	**Remove**
	Coral tree	Comment: Weak union at 600mm – Recommend removal reduce competition locally indigenous species.					
19	*Angophora bakeri*	MLVF - 4	12	9 R	R	2	**Medium**
	Small Leaf Apple	Comment: Moderate volume epicormics mid crown.					
20	*Glochidion ferdinandi*	MGVF - 9	7	7x5 N/S	R	2	**Medium**
	Cheese Tree	Comment: Twin basal stems.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
21	*Eucalyptus pilularis*	MGVF - 9	15	15x8 N/S	520 R	2	**?**
	Blackbutt	Comment: Not on survey, Lowest branch to the north, heavy end weight; recommend prune to trunk collar. Basal cavity, termite damage. Recommend resistograph testing					
22	*Eucalyptus saligna x botryoides*	Y/MGVF - 8.5	13	9x5 E/W	400@300 R	2	**Medium**
	Wollongong Wollybutt	Comment: Contributes to avenue street scape of St Vincents Road.					
23	*Eucalyptus saligna x botryoides*	YLVF - 3	9	6x4 E/W	200 R	2	**Low**
	Wollongong Wollybutt	Comment: Suppressed specimen.					
24	*Eucalyptus pilularis*	MGVF - 9	18	15x13 N/S	900 R	1	**?**
	Blackbutt	Comment: Likely remnant, developing habitat tree (hollow formation), termite evidence recommends resistograph testing.					
25	*Eucalyptus botryoides*	MGVF - 9	15	10x8 E/W	480 R	1	**High**
	Bangalay Gum	Comment: Basal wound, borer, good wound wood but in-rolling Contributes to avenue street scape of St Vincents Road.					
26	*Eucalyptus botryoides*	YLVP - 1	9	8x4 E/W	180 R	3	**Low**
	Bangalay Gum	Comment: Thin crown, suppressed specimen.					
27	*Eucalyptus saligna*	Y/MGVF - 8.5	11	4x2 N/S	240 R	2	**Medium**
	Sydney Blue Gum	Comment: Two lowest branches dead, moderate volume epicormics mid crown.					
28	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Y/MGVF - 8.5	9	5 R	500@300 R	2	**Medium**
	Cheese Tree/ Wollongong Woollybutt	Comment: Recommends remove Lantana from SRZ (two species entwined).					
29	*Eucalyptus saligna*	MGVF - 9	20	9 R	600# R	1	**High**
	Sydney Blue Gum	Comment: Co dominant stem union at 3m.					
30	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	MGVF - 9	9	5x3 N/S	300 R	2	**Medium**
	Cheese Tree/ Wollongong Woollybutt	Comment: Termite fluting at stab wound at 900m.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
31	*Pittosporum undulatum*	MLVF - 9	9	5 R	450 DARB R	3	**Low**
	Native Daphne	Comment: Pruned to east for powerlines.					
32	*Cinnamomum camphora*	YGVF - 8	4	1 R	120 R	3	**Remove**
	Camphor Laurel	Comment: Self-sown, recommend removal.					
33	*Pittosporum undulatum*	OLVP - 0	10	6x5 N/S	300 R	3	**Low**
	Native Daphne	Comment: Thin crown.					
34	*Pittosporum undulatum*	MLVF - 4	5	6x4 N/S	220 R	2	**Medium**
	Native Daphne	Comment: Trimmed for powerlines, Psyllids, honeydew.					
35	*Eucalyptus saligna x botryoides*	MGVF - 9	16	8 R	350 R	2	**Medium**
	Wollongong Woollybutt	Comment:					
36	*Erythrina x sykesii*	MGVF - 9	11	11x9 N/S	800 DARB R	3	**Low**
	Coral tree	Comment: Triple basal stems, rubbing on tree 36.					
37	*Eucalyptus pilularis*	MLVF - 4	18	9x8 N/S	520 R	2	**Medium**
	Blackbutt	Comment: Moderate volume epicormics throughout crown, localised borer.					
38	*Angophora costata*	YLVP - 1	8	2x1 N/S	180 R	3	**Low**
	Sydney Red Gum	Comment: Suppressed, epicormic crown.					
39	*Eucalyptus pilularis*	MLVF - 4	17	16x12 N/S	1300@300 R	2	**Medium**
	Blackbutt	Comment: Evidence termites, garden refuse build-up in SRZ, co-dominant stem union at 1.2m					
40	*Eucalyptus saligna*	MGVF - 9	17	9x8 E/W	500 R	2	**Medium**
	Sydney Blue Gum	Comment: 2x Abrupt changes in stem direction lower to mid crown Privet SRZ.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
41	*Eucalyptus saligna*	MGVF - 9	22	18x14 N/S	800 R	1	**High**
	Sydney Blue Gum	Comment: Wound at 5m					
42	*Eucalyptus resinifera*	MLVF - 4	16	11x8 N/S	500 R	3	**Remove**
	Red Mahogany	Comment: Dieback mid crown wound bracket fungi at 8m.					
43	*Pittosporum undulatum*	OLVP - 0	8	6x5 N/S	450 R	3	**Remove**
	Native Daphne	Comment: Crown declining, basal cavity.					
44	*Glochidion ferdinandi*	MGVF - 9	8	10 R	1000 DARB R	2	**Medium**
	Cheese Tree	Comment: Lopped to east for powerlines. Recommend remove Ivy, privet SRZ					
45	*Eucalyptus pilularis*	MLVF - 4	10	10x4 E/W	700@300 R	2	**Low**
	Blackbutt	Comment: Moderate volume epicormics, basal co-dominant stems scale.					
46	*Angophora costata*	Y/MGVF - 8.5	12	6x5 E/W	280 R	2	**Medium**
	Sydney Red Gum	Comment: Moderate kink lower stem.					
47	*Glochidion ferdinandi*	MGVF - 9	8	8x7 E/W	350 R	2	**Medium**
	Cheese Tree	Comment: Drought stress, lower branches lopped.					
48	*Eucalyptus pilularis*	OLVF - 2	12	16x12 E/W	1000 DARB R	1	**Medium**
	Blackbutt	Comment: Extensive hollow habitat resource however will require crown redirection to make safe.					
49	*Eucalyptus resinifera*	MLVF - 4	13	6 R	500@300 R	2	**Medium**
	Red Mahogany	Comment: Basal co-dominant stems twiggy dieback.					
50	*Acacia falcate*	MLVF - 4	12	7x5 N/S	550 R	2	**Medium**
	Hickory Wattle	Comment: Approaching over maturity, localised borer, moderate dieback.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
51	*Eucalyptus resinifera*	MGVF - 9	15	14x12 E/W	700 R	1	**High**
	Red Mahogany	Comment:					
52	*Angophora costata*	Y/MGVF - 8.5	13	6x4 RN/S	280 R	2	**Medium**
	Sydney Red Gum	Comment:					
53	*Eucalyptus resinifera*	MLVF - 4	14	9x7 N/S	550 R	2	**Medium**
	Red Mahogany	Comment:					
54	*Angophora costata*	MGVF - 9	16	17 R	900 R	2	**Medium**
	Sydney Red Gum	Comment:					
55	*Missing*						**MISSING**
		Comment:					
56	*Missing*						**MISSING**
		Comment:					
57	*Angophora costata*	YLVF - 3	10	7x5 E/W	280 R	2	**Medium**
	Sydney Red Gum	Comment:					
58	*Eucalyptus resinifera*	MLVF - 4	14	9 R	600 R	2	**Medium**
	Red Mahogany	Comment:					
59	*Pittosporum undulatum*	MLVF - 4	8	7 R	400@300 R	3	**Low**
	Native Daphne	Comment:					
60	*Angophora costata*	MGVF - 9	11	7x5 E/W	450@300 R	2	**Medium**
	Sydney Red Gum	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
61	*Cinnamomum camphora*	MGVF - 9	13	7x6 N/S	400@300 R	3	**Low**
	Camphor Laurel	Comment:					
62	*Grevillea robusta*	YGVF - 8	3	3 R	180 R	3	**Low**
	Silky Oak	Comment:					
63	*Angophora costata*	Y/MLVF - 8.5	12	4 R	260 R	2	**Medium**
	Sydney Red Gum	Comment: Minor borer.					
64	*Angophora costata*	MGVF - 9	15	11 R	450 R	1	**High**
	Sydney Red Gum	Comment: Minor borer.					
65	*Ficus rubiginosa*	MGVF - 9	11	11x8 N/S	450# R	2	**Medium**
	Port Jackson Fig	Comment: Engulfing 350mm DBH Angophora costata.					
66	*Angophora costata*	YGVF - 8	10	4 R	200 R	2	**Medium**
	Sydney Red Gum	Comment:					
67	*Cinnamomum camphora*	MGVF - 9	14	9x7 E/W	700@300 R	3	**Low**
	Camphor Laurel	Comment: Bushland weed but provides some screening to property to south.					
68	*Cinnamomum camphora*	MGVF - 9	15	16 R	3000 DARB R	3	**Low**
	Camphor Laurel	Comment: Large surface root plate, numerous basal stems likely from stump Bushland weed but provides some screening to property to south.					
69	*Missing*						**MISSING**
		Comment:					
70	*Missing*						**MISSING**
		Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
71	*Angophora costata*	MGVF - 9	14	14x12 N/S	1000 DARB R	2	**Medium**
	Sydney Red Gum	Comment: Twin basal stems from stump, very large root flare, surface root to south east, borer.					
72	*Angophora costata*	MGVF - 9	14	12x10 N/S	380 R	2	**Medium**
	Sydney Red Gum	Comment: Cavity wound at 5m, copious kino, good wound wood.					
73	*Angophora costata*	MGVF - 9	15	10x6 N/S	300 R	2	**Medium**
	Sydney Red Gum	Comment:					
74	*Allocasuarina torulosa*	OLVF - 2	8	4x3 N/S	250 R	2	**Low**
	Forest She Oak	Comment: Borer dieback.					
75	*Angophora costata*	Y/MGVF - 8.5	9	5 R	280 R	2	**Medium**
	Sydney Red Gum	Comment: Minor borer.					
76	*Angophora costata*	MGVF - 9	12	7x4 N/S	450@300 R	2	**Medium**
	Sydney Red Gum	Comment: Twin basal stems, minor borer.					
77	*Angophora costata*	MGVF - 9	9	6x4 N/S	400 R	2	**High**
	Sydney Red Gum	Comment: Minor borer.					
78	*Angophora costata*	MGVF - 9	12	5x4 N/S	280 R	2	**Medium**
	Sydney Red Gum	Comment: Minor borer.					
79	*Angophora costata*	MGVF - 9	11	10 R	600 R	2	**Remove**
	Sydney Red Gum	Comment: Wound bracket fungi at 6m north, co-dominant stem, Mistletoe lower crown to west.					
80	*Angophora costata*	MGVF - 9	12	8x7 N/S	300 R	2	**Low**
	Sydney Red Gum	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
81	*Angophora costata*	MGVF - 9	14	7 R	350 R	2	**Medium**
	Sydney Red Gum	Comment: Minor borer.					
82	*Corymbia citriodora*	MGVF - 9	14	7x4 N/S	300 R	2	**Low**
	Lemon Scented Gum	Comment: Wound with juvenile Ficus rubiginosa growing at 3m, change direction of stem, borer.					
83	*Angophora costata*	MGVF - 9	13	10x7 E/W	500 R	2	**Medium**
	Sydney Red Gum	Comment: Wound with bracket fungi at 3m, Recommend further investigation.					
84	*Angophora costata*	MGVF - 9	14	10 R	450 R	1	**High**
	Sydney Red Gum	Comment: Located top rock face.					
85	*Acacia falcate*	MGVF - 9	12	14x10 N/S	1300 DARB R	3	**Remove**
	Hickory Wattle	Comment: Large diameter surface roots, weak basal union, basal decay.					
86	*Corymbia citriodora*	MGVF - 9	14	9 R	450 R	2	**Medium**
	Lemon Scented Gum	Comment:					
87	*Corymbia citriodora*	MGVF - 9	13	20x9 N/S	1000# R	1	**Medium**
	Lemon Scented Gum	Comment: Central stem previously lost removed, 2x lowest branches become co-dominant stems north south axis.					
88	*Corymbia citriodora*	MGVF - 9	12	8x6 E/W	300 R	2	**Medium**
	Lemon Scented Gum	Comment:					
89	*Corymbia citriodora*	MLVF - 4	10	9x7 R	400 R	2	**Medium**
	Lemon Scented Gum	Comment: Wounding, dead branches lower crown.					
90	*Corymbia citriodora*	MGVF - 9	15	13x11 E/W	700 R	1	**High**
	Lemon Scented Gum	Comment: Multiple stem graft, mid-stem. minor borer at graft. Heritage Curtilage Pallister House					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
91	*Jacaranda mimosifolia*	MLVF - 4	8	8x5 E/W	600@300 R	2	**Low**
	Jacaranda	Comment: Numerous basal wounds, weak basal union. Heritage Curtilage Pallister House.					
92	*Angophora costata*	MGVF - 9	14	20x9 N/S	1300# R	1	**Medium**
	Sydney Red Gum	Comment: Large remnant specimen adjoining site however 60% crown overhanging site. Wild olives SRZ.					
93	*Cedrus deodara*	MGVF - 9	10	9x8 E/W	500 R	1	**Medium**
	Himalayan Cedar	Comment: Moderate volume dead wood lower to mid crown. (co-dominant stem to south removed in past). Heritage Curtilage Pallister House					
94	*Camellia japonica*	MGVF - 9	4	3 R	300@300 R	1	**Medium**
	Camellia	Comment:					
95	*Ficus rubiginosa*	MGVF - 9	13	16 R	1500# R	1	**Medium**
	Port Jackson Fig	Comment:					
96	*Missing*			R	R		**MISSING**
		Comment:					
97	*Missing*			R	R		**MISSING**
		Comment:					
98	*Missing*			R	R		**MISSING**
		Comment:					
99	*Missing*			R	R		**MISSING**
		Comment:					
100	*Missing*				R		**MISSING**
		Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
101	*Missing*						**MISSING**
		Comment:					
102	*Ficus rubiginosa*	MLVF - 4	19	22x20 E/W	3000 DARB R	1	**High**
	Port Jackson Fig	Comment: Moderate Fig psyllid/drought stress, upper crown twiggy dieback. Road, parking SRZ/TPZ. Localised borer, decay pockets.					
103	*Platanus digitate*	MLVF - 4	10	9 R	800@300 R	2	**Medium**
	Plane Tree	Comment: Dead branch to east, saprophytic fungal bracket Heritage Curtilage Pallister House					
104	*Jacaranda mimosifolia*	MLVF - 4	10	5 R	450 R	2	**Medium**
	Jacaranda	Comment: Heritage Curtilage Pallister House.					
105	*Schefflera actinophylla*	OLVP - 0	8	2 R	280 R	3	**Remove**
	Large Leaf Umbrella	Comment: Declining, weak unions, suppressing crown to north of tree 104.					
106	*Missing*						**MISSING**
		Comment:					
107	*Thuja orientalis*	MGVF - 9	7	4x3 E/W	300@300 R	2	**Medium**
	Bookleaf Conifer	Comment:					
108	*Eucalyptus pilularis*	MGVF - 9	18	18x14 E/W	1100 R	1	**?**
	Blackbutt	Comment: North stem topped at 4-5m, recommend further investigation swollen regrowth points.					
109	***Eucalyptus microcorys***	MGVF - 9	18	16x12 N/S	800 R	2	**Medium**
	Tallowwood	Comment:					
110	*Eucalyptus grandis*	MGVF - 9	20	12x10 E/W	1000 R	1	**High**
	Rose gum	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
111	*Liquidambar styraciflua*	Y/MGVF - 8.5	9	6 R	300 R	2	**Medium**
	Sweet Gum	Comment:					
112	*Chamaecyparis lawsoniana*	MLVF - 4	10	3 R	300@300 R	3	**Low**
	Lawson Cypress	Comment: South crown shaded out by 90%.					
113	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
114	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
115	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
116	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
117	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
118	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
119	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
120	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
121	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
122	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
123	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
124	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
125	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
126	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
127	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
128	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
129	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					
130	*Cupressus torulosa*	MGVF - 9	10-12	3-2 R	200-300 R	2	**Medium**
	Bhutan Cypress	Comment: Linear planting group to south existing carpark. Asymmetrical crowns to north.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
131	*Missing*						**MISSING**
		Comment:					
132	*Glochidion ferdinandi*	MGVF - 9	6	6 R	550@300 R	2	**Medium**
	Cheese Tree	Comment: Twin basal stems.					
133	*Pinus patula*	OLVD	12	8x4 E/W	400 R	3	**Remove**
	Mexican Weeping Pine	Comment: 90% dead.					
134	*Cupressus cashmeriana*	MGVF - 9	16	10 R	900 R	2	**Medium**
	Kashmir Cypress	Comment: Numerous co-dominant stems arising at 3m.					
135	*Cedrus deodara*	MLVF - 4	12	9x7 E/W	500 R	2	**Medium**
	Himalayan Cedar	Comment: Drought stress.					
136	*Cedrus deodara*	MLVF - 4	9	9x6 N/S	450 R	2	**Low**
	Himalayan Cedar	Comment:					
137	*Callistemon salignus*	MGVF - 9	9	9 R	600@300 R	2	**Medium**
	Willow Bottlebrush	Comment: Multiple included unions.					
138	*Eucalyptus saligna*	MGVF - 9	15	10 R	800 R	2	**Medium**
	Sydney Blue Gum	Comment:					
139	*Livistona chinesis*	MGVF - 9	12	4 R	320 R	2	**Medium**
	Chinese Fan Palm	Comment:					
140	*Missing*						**MISSING**
		Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
141	*Missing*						**MISSING**
		Comment:					
142	*Eucalyptus scoparia*	OLVP - 0	12	7 R	600 R	3	**Remove**
	Wallangarra White Gum	Comment: *Eucalyptus scoparia, large basal wound, decay splitting, borer.*					
143	*Phoenix canariensis*	MGVF - 9	6	5 R	600 R	3	**Low**
	Date Palm	Comment: Weed species.					
144	***Ginkgo biloba***	MGVF - 9	10	6 R	350@300 R	2	**Medium**
	Maidenhair Tree	Comment: Growing restricted area between extend wall and kerb access road.					
145	***Ginkgo biloba***	MGVF - 9	10	6 R	450@300 R	2	**Medium**
	Maidenhair Tree	Comment: Growing restricted area between extend wall and kerb access road.					
146	*Cinnamomum camphora*	MGVF - 9	9	12x8 E/W	600@300 R	3	**Low**
	Camphor Laurel	Comment: Invasive weed species.					
147	*Eucalyptus saligna*	MGVF - 9	15	10x8 E/W	580 R	2	**Medium**
	Sydney Blue Gum	Comment: Weak union at 7m.					
148/2	*Hymenosporum flavum x5*	Y/MGVF - 8.5	3-5	2-4 E/W	100-140 R	2	**Low**
	Native Frangipani	Comment: Linear drive edge planting. Suppressed by mature trees to east.					
149	*Eucalyptus microcorys*	MGVF - 9	17	12 R	900 R	2	**Medium**
	Tallowwood	Comment: Termite mudding bark.					
150	*Liquidambar styraciflua*	MGVF - 9	16	16x12 E/W	600 R	2	**Medium**
	Sweet Gum	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
151	*Acer negundo*	MGVF - 9	7	10x8 E/W	500 R	3	**Low**
	Box Elder Maple	Comment: Basal suckers, numerous stub cavities lower crown.					
152	*Acer negundo*	MGVF - 9	10	11x10 N/S	800 R	2	**Low**
	Box Elder Maple	Comment: Topped and lopped to north.					
153	*Acer negundo*	MGVF - 9	12	14x12 E/W	1100@300 R	2	**Low**
	Box Elder Maple	Comment: Triple basal stems at 600mm. Topped at 3m.					
154	*Magnolia grandiflora*	MGVF - 9	8	3 R	400@300 R	2	**Medium**
	Bull Bay Magnolia	Comment: Triple included basal stems.					
155	*Magnolia grandiflora*	MGVF - 9	8	4 R	400 R	2	**Medium**
	Bull Bay Magnolia	Comment: Minor foliar disease.					
156	*Jacaranda mimosifolia*	MGVF - 9	12	7 R	600@300 R	2	**Medium**
	Jacaranda	Comment: Topped at 900mm.					
157/3	*Acer negundo x2*	MGVF - 9	9	8x7 N/S	150-300 R	2	**Low**
	Box Elder Maple	Comment: All specimens likely topped at 1.5-2.5m.					
158	*Triadica sebifera*	MLVF - 4	12	8 R	600@300 R	2	**Medium**
	Chinese Tallowwood	Comment: Basal co-dominant stems, high volume epicormics.					
159	*Brachychiton acerifolius*	MGVF - 9	8	5x4 E/W	350 R	2	**Medium**
	Illawarra Flame Tree	Comment:					
160	*Cedrus atlantica*	MLVP - 2	11	12 R	600 R	2	**Low**
	Atlantic Cedar	Comment: Extensive decline, drought stress, root loss from construction SRZ.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
161	*Pyrus*	MGVF - 9	8	5 R	280 R	3	**Low**
	Ornamental Pear	Comment:					
162	*Pyrus*	MGVF - 9	8	4 R	300@300 R	3	**Low**
	Ornamental Pear	Comment:					
163	*Angophora costata*	MLVF - 4	13	11x9 E/W	700 R	1	**?**
	Sydney Red Gum	Comment: Cracking basal stem area, further investigation.					
164	*Jacaranda mimosifolia*	Y/MGVF - 8.5	8	3x2 E/W	200 R	3	**Low**
	Jacaranda	Comment:					
165	*Angophora costata*	MLVP - 2	9	6x3 E/W	300 R	2	**Low**
	Sydney Red Gum	Comment: Extensive basal wound, borer, thin crown.					
166	*Cinnamomum camphora*	OLVP - 0	9	8x6 N/S	500 R	3	**Low**
	Camphor Laurel	Comment: Extensive dieback.					
167	*Ficus rubiginosa*	MLVF - 4	11	15x12 N/S	1800 DARB R	1	**High**
	Port Jackson Fig	Comment: Climbing succulent to mid crown (recommend removal). Moderate volume epicormics mid-crown, moderate Fig psyllid/drought stress					
168	*Eucalyptus sideroxylon*	MLVF - 4	9	9x6 R	420 R	2	**Low**
	Pink Flowering Ironbark	Comment: Twiggy dieback.					
169	*Missing*						**MISSING**
		Comment: Suckers off stump *Eucalyptus sideroxylon*					
170	*Missing*						**MISSING**
		Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
171	*Acer negundo*	MGVF - 9	8	6x5 N/S	250 R	3	**High**
	Box Elder Maple	Comment:					
172	*Acer negundo*	MGVF - 9	9	6x5 N/S	400@300 R	3	**High**
	Box Elder Maple	Comment:					
173	*Acer negundo*	MGVF - 9	9	8x6 N/S	400@300 R	3	**High**
	Box Elder Maple	Comment:					
174	*Acer negundo*	YMGVF - 8.5	6	7x4 N/S	300@300 R	3	**High**
	Box Elder Maple	Comment:					
175	*Acer negundo*	MGVF - 9	7	9x5 N/S	550@300 R	3	**High**
	Box Elder Maple	Comment:					
176	*Eucalyptus pilularis*	MGVF - 9	10	10 R	550 R	2	**High**
	Blackbutt	Comment:					
177	*Eucalyptus pilularis*	OLVF - 2	12	16x12 R	1000 R	1	**Medium**
	Blackbutt	Comment:					
178	*Phoenix canariensis*	Y/MGVF – 8.5	4	5 R	900 R	3	**Low**
	Date Palm	Comment:					
179	*Phoenix canariensis*	Y/MGVF – 8.5	3	4 R	600 R	3	**Remove**
	Date Palm	Comment:					
180	*Phoenix canariensis*	Y/MGVF – 8.5	3	4 R	800 R	3	**Low**
	Date Palm	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
181	*Phoenix canariensis*	Y/MGVF – 8.5	3	5 R	800 R	3	**Low**
	Date Palm	Comment:					
182	*Phoenix canariensis*	Y/MGVF – 8.5	5	5 R	800 R	3	**Low**
	Date Palm	Comment:					
183	*Phoenix canariensis*	Y/MGVF – 8.5	6	6 R	1400 R	3	**Low**
	Date Palm	Comment:					
184	*Eucalyptus pilularis*	MGVF - 9	18	16x14 N/S	800 R	1	**High**
	Blackbutt	Comment:					
185	*Eucalyptus sideroxylon*	Y/MLVF - 3.5	10	7 R	320 R	2	**Medium**
	Pink Flowering Ironbark	Comment: Localised borer.					
186	*Eucalyptus sideroxylon*	Y/MLVF - 3.5	8	6x3 N/S	300 R	2	**Medium**
	Pink Flowering Ironbark	Comment:					
187	*Syagrus romanzoffianum*	MGVF - 9	8	5 R	280 R	2	**Medium**
	Cocos Palm	Comment:					
188	*Syzygium smithii*	Y/MGVF - 8.5	10	6x4 E/W	800@300 R	2	**Medium**
	Lilly Pilly	Comment: Multiple stems 150mm diameter from stump, being engulfed by tree 189.					
189	*Ficus rubiginosa*	MGVF - 9	7	12x7 E/W	900 R	1	**High**
	Port Jackson Fig	Comment: Low level Fig psyllid/drought stress					
190	*Ficus rubiginosa*	MGVF - 9	12	12x9 N/S	800@300 R	1	**High**
	Port Jackson Fig	Comment: Twin basal stems at 500mm Moderate volume epicormics shoots low level Fig psyllid/drought stress.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
191	*Cinnamomum camphora*	MGVF - 9	12	11x9 E/W	1000 DARB R	2	**Low**
	Camphor Laurel	Comment: 4x basal stems, topped at 2-3m termite damage dead low branch.					
192	*Cinnamomum camphora*	MGVF - 9	12	12x10 E/W	1100# DARB R	2	**Low**
	Camphor Laurel	Comment: Triple basal grafted stems. Topped at 2m.					
193	*Olea europaea var. Africana*						EXEMPT
	African Olive	Comment: EXEMPT					
194	*Populus deltoides*	OLVF - 2	9	7 R	500@ 300 R	3	**Low**
	Eastern Cottonwood	Comment: Termite damage / basal cavities					
195	*Celtis*	Y/MGVF - 8.5	8	8x6 N/S	600@300 R	3	**Remove**
	Hackberry	Comment: Self-sown.					
196	*Triadica sebifera*	YGVF - 8	7	3 R	150 R	2	**Medium**
	Chinese Tallowwood	Comment: Celtis sapling in SRZ recommend removal.					
197	*Triadica sebifera*	MGVF - 9	8	5x3 E/W	400@300 R	3	**Low**
	Chinese Tallowwood	Comment: Previously topped, crown rubbing on existing building. Privet in SRZ.					
198	*Pittosporum undulatum*	MLVP - 2	7	6x3 N/S	450@300 R	3	**Low**
	Native Daphne	Comment: Drought stress.					
199	*Acer negundo*	MGVF – 9	8	8x7 N/S	150 R	3	**Low**
	Box Elder Maple	Comment:					
200	*Melia azedarach*	MGVP - 6	9	5 R	140 R	3	**Remove**
	White Cedar	Comment: Partial root plate failure					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
201	*Triadica sebifera*	MGVF - 9	8	3 R	220 R	2	**Medium**
	Chinese Tallowwood	Comment:					
202	*Erythrina x sykesii*	MGVP - 6	7	7 R	550@300 R	3	**Remove**
	Coral tree	Comment: Multiple weak basal stems.					
203	*Acer negundo*	MGVF - 9	7	6x4 E/W	280 R	3	**Medium**
	Box Elder Maple	Comment:					
204	*Ficus rubiginosa*	MGVF - 9	8	9x6 N/S	450@300 R	2	**Medium**
	Port Jackson Fig	Comment:					
205	*Erythrina x sykesii*	MGVF - 9	11	9 R	900@300 R	3	**Remove**
	Coral tree	Comment: Weak basal union.					
206	*Privet*					3	**Remove**
		Comment: Exempt species					
207	*Stenocarpus sinuatus*	MGVF - 9	8	5 R	300 R	2	**Medium**
	Firewheel Tree	Comment:					
208	*Phoenix canariensis*	MGVF - 9	7	6 R	700 R	2	**Medium**
	Date Palm	Comment:					
8A	*Glochidion ferdinandi*	Y/MLVP - 1.5	6	4 R	300@300 R	3	**Low**
	Cheese Tree	Comment: Suppressed by 3 adjacent fig trees, crown dieback, drought stress.					
11A	*Acacia falcate*	OLVP - 0	7	3 R	180 R	3	**Remove**
	Hickory Wattle	Comment: Borer, 40% crown dieback.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
14A	*Glochidion ferdinandi*	MLVF - 4	8	8x6 N/S	350 R	2	**Medium**
	Cheese Tree	Comment: 30% crown dieback likely drought stress.					
21A	*Pittosporum undulatum*	MLVF - 4	8	6x15 N/S	300 R	3	**Low**
	Native Daphne	Comment: Psyllids, sooty mould.					
22A	*Cupaniopsis anacardioides*	YGVF - 8	6	4x3 N/S	160 R	3	**Low**
	Tuckeroo	Comment: Weak union at 900m.					
38A	*Angophora costata*	OLVP - 0	8	5 R	280 R	3	**Remove**
	Sydney Red Gum	Comment: 90% dead crown.					
45A/4	*Ficus rubiginosa x2*	YGVF - 8	6-9	3-5 R	120-260 R	2	**Medium**
	Port Jackson Fig	Comment:					
74A	*Angophora costata*	MGVF - 9	11	6 R	260 R	2	**Medium**
	Sydney Red Gum	Comment:					
85A	*Ficus rubiginosa*	MGVF - 9	9	12x10 N/S	800# R	1	**High**
	Port Jackson Fig	Comment: 50% crown overhanging site.					
91A	*Lagerstroemia indica*	MGVF - 9	5	5x4 N/S	600@300 R	2	**Medium**
	Crepe Myrtle	Comment: Multiple basal stems Heritage Curtilage Pallister House.					
91B	*Lagerstroemia indica*	MGVF - 9	5	5x4 R	600@300 R	2	**Medium**
	Crepe Myrtle	Comment: Multiple basal stems Heritage Curtilage Pallister House.					
91C	*Photinia glabra*	MLVP - 2	6	8X5 E/W	500 @ 300 R	3	**Low**
	Photinia	Comment:					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
83A	*Ficus rubiginosa*	YGVF - 8	5	3 R	140 R	2	**Medium**
	Port Jackson Fig	Comment:					
81A	*Stenocarpus sinuatus*	Y/MGVF - 8.5	6	2 R	130 R	2	**Medium**
	Firewheel Tree	Comment: Non-locally indigenous species.					
81B	*Angophora costata*	Y/MGVF - 8.5	12	4x3 N/S	200 R	2	**Medium**
	Sydney Red Gum	Comment:					
107A	*Jacaranda mimosifolia*	YGVF - 8	6	4x2 N/S	130 R	3	**Remove**
	Jacaranda	Comment: Self-sown					
107B	*Robinia pseudoacacia*	YGVF - 9	6	2 R	100 R	3	**Remove**
	Golden Rain Tree	Comment: Self-sown.					
107C	*Lagerstroemia indica*	MGVF - 9	8	6x4 E/W	500 DARB R	2	**Medium**
	Crepe Myrtle	Comment: Heritage Curtilage Pallister House.					
133A	*Melaleuca bracteata 'Revolution Green'*	Y/MGVF - 8.5	8	3 R	160 R	2	**Medium**
	Revolution Green Paperbark	Comment:					
133B	*Melaleuca bracteata 'Revolution Green'*	Y/MGVF - 8.5	10	3 R	180 R	2	**Medium**
	Revolution Green Paperbark	Comment:					
142A/5	*Phoenix canariensis x4*	MGVF - 9	7	6 R	800 R	3	**Low**
	Date Palm	Comment: Located to east and south of tree 142, bushland invading species.					
144A	*X Cupressocyparis leylandii*	MGVF - 9	14	4 R	400 R	2	**Low**
	Leyland Cypress	Comment: Excessively crown, lifted.					

Tree / Stand No.	*Genus & Species* Common Name	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au	Ht. Approx. metres	Crown Spread approx. metres	DBH in mm @ 1.4m, or other, as indicated g = ground	Significance Scale 1=High 2=Medium 3=Low (E) - Environmental Pest/Noxious Weed Species (H) - Hazardous	Tree Retention Priority High -Priority for retention Medium -Consider for retention Low -Consider for removal Remove – Priority for removal
147A	*Phoenix canariensis*	MGVF - 9	5	6 R	800 R	2	**Medium**
	Date Palm	Comment:					
147B	*Celtis*	MGVF - 9	10	6 R	350 R	2	**Medium**
	Hackberry	Comment:					
147C	*Liquidambar styraciflua*	Y/MGVF - 8.5	7	7x5 E/W	280 R	2	**Medium**
	Sweet Gum	Comment:					
147D/6	*Acer negundo x3*	MGVF - 9	8-9	5-7x5 E/W	200-260 R	2	**Medium**
	Box Elder Maple	Comment:					
147E	*Acer negundo*	MGVF - 9	8	8 R	500@300 R	2	**Medium**
	Box Elder Maple	Comment: Lower crown covered in English Ivy, twin stems arising at 400mm					
153A	*Magnolia grandiflora*	Y/MGVF - 8.5	9	3x2 R	230 R	2	**Medium**
	Bull Bay Magnolia	Comment:					
162A/7	*Archontophoenix cunninghamiana x2*	Y/MGVF - 8.5	6	2 R	150 R	3	**Low**
	Bangalow Palm	Comment:					
160A	*Syzygium australe*	MGVF - 9	6	3x2 N/S	180 R	2	**Medium**
	Lilly Pilly	Comment:					
159a	*Syzygium australe*	MGVF - 9	5.5	3 R	150 R	2	**Medium**
	Lilly Pilly	Comment:					

Observations

7.2 The site has a stand of young, mature or senescent, remnant and planted endemic and non-locally indigenous or exotic evergreen and deciduous taxa within the current proposal. The proposed design requires the retention and protection of one hundred and four (104) specimens within the site and on the neighbouring properties as they are considered significant for their contribution as landscape elements to the property and the retention of these trees allows them as components of the current curtilage to be transferred to the new proposal, maintaining elements of a continuous landscape, providing a more harmonious integration and transition of the use of the land.

Tree Significance

7.3 Significant Trees as established by the Rating System for Tree Significance – IACA Stars (2010), Appendix A.

Significance Scale
1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No.	4, 5, 6, 7, 9, 12, 14, 25, 29, 41, 48, 51, 64, 84, 87, 90, 92, 93, 94, 95, 102, 108, 110, 163, 167, 177, 184, 189, 190, 85A	1, 2, 10, 15, 19, 20, 22, 27, 28, 30, 34, 35, 37, 39, 40, 44, 45, 46, 47, 49, 50, 52, 53, 54, 57, 58, 60, 63, 65, 66, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 83, 86, 88, 89, 91, 103, 104, 107, 109, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 134, 135, 136, 137, 138, 139, 144, 145, 147, 149, 150, 152, 153, 154, 155, 156, 157, 158, 159, 160, 165, 168, 176, 185, 186, 188, 191, 192, 196, 207, 208, 14A, 45A, 74A, 91ABC, 83A, 81AB, 107C, 133AB, 144A, 147ABCDE, 153A, 160A, 159A	8, 13, 18, 23, 26, 31, 32, 33, 36, 38, 42, 43, 59, 61, 62, 67, 68, 82, 85, 105, 112, 133, 142, 143, 146, 151, 161, 162, 164, 166, 171, 172, 173, 175, 194, 197, 198, 206, 8A, 11A, 21A, 22A, 38A, 107AB, 142A, 162A

Tree Retention Value

7.4 See Appendix A for Retention Value Matrix.
Retention Value
High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No.	4, 5, 6, 7, 9, 12, 14, 18, 24, 25, 29, 41, 51, 64, 84, 90, 102, 110, 167, 171, 172, 173, 174, 175, 176, 184, 189, 190, 85A	1, 2, 10, 15, 19, 20, 22, 27, 28, 30, 34, 35, 37, 39, 40, 44, 46, 47, 48, 49, 50, 52, 53, 54, 57, 58, 60, 63, 65, 66, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 83, 86, 87, 88, 89, 92, 96, 94, 95, 103, 104, 107, 109, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 132, 134, 135, 137, 138, 139, 144, 145, 147, 149, 150, 154, 155, 156, 158, 159, 177, 185, 186, 187, 188, 196, 201, 203, 204, 207, 208, 14A, 45A, 74A, 91A, 91B, 91C 83A, 81A, 81B, 107C, 133A, 133B, 147A, 147B, 147C, 147D, 147E, 153A, 159A, 160A,	13, 17, 23, 26, 31, 33, 36, 38, 45, 59, 61, 62, 67, 68, 74, 82, 91, 112, 136, 143, 146, 148, 151, 152, 153, 157, 160, 161, 162,163, 164, 165, 166, 168, 178,180, 181, 182, 191, 192, 193, 194, 197, 198, 199, 8A, 21A, 22A 142A, 144A, 162A	8, 16, 18, 32, 42, 43, 85, 105, 133, 142, 179, 195, 200, 202, 206, 11A, 38A, 107A, 107B

* Trees located within the neighbouring property and should be retained and protected. Consent required from owner if removal required.

7.5 AS4970 (2009) section 3, 3.3.3 requires the Project Arborist to demonstrate that where a retained tree is subject to a major encroachment (>10% of area of TPZ) it can be protected to remain viable

7.6 14.2Tree 1, 2, 4, 5, 6, 7, 8A, 10, 11A, 12, 13, 14, 15, 20, 21, 21A, 22, 22A, 23, 24, 25, 26, 29, 30 & 37, *Cinnamomum camphora* - Camphor Laurel, *Pinus radiata* - Radiata Pine, *Ficus rubiginosa* - Port Jackson Fig, *Pittosporum undulatum* - Native Daphne, *Agathis robusta* - Queensland Kauri Pine, *Eucalyptus pilularis* – Blackbutt, *Glochidion ferdinandi* - Cheese Tree, *Eucalyptus saligna x botryoides* - Wollongong Wollybutt, *Cupaniopsis anacardioides* – Tuckeroo, *Eucalyptus botryoides* - Bangalay Gum & *Eucalyptus saligna* - Sydney Blue Gum, these specimens are located within the north-east end of the site.

7.7 Tree 19, 31, 33, 34, 41, 44, 45, 45A, 46, 47, 48, 49, 50, 51, 60 & 61, *Angophora bakeri* - Small Leaf Apple, *Phoenix canariensis* - Date Palm, *Pittosporum undulatum* - Native Daphne, *Eucalyptus saligna* - Sydney Blue Gum, *Glochidion ferdinandi* - Cheese Tree, *Eucalyptus pilularis* – Blackbutt, *Angophora costata* - Sydney Red Gum, *Eucalyptus resinifera* - Red Mahogany, *Acacia falcata* - Hickory Wattle, *Cinnamomum camphora* - Camphor Laurel & *Ficus rubiginosa* - Port Jackson Fig, these specimens are located within the south-east end of the site.

7.8 Tree 75, 76, 79, 80, 81, 81A, 81B, 83, 83, 83A, 84, 85A, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92, 93, 94, 95, 102. 103. 104. 107. 108. 109. 110. 111. 112 *Angophora costata* - Sydney Red Gum, *Corymbia citriodora* - Lemon Scented Gum, *Jacaranda mimosifolia* – Jacaranda, *Cedrus deodara* - Himalayan Cedar, *Camellia japonica* – Camellia, *Ficus rubiginosa* - Port Jackson Fig, *Stenocarpus sinuatus* - Firewheel Tree, *Acer negundo* - Box Elder Maple, *Lagerstroemia indica* - Crepe Myrtle, *Photinia glabra* – Photinia, *Platanus digitate* - Plane Tree, *Thuja orientalis* - Bookleaf Conifer, *Eucalyptus pilularis* – Blackbutt, *Eucalyptus microcorys* – Tallowwood, *Eucalyptus grandis* - Rose gum, *Liquidambar styraciflua* - Sweet Gum & *Chamaecyparis lawsoniana* - Lawson Cypress, These specimens are located to the south of the site within the Pallister House grounds.

7.9 Tree 132, 13A, 133B, 134, 135, 136, 137, 138, 139, 142A, 147, 147E, 148, 151, 152, 154, 155, 156, 158, 158, 160A & 199 *Glochidion ferdinandi* - Cheese Tree, *Melaleuca bracteata 'Revolution Green'* - Revolution Green Paperbark, *Cupressus cashmeriana* - Kashmir Cypress, *Cedrus deodara* - Himalayan Cedar, *Callistemon salignus* - Willow Bottlebrush, *Eucalyptus saligna* - Sydney Blue Gum, *Livistona chinensis* - Chinese Fan Palm, *Phoenix canariensis* - Date Palm, *Eucalyptus saligna* - Sydney Blue Gum, *Hymenosporum flavum* - Native Frangipani, *Acer negundo* - Box Elder Maple, *Magnolia grandiflora* - Bull Bay Magnolia, *Triadica sebifera* - Chinese Tallowwood,& *Brachychiton acerifolius* - Illawarra Flame Tree & *Syzygium australe* - Lilly Pilly, these specimens are located on the western side of the site.

- *Trees viability to development; the impact by the proposed development will be assessed further when detailed architectural plans are available. The project arborist is to certify that installation of protection measures have been installed as per D/A conditions prior to commencement and works are to be monitored throughout the project at approx. 3 mthly intervals depending on the length of the development. These specimens should remain viable beyond completion of development provided recommended installation & protection measures are adhered to.*

- *Development Impacts:* AS4970 (2009) section 3 requires a TPZ setback as detailed in column 4 of Table 2 from COT, the setback for the proposed development adjacent to these specimens is to be greater than the Structural Root Zone as detailed in column 2 of Table 2. Additional trees may require removal, depending on setbacks when detailed plans are available.

Demolition and Tree Removal/s

710 Trees 8, 9, 11, 11A, 16, 17, 18, 27, 28, 32, 35, 36, 38, 38A, 39, 40, 42, 43, 52, 53, 54, 57, 58, 59, 62, 63, 64, 65, 66, 67, 68, 71, 72, 73, 74, 74A, 77, 78, 85, 105, 107A, 107B, 107C, 113 to 130(18), 133, 142, 143, 144, 144A, 145, 146, 147A, 147B 147C, 147Dx3, 149, 150, 153, 153A, 157x3, 159A, 160, 160A, 161, 162, 162Ax2 , 163, 164, 165, 166, 167, 168, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 200, 201, 202, 203, 204, 205, 206, 207 & 208 are to be removed as they are not worthy of retention or located within the site in a position where they cannot be retained due to the proposed building footprints and associated infrastructure where encroachment will have an adverse impact on its roots and crown for viability and stability.

- Tree 11: *Acacia sp.* - Wattle; located within the property and positioned outside the proposed building footprint. This specimen is dead and recommended to be removed independent to the proposed development.

- Tree 8, 18, 32, 36, 67, 68, 85, 105, 146, 147B, 166, 187, 191, 192, 193, 195, 202, 205 & 206: *Cinnamomum camphora* - Camphor Laurel, *Erythrina x sykesii* - Coral tree, *Schefflera actinophylla* - Large Leaf Umbrella, *Syagrus romanzoffianum* - Cocos Palm, *Olea europaea var. Africana* - African Olive & *Celtis sp.* – Hackberry & *Privet*; these specimen are located within the property and are exempt species or horticultural industry recognised weed species and are recommended to be removed as part of the redevelopment of the site.

- Tree 9, 17, 27, 28, 35, 36, 38, 39, 40, 52, 53, 54, 57, 58, 59, 62, 63, 64, 65, 66, 67, 68, 71, 72, 73, 74, 74A, 77, 78, 107C, 113 to 130(18), 143, 144, 144A, 145, 147A, 147B 147C, 147Dx3, 149, 150, 153, 153A, 157x3, 159A, 160, 160A, 161, 162, 162Ax2 , 163, 164, 165, 167, 168, 171, 172, 173, 174, 175, 176, 1 77, 178, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 194, 196, 197, 198, 200, 2 01, 203, 204, 207, 208: *Ficus rubiginosa* - Port Jackson Fig, *Eucalyptus saligna* - Sydney Blue Gum, *Angophora costata* - Sydney Red Gum, *Glochidion ferdinandi* - Cheese Tree, *Eucalyptus saligna x botryoides* - Wollongong Woolybutt, *Eucalyptus pilularis* – Blackbutt, *Eucalyptus resinifera* - Red Mahogany, *Pittosporum undulatum* - Native Daphne, *Grevillea robusta* - Silky Oak, *Allocasuarina torulosa* - Forest She Oak, *Cupressus torulosa* - Bhutan Cypress, *Phoenix canariensis* - Date Palm, *Ginkgo biloba* - Maidenhair Tree, *Eucalyptus microcorys* – Tallowwood, *Liquidambar styraciflua* - Sweet

Gum, *Acer negundo* - Box Elder, *Cedrus atlantica* - Atlantic Cedar, *Pyrus* - Ornamental Pear, *Jacaranda mimosifolia* – Jacaranda, *Eucalyptus sideroxylon* - Pink Flowering Ironbark, *Eucalyptus pilularis* – Blackbutt, *Syzygium smithii* - Lilly Pilly, *Populus deltoids* - Eastern Cottonwood, Triadica sebifera - Chinese Tallowwood, *Melia azedarach* - White Cedar, *Stenocarpus sinuatus* - Firewheel Tree, *Lagerstroemia indica* - Crepe Myrtle, *X Cupressocyparis leylandii* - Leyland Cypress, *Magnolia grandiflora* - Bull Bay Magnolia, *Syzygium australe* - Lilly Pilly *& Archontophoenix cunninghamiana* - Bangalow Palm; located within the site and positioned within the proposed building envelope. If this current proposed design is approved, then these specimens cannot be retained and are recommended to be replaced as part of the proposed landscape works.

- Tree 11A, 16, 38A, 42, 43, 107A, 107B, 133, 142 & 179: *Acacia falcata* - Hickory Wattle, *Phoenix canariensis* - Date Palm, *Angophora costata* - Sydney Red Gum, *Eucalyptus resinifera* - Red Mahogany, *Pittosporum undulatum* - Native Daphne, *Jacaranda mimosifolia* – Jacaranda, *Robinia pseudoacacia* - Golden Rain Tree, *Pinus patula* - Mexican Weeping Pine, *Eucalyptus scoparia* - Wallangarra White Gum; these specimens are recommended to be removed independent to the proposed development due to compromised structural integrity due to their healthy &/or condition – see tables in section 7 for further details.

7.11 Removal of a tree within 6 m of a tree to be retained should be undertaken only by cutting down such a tree without damaging the trees to be retained, and by grinding out its stump. Where possible the structural roots of 20 mm diameter or greater of the tree to be cut down should not be removed, to minimise soil disturbance and to reduce the impact on the roots of any tree to be retained nearby. Where structural roots are to be removed, this should be undertaken manually by the use of non-motorized hand tools after the stump has been ground out when such roots are often easier to locate from the site of the stump from which they have been severed.

Specific - Tree works – Post Construction

7.12 Trees to be removed are to be replaced with advanced specimens being mindful of the space limitations of the new use of the site. The advanced trees should be situated in areas along the boundaries of the site. The planting in these locations will provide the maximum benefit to the surrounding properties by screening views to and from the site and the plantings included in the proposed landscape plan. The replacement trees will be situated in positions where they may grow to maturity unhindered and will not conflict with built structures or utility services and in greater numbers than the trees removed should provide a net increase in the local amenity.

8.0 CONCLUSION

One hundred and thirty-one (131) trees are nominated for removal and replacement with species in accordance with the associated Landscape documentation for the development. The one hundred and four (104) trees to be preserved will be retained and protected through the implementation of adequate measures for their integration into the development by the application of appropriate technology as detailed in this report. Where appropriate, the Landscape Plan will include planting with new trees including street tree/s. *The Arboricultural Impact Assessment only considers the developable areas of the site. The south-western corner of the site contains a densely vegetated area extending down a steep slope towards Gore Creek. This part of the site will remain largely intact and is considered under the Ecology Impact Assessment prepared by Keytone Ecological and included in support of the EIS*. When trees from this area are considered the tree retention on site will exceed required tree removal.

<u>The recommendations made in this report are subject to approval by the consent authority.</u>

9.0 RECOMMENDATIONS

9.1 Trees 1, 2, 4, 5, 6, 7, 8A, 10, 12, 13, 14, 14A, 15, 19, 20, 21, 21A, 22, 22A, 23, 24 25, 26, 29, 30, 31, 33, 34, 37, 41, 44, 45, 45A^{x2}, 46, 47, 48, 49, 50, 51, 60, 61, 75, 76, 79, 80, 81, 81A, 81B, 82, 83, 83A, 84, 85A*, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92*, 93, 94, 95, 102, 103, 104, 107, 108, 109, 110, 111, 112, 132, 133A, 133B, 134, 135, 136, 137, 138, 139, 142A^{x4},147, 147E, 148^{x5}, 151, 152, 154, 155, 156, 158, 159 & 199 are to be retained in situ within the site and are to be protected as detailed in 7.5 – 7.9 and Section 14 of part B of this report. Tree protection fences, or works, to be situated in accordance with *Site Plan B - Trees to be Retained and Tree Protection Zones* (Appendix F). *See Tree Protection Plan for additional protection measures for the management of retained specimens.*

9.2 Trees 8, 9, 11, 11A, 16, 17, 18, 27, 28, 32, 35, 36, 38, 38A, 39, 40, 42, 43, 52, 53, 54, 57, 58, 59, 62, 63, 64, 65, 66, 67, 68, 71, 72, 73, 74, 74A, 77, 78, 85, 105, 107A, 107B, 107C, 113 to 130$^{(18)}$, 133, 142, 143, 144, 144A, 145, 146, 147A, 147B 147C, 147D^{x3}, 149, 150, 153, 153A, 157^{x3}, 159A, 160, 160A, 161, 162, 162A^{x2} , 163, 164, 165, 166, 167, 168, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 200, 201, 202, 203, 204, 205, 206, 207 & 208 are to be removed which is to be undertaken in accordance with 7.10 - 7.11 and Section 13 of Part B of this report.

9.3 Each of the replacement are to be a vigorous specimen with a straight trunk, gradually tapering and continuous, crown excurrent, symmetrical, with roots established but not pot bound in a volume container or approved similar and be maintained by an appropriately qualified and experienced landscape contractor for up to one (1) year after planting, or as appropriate.

Craig Martin
Senior Associate
Post Grad Cert Wildlife Habitat Management 2006,
Diploma of Horticulture – Arboriculture; (AQF5) 2001,
Horticulture Certificate; 1988

REFERENCES
1. Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.
2. IACA 2005, Sustainable Retention Index Value, *Institute of Australian Consulting Arboriculturists*, Australia, www.iaca.org.au .
3. Standards Australia 2007, *Australian Standard 4373 Pruning of amenity trees*, Standards Australia, Sydney, Australia.
4. Standards Australia 2009, *Australian Standard 4970 Protection of trees on development sites*, Standards Australia, Sydney, Australia.
5. Safe Work Australia 2016, Guide to Managing Risks of Tree Trimming & Removal Works.
6. Buchanan R. A. (1989), *Bush Regeneration – Recovering Australian Landscapes*, TAFE Student Learning Publications Sydney Australia.

Appendix A

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.

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.

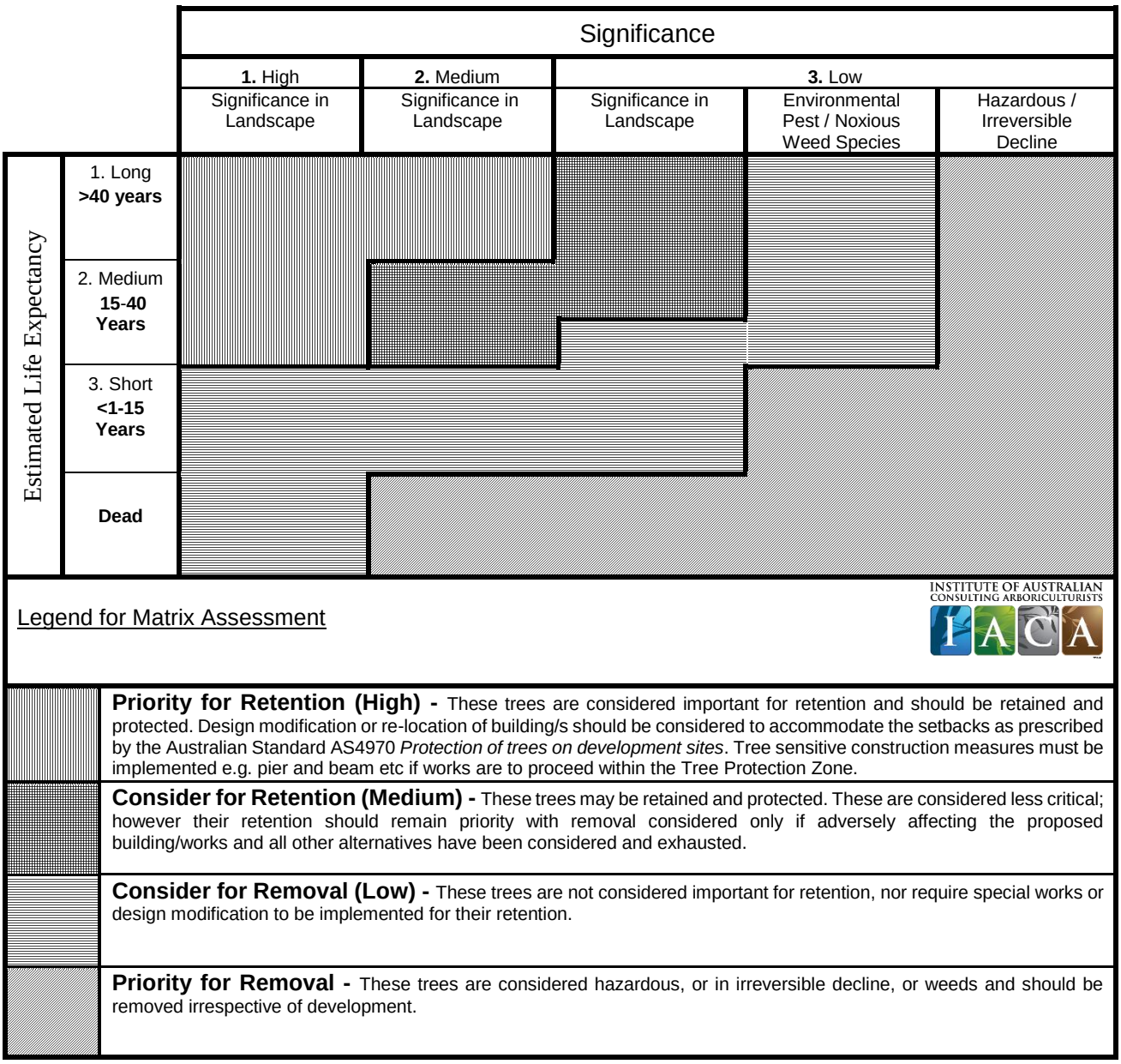
Hazardous/Irreversible Decline

- 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.

Table 1.0 Tree Retention Value - Priority Matrix.



REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

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

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

Appendix B

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

Version 4, 2010

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

The matrix is to be used with the value classes defined in the Glossary for Age / Vigour / Condition.
An index value is given to each category 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.
(Y) Young	YGVG - 9 Index Value 9 Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height <5 m. High potential for future growth and adaptability. Retain, move or replace.	YGVF - 8 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 <5 m. Medium-high potential for future growth and adaptability. Retain, move or replace.	YGVP - 5 Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Low-medium potential for future growth and adaptability. Retain, move or replace.	YLVG - 4 Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Medium potential for future growth and adaptability. Retain, move or replace.	YLVF - 3 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.	YLVP - 1 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 <5 m. Low potential for future growth and adaptability.
(M) Mature	MGVG - 10 Index Value 10 Retention potential -Medium - Long Term.	MGVF - 9 Index Value 9 Retention potential - Medium Term. Potential for longer with improved growing conditions.	MGVP - 6 Index Value 6 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVG - 5 Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVF - 4 Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVP - 2 Index Value 2 Retention potential - Likely to be removed immediately or retained for Short Term.
(O) Over-mature	OGVG - 6 Index Value 6 Retention potential - Medium - Long Term.	OGVF - 5 Index Value 5 Retention potential - Medium Term.	OGVP - 4 Index Value 4 Retention potential - Short Term.	OLVG - 3 Index Value 3 Retention potential - Short Term. Potential for longer with improved growing conditions.	OLVF - 2 Index Value 2 Retention potential - Short Term.	OLVP - 0 Index Value 0 Retention potential - Likely to be removed immediately or retained for Short Term.

Appendix C

Survey of Subject Tree/s

Trees the subject of this report are marked on the plans in the following appendices and are numbered as listed below.

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
1	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
2	*Pinus radiata*	Radiata Pine	Retain and protect
3	*MISSING*		Missing
4	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
5	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
6	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
7	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
8	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
9	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
10	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
11	*Acacia*		DEAD - remove
12	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
13	*Pittosporum undulatum*	Native Daphne	Retain and protect
14	*Agathis robusta*	Queensland Kauri Pine	Retain and protect
15	*Eucalyptus pilularis*	Blackbutt	Retain and protect
16	*Phoenix canariensis*	Date Palm	Remove - self-sown
17	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
18	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
19	*Angophora bakeri*	Small Leaf Apple	Retain and protect
20	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
21	*Eucalyptus pilularis*	Blackbutt	Retain – further investigation
22	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	Retain and protect
23	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	Retain and protect
24	*Eucalyptus pilularis*	Blackbutt	Retain – further investigation
25	*Eucalyptus botryoides*	Bangalay Gum	Retain and protect
26	*Eucalyptus botryoides*	Bangalay Gum	Retain and protect
27	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
28	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	Remove and replace
29	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
30	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	Retain and protect
31	*Phoenix canariensis*	Date Palm	Retain and protect
32	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
33	*Pittosporum undulatum*	Native Daphne	Retain and protect
34	*Pittosporum undulatum*	Native Daphne	Retain and protect
35	*Eucalyptus saligna x botryoides*	Wollongong Wollybutt	Remove and replace
36	*Erythrina x sykesii*	Coral tree	Remove and replace
37	*Eucalyptus pilularis*	Blackbutt	Retain and protect
38	*Angophora costata*	Sydney Red Gum	Remove and replace
39	*Eucalyptus pilularis*	Blackbutt	Remove and replace
40	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
41	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
42	*Eucalyptus resinifera*	Red Mahogany	Remove – bracket fungi
43	*Pittosporum undulatum*	Native Daphne	Remove - overmature / cavity
44	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
45	*Eucalyptus pilularis*	Blackbutt	Retain and protect

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
46	*Angophora costata*	Sydney Red Gum	Retain and protect
47	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
48	*Eucalyptus pilularis*	Blackbutt	Retain – habitat tree will require pruning
49	*Eucalyptus resinifera*	Red Mahogany	Retain and protect
50	*Acacia falcata*	Hickory Wattle	Retain and protect
51	*Eucalyptus resinifera*	Red Mahogany	Retain and protect
52	*Angophora costata*	Sydney Red Gum	Remove and replace
53	*Eucalyptus resinifera*	Red Mahogany	Remove and replace
54	*Angophora costata*	Sydney Red Gum	Remove and replace
55	*Missing*		Missing
56	*Missing*		Missing
57	*Angophora costata*	Sydney Red Gum	Remove and replace
58	*Eucalyptus resinifera*	Red Mahogany	Remove and replace
59	*Pittosporum undulatum*	Native Daphne	Remove and replace
60	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
61	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
62	*Grevillea robusta*	Silky Oak	Remove and replace
63	*Angophora costata*	Sydney Red Gum	Remove and replace
64	*Angophora costata*	Sydney Red Gum	Remove and replace
65	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
66	*Angophora costata*	Sydney Red Gum	Remove and replace
67	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
68	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
69	*Missing*		Missing
70	*Missing*		Missing
71	*Angophora costata*	Sydney Red Gum	Remove and replace
72	*Angophora costata*	Sydney Red Gum	Remove and replace
73	*Angophora costata*	Sydney Red Gum	Remove and replace
74	*Allocasuarina torulosa*	Forest She Oak	Remove and replace
75	*Angophora costata*	Sydney Red Gum	Retain and protect
76	*Angophora costata*	Sydney Red Gum	Retain and protect
77	*Angophora costata*	Sydney Red Gum	Remove and replace
78	*Angophora costata*	Sydney Red Gum	Remove and replace
79	*Angophora costata*	Sydney Red Gum	Retain and protect
80	*Angophora costata*	Sydney Red Gum	Retain and protect
81	*Angophora costata*	Sydney Red Gum	Retain and protect
82	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
83	*Angophora costata*	Sydney Red Gum	Retain and protect
84	*Angophora costata*	Sydney Red Gum	Retain and protect
85	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
86	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
87	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
88	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
89	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
90	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
91	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
92	*Angophora costata*	Sydney Red Gum	Retain and protect
93	*Cedrus deodara*	Himalayan Cedar	Retain and protect
94	*Camellia japonica*	Camellia	Retain and protect
95	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
96	*Missing*		MISSING
97	*Missing*		MISSING
98	*Missing*		MISSING
99	*Missing*		MISSING
100	*Missing*		MISSING
101	*Missing*		MISSING
102	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
103	*Platanus digitata*	Plane Tree	Retain and protect
104	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
105	*Schefflera actinophylla*	Large Leaf Umbrella	Remove – exempt species
106	*Missing*		Missing
107	*Thuja orientalis*	Bookleaf Conifer	Retain and protect
108	*Eucalyptus pilularis*	Blackbutt	? Retain and protect
109	*Eucalyptus microcorys*	Tallowwood	Retain and protect
110	*Eucalyptus grandis*	Rose gum	Retain and protect
111	*Liquidambar styraciflua*	Sweet Gum	Retain and protect
112	*Chamaecyparis lawsoniana*	Lawson Cypress	Retain and protect
113	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
114	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
115	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
116	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
117	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
118	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
119	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
120	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
121	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
122	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
123	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
124	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
125	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
126	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
127	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
128	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
129	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
130	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
131	*Missing*		MISSING
132	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
133	*Pinus patula*	Mexican Weeping Pine	Remove - overmature
134	*Cupressus cashmeriana*	Kashmir Cypress	Retain and protect
135	*Cedrus deodara*	Himalayan Cedar	Retain and protect
136	*Cedrus deodara*	Himalayan Cedar	Retain and protect
137	*Callistemon salignus*	Willow Bottlebrush	Retain and protect
138	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
139	*Livistona chinensis*	Chinese Fan Palm	Retain and protect
140	*Missing*		MISSING
141	*Missing*		MISSING
142	*Eucalyptus scoparia*	Wallangarra White Gum	Remove – overmature / decay / borer
143	*Phoenix canariensis*	Date Palm	Remove and replace
144	*Ginkgo biloba*	Maidenhair Tree	Remove and replace
145	*Ginkgo biloba*	Maidenhair Tree	Remove and replace

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
146	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
147	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
148/2	*Hymenosporum flavum x5*	Native Frangipani	Retain and protect
149	*Eucalyptus microcorys*	Tallowwood	Remove and replace
150	*Liquidambar styraciflua*	Sweet Gum	Remove and replace
151	*Acer negundo*	Box Elder Maple	Retain and protect
152	*Acer negundo*	Box Elder Maple	Retain and protect
153	*Acer negundo*	Box Elder Maple	Remove and replace
154	*Magnolia grandiflora*	Bull Bay Magnolia	Retain and protect
155	*Magnolia grandiflora*	Bull Bay Magnolia	Retain and protect
156	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
157/3	*Acer negundo x3*	Box Elder Maple	Remove and replace
158	*Triadica sebifera*	Chinese Tallowwood	Retain and protect
159	*Brachychiton acerifolius*	Illawarra Flame Tree	Retain and protect
160	*Cedrus atlantica*	Atlantic Cedar	Remove and replace
161	*Pyrus*	Ornamental Pear	Remove and replace
162	*Pyrus*	Ornamental Pear	Remove and replace
163	*Angophora costata*	Sydney Red Gum	Remove and replace
164	*Jacaranda mimosifolia*	Jacaranda	Remove and replace
165	*Jacaranda mimosifolia*	Jacaranda	Remove and replace
166	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
167	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
168	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
169	*Missing*		MISSING
170	*Missing*		MISSING
171	*Acer negundo*	Box Elder Maple	Remove and replace
172	*Acer negundo*	Box Elder Maple	Remove and replace
173	*Acer negundo*	Box Elder Maple	Remove and replace
174	*Acer negundo*	Box Elder Maple	Remove and replace
175	*Acer negundo*	Box Elder Maple	Remove and replace
176	*Eucalyptus pilularis*	Blackbutt	Remove and replace
177	*Eucalyptus pilularis*	Blackbutt	Remove and replace
178	*Phoenix canariensis*	Date Palm	Remove and replace
179	*Phoenix canariensis*	Date Palm	Remove and replace
180	*Phoenix canariensis*	Date Palm	Remove and replace
181	*Phoenix canariensis*	Date Palm	Remove and replace
182	*Phoenix canariensis*	Date Palm	Remove and replace
183	*Phoenix canariensis*	Date Palm	Remove and replace
184	*Eucalyptus pilularis*	Blackbutt	Remove and replace
185	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
186	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
187	*Syagrus romanzoffianum*	Cocos Palm	Remove and replace
188	*Syzygium smithii*	Lilly Pilly	Remove and replace
189	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
190	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
191	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
192	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
193	*Olea europaea var. africana*	African Olive	Remove – exempt species
194	*Populus deltoids*	Eastern Cottonwood	Remove and replace
195	*Celtis*	Hackberry	Remove – inappropriate species

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
196	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
197	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
198	*Pittosporum undulatum*	Native Daphne	Remove and replace
199	*Acer negundo*	Box Elder Maple	Retain and protect
200	*Melia azedarach*	White Cedar	Remove and replace
201	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
202	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
203	*Acer negundo*	Box Elder Maple	Remove and replace
204	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
205	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
206	*Privet*		Remove – Weed species
207	*Stenocarpus sinuatus*	Firewheel Tree	Remove and replace
208	*Phoenix canariensis*	Date Palm	Remove and replace
8A	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
11A	*Acacia falcata*	Hickory Wattle	Remove - overmature
14A	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
21A	*Pittosporum undulatum*	Native Daphne	Retain and protect
22A	*Cupaniopsis anacardioides*	Tuckeroo	Retain and protect
38A	*Angophora costata*	Sydney Red Gum	Remove - overmature
45A/4	*Ficus rubiginosa x2*	Port Jackson Fig	Retain and protect
74A	*Angophora costata*	Sydney Red Gum	Remove and replace
81A	*Stenocarpus sinuatus*	Firewheel Tree	Retain and protect
81B	*Acer negundo*	Box Elder Maple	Retain and protect
83A	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
85A	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
91A	*Lagerstroemia indica*	Crepe Myrtle	Retain and protect
91B	*Lagerstroemia indica*	Crepe Myrtle	Retain and protect
91C	*Photinia glabra*	Photinia	Retain and protect
107A	*Jacaranda mimosifolia*	Jacaranda	Remove – self-sown
107B	*Robinia pseudoacacia*	Golden Rain Tree	Remove – self-sown
107C	*Lagerstroemia indica*	Crepe Myrtle	Remove and replace
133A	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	Retain and protect
133B	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	Retain and protect
142A/5	*Phoenix canariensis x4*	Date Palm	Retain and protect
144A	*X Cupressocyparis leylandii*	Leyland Cypress	Remove and replace
147A	*Phoenix canariensis*	Date Palm	Remove and replace
147B	*Celtis*	Hackberry	Remove and replace
147C	*Liquidambar styraciflua*	Sweet Gum	Remove and replace
147D/6	*Acer negundo x3*	Box Elder Maple	Remove and replace
147E	*Acer negundo*	Box Elder Maple	Retain and protect
153A	*Magnolia grandiflora*	Bull Bay Magnolia	Remove and replace
159A	*Syzygium australe*	Lilly Pilly	Remove and replace
160A	*Syzygium australe*	Lilly Pilly	Remove and replace
162A/7	*Archontophoenix cunninghamiana x2*	Bangalow Palm	Remove and replace

Plan Details

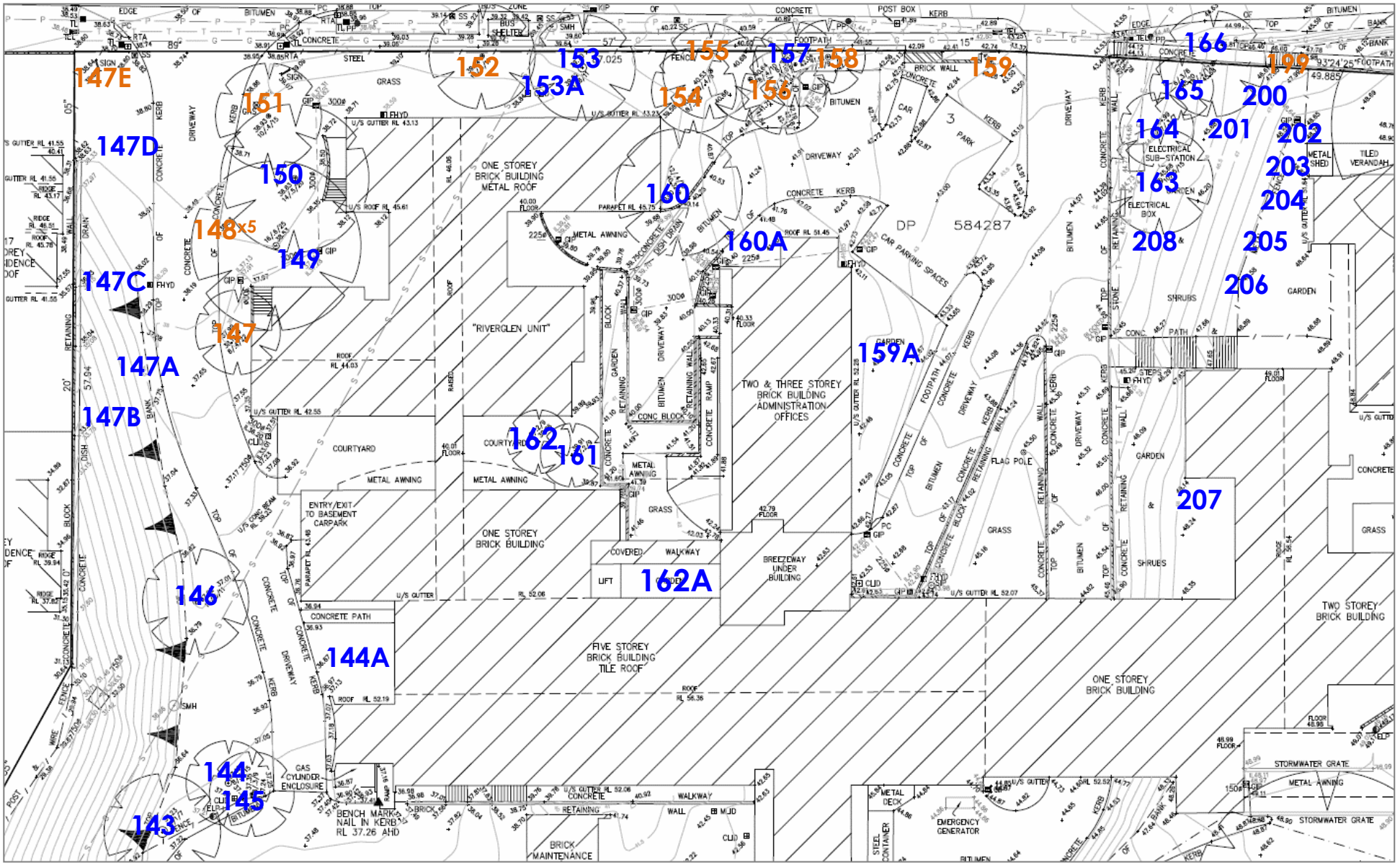
Plan of Detail Showing Lots 3 & 4 over DP584287, Job No 32677DT, Sheets 1 to 5 of 5, Date 19.02.10, Scale 1:200 @ A1 by Lockley Land Title Solutions, P.O. Box 400, Gladesville NSW 1675 T: 02 9879 6077

Legend

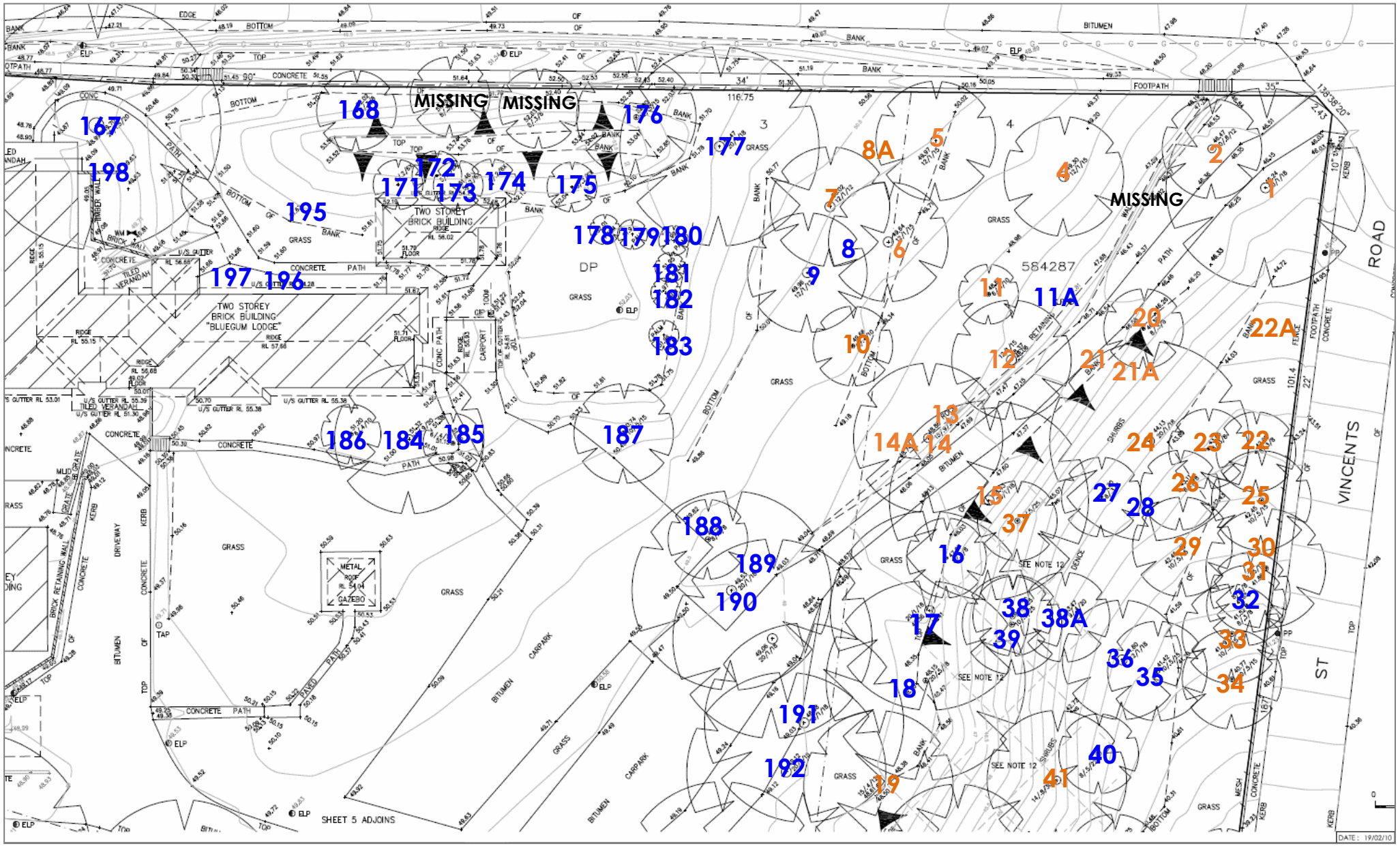
- Trees numbered in **orange** are recommended for **retention**.
- Trees numbered in **blue** are recommended for removal.

Appendix C - Site Plan A – Survey of Subject Trees (Sheet 2 of 5)

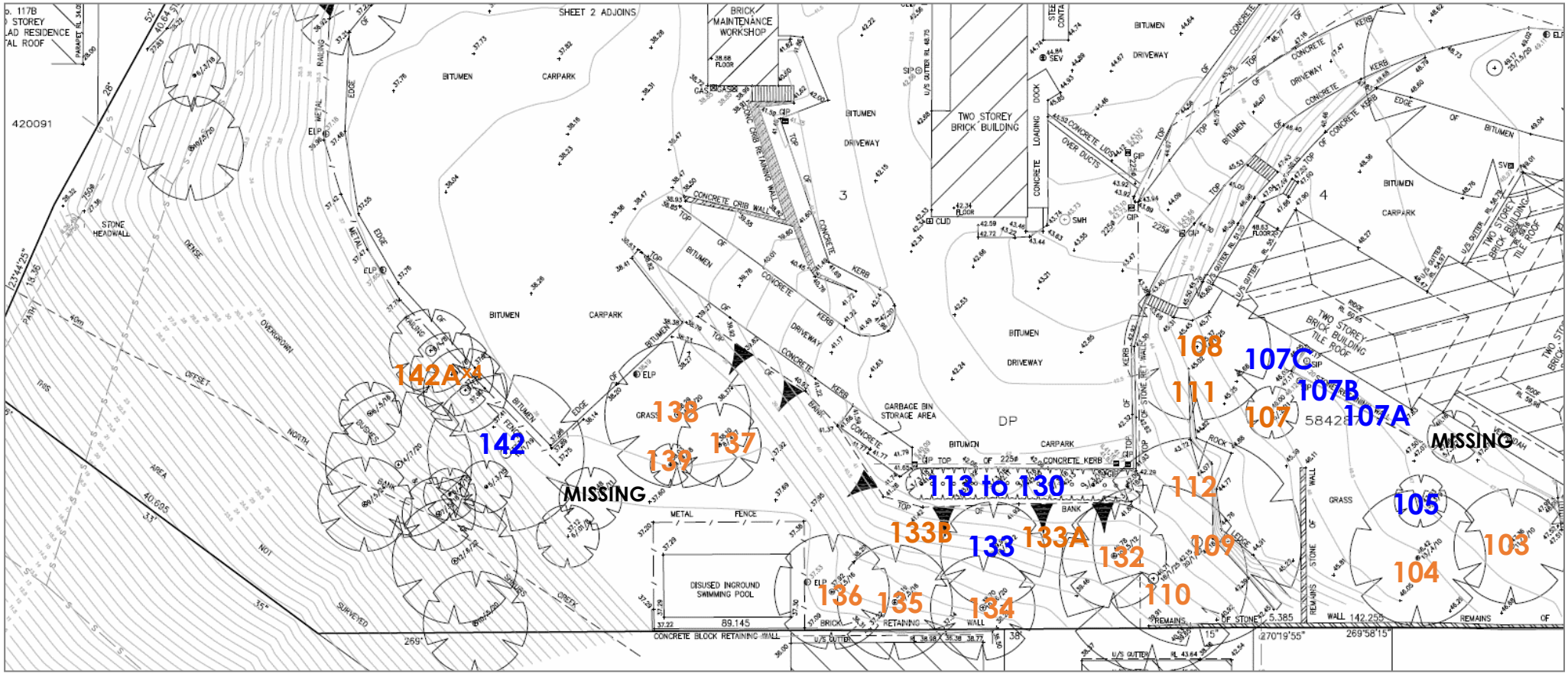
This report has relied upon the following plan/s and documents which have been reproduced from electronic transmission and no longer to original scale.



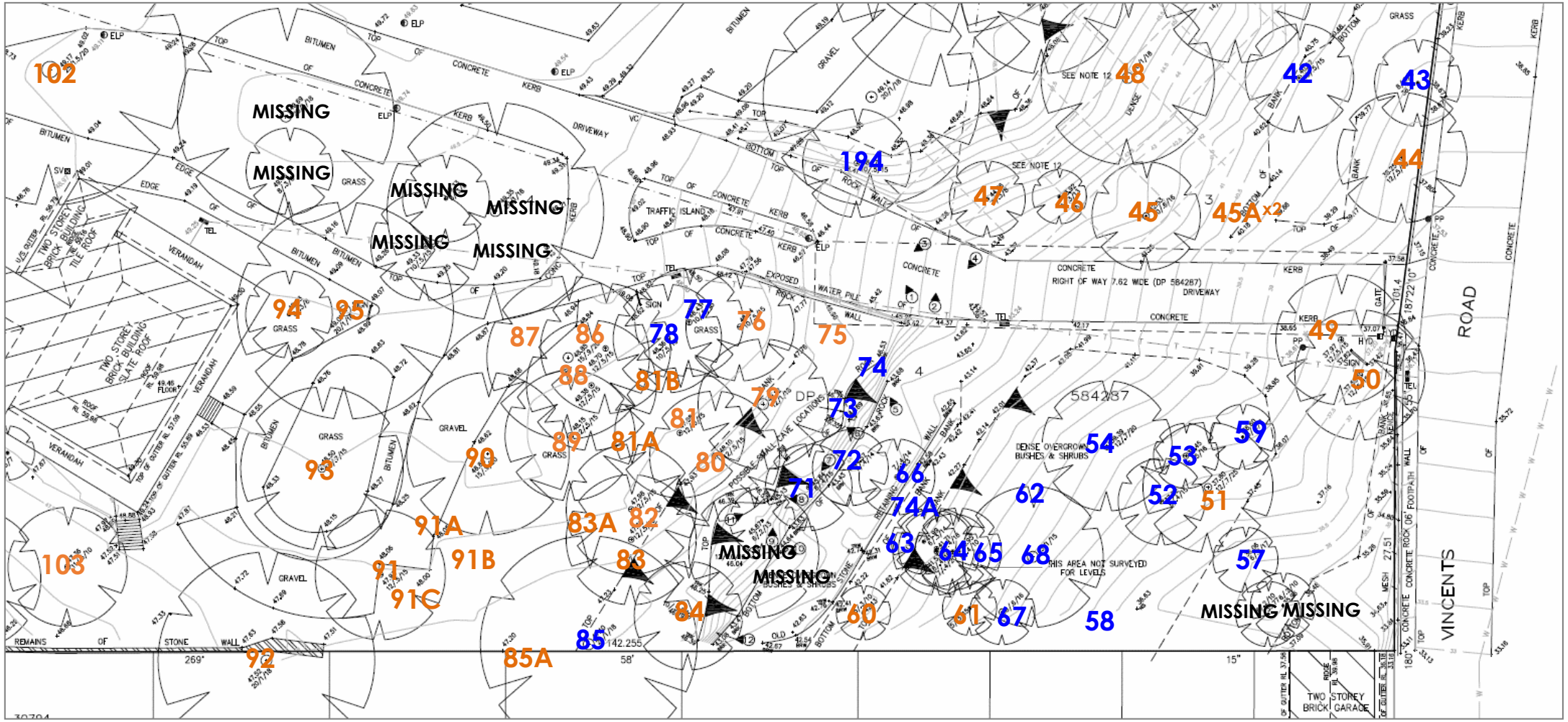
Appendix C - Site Plan A – Survey of Subject Trees (Sheet 3 of 5)



Appendix C - Site Plan A – Survey of Subject Trees (Sheet 4 of 5)



Appendix C - Site Plan A – Survey of Subject Trees (Sheet 4 of 5)



Part B:
TREE PROTECTION PLAN
(Trees to be retained and protected)

for

Hammondcare
Greenwich Hospital
River Road,
Greenwich NSW

Prepared 16 February 2018
Ref: 3521

10.0 PREFACE

Retention of Significant Tree/s within the continual landscape of a development is recommended to minimise the impact of the built landscape within the overall local amenity. This section of the report highlights the required specifications within the Tree Protection Plan (Tree Management Plan) and is to be read in conjunction with Part A: Arboricultural Impact Assessment of this report.

11.0 INTRODUCTION

11.1 This section of the report provides the specification/s for all tree/s to be retained (on subject site) as detailed in Part A – Arboricultural Impact Assessment.

11.2 The trees to be retained are indicated on the Site Plan - Survey of Subject Trees to be retained & Tree Protection Zones. The minimum setback for protective fencing from development works per tree to be retained is summarized in Table 1.0. Tree Protection Specifications including - Site maintenance, Site Arboricultural service, Periodic inspections, Mulching, Irrigation, Weed control / suppression, Provision of services.

11.3 Tree maintenance works including pruning, removal or transplantation are detailed in section 2.0. Works for Tree Protection on Construction Sites are detailed in section 3.0 and Tree Protection Zones a Standard Procedure as detailed in section 13.0 to be applied, or further detailed, or additional or alternative works added where appropriate.

12.0 METHODOLOGY

This Methodology where utilised is applied to both Part A – Arboricultural Impact Assessment and B – Tree Protection Plan.

12.1 The method of assessment of tree/s applied is adapted from the principles of visual tree assessment undertaken from the ground, which considers:

- Tree health and subsequent stability, both long and short term
- Sustainable Retention Index Value (SRIV) Version 4 (IACA 2010) ©
- Hazard potential to people and property
- Amenity values
- Habitat values
- Significance

12.2 This assessment is undertaken using 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 to undertake a visual tree assessment from the ground of each individual tree, or stand of trees, or a representative population sample. Any dimensions recorded as averages, or by approximation are noted accordingly.

13.0 PRUNING STANDARDS

13.1 Any pruning recommended in this report is to be to the Australian Standard® AS4373 *Pruning of amenity trees* and conducted in accordance with the NSW Work Cover Authority Code of Practice, Tree Work, 2007.

13.2 All pruning or removal works are to be in accordance with the appropriate Tree Management Policy where applicable, or Tree Management Order (TMO), or Tree Preservation Order (TPO).

13.3 Tree maintenance work is specialised and in order to be undertaken safely to ensure the works carried out are not detrimental to the survival of a tree being retained, and to assist in the safe removal of any tree, should 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.

.

14.0 SUMMARY: Tree Management Plan

This Tree Protection Plan recommends; Trees 1, 2, 4, 5, 6, 7, 8A, 10, 12, 13, 14, 14A, 15, 19, 20, 21, 21A, 22, 22A, 23, 24 25, 26, 29, 30, 31, 33, 34, 37, 41, 44, 45, 45A^{x2}, 46, 47, 48, 49, 50, 51, 60, 61, 75, 76, 79, 80, 81, 81A, 81B, 82, 83, 83A, 84, 85A*, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92*, 93, 94, 95, 102, 103, 104, 107, 108, 109, 110, 111, 112, 132, 133A, 133B, 134, 135, 136, 137, 138, 139, 142A^{x4},147, 147E, 148^{x5}, 151, 152, 154, 155, 156, 158, 159 & 199 (numbers in RED require further investigation) are to be retained and protected within or adjacent to the development for the duration of construction works.

For trees where the alignment of the driveway or works at or above existing ground levels are an encroachment to retained specimens, the section of the proposed works within the Tree Protection Zone (TPZ) of the specimens is to be constructed using tree sensitive excavation and construction techniques such as pier and beam construction with a suspended slab to reduce any impact on the stability with piers to be dug by hand with non-motorised machinery to further assist in their protection. Where possible, for hard landscaping within the TPZ of retained specimens this is to be constructed using tree sensitive excavation and construction techniques such as either porous or permeable paving or pier and beam construction with a suspended slab to reduce any impact on the stability with piers to be dug by hand with non-motorised machinery to further assist in their protection. For trees where excavation is required below existing ground level within the TPZ of retained specimens the section of the excavation within the TPZ of the specimens is to be constructed using tree sensitive excavation and construction techniques such as a vertical cut with shotcrete and contiguous pilings to reduce any impact on their stability.

Discussion

14.1 *AS4970 (2009) section 3, 3.3.3 requires the Project Arborist to demonstrate that where a retained tree is subject to a major encroachment (>10% of area of TPZ) it can be protected to remain viable*

14.2 Tree 1, 2, 4, 5, 6, 7, 8A, 10, 11A, 12, 13, 14, 15, 20, 21, 21A, 22, 22A, 23, 24, 25, 26, 29, 30 & 37, *Cinnamomum camphora* - Camphor Laurel, *Pinus radiata* - Radiata Pine, *Ficus rubiginosa* - Port Jackson Fig, *Pittosporum undulatum* - Native Daphne, *Agathis robusta* - Queensland Kauri Pine, *Eucalyptus pilularis* – Blackbutt, *Glochidion ferdinandi* - Cheese Tree, *Eucalyptus saligna x botryoides* - Wollongong Wollybutt, *Cupaniopsis anacardioides* – Tuckeroo, *Eucalyptus botryoides* - Bangalay Gum & *Eucalyptus saligna* - Sydney Blue Gum, these specimens are located within the north-east end of the site.

14.3 Tree 19, 31, 33, 34, 41, 44, 45, 45A, 46, 47, 48, 49, 50, 51, 60 & 61, *Angophora bakeri* - Small Leaf Apple, *Phoenix canariensis* - Date Palm, *Pittosporum undulatum* - Native Daphne, *Eucalyptus saligna* - Sydney Blue Gum, *Glochidion ferdinandi* - Cheese Tree, *Eucalyptus pilularis* – Blackbutt, *Angophora costata* - Sydney Red Gum, *Eucalyptus resinifera* - Red Mahogany, *Acacia falcata* - Hickory Wattle, *Cinnamomum camphora* - Camphor Laurel & *Ficus rubiginosa* - Port Jackson Fig, these specimens are located within the south-east end of the site.

14.4 Tree 75, 76, 79, 80, 81, 81A, 81B, 83, 83, 83A, 84, 85A, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92, 93, 94, 95, 102. 103. 104. 107. 108. 109. 110. 111. 112 *Angophora costata* - Sydney Red Gum, *Corymbia citriodora* - Lemon Scented Gum, *Jacaranda mimosifolia* – Jacaranda, *Cedrus deodara* - Himalayan Cedar, *Camellia japonica* – Camellia, *Ficus rubiginosa* - Port Jackson Fig, *Stenocarpus sinuatus* - Firewheel Tree, *Acer negundo* - Box Elder Maple, *Lagerstroemia indica* - Crepe Myrtle, *Photinia glabra* – Photinia, *Platanus digitate* - Plane Tree, *Thuja orientalis* - Bookleaf Conifer, *Eucalyptus pilularis* – Blackbutt, *Eucalyptus microcorys* – Tallowwood, *Eucalyptus grandis* - Rose gum, *Liquidambar styraciflua* - Sweet Gum & *Chamaecyparis lawsoniana* - Lawson Cypress, These specimens are located to the south of the site within the Pallister House grounds.

14.5 Tree 132, 13A, 133B, 134, 135, 136, 137, 138, 139, 142A, 147, 147E, 148, 151, 152, 154, 155, 156, 158, 158, 160A & 199 *Glochidion ferdinandi* - Cheese Tree, *Melaleuca bracteata 'Revolution Green'* - Revolution Green Paperbark, *Cupressus cashmeriana* - Kashmir Cypress, *Cedrus deodara* - Himalayan Cedar, *Callistemon salignus* - Willow Bottlebrush, *Eucalyptus saligna* - Sydney Blue Gum, *Livistona chinensis* - Chinese Fan Palm, *Phoenix canariensis* - Date Palm, *Eucalyptus saligna* - Sydney Blue Gum, *Hymenosporum flavum* - Native Frangipani, *Acer negundo* - Box Elder Maple, *Magnolia grandiflora* - Bull Bay Magnolia, *Triadica sebifera* - Chinese Tallowwood,& *Brachychiton acerifolius* - Illawarra Flame Tree & *Syzygium australe* - Lilly Pilly, these specimens are located on the western side of the site.

- *Trees viability to development; the impact by the proposed development will be assessed further when detailed architectural plans are avalable. The project arborist is to certify that installation of protection measures have been installed as per D/A conditions prior to commencement and works are to be monitored throughout the project at approx. 3 mthly intervals depending on the length of the development. These specimens should remain viable beyond completion of development provided recommended installation & protection measures are adhered to.*

- *Development Impacts:* AS4970 (2009) section 3 requires a TPZ setback as detailed in column 4 of Table 2 from COT, the setback for the proposed development adjacent to these specimens is to be greater than the Structural Root Zone as detailed in column 2 of Table 2. Additional trees may require removal, depending on setbacks when detailed plans are available.

If associated infrastructure (pipe works) are to be installed within the Tree Protection Zone of any retained specimen, they are to be installed by hand with non-motorised machinery. If structural roots are found within the trench, they are to be left intact and dug around retaining this specimen's structural integrity with works to be undertaken in consultation with the project arborist.

The impacts to specimens which are to be retained and protected as per AS 4970 (2009) Section 3, 3.3.3 *Major Encroachments* from development works within >10% of the area of the Tree Protection Zone and as per discussion points in section 14 in part B of this report will be detailed in the final Arboricultural Impact Assessment report following receipt of detailed plans. Any works within TPZ must be in consultation with and when required, certified by the Project Arborist in accordance with AS4970 (2009).

General – Tree Protection works – Prior to Demolition

14.7 *Milestones* – Prior to demolition works, a site arborist shall be appointed to supervise all tree protection procedures detailed in this specification. The Site Arborist shall have a minimum level 5 AQF qualification in Arboriculture. Milestones are to be adhered to throughout the duration of this development and all relevant documentation is to be submitted to the local authority.

14.8 The Tree Protection Zone for each tree/s is to be incorporated into the construction works for the site and the protection fencing or works to be situated as indicated on the Appendix F – Tree Protection Plan. The setbacks from building works on the side closest to each tree are to be carried out as indicated in Table 2.0, and Tree Protection Zones be constructed as described here and detailed in Appendix D. The trees will be sustained within the constraints of the modifications to the site by the proposed development works.

14.9 Trees 1, 2, 4, 5, 6, 7, 8A, 10, 12, 13, 14, 14A, 15, 19, 20, 21, 21A, 22, 22A, 23, 24 25, 26, 29, 30, 31, 33, 34, 37, 41, 44, 45, 45A^{x2}, 46, 47, 48, 49, 50, 51, 60, 61, 75, 76, 79, 80, 81, 81A, 81B, 82, 83, 83A, 84, 85A*, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92*, 93, 94, 95, 102, 103, 104, 107, 108, 109, 110, 111, 112, 132, 133A, 133B, 134, 135, 136, 137, 138, 139, 142A^{x4},147, 147E, 148^{x5}, 151, 152, 154, 155, 156, 158, 159 & 199 (numbers in RED require further investigation) are to be retained and protected and incorporated into the landscape works for the site, and Tree Protection Zone fencing to be marked accordingly on the Landscape Plan, where appropriate and installed prior to any demolition or construction.

14.10 Ground protection - If temporary access for machinery is required within the TPZ ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Measures may include a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rock below rumble boards. These measures may be applied to root zones beyond the TPZ.

14.11 Where applicable, any excavation for the establishment of a batter slope or benching for reasons of safety and to comply with Work Cover Authority safety regulations should be restricted as far as is safely possible near to trees to be retained to prevent root damage. If the excavations cannot be undertaken near to vertical the stability of these trees and their long-term viability may be compromised and their retention in a safe and healthy condition jeopardized and they may need to be revised and possibly removed.

Specific - Tree Protection Works - Prior to Demolition and Tree Removal

14.12 All other trees/shrubs; prior to demolition and tree removal works these tree/s are to be placed within a Tree Protection Zone with protective fencing and maintained and retained until the completion of all building works. Protective fencing is to be installed as shown in Appendix F - Tree Protection Plan.

- *The Protective fencing where required may delineate the **Tree Protection Zone (TPZ)** and should be situated as determined by the project arborist in accordance with AS4970 Protection of trees on development sites, Section 4, 4.3. "Fencing should be erected before any machinery or materials are brought onto the site and before the commencement of works including demolition. Once erected, protective fencing must not be removed or altered without approval by the project arborist. The TPZ must be secured to restrict access. AS4687 Temporary fencing and hoardings specifies applicable fencing requirements. Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area. Fence posts and supports should have a diameter greater than 20 mm and be located clear of roots. Existing perimeter fences and other structures may be suitable as part of the protective fencing" or similar.*

- *Tree Protection signage is to be attached to each **TPZ** and displayed from within the development site in accordance with AS4970 2009 Protection of trees on development sites*

- *The area of the Tree Protection Zone to be mulched to a depth of 100 mm with organic material being 75% leaf litter and 25% wood, and this being composted material preferably from the same genus and species of tree as that to where the mulch is to be applied, i.e. species-specific mulch. The depth of mulch and type as indicated, to be maintained for the duration of the project. Where deep excavation will expose the soil profile to drying out the root plate is to be protected by pegging jute matting across the ground surface 2 m back from the edge of the profile and 2 m down the face of the profile and is to be in one continuous sheet or layers up to 5 mm thick and overlapped 300 mm and pegged. Pegs are to be a minimum length of 200 mm and spaced at 500 mm increments in a grid pattern. Once installed mulch is to be placed on top of the jute matting previously described.*

14.13 There is to be no storage of materials, rubbish, soil, equipment, structures or goods of any type to be kept or placed within 5 metres from the trunk or within the dripline of any tree for the duration of the development. This will ensure protection of the tree/s to be retained on or adjacent to site.

14.14 *Milestone* - Project/Site arborist is to inspect/assess all retained specimens prior to demolition to inspect tree protection measures have been carried out as per the approved D/A conditions for the site. Documentation is to be submitted to the consenting authority after each inspection.

Demolition and Tree Removal/s

14.15 Removal of a tree within 6 m of a tree to be retained should be undertaken only by cutting down such a tree without damaging the trees to be retained, and by grinding out its stump. Where possible the structural roots of 20 mm diameter or greater of the tree to be cut down should not be removed, to minimise soil disturbance and to reduce the impact on the roots of any tree to be retained nearby. Where structural roots are to be removed this should be undertaken manually by the use of non-motorized hand tools after the stump has been ground out when such roots are often easier to locate from the site of the stump from which they have been severed.

14.16 Ground protection in accordance with AS4970 section 4, 4.5.3 may require steel plates to protect the ground surface from compaction to protect roots between the stages of demolition and construction of the new pavement.

Specific - Tree Protection works – Post Demolition and Prior to Construction

14.17 *Milestone* - Project/Site arborist is to inspect/assess all retained specimens prior to construction in relation to tree protection measures have been carried out as per the approved D/A conditions for the site. Documentation is to be submitted to the consenting authority after each inspection.

14.18 Location of underground utilities within a Tree Protection Zone of a retained specimen.
Any utility services to be situated underground within the TPZ are to be undertaken utilising excavation techniques that prevent or minimise damage to structural roots (roots greater than >20 mm diameter). To prevent soil compaction and root damage these works should be conducted with non-motorised hand tools, air knife or directional drilling.

14.19 Re-grading of site near retained trees; Grading &/or re-grading of sites/slopes within Tree Protection Zones or near retained specimens is to be undertaken **only** if at all, after consultation with the Project Arborist. This is to protect all structural roots systems from damage or compaction from machinery.

14.20 Placement of relocatable buildings; consideration should be given to tree sensitivity such as the buildings being placed on pier and beam or skids construction as they are to be positioned now on the eastern side of their driplines within the Tree Protection Zone (TPZ). The area of the Tree Protection Zone under the buildings is to be mulched to a depth of 200 mm (*if installed on skids*) with organic material to further reduce compaction. The mulch is to be composted material, i.e. species-specific mulch. Alternatively, if installed on a pier & beam construction, piers are to be undertaken manually by using non-motorized hand tools to determine the location of first order and lower order structural roots with a diameter of 20 mm (*structural woody roots*) or greater, without damaging them.

Specific - Tree Protection works – During Construction

14.21 *Milestone* - Project/Site arborist is to inspect/assess all retained specimens during construction in relation to tree protection measures have been carried out as per the approved D/A conditions for the site. Documentation is to be submitted to the consenting authority after each inspection.

14.22 Where any structural roots (roots with a diameter of greater than >20 mm) encountered by excavation are to be pruned and it is to be undertaken with clean sharp pruning tools, with a final cut to undamaged wood to prevent infestation by pathogens and assist continued root growth and undertaken in consultation with the Consulting Arboriculturist. Tree Protection Zone fences are to be maintained during these works. Ground protection in accordance with AS4970 section 4, 4.5.3 may require steel plates to protect the ground surface from compaction to protect roots between the stages of demolition and construction of the new pavement.

14.23 All Tree Protection Zones of retained trees are to be monitored for the duration of the construction phase of the development. The three main areas requiring monitoring are; *mulching* - mulch must be maintained to a depth of 50–100 mm using material that complies with AS 4454. Where the existing landscape within the TPZ is to remain unaltered (e.g. garden beds or turf) mulch may not be required, *watering* - soil moisture levels should be regularly monitored by the project arborist. Temporary irrigation or watering may be required within the TPZ. An above-ground irrigation system could be installed and maintained by a competent individual and *weeding* - weeds should be removed by hand without disturbing soil or should be controlled with weedicide.

14.24 Trees to be removed are to be replaced with advanced specimens being mindful of the space limitations of the new use of the site. The advanced trees should be situated in areas along the boundaries of the site. The planting in these locations will provide the maximum benefit to the surrounding properties by screening views to and from the site and the plantings included in the proposed landscape plan. The replacement trees will be situated in positions where they may grow to maturity unhindered and will not conflict with built structures or utility services and in greater numbers than the trees removed should provide a net increase in the local amenity.

Specific - Tree Protection works – Post Construction

14.25 *Milestone* - At completion of construction work the Site/Project Arborist should carry out an assessment of all trees retained &/or affected by works. This assessment is to document any required on-going remedial care needed to ensure viable retention of trees affected. Documentation is to be submitted to the consenting authority.

15.0 CONCLUSION

One hundred and thirty-one (131) trees are nominated for removal and replacement with species in accordance with the associated Landscape documentation for the development. The one hundred and four (104) trees to be preserved will be retained and protected through the implementation of adequate measures for their integration into the development by the application of appropriate technology as detailed in this report. Where appropriate, the Landscape Plan will include planting with new trees including street tree/s.

It is often a consequence of redevelopment, and subject to the nature of the proposed land use that some or all the trees present on the site prior to that redevelopment may be required to be removed and replaced with new tree plantings in different locations. This may be dependent upon the type of development and its design constraints and the requirements of the local planning instruments and any Landscape Design Codes if existing. Where tree removal is required for this development, it is considered that those trees identified within this report are not sustainable within the context of the proposed development. Where tree retention has been considered, those trees are expected to survive the redevelopment process and remain stable and viable. The retention and protection of existing trees on site is a significant aspect of the development process, allowing those trees as components of the current curtilage to be transferred to the new development for incorporation into the landscaping works for the site. The retention of some or all the existing trees contributes to: the preservation of local amenity, screening of views to and from the site, and a balance to the scale and bulk of buildings, while maintaining elements of a continuous landscape, providing a more harmonious integration and transition of the use of the land.

If all the recommendations and procedures detailed herein are adhered to, some or all the trees the subject of this report will continue or will be replaced with more appropriate plantings in suitable locations, or enhanced by additional new plantings, and will grow to develop as important landscape components providing elements of long term amenity for the property and its owners or occupants, and the local community.

The recommendations made in this report are subject to approval by the consent authority.

As a renewable and dynamic natural resource, the urban tree and the growing environment essential for its survival must be understood and carefully managed to balance its needs with those of people. It is crucial that as required: this resource be planned for, planted, nurtured, protected, maintained and replaced, to ensure appropriateness and suitability of new plantings and trees retained, for safety and viability, so that it remains vital, and is sustainable in continuity.

16.0 RECOMMENDATIONS – Retention.

16.1 Trees 1, 2, 4, 5, 6, 7, 8A, 10, 12, 13, 14, 14A, 15, 19, 20, 21, 21A, 22, 22A, 23, 24 25, 26, 29, 30, 31, 33, 34, 37, 41, 44, 45, 45A^{x2}, 46, 47, 48, 49, 50, 51, 60, 61, 75, 76, 79, 80, 81, 81A, 81B, 82, 83, 83A, 84, 85A*, 86, 87, 88, 89, 90, 91, 91A, 91B, 91C, 92*, 93, 94, 95, 102, 103, 104, 107, 108, 109, 110, 111, 112, 132, 133A, 133B, 134, 135, 136, 137, 138, 139, 142A^{x4},147, 147E, 148^{x5}, 151, 152, 154, 155, 156, 158, 159 & 199 Numbers in RED require further investigation are to be retained in situ within the site and are to be protected as detailed in 14.2 - 14.24 of Part B of this report. Tree protection fences, or works, to be located in accordance with *Site Plan B – Trees to be Retained and Tree Protection Zones* (Appendix F).

16.2 Where Tree Protection Zone fences are to be moved or relocated this must be undertaken in consultation with the Consultant Arboriculturist for the project to ensure that tree protection is maintained. If the fences are relocated areas are to be mulched in accordance with 14.11 of this report to reduce compaction to the root system of the retained specimens.

16.3 To minimise damage to retained crowns, all Tree Protection Zones are to be adhered to. This must be undertaken in consultation with the Consultant Arboriculturist for the project to ensure that tree protection is maintained. Minor pruning may be required if damage occurs, work to undertaken in accordance with section 4 of this report.

16.4 *Milestones* - Project/Site arborist is to inspect/assess all retained specimens prior to Demolition and Tree Removal, Post Demolition, Prior to Construction during Construction and on completion in relation to trees protected and the protection measures have been carried out as per the approved D/A conditions for the site. Documentation is to be submitted to the consenting authority after each inspection.

16.5 Any work to be undertaken within Tree Protection Zones is to be undertaken in accordance with 16.2 of this report.

16.6 Tree removal near retained specimens is to be undertaken in accordance with 14.14 of this report.

16.7 There is to be no storage of materials, rubbish, soil, equipment, structures or goods of any type to be kept or placed within 5 metres from the trunk or within the dripline of any tree for the duration of the development. This will ensure protection of the tree/s to be retained on or adjacent to site.

16.8 Each of the replacement are to be a vigorous specimen with a straight trunk, gradually tapering and continuous, crown excurrent, symmetrical, with roots established but not pot bound in a volume container or approved similar and be maintained by an appropriately qualified and experienced landscape contractor for up to one (1) year after planting, or as appropriate.

Craig Martin
Senior Associate
Post Grad Cert Wildlife Habitat Management 2006,
Diploma of Horticulture – Arboriculture; (AQF5) 2001,
Horticulture Certificate; 1988

Appendix D

Extract from Australian Standard AS4970 2009 Protection of trees on development sites

Section 3, Determining the tree protection zones of the selected trees

3.1 Tree protection zone (TPZ)

"The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

The TPZ incorporates the structural root zone (SRZ) (refer to Clause 3.3.5)."

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

where

DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

3.3.5 Structural root zone (SRZ)

"The SRZ is the area required for street stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when a major encroachment into a TPZ is proposed. Root investigation may provide more information on the extent of these roots."

Determining the SRZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

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

where

D = trunk diameter, in metres, measured above the root buttress.

Note: The SRZ for trees with trunk diameters less than 0.15 m will be 1.5 m.

Appendix E

Glossary

From

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

Age of Trees

Age 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 and can be categorized as *Young*, *Mature* and *Over-mature* (British Standards 1991, p. 13, Harris *et al*, 2004, p. 262).

Young Tree aged less than <20% of life expectancy, *in situ*.

Mature Tree aged 20-80% of life expectancy, *in situ*.

Over-mature Tree aged greater than >80% of life expectancy, *in situ,* or *senescent* with or without reduced *vigour*, and declining gradually or rapidly but irreversibly to death.

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.

Senescent / Moribund Advanced state of decline, dying or nearly dead.

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.

Branch

Branch An elongated woody structure arising initially from the trunk to support leaves, flowers, fruit and the development of other branches. A branch may itself fork and continue to divide many times as successive *orders of branches* with the length and taper decreasing incrementally to the *outer extremity* of the *crown*. These may develop initially as a gradually tapering continuation of the *trunk* with minimal division as in a *young* tree or a tree of *excurrent habit*, or in a *sapling*, or may arise where the trunk terminates at or some distance from the *root crown*, dividing into *first order branches* to form and support the *foliage crown*. In an *acaulescent* tree, branches arise at or near the *root crown*. Similarly branches may arise from a *sprout mass* from damaged *roots*, *branches* or *trunk*.

Orders of branches The marked divisions between successively smaller branches (James 2003, p. 168) commencing at the initial division where the trunk terminates on a *deliquescent* tree or from *lateral* branches on an *excurrent* tree. Successive branching is generally characterised by a gradual reduction in branch diameters at each division, and each gradation from the trunk can be categorised numerically, e.g. first order, second order, third order etc. (See Figure 21.)

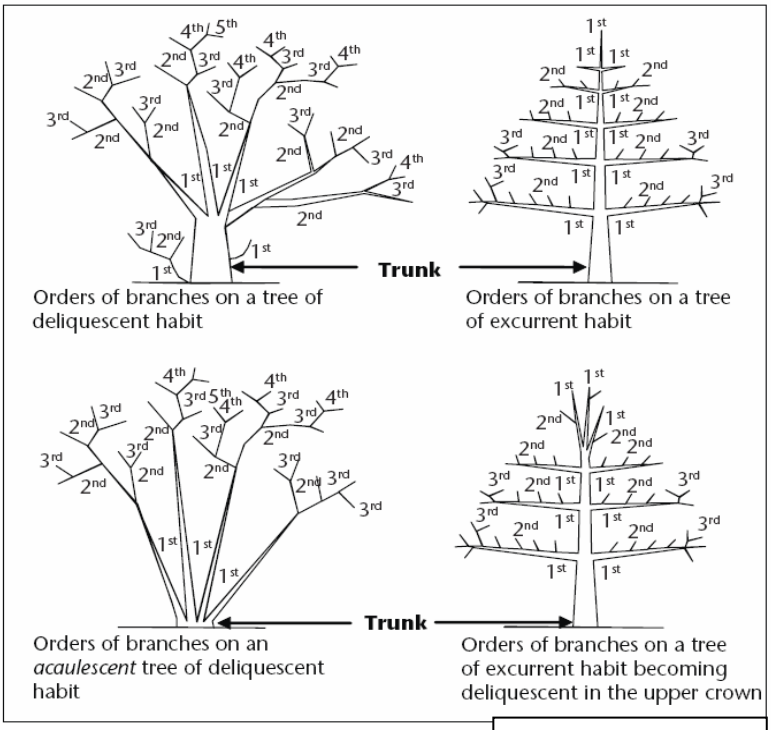


Figure 21 Orders of branches

Crown

Canopy 1. Of multiple trees, the convergence, or merging in full or part, of the crowns of two or more trees due to their proximity, or where competition for light and space available in a forest environment is limited as each tree develops forming a continuous layer of foliage. 2. Used as a plural for crown. 3. Sometimes synonymously used for crown (USA).

Crown Of an individual tree all the parts arising above the trunk where it terminates by its division forming branches, e.g. the branches, leaves, flowers and fruit; or the total amount of foliage supported by the branches. The crown of any tree can be divided vertically into three sections and can be categorised as *lower crown*, *mid crown* and *upper crown* (Figure 8). For a *leaning* tree these can be divided evenly into crown sections of one-third from the *base* to *apex*. The volume of a crown can be categorised as the *inner crown*, *outer crown* and *outer extremity of crown*.

Lower crown The *proximal* or lowest section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Mid crown* and *Upper crown*.

Mid crown The middle section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Lower crown* and *Upper crown*.

Upper crown The *distal* or highest section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Mid crown* and *Lower crown*.

Crown Projection (CP) Area within the *dripline* or beneath the lateral extent of the *crown* (Geiger 2004, p. 2). See also *Crown spread* and *Dripline*.

Dripline A line formed around the edge of a tree by the lateral extent of the *crown*. Such a line may be evident on the ground with some trees when exposed soil is displaced by rain shed from the crown. See also *Crown Projection*.

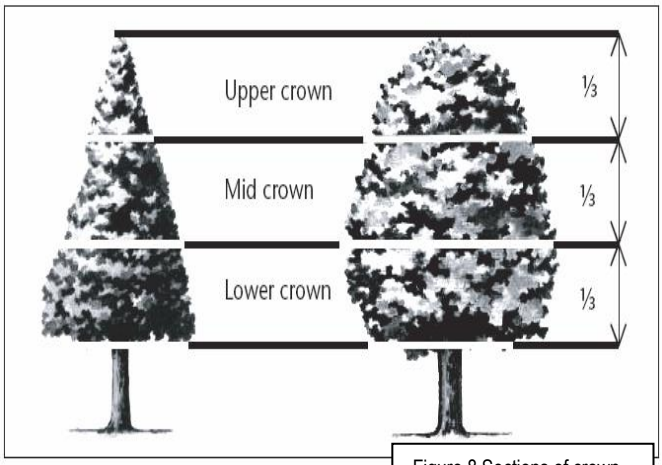


Figure 8 Sections of crown.

Crown Form of Trees

Crown Form The shape of the crown of a tree as influenced by the availability or restriction of space and light, or other contributing factors within its growing environment. Crown Form may be determined for tree shape and habit generally as *Dominant*, *Codominant*, *Intermediate*, *Emergent*, *Forest* and *Suppressed*. The habit and shape of a *crown* may also be considered qualitatively and can be categorized as *Good Form* or *Poor Form*.

Good Form Tree of *typical* crown shape and habit with proportions representative of the taxa considering constraints such as origin e.g. indigenous or exotic, but does not appear to have been adversely influenced in its development by environmental factors in situ such as *soil water* availability, prevailing wind, or cultural practices such as lopping and competition for space and light.

Poor Form Tree of *atypical* crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as *soil water* availability, prevailing wind, cultural practices such as lopping and competition for space and light; causing it to be *misshapen* or disfigured by disease or vandalism.

Crown Form Codominant Crowns of trees restricted for space and light on one or more sides and receiving light primarily from above e.g. constrained by another tree/s or a building.

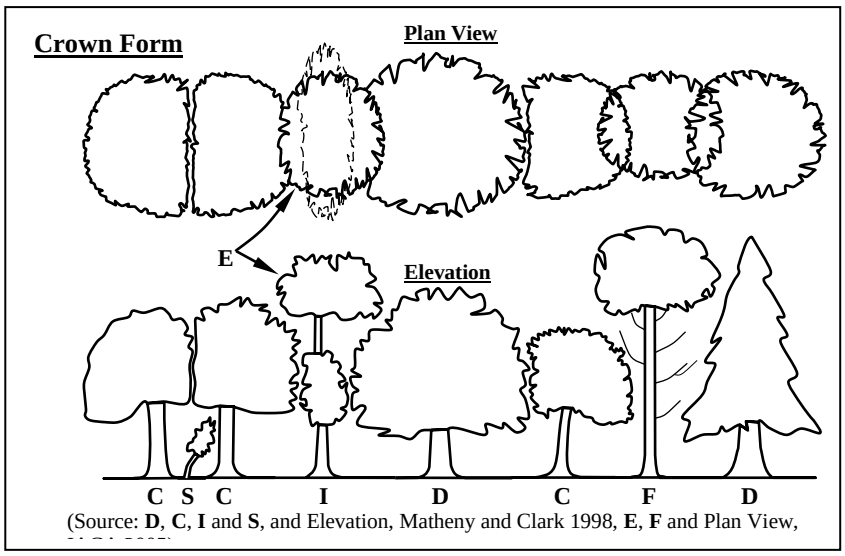
Crown Form Dominant Crowns of trees generally not restricted for space and light receiving light from above and all sides.

Crown Form Emergent Crowns of trees restricted for space on most sides receiving most light from above until the *upper crown* grows to protrude above the canopy in a stand or forest environment. Such trees may be *crown form dominant* or transitional from *crown form intermediate* to *crown form forest* asserting both *apical dominance* and *axillary dominance* once free of constraints for space and light.

Crown Form Forest Crowns of trees restricted for space and light except from above forming tall trees with narrow spreading crowns with foliage restricted generally to the top of the tree. The trunk is usually erect, straight and continuous, tapering gradually, crown often excurrent, with first order branches becoming structural, supporting the live crown concentrated towards the top of the tree, and below this point other first order branches arising radially with each *inferior* and usually temporary, divergent and ranging from horizontal to ascending, often with internodes exaggerated due to competition for space and light in the *lower crown*.

Crown Form Intermediate Crowns of trees restricted for space on most sides with light primarily from above and on some sides only.

Crown Form Suppressed Crowns of trees generally not restricted for space but restricted for light by being *overtopped* by other trees and occupying an understorey position in the canopy and growing slowly.



(Source: **D**, **C**, **I** and **S**, and Elevation, Matheny and Clark 1998, **E**, **F** and Plan View,

Deadwood

Deadwood Dead branches within a tree's crown and considered quantitatively as separate to *crown cover* and can be categorised as *Small Deadwood* and *Large Deadwood* according to diameter, length and subsequent *risk* potential. The amount of dead branches on a tree can be categorized as *Low Volume Deadwood*, *Medium Volume Deadwood* and *High Volume Deadwood*. See also *Dieback.*

Deadwooding Removing of dead branches by *pruning.* Such pruning may assist in the prevention of the spread of *decay* from *dieback* or for reasons of safety near an identifiable target.

Small Deadwood A dead branch up to 10mm diameter and usually <2 metres long, generally considered of low *risk* potential.
Large Deadwood A dead branch >10mm diameter and usually >2 metres long, generally considered of high *risk* potential.
High Volume Deadwood High Volume Deadwood Where >10 dead branches occur that may require *removal*.
Medium Volume Deadwood Where 5-10 dead branches occur that may require *removal*.
Low Volume Deadwood Where <5 dead branches occur that may require *removal*.

Dieback

Dieback The death of some areas of the *crown*. Symptoms are leaf drop, bare twigs, dead branches and tree death, respectively. This can be caused by root damage, root disease, bacterial or fungal canker, severe bark damage, intensive grazing by insects, *abrupt changes* in growth conditions, drought, water-logging or over-maturity. Dieback often implies reduced *resistance, stress* or *decline* which may be temporary. Dieback can be categorized as *Low Volume Dieback*, *Medium Volume Dieback* and *High Volume Dieback*.

High Volume Dieback Where >50% of the *crown cover* has died.
Medium Volume Dieback Where 10-50% of the *crown cover* has died.
Low Volume Dieback Where <10% of the *crown cover* has died. See also *Dieback*, *High Volume Dieback* and *Medium Volume Dieback*.

Epicormic shoots

Epicormic Shoots Juvenile shoots produced at branches or trunk from *epicormic strands* in some Eucalypts (Burrows 2002, pp. 111-131) or sprouts produced from dormant or latent buds concealed beneath the bark in some trees. Production can be triggered by fire, pruning, wounding, or root damage but may also be as a result of *stress* or *decline*. Epicormic shoots can be categorized as *Low Volume Epicormic Shoots*, *Medium Volume Epicormic Shoots* and *High Volume Epicormic Shoots*.

High Volume Epicormic Shoots Where >50% of the *crown cover* is comprised of live *epicormic shoots*.
Medium Volume Epicormic Shoots Where 10-50% of the *crown cover* is comprised of live *epicormic shoots*.
Low Volume Epicormic Shoots Where <10% of the c*rown cover* is comprised of live *epicormic shoots*.

General Terms

Cavity A usually shallow void often localized initiated by a *wound* and subsequent *decay* within the trunk, branches or roots, or beneath bark, and may be enclosed or have one or more opening.

Decay Process of degradation of wood by microorganisms (Australian Standard 2007, p. 6) and fungus.

Hazard The threat of danger to people or property from a tree or tree part resulting from changes in the physical condition, growing environment, or existing physical attributes of the tree, e.g. included bark, soil erosion, or thorns or poisonous parts, respectively.

Included bark 1. The bark on the inner side of the *branch union*, or is within a concave *crotch* that is unable to be lost from the tree and accumulates or is trapped by *acutely divergent* branches forming a *compression fork*. 2. Growth of bark at the interface of two or more branches on the inner side of a branch union or in the crotch where each branch forms a branch collar and the collars roll past one another without forming a graft where no one collar is able to subsume the other. Risk of failure is worsened in some taxa where branching is *acutely divergent* or *acutely convergent* and ascending or erect.

Hollow A large void initiated by a *wound* forming a *cavity* in the trunk, branches or roots and usually increased over time by *decay* or other contributing factors, e.g. fire, or fauna such as birds or insects e.g. ants or termites. A hollow can be categorized as an *Ascending Hollow* or a *Descending Hollow*.

Risk The random or potentially foreseeable possibility of an episode causing harm or damage.

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, *crown 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.

Sustainable Retention Index Value (SRIV) A visual tree assessment method to determine a qualitative and numerical rating for the viability of urban trees for development sites and management purposes, based on general tree and landscape assessment criteria using classes of *age*, *condition* and *vigour*. SRIV is for the professional manager of urban trees to consider the tree *in situ* with an assumed knowledge of the *taxon* and its growing environment. It is based on the physical attributes of the tree and its response to its environment considering its position in a matrix for age class, vigour class, condition class and its sustainable retention with regard to the safety of people or damage to property. This also factors the ability to retain the tree with remedial work or beneficial modifications to its growing environment or removal and replacement. SRIV is supplementary to the decision made by a tree management professional as to whether a tree is retained or removed (IACA - Institute of Australian Consulting Arboriculturists 2005).

Visual Tree Assessment (VTA) A visual inspection of a tree from the ground based on the principle that, when a tree exhibits apparently superfluous material in its shape, this represents repair structures to rectify *defects* or to reinforce weak areas in accordance with the *Axiom of Uniform Stress* (Mattheck & Breloer 1994, pp. 12-13, 145). Such assessments should only be undertaken by suitably competent practitioners.

Leaning Trees

Leaning A tree where the *trunk* grows or moves away from upright. A lean may occur anywhere along the *trunk* influenced by a number of contributing factors e.g. genetically predetermined characteristics, competition for space or light, prevailing winds, aspect, slope, or other factors. A *leaning* tree may maintain a *static lean* or display an increasingly *progressive lean* over time and may be hazardous and prone to *failure* and *collapse*. The degrees of leaning can be categorized as *Slightly Leaning*, *Moderately Leaning*, *Severely Leaning* and *Critically Leaning*.

Slightly Leaning A leaning tree where the trunk is growing at an angle within 0^{O}-15^{O} from upright.
Moderately Leaning A leaning tree where the trunk is growing at an angle within 15^{O}-30^{O} from upright.
Severely Leaning A leaning tree where the trunk is growing at an angle within 30^{O}-45^{O} from upright.
Critically Leaning A leaning tree where the trunk is growing at an angle greater than $>45^{O}$ from upright.
Progressively Leaning A tree where the degree of *leaning* appears to be increasing over time.
Static Leaning A leaning tree whose lean appears to have stabilized over time.

Periods of Time

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*.

Immediate An *episode* or occurrence, likely to happen within a twenty-four (24) hour period, e.g. tree failure or collapse in full or part posing an imminent danger.
Short Term A period of time less than <1 – 15 years.
Medium Term A period of time 15 – 40 years.
Long Term A period of time greater than >40 years.

Roots

First Order Roots (FOR) Initial woody roots arising from the *root crown* at the base of the *trunk*, or as an *adventitious root mass* for structural support and *stability*. Woody roots may be buttressed and divided as a marked gradation, gradually tapering and continuous or tapering rapidly at a short distance from the root crown. Depending on soil type these roots may descend initially and not be evident at the root crown, or become buried by changes in soil levels. Trees may develop 4-11 (Perry 1982, pp. 197-221), or more first order roots which may radiate from the trunk with a relatively even distribution, or be prominent on a particular aspect, dependent upon physical characteristics e.g. leaning trunk, *asymmetrical* crown; and constraints within the growing *environment* from topography e.g. slope, soil depth, rocky outcrops, exposure to predominant wind, soil moisture, depth of *water table* etc.

Orders of Roots The marked divisions between woody roots, commencing at the initial division from the base of the trunk, at the *root crown* where successive branching is generally characterised by a gradual reduction in root diameters and each gradation from the trunk and can be categorized numerically, e.g. *first order roots*, second order roots, third order roots etc. Roots may not always be evident at the *root crown* and this may be dependent on species, age class and the growing environment. Palms at maturity may form an adventitious root mass.

Root Plate The entire root system of a tree generally occupying the top 300-600mm of soil including roots at or above ground and may extend laterally for distances exceeding twice the height of the tree (Perry 1982, pp. 197-221). Development and extent is dependent on water availability, soil type, *soil depth* and the physical characteristics of the surrounding landscape.

Root Crown Roots arising at the base of a trunk.

Zone of Rapid Taper The area in the *root plate* where the diameter of *structural roots* reduces substantially over a short distance from the *trunk.* Considered to be the minimum radial distance to provide structural support and *root plate* stability. See also *Structural Root Zone (SRZ)*.

Structural Roots Roots supporting the infrastructure of the *root plate* providing strength and *stability* to the tree. Such roots may taper rapidly at short distances from the *root crown* or become large and woody as with gymnosperms and dicotyledonous angiosperms and are usually 1st and 2nd order roots, or form an *adventitious root mass* in monocotyledonous angiosperms (palms). Such roots may be crossed and grafted and are usually contained within the area of *crown projection* or extend just beyond the *dripline*.

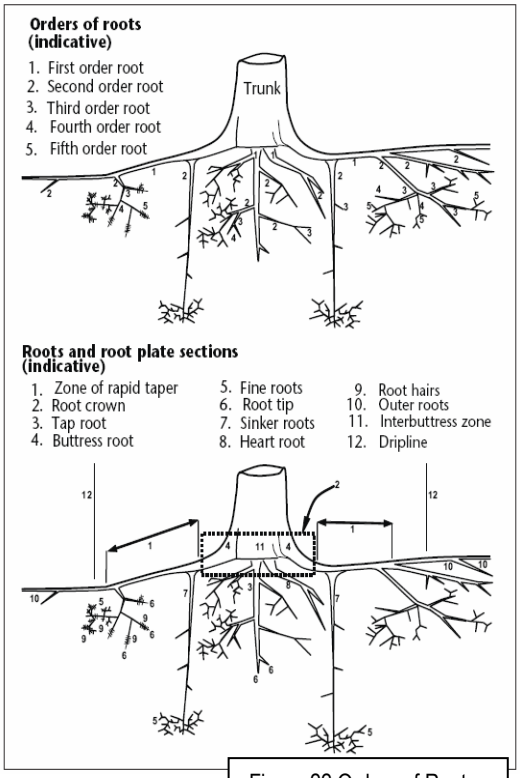


Figure 22 Orders of Roots.

Symmetry

Symmetry Balance within a *crown,* or *root plate,* above or below the *axis* of the trunk of branch and foliage, and root distribution respectively and can be categorized as *Asymmetrical* and *Symmetrical*.

Asymmetrical Imbalance within a crown, where there is an uneven distribution of branches and the foliage *crown* or *root plate* around the vertical *axis* of the trunk. This may be due to *Crown Form Codominant* or *Crown Form Suppressed* as a result of natural restrictions e.g. from buildings, or from competition for space and light with other trees, or from exposure to wind, or artificially caused by pruning for clearance of roads, buildings or power lines. An example of an expression of this may be, crown asymmetrical, bias to west.

Symmetrical Balance within a crown, where there is an even distribution of branches and the *foliage crown* around the vertical *axis* of the trunk. This usually applies to trees of *Crown Form Dominant* or *Crown Form Forest*. An example of an expression of this may be crown symmetrical.

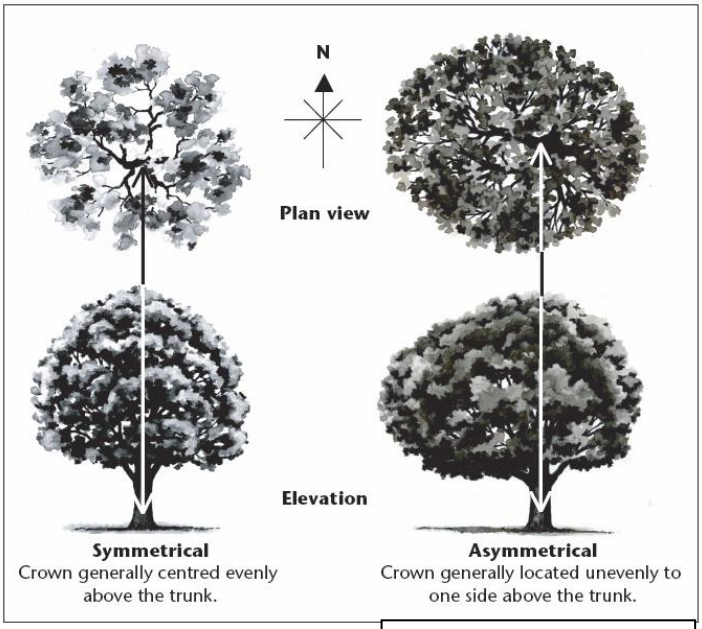


Figure 27 Symmetry within crown

Trunk

Trunk A single stem extending from the *root crown* to support or elevate the *crown*, terminating where it divides into separate *stems* forming *first order branches*. A trunk may be evident at or near ground or be absent in *acaulescent* trees of *deliquescent* habit, or may be continuous in trees of *excurrent* habit. The trunk of any *caulescent* tree can be divided vertically into three (3) sections and can be categorized as *Lower Trunk*, *Mid Trunk* and *Upper Trunk*. For a *leaning* tree these may be divided evenly into sections of one third along the trunk.

Acaulescent A *trunkless* tree or tree growth forming a very short *trunk*. See also *Caulescent*. (See Fig. 21)

Caulescent Tree grows to form a *trunk*. See also *Acaulescent*. (See Fig. 21)

Lower trunk Lowest, or *proximal* section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Mid trunk* and *Upper trunk*.

Mid trunk A middle section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Lower trunk* and *Upper trunk*.

Upper trunk Highest, or *distal* section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Lower trunk* and *Mid trunk*.

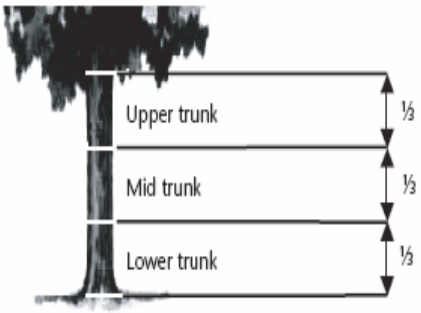


Figure 28 Trunk sections.

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.

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.

Appendix F

Survey of Subject Tree/s

Trees the subject of this report are marked on the plans in the following appendices and are numbered as listed below.

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
1	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
2	*Pinus radiata*	Radiata Pine	Retain and protect
3	*MISSING*		Missing
4	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
5	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
6	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
7	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
8	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
9	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
10	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
11	*Acacia*		DEAD - remove
12	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
13	*Pittosporum undulatum*	Native Daphne	Retain and protect
14	*Agathis robusta*	Queensland Kauri Pine	Retain and protect
15	*Eucalyptus pilularis*	Blackbutt	Retain and protect
16	*Phoenix canariensis*	Date Palm	Remove - self-sown
17	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
18	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
19	*Angophora bakeri*	Small Leaf Apple	Retain and protect
20	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
21	*Eucalyptus pilularis*	Blackbutt	Retain – further investigation
22	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	Retain and protect
23	*Eucalyptus saligna x botryoides*	Wollongong Woolybutt	Retain and protect
24	*Eucalyptus pilularis*	Blackbutt	Retain – further investigation
25	*Eucalyptus botryoides*	Bangalay Gum	Retain and protect
26	*Eucalyptus botryoides*	Bangalay Gum	Retain and protect
27	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
28	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	Remove and replace
29	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
30	*Glochidion ferdinandi/ Eucalyptus saligna x botryoides*	Cheese Tree/ Wollongong Wollybutt	Retain and protect
31	*Phoenix canariensis*	Date Palm	Retain and protect
32	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
33	*Pittosporum undulatum*	Native Daphne	Retain and protect
34	*Pittosporum undulatum*	Native Daphne	Retain and protect
35	*Eucalyptus saligna x botryoides*	Wollongong Wollybutt	Remove and replace
36	*Erythrina x sykesii*	Coral tree	Remove and replace
37	*Eucalyptus pilularis*	Blackbutt	Retain and protect
38	*Angophora costata*	Sydney Red Gum	Remove and replace
39	*Eucalyptus pilularis*	Blackbutt	Remove and replace
40	*Eucalyptus saligna*	Sydney Blue Gum	Remove and replace
41	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
42	*Eucalyptus resinifera*	Red Mahogany	Remove – bracket fungi
43	*Pittosporum undulatum*	Native Daphne	Remove - overmature / cavity
44	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
45	*Eucalyptus pilularis*	Blackbutt	Retain and protect

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
46	*Angophora costata*	Sydney Red Gum	Retain and protect
47	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
48	*Eucalyptus pilularis*	Blackbutt	Retain – habitat tree will require pruning
49	*Eucalyptus resinifera*	Red Mahogany	Retain and protect
50	*Acacia falcata*	Hickory Wattle	Retain and protect
51	*Eucalyptus resinifera*	Red Mahogany	Retain and protect
52	*Angophora costata*	Sydney Red Gum	Remove and replace
53	*Eucalyptus resinifera*	Red Mahogany	Remove and replace
54	*Angophora costata*	Sydney Red Gum	Remove and replace
55	*Missing*		Missing
56	*Missing*		Missing
57	*Angophora costata*	Sydney Red Gum	Remove and replace
58	*Eucalyptus resinifera*	Red Mahogany	Remove and replace
59	*Pittosporum undulatum*	Native Daphne	Remove and replace
60	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
61	*Cinnamomum camphora*	Camphor Laurel	Retain and protect
62	*Grevillea robusta*	Silky Oak	Remove and replace
63	*Angophora costata*	Sydney Red Gum	Remove and replace
64	*Angophora costata*	Sydney Red Gum	Remove and replace
65	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
66	*Angophora costata*	Sydney Red Gum	Remove and replace
67	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
68	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
69	*Missing*		Missing
70	*Missing*		Missing
71	*Angophora costata*	Sydney Red Gum	Remove and replace
72	*Angophora costata*	Sydney Red Gum	Remove and replace
73	*Angophora costata*	Sydney Red Gum	Remove and replace
74	*Allocasuarina torulosa*	Forest She Oak	Remove and replace
75	*Angophora costata*	Sydney Red Gum	Retain and protect
76	*Angophora costata*	Sydney Red Gum	Retain and protect
77	*Angophora costata*	Sydney Red Gum	Remove and replace
78	*Angophora costata*	Sydney Red Gum	Remove and replace
79	*Angophora costata*	Sydney Red Gum	Retain and protect
80	*Angophora costata*	Sydney Red Gum	Retain and protect
81	*Angophora costata*	Sydney Red Gum	Retain and protect
82	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
83	*Angophora costata*	Sydney Red Gum	Retain and protect
84	*Angophora costata*	Sydney Red Gum	Retain and protect
85	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
86	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
87	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
88	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
89	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
90	*Corymbia citriodora*	Lemon Scented Gum	Retain and protect
91	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
92	*Angophora costata*	Sydney Red Gum	Retain and protect
93	*Cedrus deodara*	Himalayan Cedar	Retain and protect
94	*Camellia japonica*	Camellia	Retain and protect
95	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
96	*Missing*		MISSING
97	*Missing*		MISSING
98	*Missing*		MISSING
99	*Missing*		MISSING
100	*Missing*		MISSING
101	*Missing*		MISSING
102	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
103	*Platanus digitata*	Plane Tree	Retain and protect
104	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
105	*Schefflera actinophylla*	Large Leaf Umbrella	Remove – exempt species
106	*Missing*		Missing
107	*Thuja orientalis*	Bookleaf Conifer	Retain and protect
108	*Eucalyptus pilularis*	Blackbutt	? Retain and protect
109	*Eucalyptus microcorys*	Tallowwood	Retain and protect
110	*Eucalyptus grandis*	Rose gum	Retain and protect
111	*Liquidambar styraciflua*	Sweet Gum	Retain and protect
112	*Chamaecyparis lawsoniana*	Lawson Cypress	Retain and protect
113	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
114	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
115	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
116	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
117	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
118	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
119	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
120	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
121	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
122	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
123	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
124	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
125	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
126	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
127	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
128	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
129	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
130	*Cupressus torulosa*	Bhutan Cypress	Remove and replace
131	*Missing*		MISSING
132	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
133	*Pinus patula*	Mexican Weeping Pine	Remove - overmature
134	*Cupressus cashmeriana*	Kashmir Cypress	Retain and protect
135	*Cedrus deodara*	Himalayan Cedar	Retain and protect
136	*Cedrus deodara*	Himalayan Cedar	Retain and protect
137	*Callistemon salignus*	Willow Bottlebrush	Retain and protect
138	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
139	*Livistona chinensis*	Chinese Fan Palm	Retain and protect
140	*Missing*		MISSING
141	*Missing*		MISSING
142	*Eucalyptus scoparia*	Wallangarra White Gum	Remove – overmature / decay / borer
143	*Phoenix canariensis*	Date Palm	Remove and replace
144	*Ginkgo biloba*	Maidenhair Tree	Remove and replace
145	*Ginkgo biloba*	Maidenhair Tree	Remove and replace

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
146	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
147	*Eucalyptus saligna*	Sydney Blue Gum	Retain and protect
148/2	*Hymenosporum flavum x5*	Native Frangipani	Retain and protect
149	*Eucalyptus microcorys*	Tallowwood	Remove and replace
150	*Liquidambar styraciflua*	Sweet Gum	Remove and replace
151	*Acer negundo*	Box Elder Maple	Retain and protect
152	*Acer negundo*	Box Elder Maple	Retain and protect
153	*Acer negundo*	Box Elder Maple	Remove and replace
154	*Magnolia grandiflora*	Bull Bay Magnolia	Retain and protect
155	*Magnolia grandiflora*	Bull Bay Magnolia	Retain and protect
156	*Jacaranda mimosifolia*	Jacaranda	Retain and protect
157/3	*Acer negundo x3*	Box Elder Maple	Remove and replace
158	*Triadica sebifera*	Chinese Tallowwood	Retain and protect
159	*Brachychiton acerifolius*	Illawarra Flame Tree	Retain and protect
160	*Cedrus atlantica*	Atlantic Cedar	Remove and replace
161	*Pyrus*	Ornamental Pear	Remove and replace
162	*Pyrus*	Ornamental Pear	Remove and replace
163	*Angophora costata*	Sydney Red Gum	Remove and replace
164	*Jacaranda mimosifolia*	Jacaranda	Remove and replace
165	*Jacaranda mimosifolia*	Jacaranda	Remove and replace
166	*Cinnamomum camphora*	Camphor Laurel	Remove and replace
167	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
168	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
169	*Missing*		MISSING
170	*Missing*		MISSING
171	*Acer negundo*	Box Elder Maple	Remove and replace
172	*Acer negundo*	Box Elder Maple	Remove and replace
173	*Acer negundo*	Box Elder Maple	Remove and replace
174	*Acer negundo*	Box Elder Maple	Remove and replace
175	*Acer negundo*	Box Elder Maple	Remove and replace
176	*Eucalyptus pilularis*	Blackbutt	Remove and replace
177	*Eucalyptus pilularis*	Blackbutt	Remove and replace
178	*Phoenix canariensis*	Date Palm	Remove and replace
179	*Phoenix canariensis*	Date Palm	Remove and replace
180	*Phoenix canariensis*	Date Palm	Remove and replace
181	*Phoenix canariensis*	Date Palm	Remove and replace
182	*Phoenix canariensis*	Date Palm	Remove and replace
183	*Phoenix canariensis*	Date Palm	Remove and replace
184	*Eucalyptus pilularis*	Blackbutt	Remove and replace
185	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
186	*Eucalyptus sideroxylon*	Pink Flowering Ironbark	Remove and replace
187	*Syagrus romanzoffianum*	Cocos Palm	Remove and replace
188	*Syzygium smithii*	Lilly Pilly	Remove and replace
189	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
190	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
191	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
192	*Cinnamomum camphora*	Camphor Laurel	Remove – inappropriate species
193	*Olea europaea var. africana*	African Olive	Remove – exempt species
194	*Populus deltoids*	Eastern Cottonwood	Remove and replace
195	*Celtis*	Hackberry	Remove – inappropriate species

Redgum Tree / Stand No.	*Genus and species*	Common name	Recommendation
196	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
197	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
198	*Pittosporum undulatum*	Native Daphne	Remove and replace
199	*Acer negundo*	Box Elder Maple	Retain and protect
200	*Melia azedarach*	White Cedar	Remove and replace
201	*Triadica sebifera*	Chinese Tallowwood	Remove and replace
202	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
203	*Acer negundo*	Box Elder Maple	Remove and replace
204	*Ficus rubiginosa*	Port Jackson Fig	Remove and replace
205	*Erythrina x sykesii*	Coral tree	Remove – inappropriate species
206	*Privet*		Remove – Weed species
207	*Stenocarpus sinuatus*	Firewheel Tree	Remove and replace
208	*Phoenix canariensis*	Date Palm	Remove and replace
8A	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
11A	*Acacia falcata*	Hickory Wattle	Remove - overmature
14A	*Glochidion ferdinandi*	Cheese Tree	Retain and protect
21A	*Pittosporum undulatum*	Native Daphne	Retain and protect
22A	*Cupaniopsis anacardioides*	Tuckeroo	Retain and protect
38A	*Angophora costata*	Sydney Red Gum	Remove - overmature
45A/4	*Ficus rubiginosa x2*	Port Jackson Fig	Retain and protect
74A	*Angophora costata*	Sydney Red Gum	Remove and replace
81A	*Stenocarpus sinuatus*	Firewheel Tree	Retain and protect
81B	*Acer negundo*	Box Elder Maple	Retain and protect
83A	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
85A	*Ficus rubiginosa*	Port Jackson Fig	Retain and protect
91A	*Lagerstroemia indica*	Crepe Myrtle	Retain and protect
91B	*Lagerstroemia indica*	Crepe Myrtle	Retain and protect
91C	*Photinia glabra*	Photinia	Retain and protect
107A	*Jacaranda mimosifolia*	Jacaranda	Remove – self-sown
107B	*Robinia pseudoacacia*	Golden Rain Tree	Remove – self-sown
107C	*Lagerstroemia indica*	Crepe Myrtle	Remove and replace
133A	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	Retain and protect
133B	*Melaleuca bracteata 'Revolution Green'*	Revolution Green Paperbark	Retain and protect
142A/5	*Phoenix canariensis x4*	Date Palm	Retain and protect
144A	*X Cupressocyparis leylandii*	Leyland Cypress	Remove and replace
147A	*Phoenix canariensis*	Date Palm	Remove and replace
147B	*Celtis*	Hackberry	Remove and replace
147C	*Liquidambar styraciflua*	Sweet Gum	Remove and replace
147D/6	*Acer negundo x3*	Box Elder Maple	Remove and replace
147E	*Acer negundo*	Box Elder Maple	Retain and protect
153A	*Magnolia grandiflora*	Bull Bay Magnolia	Remove and replace
159A	*Syzygium australe*	Lilly Pilly	Remove and replace
160A	*Syzygium australe*	Lilly Pilly	Remove and replace
162A/7	*Archontophoenix cunninghamiana x2*	Bangalow Palm	Remove and replace

Table 2.0 This table only applies to trees being retained. Tree Protection Zone fencing locations as measured from the centre of each tree and the recommended distances for the side closest to the building construction works e.g. excavation (see explanatory notes below). Tree Protection Zone fences and setbacks where applicable are indicated in Appendix F.

1. Redgum Tree No. / Redgum Stand No.	2. **S**tructural **R**oot **Z**one **SRZ (DARB)** From centre of trunk (COT) **D**iameter **A**bove **R**oot **B**uttress AS4970 2009 Section 3, 3.3.5 (see Appendix D) where applicable (Minimum 1.5 metres)	3. **T**runk **D**iameter at **B**reast **H**eight **DBH** 1.4m above ground, AS4970 2009, or mm or m above ground where indicated. # = average. g = ground	4. **T**ree **P**rotection **Z**one (**TPZ**) = **12 x DBH** From centre of trunk (COT) in metres AS4970 2009Section 3 (see Appendix D) (Minimum 2.0 metres)	5. Distance of fence with TPZ setback **(reduced by 10% of area of TPZ)** in metres as per AS4970 2009 Section 3, 3.3 (Minimum 2.0 metres)	6. Proposed distance of tree protection fence/works on the side closest to building construction[2], in metres by Redgum Horticultural.
1	3.0	800	9.6	8.6	T.B.A
2	2.7	600	7.2	6.5	T.B.A
4	3.4	1100 DARB	13.2	11.9	T.B.A
5	3.9	1500# DARB	15 [23]	15 [23]	T.B.A
6	4.2	1800# DARB	15 [23]	15 [23]	T.B.A
7	3.7	1300	15 [23]	14.0	T.B.A
8A	2.0	300@300	3.6	3.2	T.B.A
10	3.2	900	10.8	9.7	T.B.A
12	3.8	1400# DARB	15 [23]	15 [23]	T.B.A
13	1.5 [25]	6x150#	2.0 [22]	2.0 [22]	T.B.A
14	2.8	700	8.4	7.6	T.B.A
14A	2.1	350	4.2	3.8	T.B.A
15	2.7	600	7.2	6.5	T.B.A
19	2.3	400	4.8	4.3	T.B.A
20	2.4	450@300	5.4	4.9	T.B.A
21	2.5	520	6.2	5.6	T.B.A
21A	2.0	300	3.6	3.2	T.B.A
22	2.3	400@300	4.8	4.3	T.B.A
22A	1.5 [25]	160	2.0 [22]	2.0 [22]	T.B.A
23	1.7	200	2.4	2.2	T.B.A
24	3.2	900	10.8	9.7	T.B.A
25	2.4	480	5.8	5.2	T.B.A
26	1.6	180	2.1	2.0 [22]	T.B.A
29	2.7	600#	7.2	6.5	T.B.A
30	2.0	300	3.6	3.2	T.B.A
31	2.4	450	5.4	4.9	T.B.A
33	2.0	300	3.6	3.2	T.B.A
34	1.8	220	2.6	2.4	T.B.A
37	2.5	520	6.2	5.6	T.B.A
41	3.0	800	9.6	8.6	T.B.A
44	3.3	1000	12.0	10.8	T.B.A
45	2.8	700@300	8.4	7.6	T.B.A
45A/4	1.5 [25] to 1.9	120-260	2.0 [22] to 3.1		T.B.A
46	1.9	280	3.4	3.0	T.B.A
47	2.1	350	4.2	3.8	T.B.A
48	3.3	1000	12.0	10.8	T.B.A
49	2.5	500@300	6.0	5.4	T.B.A
50	2.6	550	6.6	5.9	T.B.A
51	2.8	700	8.4	7.6	T.B.A
60	2.4	450@300	5.4	4.9	T.B.A
61	2.3	400#	4.8	4.3	T.B.A
75	1.9	280	3.4	3.0	T.B.A
76	2.4	450	5.4	4.9	T.B.A
79	2.7	600	7.2	6.5	T.B.A
80	2.0	300	3.6	3.2	T.B.A
81	2.1	350	4.2	3.8	T.B.A
81B	1.7	200	2.4	2.2	T.B.A.
81A	1.5 [25]	130	2.0 [22]	2.0 [22]	T.B.A.

1. Redgum Tree No. / Redgum Stand No.	2. **S**tructural **R**oot **Z**one **SRZ (DARB)** From centre of trunk (COT) **D**iameter **A**bove **R**oot **B**uttress AS4970 2009 Section 3, 3.3.5 (see Appendix D) where applicable (Minimum 1.5 metres)	3. **T**runk **D**iameter at **B**reast **H**eight **DBH** 1.4m above ground, AS4970 2009, or mm or m above ground where indicated. # = average. g = ground	4. **T**ree **P**rotection **Z**one (**TPZ**) = **12 x DBH** From centre of trunk (COT) in metres AS4970 2009Section 3 (see Appendix D) (Minimum 2.0 metres)	5. Distance of fence with TPZ setback **(reduced by 10% of area of TPZ)** in metres as per AS4970 2009 Section 3, 3.3 (Minimum 2.0 metres)	6. Proposed distance of tree protection fence/works on the side closest to building construction[2], in metres by Redgum Horticultural.
82	2.0	300	3.6	3.2	T.B.A
83	2.5	500	6.0	5.4	T.B.A
83A	1.5 [25]	140	2.0 [22]	2.0 [22]	T.B.A
84	2.4	450	5.4	4.9	T.B.A
85A	3.0	800#	9.6	8.6	T.B.A
86	2.4	450	5.4	4.9	T.B.A
87	3.3	1000#	12.0	10.8	T.B.A
88	2.0	300	3.6	3.2	T.B.A
89	2.3	400	4.8	4.3	T.B.A
90	2.8	700	8.4	7.6	T.B.A
91	2.7	600@300	7.2	6.5	T.B.A
91A	2.7	600@300	7.2	6.5	T.B.A
91B	2.7	600@300	7.2	6.5	T.B.A
91C	2.5	500@300	6.0	5.4	T.B.A
92	3.7	1300#	15 [23]	14.0	T.B.A
93	2.5	500	6.0	5.4	T.B.A
94	2.0	300@300	3.6	3.2	T.B.A
95	3.9	1500	15 [23]	15 [23]	T.B.A
102	5.25	3000	15 [23]	15 [23]	T.B.A
103	3.0	800@300	9.6	8.6	T.B.A
104	2.4	450	5.4	4.9	T.B.A
107	2.0	300@300	3.6	3.2	T.B.A
108	3.4	1100	13.2	11.9	T.B.A
109	3.0	800	9.6	8.6	T.B.A
110	3.3	1000	12.0	10.8	T.B.A
111	2.0	300	3.6	3.2	T.B.A
112	2.0	300@300	3.6	3.2	T.B.A
132	2.6	550@300	6.6	5.9	T.B.A
133A	1.5 [25]	160	2.0 [22]	2.0 [22]	T.B.A
133B	1.6	180	2.1	2.0 [22]	T.B.A
134	3.2	900	10.8	9.7	T.B.A
135	2.5	500	6.0	5.4	T.B.A
136	2.4	450	5.4	4.9	T.B.A
137	2.7	600@300	7.2	6.5	T.B.A
138	3.0	800	9.6	8.6	T.B.A
139	2.1	320	3.8	3.5	T.B.A
142A/5	N/A	800	4.0 [24]	N/A	T.B.A
147	2.6	580	6.9	6.3	T.B.A
147E	2.5	500@300	6.0	5.4	T.B.A
148/6	1.5 [25]	100-140	2.0 [22]	2.0 [22]	T.B.A
151	2.5	500	6.0	5.4	T.B.A
152	3.0	800	9.6	8.6	T.B.A
154	2.3	400@300	4.8	4.3	T.B.A
155	2.3	400	4.8	4.3	T.B.A
156	2.7	600@300	7.2	6.5	T.B.A
158	2.7	600@300	7.2	6.5	T.B.A
159	2.1	350	4.2	3.8	T.B.A
199	2.0	300	3.6	3.2	T.B.A

Descriptors for modified setbacks as per above table.

1 Special conditions apply to protect the roots of trees generally.
2 Additional protective fencing information is detailed in attached plans.
3 Acceptable due to the good relative tolerance of the species to development impacts.
4 Range of setbacks for the trees at each end of a linear stand are to be calculated if required.
5 Acceptable as fence located at a substantial distance beyond dripline or may also include the location of a smaller tree in proximity to a larger tree to be retained and the smaller tree being protected well within the protective fencing for that larger tree.
6 Acceptable due to additional special protection works, see Section 5.0 for this tree.
7 Acceptable as pre-existing site conditions were conducive to having restricted the development of root growth in this direction.
8 Street tree with protective fencing of minimal width to allow for pedestrian access along road reserve.
9 Acceptable as tree transplanted reducing the area of the root zone.
10 Acceptable as not effected by development works.
11 Young tree not expected to have established a substantially expansive root system and able to re-establish or modify growth to be sustainable due to age and good vigour.
12 Set back prescribed by the consent authority.
13 Acceptable as tree growing on a lean and encroachment on compression wood side where root growth is of reduced structural importance.
14 Acceptable as root mapping has indicated extent of structural woody roots with a diameter of 20 mm or more.
15 Acceptable as a specimen of palm taxa tolerant of encroachment.
16 Acceptable as excavation on down slope or across slope side of tree.
17 Acceptable as encroachment into growing area below ground minor, with one corner of building or excavation works extending to within the radius of the dripline.
18 Acceptable as encroachment by pier, including screw piles, with minimal disturbance.
19 Acceptable as encroachment above grade without excavation or sub-base compaction.
20 Acceptable as located within 0.5 m from edge of dripline.
21 Acceptable as encroachment with gap graded fill that can accommodate gaseous exchange between roots/soil and the atmosphere and ongoing root growth.
22 Minimum setback 2 m, AS4970 (2009) section 3, 3.2.
23 Maximum setback 15 m, AS4970 (2009) section 3, 3.2.
24 Tree is a palm, other monocot, cycad or tree fern TPZ is to be 1 m outside crown projection AS4970 (2009) section 3, 3.2.
25 Minimum Structural Root Zone (SRZ) for trees less than 0.15 m diameter is 1.5 m, AS4970 (2009) section 3, 3.5.

Explanatory notes for Table 2.0.

This table is based upon Australian Standard AS4970 2009 *Protection of trees on development sites*, Section 3 Determining the protection zone of the selected trees (see Appendix D), where the approved building works should be no closer, including excavation, than the dimensions stated above.

"3.3 Variations to the TPZ

3.3.2 Minor Encroachment - *If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ.*

3.3.3 Major Encroachment

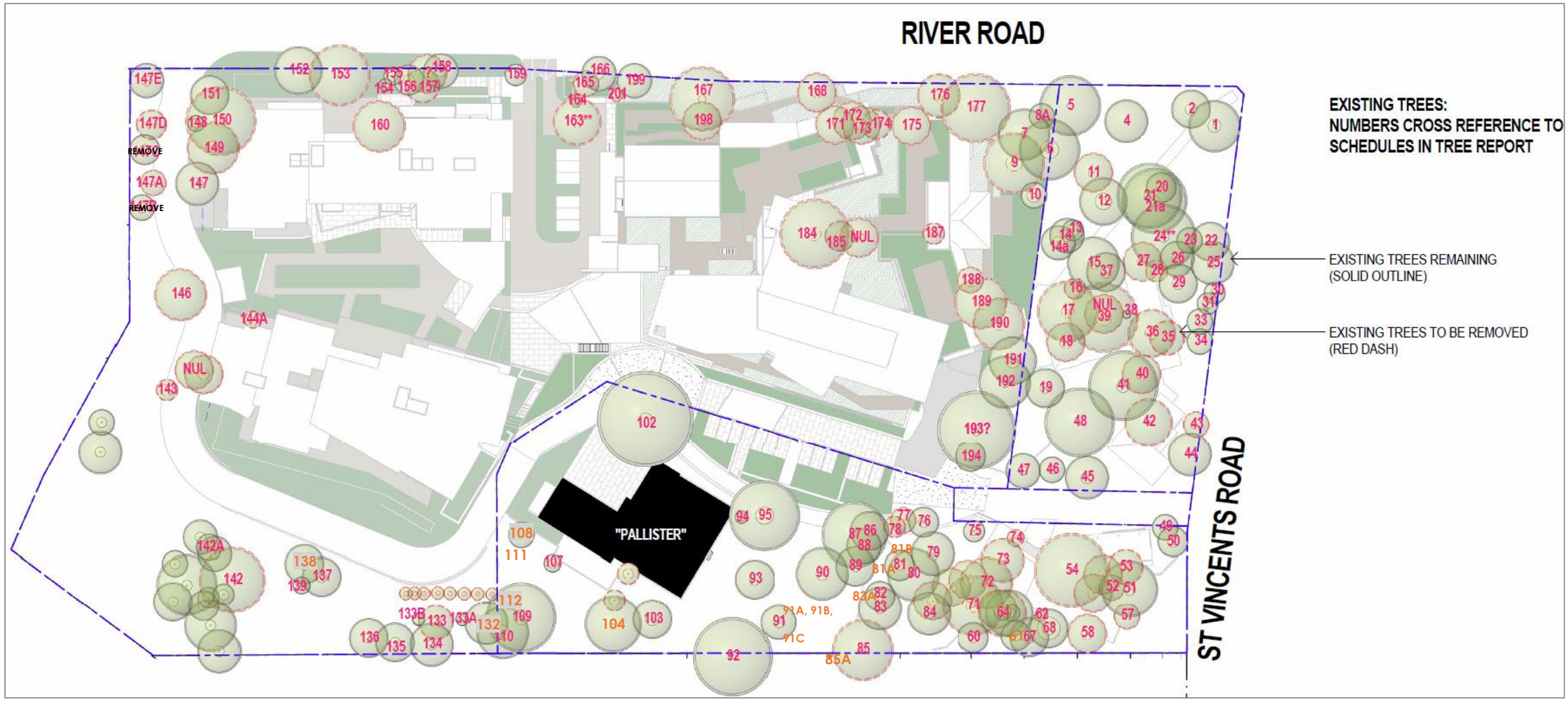
If the proposed encroachment is greater than 10% of the area of the TPZ or inside the SRZ the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ."

Appendix F

Site Plan - Redgum Survey of Subject Trees to be Retained & Tree Protection Zones

This report has relied upon the following plan/s and documents which has been reproduced from electronic transmission and no longer to original scale.

All Tree Protection Zones are to be measured on site as per Table 2.



Legend

- ***Tree Protection Zone (TPZ),*** fencing with setbacks as indicated, or other protection measures or works as indicated.
- ***Tree Protection Zone,*** area of special protection measures or works outside of fenced area.
- Relocated ***Tree Protection Zone,*** area of special protection measures or works outside of fenced area once construction commences.
- XX Tree numbers – trees to be retained only. Subject trees represented by the approximate location of the trunk.