ARBORICULTURAL IMPACT ASSESSMENT REPORT

relating to the residential development

HOUSE C
62 & 64 POWDERWORKS ROAD
NORTH NARRABEEN NSW 2101

Prepared for Somers Isles Pty Ltd
8 July 2024

Revision A

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APPENDICES

1. INTRODUCTION

1.1 This report was commissioned by Somers Isles Pty Ltd, the owner of No. 64 Powderworks Road, North Narrabeen to provide an Arboricultural Impact Assessment (AIA) report relating to the proposed subdivision and residential development of the site and adjoining site at No. 62 Powderworks Road. It is proposed to subdivide the rear portions of No. 62 and No. 64 to create a new parcel of land for residential development. The new allotment will be accessed from Bellara Avenue via a shared driveway from No. 32 Bellara Avenue. This report will provide an impact assessment relating to the existing trees located on the proposed site and on adjoining sites that are within close proximity to the proposed works.

1.2 A total of sixty one (61) trees are included in this assessment including fifty one (51) trees located within the proposed site boundaries and ten (10) trees located on adjoining land. Generally, a tree is protected in accordance with the Northern Beaches Council Local Environment Plan if it is a height greater than five (5) metres. In some instances a tree may meet the prescribed size, however may not be protected for other reasons such as it being a noxious weed species or a species listed by Council as exempt.

1.3 The purpose of this report is to undertake a visual assessment of the trees, determine the sustainability of the trees in the landscape, determine the impact of the proposed works on the trees and provide recommendations for tree protection measures to be implemented for those trees being retained.

1.4 This report shall reflect the expert opinion of the Arborist. The Arborist is acting independently of and not as the advocate for the owner. The Arborist shall not receive any commission to prune or remove the tree/s which is the subject of this report.

1.5 This report has been prepared in accordance the Australian Standard "*Protection of Trees on Development Sites*" (AS 4970:2009).

1.6 Details shown on the following plans were reviewed in this assessment:

Title	Author	Ref No.	Date
Architectural drawings	Inlet Design Studio	BEL001	27.5.24
Draft Landscape Plan	Peta Gilliland Landscape Design	L001	6.6.24
Topographical survey plan	CMS Surveyors Pty Ltd	10184Ddetail	12.2.24

1.7 Key Definitions and Abbreviations used in this report.

- TPZ = Tree Protection Zone. This is the area as defined by AS 4970 – "*Protection of trees on development sites*" and means the typical minimum area above and below ground at a given distance from the trunk to provide for protection of the tree. Most importantly it represents the root zone required to be kept uninjured to maintain a healthy and viable tree. Note, roots will usually extend well beyond this zone, so this represents the minimum remaining root zone required, assuming all others are lost or damaged due to construction. It is typically calculated as a circle centred on the trunk unless existing site conditions can be assessed and indicate otherwise. According to the Australian Standard, a minor encroachment of 10% of the TPZ is allowable, provided the 10% is compensated for elsewhere and contiguous to the TPZ. For the purpose of this report the extent of impact has been broken down to the following categories:
  - 0% of root zone impacted – no impact of significance
  - 0 to 10% of root zone impacted – low level of impact
  - 10 to 15% of root zone impacted – low to moderate level of impact
  - 15 to 20% of root zone impacted – moderate level of impact
  - 20 to 25% of root zone impacted – moderate to high level of impact
  - 25 to 35% of root zone impacted – high level of impact
  - >35% of root zone impacted – significant level of impact
- SRZ = Structural Root Zone. This is the area as defined by AS 4970 – "*Protection of trees on development sites*" and means the area immediately around the base of the tree at a given distance from the trunk. The woody roots and soil cohesion in this area are considered vital to the structural stability of the tree. Damage or removal of soil and roots from this area will typically render the tree unstable and require its removal. It is typically calculated as a circle, centred on the trunk, unless existing site conditions can be assessed and indicate otherwise.

2. METHODOLOGY

2.1 Health and Condition Assessment

A site inspection was undertaken on 12 October 2023 to visually assess the trees located to the rear of No. 64 Powderworks Road. A follow-up site inspection was then undertaken on 25 June 2024 to inspect the trees located to the rear of No. 62 Powderworks Road. This report is limited to the methods of assessment listed below (and outlined in **Appendix 1**), and does not include any internal probing, compaction testing, drilling, root mapping, aerial inspection or diagnostic testing.

- Tree Species (botanical and common name).
- Tree height and canopy spread was estimated.
- Diameter at Breast Height (DBH) and Diameter at Ground Level (DGL) was measured or estimated.
- Health and vigour assessed, including indicators such as foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback, epicormic growth.
- Condition assessed, including visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators.
- Life expectancy of the tree was estimated, suitability of the tree to the site and its existing location.
- The photographs included in this report were taken either on 12 October 2023 or 25 June 2024.
- Assessment was carried out visually from ground level within the property.
- The comments and recommendations in this report are based on findings from the site inspection.

Note: Due to the steep terrain of the site and inaccessibility to some of the trees, the DBH and DGL was not measured for every tree. Approximately half of the trees were measured using a forestry diameter tape. The DBH and DGL for the remaining trees was estimated by making a comparison to those nearby trees that were measured.

2.2 Landscape Significance

The significance of a tree in the landscape is a combination of its environmental, heritage and amenity values. A criteria for the assessment of landscape significance as devised by Andrew Morton (2003) and shown in **Appendix 2** have been applied. Whilst it may be somewhat subjective to assess these values consistently, it is appropriate to assign some measure to assist in determining the overall retention value of a tree.

The rating system which has been applied to the tree and to assist in determining a priority for retention, includes the following categories:

1. Significant
2. Very High
3. High
4. Moderate
5. Low
6. Very Low
7. Insignificant

2.3 Tree Retention Value

The retention value shown in the Tree Assessment Schedule in **Figure 3** has been determined on the basis of the estimated longevity of the tree and its landscape significance rating, in accordance with Table 1 below.

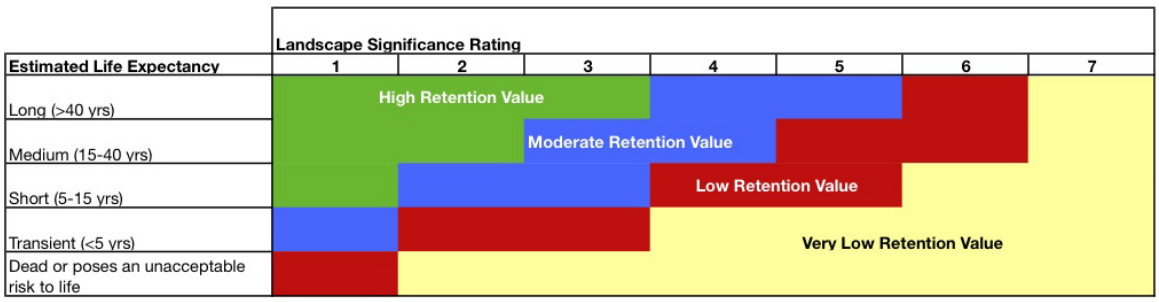

Table 1: Tree Retention Values - assessment methodology (Ref:- Morton, Andrew 2006 modified from Couston, Mark & Howden, Melanie (2001) Footprint Green Pty Ltd, Sydney, Australia)

3. OBSERVATIONS

3.1 The Site

The properties are legally identified as Lot 1 in Deposited Plan 05247 (No. 62) and Section 35, Lot 1 in Deposited Plan 6462 (No. 64). Almost rectangular in shape, each site has a total area of 1,045 square metres and 1,745.5 square metres (by calculation) respectively. The aerial image in **Figure 1** below shows the proposed subdivision lines for each allotment to create a third parcel of land.

Both properties have been developed to the front upper portion of the sites, each containing a single dwelling. The land slopes steeply from the dwelling level down to the southern property boundary of each property. The lower half of the sites are heavily treed, containing remnant bush land vegetation. Sandstone rock is evident at various locations on the site which is indicative of the geology of the area.

According to Northern Beaches Council zoning map, the site is zoned as C4 Environmental Living, being residential land identified as holding biodiversity and ecological significance. This is reflected in the locally occurring tree species found growing on the site (including tree species such as *Angophora costata*, *Corymbia gummifera* and *Eucalyptus piperita*). The Biodiversity Values Map in **Figure 2** (https://www.planningportal.nsw.gov.au/) also identifies a large portion of the site holding biodiversity value.

Figure 1: An aerial image of the site with the proposed subdivision lines highlighted in red and each proposed allotment is also indicated. The existing site boundaries are shown in yellow (accessed from http://maps.nearmaps.com.au/ on 4/7/24).

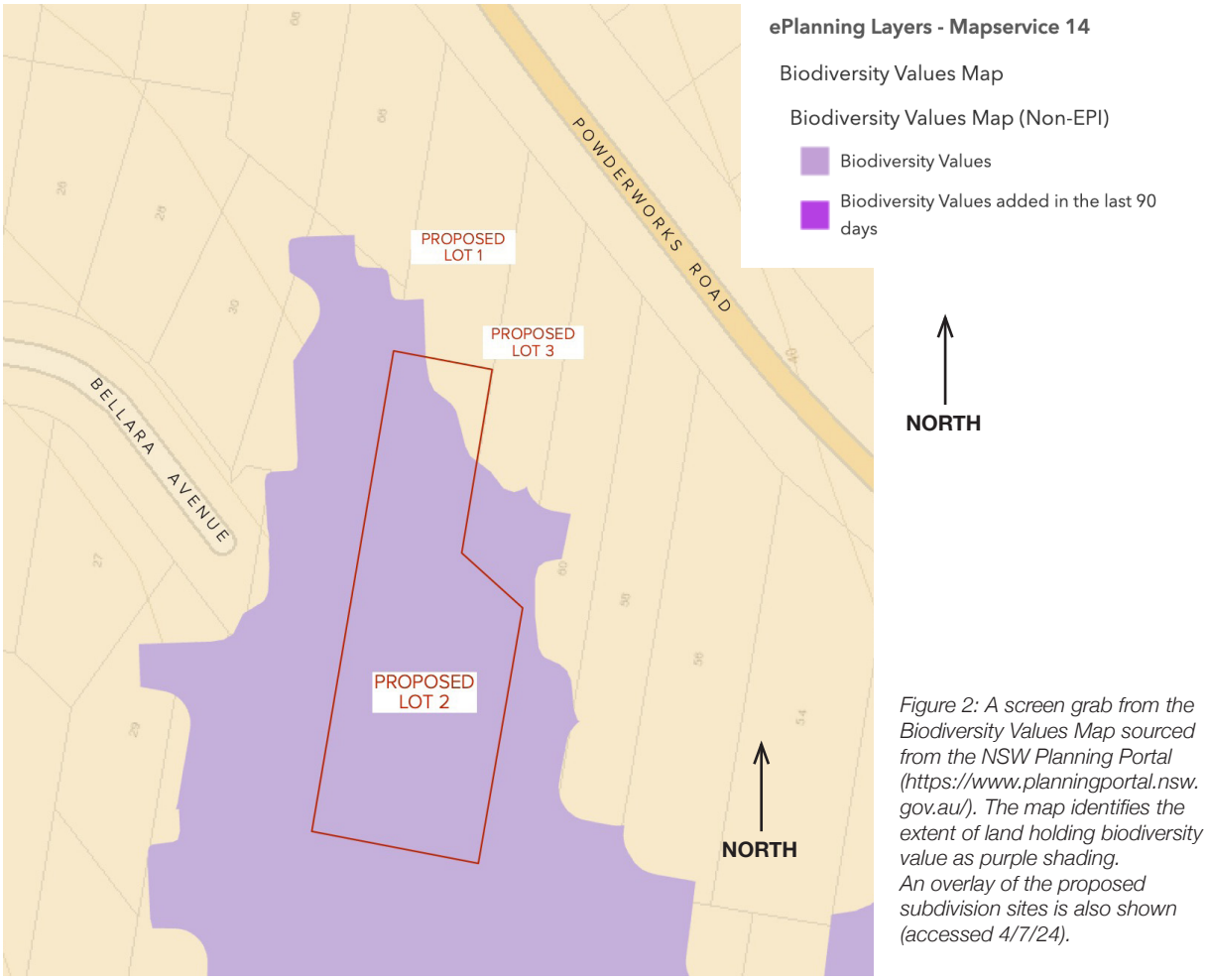

Figure 2: A screen grab from the Biodiversity Values Map sourced from the NSW Planning Portal (https://www.planningportal.nsw.gov.au/). The map identifies the extent of land holding biodiversity value as purple shading. An overlay of the proposed subdivision sites is also shown (accessed 4/7/24).

3.2 **The Trees**

The information and characteristics of the trees are set out in the Tree Assessment Schedule in **Figure 3.** Each tree has been provided with an identification number for reference purposes which is noted on the Tree Location Plan (**Figure 4**) using the Topographical Survey Plan prepared by CMS Surveyors Pty Ltd as a base layer. The tree identification numbers on the plan correlate with the trees listed on the Tree Assessment Schedule. Site photos can be found in **Figure 5-9**.

Note: For the future convenience of identifying the trees contained in this report, the majority of trees have been tagged. Those tagged trees have a small aluminium tag nailed into the trunk with the identification number etched on the tag. The tags are attached in a visible location on the main trunk and approximately 1-1.5 metres above ground level. In some instances it was too difficult to access the trunk of the tree, therefore the tree was not tagged.

Note: This assessment report is limited to the trees located within the specified site and on adjoining land that is located within close proximity to the proposed works. As part of a separate development application to be submitted to Council by the applicant, the trees located on adjoining properties have also been assessed and tagged by the author. As such, the identification number of the trees included in this report are not necessarily in sequential order.

Tree No.	Plant Name (Species/Common Name)	Age	Tree Height (m)	Average Canopy spread (m)	DBH (m)	DGL (m)	Crown Class	Vigour	Condition	Useful Life Expectancy	Landscape Significance	Tree Retention Value	Observations/ comments	Tree Protection Zone (TPZ) radius in metres	Structural Root Zone (SRZ) radius in metres	Remove or retain?	Impact / Incursion
2	*Allocasuarina littoralis** (Black She-Oak)	mature	13.0	4.0 (bias to W)	0.30 0.32	0.35 0.44	co-dominant	normal	fair	medium (15-40yrs)	moderate	moderate	Tree is located on adjoining land at No. 32 Bellara Ave. Locally occurring species indicative of the original vegetation to the area. Trunk lean and canopy bias to west. Two main trunks from base.	5.3	2.6	retain	Proposed driveway is located in TPZ of tree, representing an encroachment of approx. 12%.
3	*Glochidion ferdinandi** (Cheese tree)	mature	12.0	8.0 (bias to S + W)	0.25	0.35	dominant	normal	good	long (40yrs+)	moderate	moderate	Tree is located on adjoining land at No. 32 Bellara Ave. Locally occurring species indicative of the original vegetation to the area. Upright crown. Hanger visible (small).	3.0	2.1	retain	Proposed dwelling and driveway are located well away from TPZ of tree.
4	*Allocasuarina littoralis** (Black She-Oak)	mature	11.0	6.0	0.35	0.45	co-dominant/ partially suppressed	low	fair - poor	medium (15-40yrs)	low	low	Tree is located on adjoining land to the south. Locally occurring species indicative of the original vegetation to the area. Deadwood major. Limited crown volume.	4.2	2.4	retain	Proposed dwelling and driveway are located well away from TPZ of tree.
5	*Eucalyptus piperita** (Sydney Peppermint)	mature	14.0	10.0 (bias to S + W)	0.52	0.75	co-dominant	normal	fair	long (40yrs+)	high	moderate	Tree is located on adjoining land to the south. Locally occurring species indicative of the original vegetation to the area. Epicormic growth visible. Contorted form. Canopy bias to SW.	6.2	2.9	retain	Proposed dwelling and driveway are located well away from TPZ of tree.
6	*Allocasuarina littoralis* (Black She-Oak)	mature	13.0	5.0	0.20	0.27	co-dominant	low	fair - poor	medium (15-40yrs)	low	low	Locally occurring species indicative of the original vegetation to the area. Included branch junction, fused branches.	2.4	1.9	retain	Proposed dwelling and driveway are located well away from TPZ of tree.
7	*Allocasuarina littoralis* (Black She-Oak)	mature	9.0	5.0 (bias to W)	0.22	0.30	suppressed	low	fair - poor	medium (15-40yrs)	low	low	Locally occurring species indicative of the original vegetation to the area.	2.6	2.0	retain	Proposed dwelling and driveway are located well away from TPZ of tree.
8	*Eucalyptus paniculata* (Grey Ironbark)	mature	15.0	10.0	0.47	0.50	co-dominant	normal	good	long (40yrs+)	high	high	Locally occurring species indicative of the original vegetation to the area. Typical representation for the species.	5.6	2.5	remove	Tree is located within building footprint of House C
9	*Allocasuarina littoralis* (Black She-Oak)	mature	7.0	7.0 (bias to S)	0.22	0.29	suppressed	normal	poor	short (5-15yrs)	low	low	Locally occurring species indicative of the original vegetation to the area. Central leader has snapped. Decay visible to northern side of trunk. Deadwood - major.	2.6	2.0	remove	Tree is located within driveway footprint of House C
10	*Angophora costata* (Sydney Red Gum)	mature	10.0	6.0 (bias to S + w)	0.32	0.38	co-dominant/ partially suppressed	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Severe canopy bias to S-W)	3.8	2.2	remove	Tree is located within building footprint of House C
11	*Unidentified tree*	semi-mature	6.0	6.0	0.12 0.13	0.20	suppressed	normal	fair	medium (15-40yrs)	low	low	Locally occurring species indicative of the original vegetation to the area. Corky bark?	2.2	1.7	remove	Tree is located between building envelope and driveway.
12	*Livistona australis* (Cabbage tree palm)	semi-mature	4.0	6	0.33	0.45	co-dominant	normal	good	long (40yrs+)	very low (exempt)	low	Locally occurring species indicative of the original vegetation to the area. Less than the prescribed size therefore exempt.	4.0	n/a	remove (exempt)	Tree is located within driveway area.
13	*Allocasuarina littoralis* (Black She-Oak)	mature	13.0	8.0 (bias to S + W)	0.60	0.70	dominant	normal	fair	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area.	7.2	2.8	remove	Tree is located within driveway area.
14	*Livistona australis** (Cabbage tree palm)	mature	10.0	5.0	0.32	0.45	suppressed	normal	good	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area.	3.5	n/a	retain	Proposed driveway is located within TPZ of palm, representing an encroachment of approx. 25%.
16	*Angophora costata** (Sydney Red Gum)	mature	14.0	12.0	0.55	0.65	co-dominant	normal	fair	long (40yrs+)	high	high	Locally occurring species indicative of the original vegetation to the area.	6.6	2.8	remove	Tree is located within building footprint of House C
17	*Eucalyptus piperita* (Sydney Peppermint)	mature	10.0	10.0 (bias to S + W)	0.51	0.65	co-dominant	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Persistent deadwood, branch snaps/tears evident.	6.1	2.8	remove	Building envelope (House C) is located within SRZ of tree representing a major encroachment of approx. Encroachment will render the tree unviable.
18	*Angophora costata* (Sydney Red Gum)	mature	14.0	8.0	0.32	0.27	co-dominant	normal	good	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Limited crown volume. Persistent branch stubs.	3.8	1.9	remove	Tree is located within footprint of first floor terrace which will necessiate removal of tree.
19	*Corymbia gummifera* (Red Bloodwood)	mature	13.0	5.0 (bias to S + W)	0.32	0.37	co-dominant	normal	good	long (40yrs+)	high	high	Locally occurring species indicative of the original vegetation to the area. Canopy bias to SW.	3.8	2.2	remove	Tree is located immediately adjacent to terrace area located to rear of House C

Tree No.	Plant Name (Species/Common Name)	Age	Tree Height (m)	Average Canopy spread (m)	DBH (m)	DGL (m)	Crown Class	Vigour	Condition	Useful Life Expectancy	Landscape Significance	Tree Retention Value	Observations/ comments	Tree Protection Zone (TPZ) radius in metres	Structural Root Zone (SRZ) radius in metres	Remove or retain?	Impact / Incursion
20	*Angophora costata* (Sydney Red Gum)	mature	15.0	10	0.44	0.49	co-dominant	normal	good	long (40yrs+)	high	high	Locally occurring species indicative of the original vegetation to the area.	5.3	2.5	remove	Construction of associated retaining wall adjacent to terrace will necessitate removal of tree.
21	*Glochidion ferdinandi* (Cheese tree)	semi-mature	5.5	7.0	0.17	0.20	suppressed	normal	good	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area.	2.0	1.7	remove	Proposed retaining wall associated with cut for dwelling/terrace located in SRZ of tree, representing a 16% encroachment.
22	*Eucalyptus paniculata* (Grey Ironbark)	mature	12.0	12.0 (bias to W)	0.39	0.42	suppressed	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Severe canopy bias to W)	4.7	2.3	remove	Proposed retaining wall associated with cut for dwelling represents approx. 19% encroachment in the TPZ and SRZ of tree. Proposed driveway cut also located within TPZ representing a total encroachment of 38%.
23	*Pittosporum undulatum* (Sweet Pittosporum)	mature	4.5	4.0	0.16	0.20	suppressed	normal	fair	medium (15-40yrs)	very low (exempt)	very low	Tree is located in rear yard of No. 64 Powderworks Road. Locally occurring species indicative of the original vegetation to the area. Exempt species and less than the prescribed size.	2.0	1.7	remove (exempt)	Tree is located within driveway area.
24	*Allocasuarina littoralis* (Black She-Oak)	mature	10.0	4.0	0.27	0.47	suppressed	normal	poor	medium (15-40yrs)	low	low	Locally occurring species indicative of the original vegetation to the area. Twig dieback evident. Second order trunk dead.	3.2	2.4	remove	Proposed driveway and associated retaining wall extends through SRZ of tree, representing an encroachment of 38%.
25	*Angophora costata* (Sydney Red Gum)	mature	8.0	5.0 (bias to W)	0.19	0.23	suppressed	low	poor	medium (15-40yrs)	high	low	Locally occurring species indicative of the original vegetation to the area. Severely suppressed crown with limited foliage density.	2.3	1.8	remove	Proposed driveway and associated retaining wall extends through SRZ of tree, representing an encroachment of 25%.
26	*Pittosporum undulatum* (Sweet Pittosporum)	mature	6.5	4.0	0.20	0.25	suppressed	low	poor	transient (< 5 yrs)	very low (exempt)	very low	Less than the prescribed size for the species therefore exempt. Very poor specimen with major deadwood.	2.4	1.8	remove (exempt)	Tree is located within driveway area.
28	*Angophora costata* (Sydney Red Gum)	mature	13.0	8.0	0.34	0.40	dominant	normal	good	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area.	4.1	2.3	retain	Proposed driveway and associated retaining wall located in TPZ of tree, representing a minor encroachment of approx. 15%.
29	*Eucalyptus paniculata* (Grey Ironbark)	mature	10.0	5.0 (bias to W)	0.23	0.30	co-dominant	normal	good	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area.	2.8	2.0	retain	Proposed works located well away from TPZ of tree.
30	*Corymbia gummifera* (Red Bloodwood)	dead	10.0					no live foliag	poor	transient (< 5 yrs)	very low (exempt)	very low	Tree is dead	n/a	n/a	retain	Proposed works located well away from TPZ of tree.
31	*Angophora costata* (Sydney Red Gum)	mature	13.0	10.0 (bias to S)	0.47	0.55	co-dominant	normal	good	long (40yrs+)	high	high	Locally occurring species indicative of the original vegetation to the area.	5.6	2.6	remove	Proposed cut for dwelling/terrace located in SRZ of tree, representing an encroachment of approx. 23%.
32	*Corymbia gummifera* (Red Bloodwood)	mature	14.0	15.0	0.37	0.65	co-dominant	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Co-dominant at 4m above ground level. Large persistent deadwood. Secondary limb torn. Decay at NW side of root buttress.	4.4	2.8	retain	Proposed works located well away from TPZ of tree.
33	*Livistona australis* (Cabbage tree palm)	mature	7.0	6	0.30	n/a	suppressed	normal	fair	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area.	4.0	n/a	retain	Proposed works located well away from TPZ of tree.
34	*Angophora costata** (Sydney Red Gum)	mature	12.0	8.0 (bias to N)	0.50	0.55	co-dominant	normal	good	long (40yrs+)	high	high	Tree is located outside the proposed subdivision line. Locally occurring species indicative of the original vegetation to the area.	6.0	2.6	retain	Proposed works located well away from TPZ of tree.
35	*Corymbia gummifera* (Red Bloodwood)	mature	10.0	7	0.28	0.34	suppressed	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Severe canopy bias	3.4	2.1	retain	Proposed works located well away from TPZ of tree.

Figure 3: Tree Assessment Schedule continued.

Tree No.	Plant Name (Species/Common Name)	Age	Tree Height (m)	Average Canopy spread (m)	DBH (m)	DGL (m)	Crown Class	Vigour	Condition	Useful Life Expectancy	Landscape Significance	Tree Retention Value	Observations/ comments	Tree Protection Zone (TPZ) radius in metres	Structural Root Zone (SRZ) radius in metres	Remove or retain?	Impact / Incursion
37	*Corymbia gummifera* (Red Bloodwood)	mature	9	10.0 (bias to W)	0.31	0.41	suppressed	normal	fair - poor	medium (15-40yrs)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Severe canopy bias. Deadwood to upper canopy, rubbing branches. Suppressed by T36.	3.7	2.3	retain	Proposed works located well away from TPZ of tree.
38	*Livistona australis* (Cabbage tree palm)	mature	12	6	0.36	0.48	suppressed/ partially suppressed	normal	good	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area.	4.0	N/A	retain	Proposed works located well away from TPZ of tree.
39	Allocasuarina littoralis (Black She-Oak)	mature	8.5	6	0.28	0.33	suppressed	low	fair - poor	medium (15-40yrs)	moderate	low	Locally occurring species indicative of the original vegetation to the area. Severely suppressed. Decay to northern side of lower trunk.	3.4	2.1	retain	Proposed works located well away from TPZ of tree.
40	*Livistona australis* (Cabbage tree palm)	mature	9.0	6.0	0.30	0.40	co-dominant/ partially suppressed	normal	good	long (40yrs+)	high	moderate	Palm is located in rear yard of No. 64 Powderworks Road. Locally occurring species indicative of the original vegetation to the area. Sweep to lower trunk.	4.0	n/a	retain	Proposed works located well away from TPZ of tree. Note: Proposed House A on adjoining land represents an encroachment in the TPZ of approx. 32% - refer to separate DA application.
41	*Archontophoenix cunninghamiana* (Bangalow palm)	semi-mature	6	5	0.20	0.35	dominant	normal	good	long (40yrs+)	very low (exempt)	very low	Exempt species.	3.5	n/a	retain	Proposed works located well away from TPZ of tree.
42	*Pittosporum undulatum* (Sweet Pittosporum)	mature	5	4	0.15	0.19	dominant	low	poor	transient (< 5 yrs)	very low (exempt)	very low	Exempt species - less than the prescribed size.	2.0	1.6	retain	Proposed works located well away from TPZ of tree.
52	*Liquidambar styraciflua* (Liquidamber)	mature	12.0	12	0.4	0.5	dominant	normal	good	long (40yrs+)	very low (exempt)	very low	Exempt species.	4.8	2.5	retain	Proposed works located well away from TPZ of tree.
66	*Angophora costata* (Sydney Red Gum)	mature	15	15.0 (bias to S)	0.5	0.65	dominant	normal	fair	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area. Strong canopy bias to south	6.0	2.8	remove	Proposed dwelling and associated retaining walls located in TPZ of tree, representing an encroachment of approx. 20%.
67	*Angophora costata* (Sydney Red Gum)	semi-mature	10	6.0 (bias to SW)	0.2	0.25	suppressed	normal	fair	medium (15-40yrs)	high	low	Locally occurring species indicative of the original vegetation to the area. Deadwood - major.	2.4	1.8	retain	Proposed works located well away from TPZ of tree.
68	*Archontophoenix cunninghamiana* (Bangalow Palm)	mature	7	5	0.17	n/a	suppressed	normal	fair	medium (15-40yrs)	very low (exempt)	very low	Exempt species.	3.5	n/a	retain	Proposed works located well away from TPZ of tree.
69	*Angophora costata* (Sydney Red Gum)	semi-mature	10	10.0 (bias to SW)	0.23	0.27	suppressed	normal	fair	medium (15-40yrs)	high	low	Locally occurring species indicative of the original vegetation to the area. Suppressed canopy, persistent deadwood.	2.8	1.9	remove	Tree is located within building footprint of House C
70	*Angophora costata* (Sydney Red Gum)	mature	14	7.0 (bias to W)	0.55	0.59	co-dominant	normal	fair	long (40yrs+)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Persistent deadwood.	6.6	2.7	remove	Tree is located within building footprint of House C
71	*Corymbia gummifera* (Red Bloodwood)	semi-mature	10	8.0 (bias to SW)	0.25	0.27	suppressed	low	poor	short (5-15yrs)	high	low	Locally occurring species indicative of the original vegetation to the area. Very limited crown volume.	3.0	1.9	remove	Tree is located within building footprint of House C
72	*Angophora costata* (Sydney Red Gum)	semi-mature	12	5	0.28	0.3	suppressed	low	poor	medium (15-40yrs)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Persistent deadwood.	3.4	2.0	retain	Proposed dwelling and associated retaining walls located in TPZ of tree, representing an encroachment of approx. 11%.
73	*Angophora costata* (Sydney Red Gum)	semi-mature	11	6	0.27	0.3	co-dominant	low	poor	medium (15-40yrs)	high	moderate	Locally occurring species indicative of the original vegetation to the area. Persistent deadwood. Limited crown	3.2	2.0	remove	Proposed dwelling and associated retaining walls located in TPZ and SRZ of tree, representing an encroachment of approx. 31%.
74	*Allocasuarina littoralis* (Black She-Oak)	semi-mature	5	5	2 x 0.19	0.35	suppressed	low	poor	short (5-15yrs)	low	low	Locally occurring species indicative of the original vegetation to the area. Co-dominant branches with included junction. Decay visible and past branch failures.	3.2	2.1	remove	Proposed retaining wall/earthworks associated with dwelling will necessitate removal of tree.

Figure 3: Tree Assessment Schedule continued.

Tree No.	Plant Name (Species/Common Name)	Age	Tree Height (m)	Average Canopy spread (m)	DBH (m)	DGL (m)	Crown Class	Vigour	Condition	Useful Life Expectancy	Landscape Significance	Tree Retention Value	Observations/ comments	Tree Protection Zone (TPZ) radius in metres	Structural Root Zone (SRZ) radius in metres	Remove or retain?	Impact / Incursion
75	*Livistona australis* (Cabbage tree palm)	mature	11	5	0.28	0.5	co-dominant	normal	good	long (40yrs+)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area.	3.4	2.5	remove	Proposed retaining wall/earthworks associated with dwelling will necessitate removal of tree.
76	*Corymbia gummifera* (Red Bloodwood)	mature	18	15	0.6	0.75	dominant	normal	fair	medium (15-40yrs)	moderate	moderate	Locally occurring species indicative of the original vegetation to the area. Persistent deadwood. Large major branch failures evident.	7.2	2.9	remove	Proposed dwelling and associated retaining walls located in TPZ of tree, representing an encroachment of approx. 20%.
77	*Pittosporum undulatum* (Sweet Pittosporum)	mature	5	8	0.2	0.25	suppressed	low	fair	short (5-15yrs)	very low (exempt)	very low	Exempt species - less than the prescribed size.	2.4	1.8	retain	Proposed works located outside TPZ of tree.
78	*Angophora costata* (Sydney Red Gum)	semi-mature	10	5	0.26	0.29	suppressed	low	poor	short (5-15yrs)	high	low	Locally occurring species indicative of the original vegetation to the area. Large persistent deadwood. Very limited crown.	3.1	2.0	retain	Proposed works located well away from TPZ of tree.
79	*Grevillea robusta* (Silky Oak Grevillea)	mature	15	8	0.35	0.41	dominant	normal	good	medium (15-40yrs)	very low (exempt)	low	Exempt species.	4.2	2.3	retain	Proposed works located outside TPZ of tree.
80	*Castanospermum australe* (Black Bean)	mature	12	13	0.33	0.45	dominant	normal	good	long (40yrs+)	very low (exempt)	low	Exempt species.	4.0	2.4	retain	Proposed works located outside TPZ of tree.
81	*Castanospermum australe* (Black Bean)	semi-mature	9	10	0.3	0.35	suppressed	normal	fair	long (40yrs+)	very low (exempt)	low	Exempt species.	3.6	2.1	retain	Proposed works located outside TPZ of tree.
82	*Plumeria acutifolia** (Frangipani)	semi-mature	4	3	multi-trunked	0.17	suppressed	normal	fair	medium (15-40yrs)	very low (exempt)	low	Tree is located to the northern side of proposed subdivision line. Exempt species - less than the prescribed size.	est. 2.0	1.6	retain	Proposed works located well away from TPZ of tree.
83	Dead tree (stag)*		9	5	0.34	-	dominant	dead	poor	transient (< 5 yrs)	very low (exempt)	very low	Tree is located to the northern side of proposed subdivision line. Persistent deadwood, secondary limbs.	4.1	n/a	retain	Proposed works located well away from TPZ of tree.
84	*Grevillea robusta** (Silky Oak Grevillea)	semi-mature	10	5	0.28	0.3	suppressed	low	poor	short (5-15yrs)	very low (exempt)	very low	subdivision line. Exempt species. Poor form with limited crown volume.	3.4	2.0	retain	Proposed works located well away from TPZ of tree.
85	*Angophora costata** (Sydney Red Gum)	mature	10	4	0.6	0.7	dominant	low	poor	short (5-15yrs)	high	low	subdivision line. Locally occurring species indicative of the original vegetation to the area.	7.2	2.8	retain	Proposed works located well away from TPZ of tree.
86	*Cupressus sp.** (Cypress Pine)	semi-mature	5	3	0.12	0.17	suppressed	low	fair	short (5-15yrs)	very low (exempt)	very low	Tree is located to the northern side of proposed subdivision line. Exempt species.	1.4	1.6	retain	Proposed works located well away from TPZ of tree.

** Tree is located on adjoining land (also shaded).*

Figure 3: Tree Assessment Schedule continued.

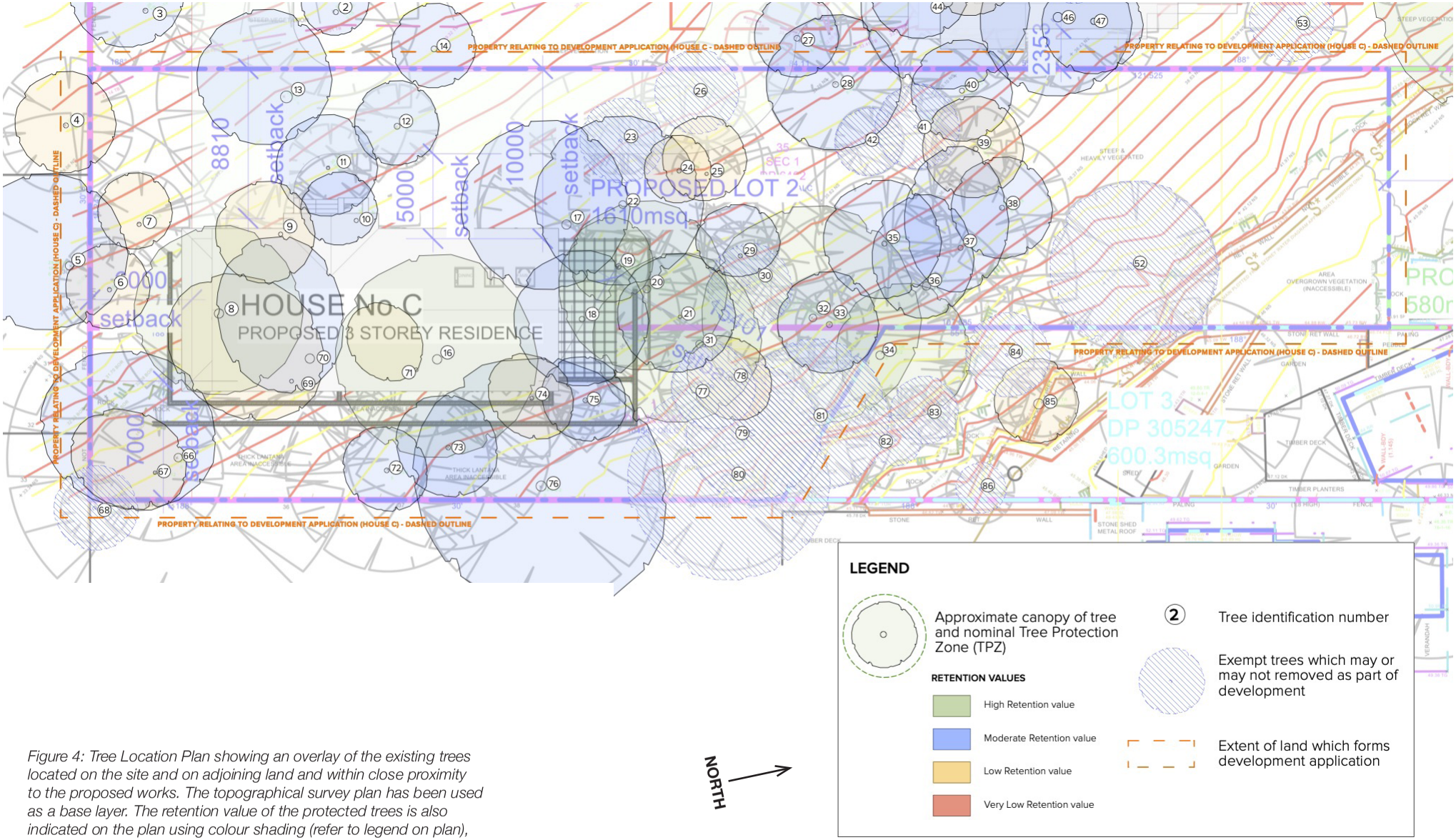

Figure 4: Tree Location Plan showing an overlay of the existing trees located on the site and on adjoining land and within close proximity to the proposed works. The topographical survey plan has been used as a base layer. The retention value of the protected trees is also indicated on the plan using colour shading (refer to legend on plan), as well as those trees that are identified as exempt ie. non-protected. (Note, do not measure from drawings).

Figure 5 (left): Photograph viewing southwest to the heavily treed portion of the site.
(Photo: J Willis)

Figure 6 (left): Photograph viewing south down the property to the heavily from the upper portion of the proposed Lot 2. (Photo: J Willis)

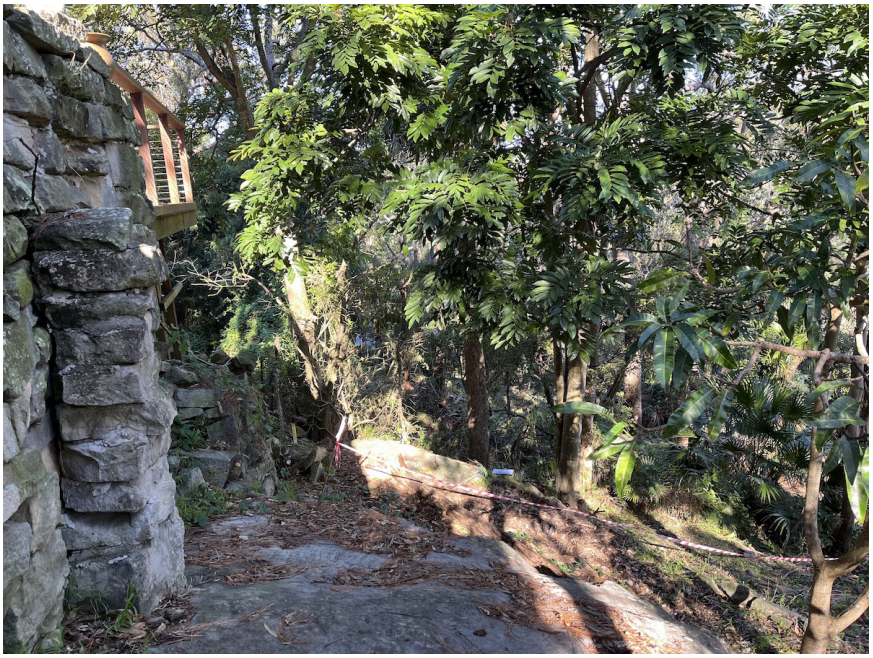

Figure 7 (left): Photograph viewing south along the eastern property boundary with the stone retaining wall visible to the left which is located on No. 60 Powderworks Road.
(Photo: J Willis)

Figure 8 (left): Photograph viewing west across the width of the property to the area where the proposed dwelling is located. (Photo: J Willis)

Figure 9 (left): Photograph viewing the canopy of Tree No. 76 (Red Bloodwood) and the Cabbage tree palm (No. 75), both are located adjacent to the eastern boundary. Many of the Eucalypts on the property contain persistent deadwood in the canopy, such as seen in this photo on Tree No. 75. (Photo: J Willis)

4. DISCUSSION | IMPACT ASSESSMENT

4.1 The intention of this assessment is to determine the level of incursion by the proposed works to the root zones and canopies of the trees located on the site and on adjoining land. Furthermore this assessment shall evaluate the likely impact resulting from the proposed works on the existing trees. The Tree Location Plan (**Figure 4**) indicates the tree locations and the tree retention value of each tree is colour coded. The exempt (or non-protected) trees are also indicated. The Proposed Site Plan (**Figure 10**) indicates the proposed works in relation to the trees. The calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for the trees located outside the proposed structures are indicated as dashed lines around the trees. The extent of encroachment (where applicable) for the those trees located outside the footprint of the proposed structures is indicated as yellow hatching. The Removal & Retention Plan (**Figure 11**) provides an overview of proposed removal and retention of the protected trees on the property. The following criteria have been examined as part of this assessment:-

- Existing Relative Levels (RL)
- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Footprint of the proposed development and any temporary structures (such as scaffolding)
- Incursions to the TPZ & SRZ, including excavation, filling, and potential above ground impacts to tree canopy;
- Existing structures located in the TPZ of the retained trees; and
- Assessment of the likely impact of the works on the existing trees.

4.2 Summary of existing trees

The site and adjoining land contain numerous ecologically significant trees that are indicative of the original vegetation found in the area. Of the sixty one (61) trees included in this assessment approximately 28% are identified as *Angophora costata* (Sydney Red Gum) and approximately 10% are identified as *Corymbia gummifera* (Red Bloodwood). The remaining tree canopy comprises some *Eucalyptus piperita* (Sydney Peppermint) and *Eucalyptus paniculata* (Grey Ironbark). These species are associated with the vegetation community known as Sydney Coastal Enriched Sandstone Forest, a tall to very tall shrubby schlerophyll open forest found on slightly enriched Hawkesbury Sandstone soils on sheltered slopes (or occasionally crests) on the Sydney coastal sandstone plateaus.

On the basis of the ecological significance of the majority of the trees, they are considered to hold a retention value that is high to moderate. However as a stand alone tree, in many instances the tree has fair to poor condition and often with a limited crown size due to a co-dominant or suppressed crown class. Of the sixty one (61) trees assessed, six (6) trees are considered to have a high retention value, twenty seven (27) trees are considered to have a moderate retention value and twenty eight (28) trees are considered to have a low or very low retention value. The author assumes the majority of trees included in the assessment are self sown specimens.

Of the sixty one (61) trees assessed, sixteen (16) trees are identified as exempt (ie. non-protected), including Tree No. 12, 23, 26, 30,41-42, 52, 68, 77 and 79-86. The exempt trees are identified on the Tree Location Plan (**Figure 4**) and Proposed Site Plan (**Figure 10**) as well as noted on the tree assessment schedule in **Figure 2**. These trees may be removed without seeking permission from Council providing consent from the owner of the tree is received. Some of these trees will be removed to facilitate the proposed works.

4.3 Summary of proposed works (refer to **Figure 10**)

i) It is proposed to subdivide No. 62 and No. 64 Powderworks Road to create a third parcel of land for residential development (identified as Lot 2 on the architectural drawings). The new allotment will be irregular in shape and have a total site area of 1,610 square metres. Lot 2 will be accessed via a shared driveway that extends from the adjoining land to the west at No. 32 Bellara Avenue.
ii) The architectural drawings indicate a proposed two storey dwelling located to the lower portion of the site. The proposal includes a double garage at the lower ground floor level. A terraced area is located to the northern end of the first floor living area. The proposed driveway on the site will be a continuation of the driveway which extends from No. 32 Bellara Avenue. Retaining walls are indicated on the landscape plan, which will be required at various areas around the dwelling and to either side of the driveway where cutting will occur into the existing sloped terrain.

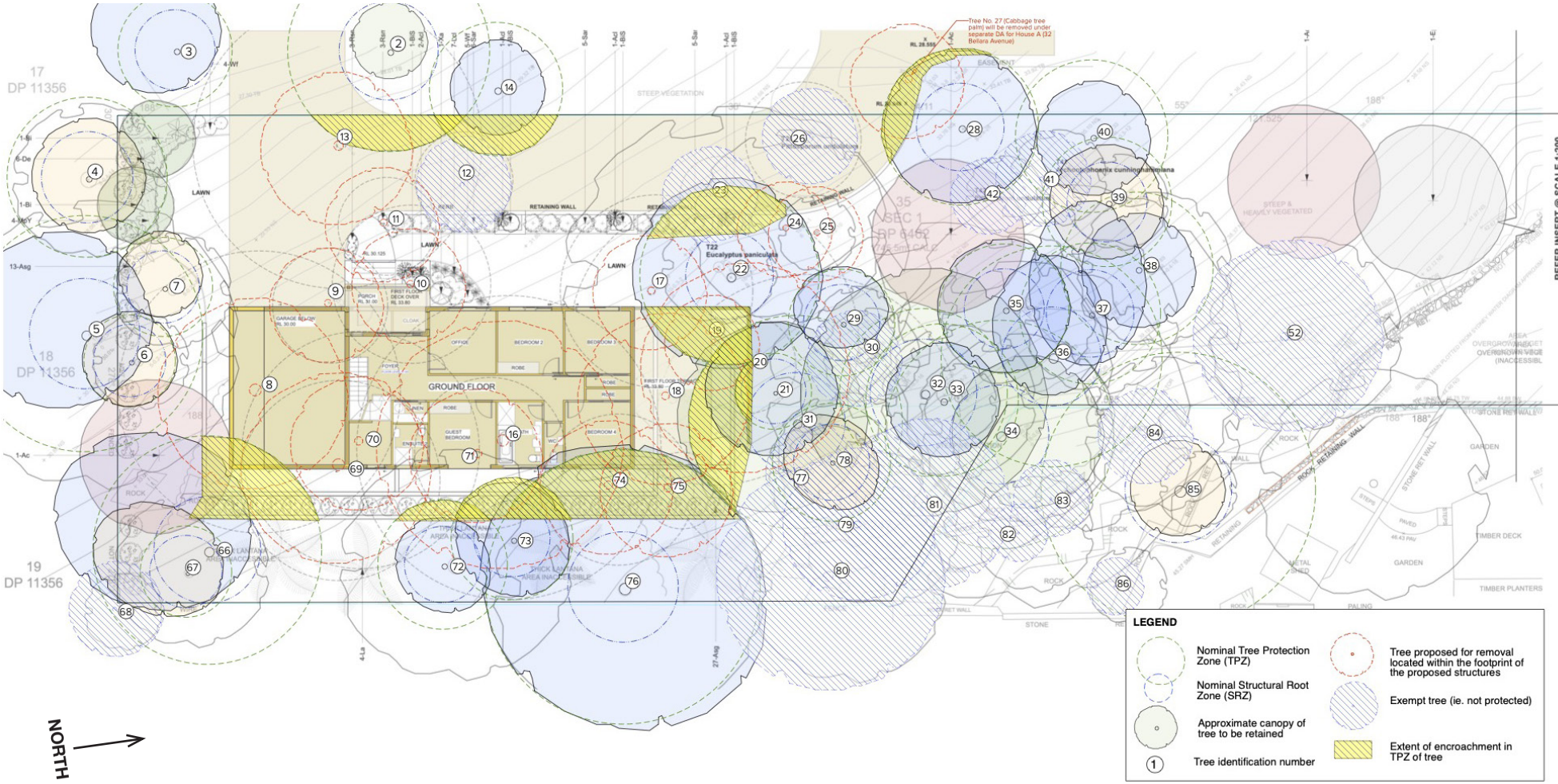

Figure 10: Proposed Site Plan showing an overlay of the protected and exempt trees using the proposed landscape plan as a base layer. The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for the protected retained trees are indicated. The extent of proposed encroachment within the TPZ is indicated as yellow hatching. (Note, do not measure from drawings).

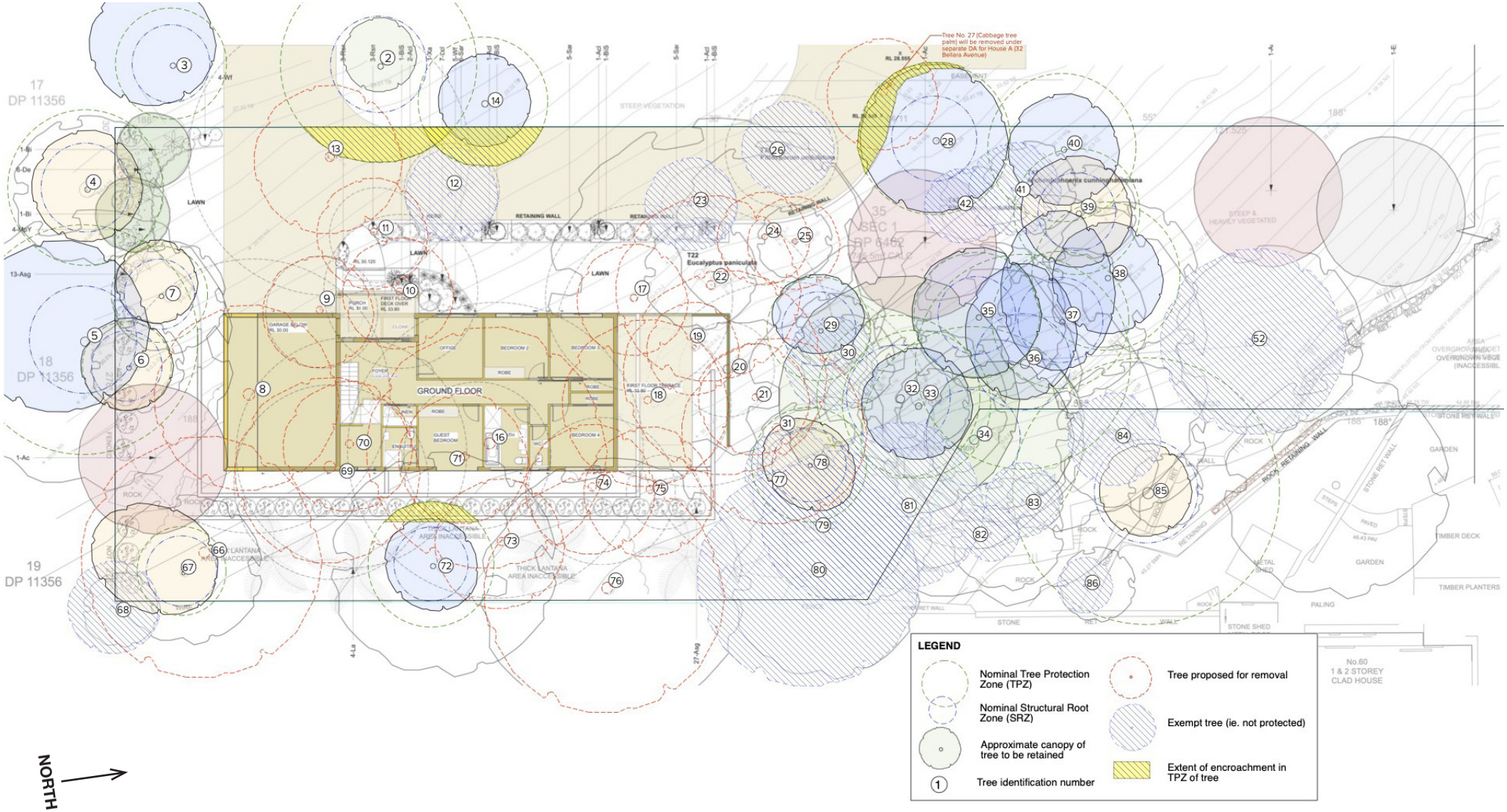

Figure 11: Proposed Retention and Removal Plan showing an overlay of the trees proposed for removal or retention. The exempt trees are also shown. (Note, do not measure from drawings).

4.4 Proposed tree removal (refer to **Figure 11**)

The proposed development involves the removal of twenty three (23) protected trees located within the site. The identified trees for removal are protected species that hold ecological significance. As such, Council permission must be sought prior to their removal. The trees proposed for removal include five (5) high retention value trees (including Tree No. 8, 16, 19, 20 and 31); eleven (11) moderate retention trees (including Tree No. 10, 13, 17, 18, 21, 22, 66, 70, 73, 75 and 76); and seven (7) low retention value trees (including Tree No. 9, 11, 24, 25, 69, 71 and 74). A breakdown of the proposed structures and associated tree removal is as follows:

i) Tree removal to accommodate the driveway

~ Three (3) protected trees are located within the driveway footprint and as such, would need to be removed to facilitate the driveway works. These include Tree No. 9, 11 and 13.

~ Two (2) additional protected trees (being Tree No. 24 and No. 25) are located just outside the driveway footprint. The driveway and associated retaining wall is located in the SRZ of Tree No. 24-25 representing a major encroachment of 38% and 25% respectively. The potential impact upon these trees is considered to be moderate to high. Based on the current driveway design it is recommended these trees are removed.

~ Three (3) exempt trees will be removed to facilitate the driveway works, including Tree No. 12, 23 and 26.

ii) Tree removal to accommodate the dwelling, terrace and associated retaining walls

~ Thirteen (13) protected trees are located within the building footprint, terrace and associated adjacent retaining walls. These trees include Tree No. 8, 10, 16-20, 69-71 and 73-75.

~ The proposed works are located within the TPZ (and in most instances the SRZ) of an additional six (6) protected trees, including Tree No. 21, 22, 31, 66, 73 and 76. The numerical encroachment in the TPZ of the above mentioned trees ranges from 16% to 38%. As such, the works may result in a moderate to significant level of impact upon the trees (refer to section 1.7 of this report). The proposed excavation required in the SRZ may result in the severance of large woody roots that are providing anchorage and stability for the tree. If the building design is approved in its current form, it is the author's opinion the trees are removed as the proposed earthworks would inevitably render the trees unviable.

4.5 Driveway encroachment in the TPZ of neighbouring Tree No. 2, 14 and 28 - refer to **Figure 10**

The proposed dwelling is located in the TPZ of neighbouring Tree No. 2 (Cheese tree) and No. 14 (Cabbage tree palm) and also Tree No. 28 (Sydney Red Gum) located within the site boundaries. The driveway works represent a numerical encroachment of 12% for Tree No. 2 and 15% for Tree No. 28 which is considered to be marginally above the acceptable limit. The numerical encroachment for the palm (No. 14) is approximately 25% which is well above the acceptable 10% threshold. However, the root system of a palm is much simpler in form to that of a tree. Rather than a woody root system, palms have adventitious roots that are composed of numerous, small to medium sized non-woody roots (that form a root mass) and arise independently from the base of the trunk. As such, potential severance of these non-woody roots may not be detrimental to the longevity of the palm in comparison to severance of woody roots of a tree. It is the author's opinion that the proposed works within the TPZ of the palm should not compromise the long term preservation of the palm.

4.6 Encroachment in TPZ of Tree No. 72 (Sydney Red Gum) - refer to **Figure 10**

The proposed dwelling and associated retaining walls located to the eastern side of the building are located in the TPZ of Tree No. 72 (Cabbage tree palm). The proposed earthworks (ie. cutting) within the TPZ represents a numerical encroachment of approximately 11% which is considered to be marginally above the acceptable threshold. Providing the method of deep excavation does not require over-excavating to the east, it is the author's opinion the tree could be safely retained.

4.7 Future underground services

The provision of future underground services should follow the line of the proposed structures as much as possible to avoid additional excavation on the site. All future trenching must avoid the TPZ of the retained trees as much as possible.

4.8 Canopy pruning

The proposed development should not result in any canopy pruning to the retained trees. If minor clearance pruning is required, the extent of pruning should be kept to a minimum and result in no greater than a 10% reduction in the tree's live crown volume.

5. CONCLUSION | RECOMMENDATIONS

5.1 A total of sixty one (61) trees are included in this assessment including fifty one (51) trees located within the proposed site boundaries and ten (10) trees located on adjoining land. If Council approve the subdivision, the new allotment is vacant (free of any structures), steeply sloping and heavily treed. The identified trees are consistent with the locally occurring vegetation in the area which holds high ecological value - Council's zoning of the site as C4 Environmental Living, being land identified as holding biodiversity and ecological significance. Furthermore, in accordance with Council's Biodiversity Values Map, the majority of the land is identified as holding biodiversity value.

5.2 The development application relates to the subdivision of No. 62 and No. 64 to create an additional parcel of land to the lower half of both properties for residential development. The new allotment will be accessed from No. 32 Bellara Avenue. The proposed works involve the construction of a two storey dwelling, terrace and driveway. The proposed cutting into the steeply sloped land will necessitate large retaining walls.

5.3 To facilitate the proposed building works the owner is seeking permission from Council to remove twenty three (23) protected trees from the site. As a heavily treed site, it is unavoidable to undertake the proposed works without resulting in a significant degree of tree removal The majority of trees proposed for removal are considered to hold a moderate or low retention value. There are however, five (5) high retention value trees that would be removed as part of the proposed works. To compensate for the tree removal, it would be appropriate to undertake compensatory tree planting on the site using the same tree species or a locally occurring tree species.

5.4 The proposed building and driveway works are located in the TPZ of four (4) retained trees (including Tree No. 2, 14, 28 and 72). Overall, it is the author's opinion the extent of encroachment will not result in any compromise in the long term preservation of the trees (refer to section 4.5-4.6 of this report). To ensure the protection and long term preservation of the retained trees identified in this report, it is recommended an experienced and qualified consulting arborist (AQF Level 5) is engaged to oversee the approved activities located in the TPZ of the identified trees. The arborist should prepare a tree protection plan relating to tree protection measures of the retained trees, including a pruning specification for the applicable trees. The specified tree protection measures are to be adhered to during the course of the works. The consulting arborist should be engaged for the duration of the project and certify that all tree protection measures have been adhered to in accordance with the prepared tree protection plan.

5.5 It is assumed all future underground services will extend directly along side the proposed structures and where possible, utilise the undercroft areas beneath the building footprint. This will minimise any disturbance to the root systems of the retained trees. If additional trenching is required through the TPZ of the retained trees, the applicant should seek further advice from a qualified arborist.

5.6 Written approval from Council will be required to undertake tree removal of protected trees. Tree removal and pruning works is only to be undertaken by a qualified arborist (ISAAC member under the supervision of a person with AQF Level 3 or above).

If you have any questions regarding this report please do not hesitate to contact the undersigned.

Joanne Willis
Consultant Arboriculturalist (AQF 5)
Member of I.A.C.A. (Institute of Australian Consulting Arborists)
Member of I.S.A (International Society of Arboriculture)

Assumptions

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However Joanne Leigh – Consulting Arborist can neither guarantee nor be responsible for the accuracy of information provided by others.
Unless stated otherwise:
- Information contained in this report covers only the tree that was examined and reflects the condition of the tree at the time of inspection: and
- The inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree may not arise in the future.

6. REFERENCES

- Draper, Danny B. and Richards, Peter A (2009) “Dictionary for Managing Trees in Urban Environments”. CSIRO Publishing, Collingwood, VIC Australia
- Harris, R.W; Clark, J.R; & Matheny, N.P (2004) Arboriculture; Integrated Management of Landscape Trees, Shrubs & Vines 4th Edition, Prentice Hall, New Jersey.
- Mattheck, Claus (2007) “Updated Field Guide for Visual Tree Assessment”. Karlsruhe Research Centre, Germany.
- Standards Australia (2009) AS2970-2009 “Protection of Trees on Development Sites”, Sydney.
- Council’s relevant tree planning documents.

APPENDIX 1: TREE INSPECTION INVENTORY NOTES

The values for terminology provided below are sourced from SRIV© Sustainable Retention Index Value © From Draper BD and Richards PA 2009, Dictionary for Managing Trees in Urban Environments, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

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.
Young - Tree aged less 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.

Height: In metres (estimated)

Spread: Average diameter of canopy in metres (estimated)

Crown class:
(D) Dominant (crown extends above general canopy; not restricted by other trees)
(C) Co-dominant (crown forms the bulk of the general canopy but crowded by other trees)
(I) Intermediate (crown extends into dominant/codominant canopy but quite crowded on all sides)
(S) Supressed (crown development restricted from overgrowing trees)

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 Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.
High Vigour Accelerated growth of a tree due to incidental or deliberate artificial changes to its growing environment that are seemingly beneficial, but may result in premature aging or failure if the favourable conditions cease, or promote prolonged senescence if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous pollarding practices over the life of the tree.
Low Vigour Reduced ability of a tree to sustain its life processes. This may be evident by the atypical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their functions with reduced resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.
Dormant Tree Vigour Determined by existing turgidity in lowest order branches in the outer extremity of the crown, with good bud set and formation, and where the last extension growth is distinct from those most recently preceding it, evident by bud scale scars. Normal vigour during dormancy is achieved when such growth is evident on a majority of branches throughout the crown.

Useful Life Expectancy: The life span of a tree in the urban environment may often be reduced by the influences of encroachment and the dynamics of the environment and can be categorized as Immediate, Short Term, Medium Term and Long Term.
Short Term - Period of time less than 15 years.
Medium Term - Period of time 15 - 40 years.
Long Term - Period of time greater than >40 years.

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 - 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.

APPENDIX 2: CRITERIA FOR ASSESSMENT OF LANDSCAPE SIGNIFICANCE

The level of landscape significance has been determined using the following key criteria as a guide:

1. SIGNIFICANT
• The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance; or
• The subject tree forms part of the curtilage of a Heritage Item (building /structure /artifact as defined under the LEP) and has a known or documented association with that item; or
• The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event;
• The subject tree is scheduled as a Threatened Species or is a key indicator species of an Endangered Ecological Community as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999; or
• The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species; or
• The subject tree is a Remnant Tree, being a tree in existence prior to development of the area; or
• The subject tree has a very large live crown size exceeding 300m2 with normal to dense foliage cover, is located in a visually prominent in the landscape, exhibits very good form and habit typical of the species and makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity; or
• The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.

2. VERY HIGH
• The tree has a strong historical association with a heritage item (building/structure/artifact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site; or
• The subject tree is listed on Council's Significant Tree Register; or
• The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value;
• The subject tree has a very large live crown size exceeding 200m2; a crown density exceeding 70% Crown Cover (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.

3. HIGH
• The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence; or
• The tree is a locally-indigenous species and representative of the original vegetation of the area; or
• The subject tree has a large live crown size exceeding 100m2; and
• The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (eg crown distortion/suppression) with a crown density of at least 70% Crown Cover (normal); and
• The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.

4. MODERATE
• The subject tree has a medium live crown size exceeding 40m2; and
• The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% Crown Cover (thinning to normal); and
• The tree makes a fair contribution to the visual character and amenity of the area; and
• The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms.
• The tree has no known or suspected historical association

5. LOW
• The subject tree has a small live crown size of less than 40m2 and can be replaced within the short term with new tree planting; or
• The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% Crown Cover (sparse); and
• The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area.

6. VERY LOW
• The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or a nuisance species.
• The subject tree is scheduled as exempt (not protected) under the provisions of the local Council's Tree Preservation Order due to its species, nuisance or position relative to buildings or other structures.

7. INSIGNIFICANT
• The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993

Ref:- Morton, Andrew (2003) Criteria for Assessment of Landscape Significance Earthscape Horticultural Services. Sydney, Australia