

# Arboricultural Impact Assessment

Murray Farm Scout Hall (11 Haines Ave, Carlingford)

For Nimbus Architecture + Heritage



Prepared by Susan Stratton  
Arboricultural Consultant  
Member Arboriculture Australia  
Member International Society of Arborists - Australian Chapter



Susan Stratton Landscape Architects Pty Ltd  
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## Summary

This report is provided as part of the Development Application submission. The trees have been assessed and their retention value has been provided in Appendix A. Where trees are to be retained and the development falls within the Tree Protection Zone as defined by AS 4970-2009 a specification for works is provided. This report will require approval from the consenting authority as part of their determination of the Development Application.

This report considers fifty six (56) trees, Fifty three (53) are located on the site at 11 Haines Ave, Carlingford and three (3) are located in the neighbouring allotment at Lot 14 in DP 843588 Wilshire Avenue Carlingford 2118.

The information gathered was used to guide the project architect on the constraints these trees impose on the use of the site.

Twenty four (24) trees will be removed as they are located within the Asset Protection Zone (10m from the building) or impede ease of access for fire fighting vehicles and their retention would endanger the building in the event of a fire. One of these trees is located on the neighbouring allotment however it leans across the carpark.

Likely, removal of some of the trees close to the building would be recommended for removal due to structural deficiencies caused by decay and termite damage. One tree has failed and is leaning on the roof.

Some trees within the Asset Protection Zone are recommended for retention as they have been identified as being either a significant tree, located on the neighbouring allotment or having an isolated canopy.

The proposed works and the impacts they are likely to have on the trees to be retained, both on the site and the adjacent property, are discussed in detail in this report. Appropriate modifications, construction techniques and tree protection measures are recommended to minimise any adverse impacts. The arborist's involvement on-site during the works is also described.

**TABLE 1 Summary of Trees and Schedule of Works.**

<b>Tree No.</b>	<b>Genus Species +</b>	<b>Common Name</b>	<b>Condition G: Good, F: Fair P: Poor, D: Dead</b>	<b>Recommendation + Description of work to be carried out</b>
1	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
1A	<i>Melia azaderach</i>	white cedar	F	<b>Remove</b> Located within APZ
2	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Remove</b> Located within APZ
2A	<i>Allocasuarina torulosa</i>	forest oak	F	<b>Remove</b> Located within APZ
3	<i>Corymbia gummifera</i>	bloodwood	G	<b>Retain</b>
4	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
5	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
6	<i>Eucalyptus piperita</i>	Sydney peppermint	P	<b>Remove Conflicts with Hall</b> Located within APZ
7	<i>Eucalyptus piperita</i>	Sydney peppermint	F	<b>Remove</b> Located within APZ first order branch hanging over hall.
8	<i>Corymbia gummifera</i>	bloodwood	G	<b>Remove</b> Located within APZ
8A	<i>Corymbia gummifera</i>	bloodwood	P	<b>Remove</b> Located within APZ
8B	<i>Dead tree</i>			<b>Remove</b>
9	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
10	<i>Angophora costata</i>	Sydney red gum	G	<b>Remove</b> Located within APZ
10A	<i>Banksia serrata</i>	old man banksia	P	<b>Remove – FAILED and leaning on building</b> Located within APZ
11	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Remove</b> Located within APZ – tree leaning toward and over building
11A	<i>Banksia serrata</i>	old man banksia	G	<b>Remove</b> Located within APZ
11B	<i>Pittosporum undulatum</i>	sweet pittosporum	F	<b>Remove</b> Located within APZ
12	<i>Angophora costata</i>	Sydney red gum	G	<b>Remove</b> Located within APZ
13	<i>Syncarpia glomulifera</i>	turpentine	G	<b>Retain</b>
14	<i>Syncarpia glomulifera</i>	turpentine	G	<b>Retain</b>
15	<i>Angophora costata</i>	Sydney red gum	G	<b>Retain</b>
16	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain TBD by client - Significant tree</b> Located within APZ.
17	<i>Dead tree</i>			<b>Remove</b>

Tree No.	Genus Species +	Common Name	Condition G: Good, F: Fair P: Poor, D: Dead	Recommendation + Description of work to be carried out
18	<i>Corymbia gummifera</i>	bloodwood	G	<b>Retain</b>
18A	<i>Corymbia gummifera</i>	bloodwood	P	<b>Remove</b> Located within APZ
19	<i>Eucalyptus pilularis</i> (Group x 5)	blackbutt	F	<b>Retain</b>
19A	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
19B	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
19C	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Retain</b>
19D	<i>Angophora costata</i>	Sydney red gum	G	<b>Retain</b>
20	<i>Angophora costata</i>	Sydney red gum	G	<b>Retain</b> – monitor due to cavity (TRAQ)
21A	<i>Angophora costata</i>	Sydney red gum	F	<b>Remove</b> Located within APZ – part of group
21	<i>Eucalyptus piperita</i>	Sydney peppermint	P	<b>Remove</b> Located within APZ – western trunk of concern
21B	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Retain</b>
21C	<i>Eucalyptus piperita</i>	Sydney peppermint	P	<b>Remove</b> Termites and located in APZ
22	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Retain</b> – remove dead branch
22A	<i>Eucalyptus pilularis</i>	blackbutt	G	<b>Retain</b>
23	<i>Eucalyptus pilularis</i> (Group x 2)	blackbutt	F	<b>Retain</b> main tree <b>Remove</b> tree leaning over road due to basal decay
24	<i>Syncarpia glomulifera</i> (Group x 3)	turpentine	G	<b>Remove</b> Located within APZ
25	<i>Eucalyptus piperita</i> (Group x 2)	Sydney peppermint	G	<b>Retain – TBD by client</b> Located within APZ. Protection required
26	<i>Corymbia gummifera</i>	bloodwood	G	<b>Remove</b> Located within APZ
26A	<i>Syncarpia glomulifera</i> (Group x 2)	turpentine	G	<b>Remove</b> Located within APZ
26B	<i>Allocasuarina torulosa</i>	forest oak	G	<b>Remove</b> Located within APZ
27	<i>Corymbia gummifera</i>	bloodwood	G	<b>Retain</b> protection required during construction
27A	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Remove</b> and replace with new plantings if appropriate due to lean. Neighbouring allotment
28	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Retain</b> – monitor due to decay. TRAQ required. protection from vehicles required
28A	<i>Eucalyptus pilularis</i> (unconfirmed)	blackbutt	G	<b>Retain</b> – protection from vehicles required

Tree No.	Genus Species +	Common Name	Condition G: Good, F: Fair P: Poor, D: Dead	Recommendation + Description of work to be carried out
28B	<i>Eucalyptus pilularis</i> (unconfirmed)	blackbutt	G	<b>Retain</b> – protection from vehicles required
29	<i>Syncarpia glomulifera</i> (Group x 5)	turpentine	F	<b>Retain</b> – protection from vehicles required –potential removal of 2-3 included trunks protection from vehicles required
30	<i>Corymbia gummifera</i>	bloodwood	F	<b>Retain</b> – monitor due to decay. TRAQ required protection from vehicles required
31	<i>Eucalyptus pilularis</i>	blackbutt	P	<b>Retain</b> – monitor due to decay and fruiting bodies. TRAQ required
32	<i>Corymbia gummifera</i>	bloodwood	F	<b>Retain</b> – protection from vehicles required
33	<i>Eucalyptus pilularis</i>	blackbutt	F	<b>Retain</b> – protection from vehicles required
34	<i>Eucalyptus</i> sp		G	<b>Retain</b> - Located within neighbouring allotment within 10m APZ
35	<i>Eucalyptus</i> sp		G	<b>Retain</b> - Located within neighbouring allotment within 10m APZ

## Glossary, acronyms and abbreviations

**APZ** Asset Protection Zone: is a fuel reduced area surrounding a building or an asset of value whether residential, commercial, industrial or environmental. This reduces the radiant heat and ember attack associated with possible building losses during bushfire impact.

**AQF** Australian Qualification Framework A quality assured national framework for education and training. It provides nationally recognised and endorsed qualifications through a competency based training system.

**AS 4970-2009** Australia Standard published by Council of Standards Australia. Usually numbered and dated in the year it was published eg 'AS 4970-2009 Protection of trees on development sites'.

**AS 4373-2007** Pruning of amenity trees.

**DBH** Diameter at Breast Height

**DRB** Diameter above Root Buttress

**DCP** Development Control Plan

**GTMP** Generic Tree Management Plan: specification for the management of trees and the works required prior to and during project construction

**PCC** Parramatta City Council

**NW Act** Noxious Weeds Act 1993

**SRZ** Structural Root Zone: The portion of the root plate comprised primarily of structural woody roots (integral with the soil profile) providing the main mechanical support and anchorage of a tree, calculated in accordance with AS 4970:2009, expressed as a radial dimension in metres from the centre of the trunk.

**TPZ** Tree Protection Zone: A specified area at a given distance from the trunk set aside for the protection of a trees root system and canopy during land development works to ensure the long term viability and stability of a tree, calculated in accordance with AS 4970:2009.

**TRAQ** Tree Risk Assessment Qualified: A qualification in the use of a systematic methodology for evaluating risk of harm and establishing priorities for managing risks associated with trees by an assessment of potential targets, probability of failure and impact potential.

**TSC Act** Threatened Species Conservation Act 1995

**VTA** Visual Tree Assessment: A systematic method of tree assessment (developed by Claus Mattheck & Helge Breloer) using biological and biomechanical indicators to evaluate the overall vitality and structural integrity of a tree.

# 1 Introduction

- 1.1 The following arborist report was commissioned by Nimbus Architecture + Heritage on behalf of Parramatta City Council
- 1.2 The report is an assessment of the existing trees on the eastern portion of the property at 11 Haines Ave, Carlingford referred to as Murray Farm Scout Hall which are subject to development.
- 1.3 The site has an existing scout hall which is currently undergoing alterations that require the upgrade of pathways and parking on the site to meet accessibility requirements and provision of on-site detention to meet Council requirements. The site is located in a Bushfire Hazard Zone.
- 1.4 The proposed access path and associated carpark alignment along with the existing building indicated on the Site Plan provided by Nimbus Architecture + Heritage dated 17 Feb 2022 and the proposed drainage plan provided by Hydraulic Engineer dated 10/02/2022 will not necessitate the removal of trees from the site. A number of trees are located within the 10m wide Asset Protection Zone (APZ) recommended as part of the Bush Fire Assessment Report prepared by Bushfire Management Consultants and dated July 21. Trees will need to be removed to comply with the recommendations made in this report.
- 1.5 The aims of the report are to:
  - Identify tree species
  - Detail the condition of the trees on the site, adjoining properties or adjacent road reserve that may be affected by the proposed works. The assessment considers individual trees or stands of trees.
  - Consider the location and condition of the trees in relation to the impact of proposed building works and recommend retention and protection, or removal and replacement, where appropriate.
  - Provide details in regard to protection measures or remedial works for those trees to be retained, for the period prior, during and after construction. The trees to be retained will be the subject of the Tree Protection Plan.
- 1.6 Consideration is given to Council controls regarding the pruning and removal of trees on private land which are found within Part 5.4 (Preservation of Trees and Vegetation) of Parramatta Council's Development Control Plan (DCP) 2011 and AS4970-2009 Protection of Trees on Development Sites.
- 1.7 The Arboricultural Impact Assessment has been provided based on the concept for the project provided by Nimbus Architecture + Heritage.



## 2 Method

### 2.1 Collection of Tree Information

- 2.1.1 The trees were inspected by Susan Stratton on the 9<sup>th</sup> December 2021 from ground level to determine their health, vigour, viability and safety in the context of their current situation and relation to the proposed future use of the site. The condition of each tree was identified and recorded (refer to Appendix A).
- 2.1.2 Each tree was assessed using the Visual Tree Assessment (VTA)<sup>1</sup> procedure. No root exploration, internal probing or aerial inspection was performed as part of this assessment.
- 2.1.3 Tree identification was based on visual inspection of features available from the ground at the time of inspection. The identification of trees in this document represents the probable identity of the species as a complete taxonomical process of identification was not carried out.
- 2.1.4 Measurements and observations were taken using the following equipment:
- Tree Height, canopy spread and age were estimated. Diameter at Breast Height (DBH) and Diameter above Root Buttress (DRB) were measured using a diameter tape where access was available and estimated for those trees in neighbouring properties.
  - Binoculars and the naked eye
  - Photographs were taken on a Samsung Galaxy S20 phone.
- 2.1.5 Any photographs included in this report, **Appendix G**, were taken at the time of the inspection
- 2.1.6 Plans and documents viewed as part of this report include the Survey prepared for the site prepared by Sureline Geomatics on 19/03/2021, the preliminary Architectural plans prepared by Nimbus Architecture + Heritage and the Bushfire Assessment Report prepared by Bushfire Management Consultants and dated 19 July 2021. Trees on the site and adjacent properties were verified and located during the site inspection. These trees are indicated on the Tree Location Plan refer **Appendix H**.
- 2.1.7 This report refers to *Australian Standard AS4970-2009 Protection of trees on development sites* as a guide for setting minimum setbacks from the centre of a tree's trunk to development works, as seen in the Tree Location Plan. The setbacks or Tree Protection Zone (TPZ) can be modified by the author in accordance with AS4970-2009, Section 3.3.4 after consideration of other mitigating factors and/or constraints as indicated, but not restricted to, the following:
1. Condition of the tree and therefore its ability to recover from disturbance.
  2. Soil type and depth. The characteristics of the soil will influence drainage and fertility whilst depth will determine the volume of soil available to the tree.
  3. Tolerance of the individual species to disturbance.
  4. Geological characteristics of the site. Physical barriers caused by rock formations.
  5. Topography will have a bearing on the site drainage and the slope and aspect.
  6. Climatic conditions. Exposure to dominant winds, microclimatic conditions as a result of landform, existing structures or the proposed development.

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<sup>1</sup> Visual Tree Assessment (VTA) is a method of assessing the structural integrity of trees based on defects (such as cavities, cracks, splits etc.) and external symptoms of mechanical stress (bulges and reactive growth)

C. Mattheck 'Updated Field Guide for Visual Tree Assessment' was used as a reference

7. The existence of structures or obstacles affecting root growth and crown development. The physical limitations placed on the tree/s by present or past development be it buildings, excavations for utilities, swimming pools, soil level changes, landscaping works and modified drainage patterns.
8. Potential root loss resulting from any proposed encroachment. Root mapping may determine the extent of root loss.
9. Stability of the tree. Removal of structural roots, in particular, compression roots could destabilise the tree.
10. Engineering and construction techniques to mitigate the impact on trees such as pier and beam, bridge footings, suspended slabs, lateral boring and subsoil drains.

## **2.2 Assessment Method**

- 2.2.1 **TreeAZ method of tree assessment:** The TreeAZ is used to categorise each tree according to its suitability in the overall planning process which considers a number of variables when developing a site. The category is based on the arboricultural assessment of their health and vigour, condition and suitability to the site along with their estimated life expectancy.
- 2.2.3 These groups fall into two groups. An A category tree is suitable for retention in the context of the proposed development whilst a Z category tree would be the least suitable. Further explanation of TreeAZ can be found in **Appendix C**.
- 2.2.4 Developed in the UK, this method has to be used in conjunction with an assessment of Landscape Significance to comply with NSW legislation notably the Environment Protection and Assessment Act 1979 NSW
- 2.2.5 **Tree Significance:** The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values. These values tend to be fairly subjective and difficult to assess consistently. To ensure a consistent approach a criterion prepared shown in **Appendix D** is used to make an assessment.<sup>2</sup>
- 2.2.6 A rating has been applied to each tree to give the relative landscape significance of each tree and to assist in determining retention value in accordance with the following categories:-
  1. Significant
  2. Very High
  3. High
  4. Moderate
  5. Low
  6. Very Low
  7. Insignificant
- 2.2.7 **Tree Retention Values – Assessment Methodology:** The Retention Values shown in **Appendix A** have been determined based on the A or Z values deduced after assessment of the trees and their Landscape Significance rating in accordance with Table 2. These values highlight those trees worthy of preservation and consideration when siting buildings and other infrastructure on site.

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<sup>2</sup> The criteria for determining Landscape Significance of trees developed by A Morton has been utilised. These criteria provide objective measures for determining the combined amenity, environmental and heritage value of a tree.

- 2.2.8 TreeAZ method of tree assessment can define trees with special significance as being A3 and A4. This rating can be applied to trees with heritage, ecological or cultural significance warranting retention, which would normally be rated as 'unimportant trees not worthy of being a material constraint'. Refer to **Appendix C** for more detail. For this reason, the A and Z classification can overlap and these trees can be found in the tree retention values table as classifications Z1-3 and ZZ1 to ensure their consideration for retention. As an example, the classification is usually applied to those trees identified in government legislation as being significant trees, threatened species and/or habitat.

Table 2 – Tree Retention Values							
	Landscape Significance Rating						
TreeAZ category	1	2	3	4	5	6	7
A1	High retention value						
A2			Moderate retention value				
Z	(A3 and A4)	(A3 and A4)		Low retention value		Very Low ret. value	
ZZ	(A3 and A4)						

- 2.2.9 Tree Protection Zones (TPZ) and Structural Root Zone (SRZ) as seen in **Appendix A** are used to further verify impacts on trees and determine protection measures to minimise damage to retained trees and ensure their survival. Refer to the 'Tree Protection Plan' in **Appendix I**.
- 2.2.10 Those trees found to be dead or weed species are immediately designated for removal. Trees requiring removal because the impacts from development cannot be mitigated by protective measures and/or they are not suited to the use of the site are identified.
- 2.3 All data, measurements taken and Tree Retention Values can be found in **Appendix A** 'Tree Survey Data' and the location of trees can be found in **Appendix H** 'Tree Location Plan'.
- 2.4 A list of literature used in the preparation of this report is provided in the Bibliography.
- 2.5 Definition of Terms (Glossary) used in this report is provided following the Bibliography to assist in the reading of this document.

## 3 Site Research & Observations

### 3.1 The Site

- 3.1.1 The subject site is located on a parcel of land identified as Lot 32 in DP 250279, Murray Farm Scout Hall (11 Haines Ave, Carlingford).

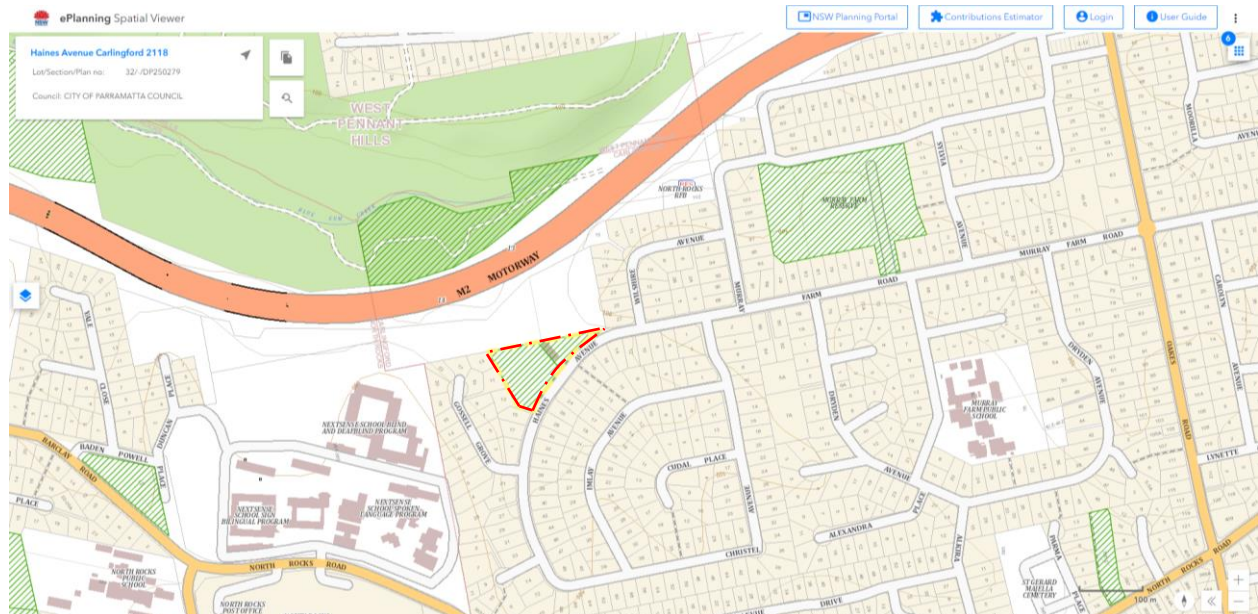


Figure 1 Location plan – the site is indicated in red on the map. Source NSW Property Portal 12/01/2022

- 3.1.2 Soil found on the site is based on Hawkesbury Sandstone. The site is located on mid to lower slopes with numerous outcrops of Sandstone. It is evident that there has been some levelling with fill to create terraces for the car park and building. The original soils on the site are part of the Hawkesbury group and would have been and still be found as sandy lithosols, yellow earths and yellow podzolics dependant on the depth of the profiles. The sands were found on top of outcrops and podsolics would be in the deep sections between rocks. The soils are well drained except in depressions and have a relatively low fertility. There is very little evidence of soil improvement as most areas appeared to be remnant or self-sown 'scrub and bush'. Some soil improvement appears to have been on the road verge and the embankment up to the site. (Chapman and Murphy, 1989).
- 3.1.3 Aspect: The site has a southwestern aspect. The site slopes from the east near the entry off Haines Avenue, with the high point of around 95.5m and has been levelled off to accommodate the car parking before dropping down over a rock ledge to the Scout Hall with a floor level of 91.53. The building is located in line with the contour with minimal cut and fill. The sloped site then falls away with falls of 1:6 to the southwest before dropping away over another rock ledge approximately 12-15m from the building to the southwest. The lower area of bushland then backs onto residential properties at the rear of Gossell Grove. The embankment from the carpark down to Haines Ave to the southeast varies with falls of 1:2 to 1:4 preventing access from the street.

- 3.1.4 The original vegetation of this area consisted of tall open forest (Bluegum High Forest) with some transition to Turpentine-Ironbark Forest in drier areas. Most of the original vegetation was logged and then gave way to farms and urban development. It would appear that the eastern side of the site was cleared and levelled to accommodate the access road and car park and additional clearing was carried out to accommodate the scout hall. The dominant locally-indigenous tree species formerly occurring in this area included *Eucalyptus pilularis* (Blackbutt), *Eucalyptus saligna* (Sydney Blue Gum), *Syncarpia glomulifera* (Turpentine), *Angophora costata* (Sydney Red Gum). Other species found in this association may include *Allocasuarina torulosa* (Forest Oak).<sup>3</sup>
- 3.1.5 Climate: The trees on the street frontages receive full sun and are subject to the prevailing winds and in particular Westerlies and those channelled along the streets. The majority of severe winds that may cause damage to trees, gusts over 40 kilometres per hour, noted in the Hills Shire area are from the south and north east<sup>4</sup>, with the occasional storm squalls from random directions.

### 3.2 The Trees

- 3.2.1 Thirty five (35) trees were identified in preparing this report. Each tree has been allocated with an identification number for reference purposes and indicated on the attached Tree Location Plan (**Appendix H**). The numbers used on this plan correlate with those in the Tree Assessment Data schedule which provides details of the subject trees, their dimensions, condition, life expectancy and retention value, refer to **Appendix A**. Trees No.s T1A, T2A, T8A, T8B, T10A, T11A, T11B, T12, T13, T18A, T19A, T19B, T19C, T19D, T21A, T21B, T21C, T22A, T26A, T26B, T28A and T28B were not located on the original survey and have been plotted on the drawing in their approximate positions based on measurements taken during the site inspection. Photos of specific trees referred to in the report can be seen in **Appendix G**.
- 3.2.2 AS 4970-2009 allows a minor encroachment within the TPZ of 10% provided an equivalent area of root zone is compensated for immediately adjacent to the TPZ. Where the encroachment is greater than 10% the Site Arborist will be required to demonstrate that the tree can be protected and remain viable. Dimensions of all the trees on site were taken to calculate TPZ and the Structural Root Zone (SRZ) for each of the trees. This information is calculated utilising the calculations specified in AS 4970-2009 section 3.2 and 3.3.5, respectively, and have been included in Appendix C Tree Protection and Structural Root Zones.

### 3.3 Environmental Significance

- 3.3.1 Tree Management Controls. The Parramatta City Council amalgamated with the Hills Shire Council Local Government area. The trees on the site are subject to the Hills LEP whereby Clause 5.9 *Preservation of trees or vegetation of The Hills LEP 2012* applies to all trees within The Hills Shire. The trees on the site and surrounding properties have to be assessed based on the provisions of the current Development

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<sup>3</sup> Based on information in 'Taken for Granted' by Benson and Howell which provides general information as to the vegetation associations that existed prior to the development of Sydney based on historic references, current vegetation surveys and soil and geological maps of the Sydney Basin.

<sup>4</sup> Bureau of Meteorology website provides wind speed and direction data. This site has been used to substantiate weather variables that may impact on the trees on the subject site.

Control Plan (DCP) 2012 which is found in *Hills Shire Councils DCP Part C Section 3 Landscaping.2.4. Tree Management Provisions*. The DCP generally protects those trees defined as a perennial plant with a self-supporting woody stem that has a spread of more than 3 metres or a height of more than 6 metres or has a trunk diameter of more than 300mm measured at the base.

- 3.3.2 Threatened Species and Ecological Communities: The Blue Gum High Forest and The Sydney Turpentine and Ironbark Forest (STIF) are listed in the NSW Biodiversity Conservation Act 2016 under Schedule 2 Threatened ecological communities. This ecological community was found in the area and there may be remnant examples found within the site however the 1943 aerial photo seen on Six Maps indicates immature plantings on the site consistent with regrowth or planting after logging of the area
- 3.4 **Heritage Significance:** The site is not located in any of Parramatta City Council's Heritage areas or found within any endangered vegetation area.
- 3.5 **Amenity Value:** Criteria for the assessment of amenity values are incorporated into **Appendix D**. The amenity value of a tree is a measure of its live crown size, visual appearance (form, habit, crown density), visibility and position in the landscape and contribution to the visual character of an area. Generally the larger and more prominently located the tree, and the better its form and habit, the higher its amenity value.
- 3.6 **Bushfire Protection: The site is located in a bushfire prone area.** The Bushfire Assessment Report prepared by Bushfire Management Consultants recommends  
*'At the commencement of building works and in perpetuity the property for a minimum of 10m or to the property boundary whichever is lesser around the proposed dwelling shall be managed as an Inner Protection Area (IPA) as outlined within appendix 4 of Planning for Bushfire Protection' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.*  
*The Inner Protection Area (IPA) shall comprise the following:*
- *Minimal fine fuel at ground level;*
  - *Vegetation that does not provide a continuous path to the building for the transfer of fire;*
  - *Shrubs and trees that do not form a continuous canopy;*
  - *Vegetation that is cleared into clumps rather than continuous rows;*
  - *Species that retain dead material or deposit excessive quantities of ground fuel are to be avoided;*
  - *Shrubs and trees are pruned and removed so they do not touch or overhang the building (minimum 2.0m);*
  - *Vegetation is located far enough away from the building so that the plants will not ignite the building by direct flame contact or radiant heat emission.'*
- 3.7 **The Proposal:** The proposed development includes the alterations and additions to the existing Murry Farm Scout Hall, including upgrades to the existing carpark with the formalisation of accessible car parking spaces, the provision of accessible ramps from the carpark to the building entry and internal alterations and additions to the building including the removal of an internal set of stairs and the construction of male

and female toilets, together with showers. Other minor internal alterations are proposed. There are no alterations or additions proposed to the exterior of the building as part of this application, other than the addition of a walkway along the front of the building providing an accessible path of travel.

## 4 Impact Assessment

### 4.1 Assessment:

- 4.1.1 This assessment will determine the extent, if any, of encroachments into the root zones and canopies by the proposed development and evaluate the likely impact of the proposed works on the subject trees. The following plans and reports were used in the assessment.

Plan Title	Designer	Drawing No.	Date
Site Plan	Nimbus Architecture and Heritage	A-100 Rev 4	17/02/2022
Stormwater Drainage Plan	Hyten Engineering	SW-01 Rev D	10/02/2022
Bushfire Assessment Report	Bushfire Management Consultants		19/07/2021

- 4.1.2 The following criteria have been examined as part of this assessment:-

- Existing levels, in particular around the bases of trees;
- Tree Protection Zones (TPZ);
- Structural Root Zones (SRZ);
- Footprint and envelope of the proposed development and temporary structures (scaffolding, hoardings etc) that may impact the subject trees;
- Encroachments into the TPZ & SRZ, inclusive of estimated cut and fill required beyond the building footprint, ie that required for construction of retaining walls.
- Incursions into the tree canopy by the building and temporary structures and
- Assessment of the likely impacts of the works on existing trees.

### 4.2 Tree Removals

- 4.2.1 The requirement for an Asset Protection Zone (APZ) of 10 metres around the building will necessitate the majority of tree removals. Some of these trees are structurally unsound, have termite damage or have trunks/branches overhanging the building. The Trees Impacted by Asset Protection Zone &/or Development Plan found in **Appendix J** shows the trees to be removed in red.

The trees which are noted for removal to accommodate the APZ include trees T1A (White cedar), T2 (Blackbutt), T2A (Forest oak), T6 (Sydney Peppermint), T7 (Sydney Peppermint), T8 (Bloodwood), T8A (Bloodwood), T8B (dead tree), T10 (Sydney red gum), T10A (Old man banksia), T11 (Blackbutt), T11A (Old man banksia), T11B (Sweet pittosporum), T12 (Sydney red gum), T17 (dead tree), T18A (Bloodwood), T21 (Sydney Peppermint), T21A (Sydney red gum) T21C (Sydney Peppermint), T24 (Turpentine group), T26 (Bloodwood), T26A (Turpentine group) T26B (Forest oak) and T27A (Blackbutt). Photos of trees 6-11 can be seen in figures 1 and 2 in **Appendix G**. Other trees noted for removal can be seen in Figures 6, 7 and 8.

The removal of these trees to meet fire protection requirements is deemed acceptable. Removal is to be carried out in accordance with section 3.0 Tree Removal of the Tree Management Plan in **Appendix E**.

#### **4.3 Trees located within the 10m Asset Protection Zone warranting retention**

4.3.2 The following trees located within the 10m APZ setback which warrant retention include:-

- T16(Blackbutt). This is a significant tree located 3m to the southeast of the Scout Hall. This is an emergent tree of significant size. Photos of this tree can be seen in Figures 4 and 5 in **Appendix G**. The canopy outlined in the location plan (**Appendix H**) is elevated well above the roofline and clearance of other trees nearby will reduce the potential for the fire to travel and impact the building. The TPZ of the tree will be impacted by the installation of the walkway along the southeastern side of the building and the proposed drainage line to link into the existing service. Approximately 23% of the TPZ of the tree would be impacted by the new walkway, drainage line and an additional 1m wide pathway to allow for access down the side during construction. It should be noted that while 23% is considered a high impact much of the proposed structure will have minimal impact on the tree. The metal framework will require the installation of posts intermittently along the length of the structure which supports a permeable Terragrate mesh. These posts can be pre-dug by hand before fabrication to ensure that no major roots are severed. If a major root is located the post can be relocated the small distance required to retain the root. The proposed drainage line linking into the existing system is likely to have the most impact. Due to the high probability of rock outcrops being present the trench for the pipe will need to be hand dug. Only tree roots less than 30mm are to be severed and the pipes located to avoid major roots. A tree protection fence will be located 1m from the proposed structure to minimise access into the TPZ of the tree. A large vine growing in the tree should be removed. This is likely a native however due to the high fire risk and potential damage to the tree it would be appropriate to have it removed. Sections 6, 8, 10, 11 and 12 of the Tree Management Plan in **Appendix E** are to be applied when carrying out work within the TPZ of this tree.
- T25 (Sydney Peppermint) is a group of two trees located adjacent to a steep entry path to the building within the APZ. Ideally only the two trees T25 would be retained and nearby group T24 removed to reduce the tree canopy close to the building. Refer to figure 8 in **Appendix G**. Further assessment may be required as the canopies of the groups of trees are intertwined and removal of one may leave the other exposed to adverse wind events that may result in branch failure. Further discussion with the client is required to ascertain the extent of community resistance to tree removal and the client's policy concerning asset protection.

The proposed formalisation of the car park and new pedestrian access will impact the TPZ of these trees. The existing asphalt carpark covers 29.7% of the TPZ. The proposed carpark and concrete landing associated with the new metal access ramp will impact 30% of the TPZ. The landing area located at the top of the access ramp would have the greatest potential to impact the tree however it is located on the far side of the existing path and roots may well be below the influence of the proposed structure. An edge is proposed to stabilize the asphalt and form the base for a safety rail. A drainage pit is located in the existing asphalt parking area. These will need to be hand dug after the surface is saw cut to minimise damage to any roots that may be found beneath the asphalt.

The access ramp will require posts. To maximise the benefit to the tree no



excavation other than for a minimal number of footings is to be carried out within the TPZ. Footings for the piers/posts are to be pre-dug by hand. If required the post are to be relocated and the design of the metal frame modified before fabrication.

Removal of the existing concrete footpath and tree 24 located within the TPZ of T 25 will not impact the structural integrity of these trees as the rock outcrop around the trees will be retained. Removal of the concrete and the competition from the adjacent trees may enhance the health of the trees due to the increased availability of water and nutrients as long as the soil is adequately retained.

Sections 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13 of the Tree Management Plan (**Appendix E**) are to be implemented to ensure that the impacts from this structure and any services that may be proposed for the TPZ are minimised.

- T34 and T35 (Sydney peppermint) These trees are located on the adjoining allotment. Refer to Figure 9 in **Appendix G**. They are both located within the 10m APZ. The trees are located 9m and 7m away from the building respectively. Their canopies are a reasonable distance from the building and if required could be trimmed to maintain a 3m distance (minimum 2m is noted in the Bushfire Assessment report). These trees currently form a backdrop to the informal gathering area used by the Scouts for outdoor activities. These trees are located well away from the proposed works. If access beneath the canopy is required during construction the Site arborist is to be consulted to ascertain if ground protection, canopy protection and/or a tree protection fence is required during the works. Section 4 of the Tree Management Plan (**Appendix E**) is to be implemented if trimming of the canopy is required

#### **4.4 Trees to be retained and protected**

- 4.4.1 The proposed works indicated on the architectural plan and hydraulic drawings will not necessitate the removal of the following trees listed in this section not previously identified for removal due to the implementation of the APZ. Construction methods and materials proposed will have minimal impact on trees being retained as the rock outcrops, existing services, and majority of paths and pavement are nominated for retention. The existing landform along with the paving will provide ground protection for the tree roots.

Access to the rear of the building is restricted by the slope of the site. Despite this ground protection may be required during tree removal. Some form of machinery will likely be used to extract the felled timber. Further investigation will be required to determine the appropriate access for extraction.

- 4.4.2 Tree T27 (Bloodwood) is to be retained. This tree is currently surrounded by asphalt. Refer to Figure 6 in **Appendix G**. The proposed carpark layout will enable the asphalt to be removed some distance from the base of the tree. The removal of the asphalt and installation of hardy ground covers and mulch will be beneficial to tree health. The asphalt will need to be saw cut then broken up and removed using appropriate handheld tools. Removal of all the asphalt is not required to benefit the tree. Mulch such as ripped sandstone may be suitable in this area as an alternative to bark mulch. Installation of bollards or barriers of rock should be installed to prevent vehicles from accessing the area and causing mechanical damage to the trees. Sections 6, 7, 8, 9, 10, 12 and 14 of the Tree Management Plan (**Appendix E**) are to be implemented to ensure that the impacts from demolition and installation of the nearby stormwater pit and pipes are minimised. The canopy of the tree is unaffected by the proposed development.

- 4.4.3 Trees unaffected by the proposed work include T1(Blackbutt), T3 (Bloodwood), T4 (Blackbutt), T5 (Blackbutt), T9 (Blackbutt), T13 (Turpentine), T14 (Turpentine), T15 (Sydney red gum), T18 (Bloodwood), T19 (Blackbutt), T19A (Blackbutt), T19B (Blackbutt), T19C (Blackbutt), T19D (Sydney red gum), T21B (Blackbutt), T22A (Blackbutt), T23 (Blackbutt). None of these trees will require additional protection during the works.

#### **4.5 Trees beyond the influence of the proposed works requiring further action**

- 4.5.1 No other trees will be adversely affected by the proposed development however existing use of the site has impacted the health and well being of the trees. Some trees now need ongoing monitoring to ensure that they do not pose a hazard to people accessing the Scout Hall.

The following trees were noted during the inspection.

- T20 (Sydney red gum) This tree is some distance from the building. Woundwood appears to have developed suggesting that the tree has overcome the loss of internal strength however it has a large undefined cavity that needs to be monitored.
- T22 (Blackbutt) has a large dead branch that may need removal.
- T23 (Blackbutt) is a group of two. One of the trees in this group has a severe lean over the road and decay was evident at the base. The poor form of this tree and potential for failure will necessitate removal. Refer to figure 10 in **Appendix G**.
- T28 (Blackbutt) was found to have decay at the base. This tree located in the carpark will need to be monitored. Barriers preventing vehicles from parking around the base of this tree would be beneficial.
- T30 (Bloodwood) was found to have decay. Mechanical damage from vehicles damaging the trunk has likely led to the infection by pathogens. This tree located in the carpark has been burnt and will need to be monitored. Barriers preventing vehicles from causing further damage and parking around the base of this tree would be beneficial.
- T31 (Blackbutt) was found to have decay at the base and fungal conks were evident. Mechanical damage from vehicles damaging the trunk has likely led to the infection by pathogens. This tree located in the carpark will need to be monitored. Barriers preventing vehicles from causing further damage and parking around the base of this tree would be beneficial.
- T28A, T28B and T33 (all Blackbutts), T29(Turpentine) and T32(Bloodwood) are all located within unprotected islands within the carpark. Barriers preventing vehicles from causing mechanical damage and parking around the base of these trees would be beneficial to the long term health of the trees and reduce the incidence of damage due to vehicles caused by branch drop.

## 5 Recommendations for Tree Protection

### 5.1 Specific Tree Requirements.

- 5.1.1 **Tree Removals.** Trees T1A, T2, T2A, T6, T7, T8, T8A, T8B (dead tree), T10, T10A, T11, T11A, T11B, T12, T17 (dead tree), T18A, T21, T21A, T21C, T24, T26, T26A, T26B and T27A are to be removed due to structural deficiencies and/or they are located within the APZ of the Scout Hall and do not warrant retention. Removals to be in accordance with Section 3.0 Tree Removal of the Tree Management Plan **Appendix E**. Extraction of the felled timber will be difficult and further consultation with the Site Arborist will be required to ensure trees to be retained are not impacted.
- 5.1.2 **Trees to be retained and protected** Trees T16, T25 and T27 will require protection for the duration of the works. These trees require various forms of protection specific to the location and proximity to the proposed construction. Refer to Clauses 4.3 and 4.5 for details relating to specific trees and ensure that the relevant clauses within the Tree Management Plan **Appendix E** and the measures indicated on the Tree Protection Plan in **Appendix I** are implemented.
- 5.1.3 **Trees to be retained** T1(Blackbutt), T3 (Bloodwood), T4 (Blackbutt), T5 (Blackbutt), T9 (Blackbutt), T13 (Turpentine), T14 (Turpentine), T15 (Sydney red gum), T18 (Bloodwood), T19 (Blackbutt), T19A (Blackbutt), T19B (Blackbutt), T19C (Blackbutt), T19D (Sydney red gum), T21B (Blackbutt), T22A (Blackbutt), T23 (Blackbutt). None of these trees will require additional protection during the works however care is to be taken during tree removals which may occur within proximity of some of the trees.
- 5.1.4 The following trees will require action by the client to ensure risk is minimised:-
- T20 (Sydney red gum) has a large undefined cavity that needs to be monitored.
  - T22 (Blackbutt) has a large dead branch that may need removal.
  - T23 (Blackbutt) is a group of two. One of the trees in this group has a severe lean over the road and basal decay. Removal is recommended.
  - Monitoring of the following trees located in the car park is recommended:- T28 (Blackbutt), T30 (Bloodwood), T31 (Blackbutt)
- 5.1.5 Trees located within islands within the carpark T27, T28, T28A, T28B, T29, T30, T31, and T32 would benefit from the installation of barriers preventing vehicles from causing mechanical damage and parking around the base of these trees. The incidence of damage to vehicles parked immediately beneath the trees caused by branch drop may also be reduced.

### 5.2 Tree protection Plan.

- 5.2.1 The Tree Protection Plan (TPP) (refer to **Appendix I**) indicates the position of tree protection devices and other recommended measures for trees to be retained as part of the proposed development. This plan is to be read in conjunction with the Tree Management Plan.

### 5.3 Tree Management Plan

- 5.3.1 A Tree Management Plan (TMP) has been provided as part of this submission in **Appendix E**. The TMP specifies tree protection measures required for the duration of construction and maintenance period and is to be finalised and implemented prior to site set-up and commencement of demolition works.
- 5.3.2 Any requirements outlined in the Council Development Approval are to be addressed and included in the finalised TMP.

#### 5.4 Implementation of Tree Protection

- 5.4.1 Tree removal work and any trimming of trees to be retained shall be carried out by an experienced Practicing Arborist [Australian Qualification Framework Level 3] in accordance with AS 4373-2007 Pruning of amenity trees.
- 5.4.2 During construction those trees indicated as being retained will have to be assessed to determine any impacts that may arise due to the amendments to structures and location of services during the works. The Tree Management Plan will need to address any amendments.
- 5.4.3 A Site Arborist [Australian Qualification Framework Level 5] shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures. In the event of any changes to the TPZ during works the Site Arborist will be required to provide a revised Tree Management Plan.
- 5.4.4 Site induction must incorporate information regarding Tree Protection to ensure that all inductees are aware of their obligations to protect trees on the site and those in neighbouring properties.
- 5.4.5 This report must be made available to any contractor during the tendering process so that the cost associated with the required works for the protection of trees is accommodated.

If you have any questions relating to this report or implementation of recommendations, please contact Susan Stratton on mobile: 0419 970 580 or email: [ssland@bigpond.net.au](mailto:ssland@bigpond.net.au).

Regards,



Susan Stratton  
Principal Consultant  
Diploma Arboriculture 2016 WSI TAFE – AQF Level 5  
ISA Tree Risk Assessment Qualified  
B.L.Arch UNSW, AILA, MAIH, MAA, ISA  
**Susan Stratton Landscape Architects Pty Ltd**  
DATED: 23 February 2022

#### DISCLAIMER

The Client acknowledges that this Report, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data from inspections, measurements and analysis carried out or obtained by Susan Stratton Landscape Architects Pty Ltd and referred to in the Report. The Client should rely on The Report, and on its contents, only to that extent.

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However, Susan Stratton – 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 trees examined and reflects the health and structure of the trees observed at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions and human intervention.
- The inspection was limited to visual examination from the base of the subject tree without dissection, excavation, probing or coring; and
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

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## Glossary of Common Terms

**Amenity** The quality of being pleasant or attractive, having desirable or useful features and making a contribution to physical or material comfort.

**Australian Qualification Framework (AQF)** A quality assured national framework for education and training. It provides nationally recognised and endorsed qualifications through a competency based training system.

**Branch Bark Ridge** An enlarged protruding area of bark tissue on the upper side of a branch crotch (junction).

**Branch Collar** A swelling at the base of a branch, at the junction with another branch or the trunk, resulting from overlapping tissue of the two.

**Canopy** The crown of a tree, comprising all of the foliage and branches

**Canopy Area** The total volume of a tree's canopy.

**Canopy drip-line** The extent of the canopy projected to the ground plane.

**Canopy Spread** The diameter of the crown/canopy.

**Climbing Spikes** or Spurs Devices designed to assist climbing trees for the purpose of sectional dismantling (cutting down trees in sections, starting at the top). Climbing spikes create small wounds in the vascular tissue of trees and palms that are injurious. The use of climbing spikes are only permitted where a tree is completely dead and proposed to be dismantled or removed, or in emergency situations to rescue an injured tree worker from a tree.

**Consulting Arborist** A suitably experienced person with a minimum qualification of Australian Qualification Framework (AQF) Level 5 in Arboriculture.

**Dead Tree** 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).

**Dead wood** refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

**Decay** refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different effect on both the tree's health & structural integrity

**Decline** The progressive degeneration of the health of a tree.

**Development Application** An application made in accordance with the Environmental Planning and Assessment Act 1979 requesting permission to carry-out proposed development (ie building works).

**Die back** refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health

**Dying Tree** A Tree showing signs of significant, immediate and irreversible overall decline.

**Endangered Ecological Community (EEC)** An ecological community threatened with extinction as defined under the Threatened Species Conservation Act (NSW) 1996.

**Endemic** (species) A species only found within a particular area or region and nowhere else.

**Environmental Weed Species** An invasive introduced plant species, which is capable of establishing, self-sustaining and expanding populations in natural and semi-natural habitats.

**Epicormic growth/shoots** refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

**Flush cutting** The practice of severing a branch parallel with the trunk, removing the branch collar and resulting in a larger wound than necessary. Whilst this was formerly common practice, it is injurious to trees and detrimental to tree health and structure. Pruning of this nature is therefore prohibited.

**Habit** The nature and appearance of the branching framework of a tree or plant.

**Hazard** A situation or source of danger or risk that poses a level of threat to life, health property or environment.

**Health** refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour. Classes are:

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Heritage Conservation Area** An area which has distinctive character of heritage significance which is desirable to conserve, as defined in the Local Environmental Plan.

**Inosculation:** refers to an attachment between two branches or trees at an unspecified location along the branches or trunks of a tree where they grow together as a matter of necessity having been forced together as the calliper of the tree branches increase with growth. Quite often the attachment develops whereby the two branches support one another. (C Mattheck 2007)

**Locally-indigenous** (species) A species native to the local area.

**Lopping** Lopping is the cutting of branches at an intermediate point between the branch junction and the foliage, leaving a stub.

**Native** (species) A species native to the Australian Continent.

**Noxious Weed** A plant that has been declared Noxious under the meaning of the *Noxious Weeds Act 1993*.

**Nuisance Species** A plant that has one or more negative attributes, such as an extensive and damaging root system, toxic or allergenic properties.

**One dimensional crown** refers to branching habits & leaves that extend/grow in one direction only. There are many causes for this growth habit such as competition & pruning

**Point of Attachment** refers to the point at which a stem/branch etc. joins

**Practicing Arborist** A suitably experienced person with a minimum qualification of Australian Qualification Framework (AQF) Level 3 in Arboriculture.

**Pruning** The selective removal of branches, severed at the branch collar near the junction with another branch in accordance with Natural Target Pruning techniques as specified in AS4373:2007.

**Remove** (a tree) To cut down or sever the main stem of a tree, resulting in its destruction.

**Retention Value** The relative value of a tree for preservation in the context of a proposed development, based on an evaluation of its sustainability in the landscape weighed up against its significance in the landscape (sum of its amenity, ecological and heritage value).

**Root Plate** The conglomerate of structural (woody) and fibrous roots that radiate out from the tree trunk, often extending beyond the dripline and usually confined to the top metre of soil (i.e. a relatively shallow but broad 'plate')

**Tree A-Z** The tree AZ assessment method determines the worthiness of trees in the planning process. TreeAZ is based on the systematic method of assessing whether individual trees are important and how much weight they should be given in management considerations. Simplistically, trees assessed as potentially important are categorised as 'A' and those assessed as less important are categorised as 'Z'.

In the context of new development, all the Z trees are discounted as a material constraint in layout design. All the A trees are potentially important and they dictate the design constraints. This relatively simple constraints information is suitable for use by the designer to optimise the retention of best trees in the context of other material considerations.

**Selective Crown Thinning** The selective removal of branches that does not alter the overall size, form or branching habit of a tree. Crown thinning is aimed at reducing canopy density through the removal of lower order (tertiary) branches whilst retaining the main structural and framework branches intact.

**Significant Tree** A 'Significant Tree' means any 'tree' that is either, listed as a Heritage Item, located within a property that is listed as a Heritage Item and/or that is assessed as being significant by the relevant local authority.

**Soil Volume** The total amount of soil material or growing media available for unobstructed root growth.

**Stem/bark inclusion** refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

**Structural Root Zone (SRZ)** The portion of the root plate comprised primarily of structural woody roots (integral with the soil profile) providing the main mechanical support and anchorage of a tree, calculated in accordance with AS 4970:2009, expressed as a radial dimension in metres from the centre of the trunk.

**Threatened Species** A species threatened with extinction as defined under the *Threatened Species Conservation Act (NSW) 1995*.



**Tree Risk Assessment Qualified (TRAQ)** A qualification in the use of a systematic methodology for evaluating risk of harm and establishing priorities for managing risks associated with trees by an assessment of potential targets, probability of failure and impact potential.

**Tree** A woody, perennial and long lived plant that has a self supporting trunk (or trunks) with lateral branching initiating at some distance from the ground and supporting a definitely formed canopy.

**Tree of Landscape Significance** A Tree that rates as 1, 2 or 3 when assessed against the criteria contained in the table in Appendix 5 of this Technical Manual.

**Tree Protection Zone (TPZ)** A specified area at a given distance from the trunk set aside for the protection of a trees root system and canopy during land development works to ensure the long term viability and stability of a tree, calculated in accordance with AS 4970:2009.

Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of any building materials or soil or the use of machinery is permitted within the TPZ

**Tree Worker** A suitably experienced person with a minimum qualification of Australian Qualification Framework (AQF) Level 2 in Arboriculture.

**Vigour** refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. Classes are:

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Visual Tree Assessment (VTA)** A systematic method of tree assessment (developed by Claus Mattheck & Helge Breloer) using biological and biomechanical indicators to evaluate overall vitality and structural integrity of a tree.

## Appendix A – Tree Survey Data Table

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
1	<i>Eucalyptus pilularis</i> blackbutt	M	0.52 6.24	0.58 2.63	19	16Ø	4	C	A2	N/A	Bush setting	Sewer	2 10m from Hall. Beyond APZ	Long >40 Years
1A	<i>Melia azadirach</i> white cedar	S	0.21 2.52	0.25	8	1.5Ø	4	I	Z2	N/A	Bush setting	Sewer	4 4.5m from Hall. Within APZ	Long >40 Years
2	<i>Eucalyptus pilularis</i> blackbutt	M	0.6 7.2	0.62 2.71	18	8Ø	4	C	Z2	N/A	Bush setting Building	Sewer	2 6m from corner of Hall. Within APZ	Long >40 Years
2A	<i>Allocasuarina torulosa</i> forest oak	M	0.07, 0.13 2	0.1, 0.17	6	1.5Ø	4	I	Z2	Co-dom trunk	Bush setting	Sewer	2 7m from Hall	Long >40 Years
3	<i>Corymbia gummifera</i> Bloodwood	M	0.33 3.96	0.34 2.1	12	2.5Ø	3	I	A2	D	Bush setting	N/A	2 Decay in first order branch at 1.5m. 10m from Hall	Medium 15-40 Years
4	<i>Eucalyptus pilularis</i> blackbutt	M	0.63 7.56	0.76	10	12Ø	4	C	A2	N/A	Bush setting	N/A	2 13m from Hall. Possum box #53	Long >40 Years
5	<i>Eucalyptus pilularis</i> blackbutt	M	0.64 7.68	0.7	13	12Ø	4	C	A2	N/A	Bush setting	N/A	2 13m from Hall. Possum box or smaller mammal/bat	Long >40 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
6	<i>Eucalyptus piperita</i> Sydney peppermint	M	0.34 0.47 6.96	0.66 2.78	16	10/4/10/4	4	C	ZZ12	D, B, T Severe lean	Bush setting Hall	N/A	2 Asymmetrical canopy. One trunk leaning toward and over Hall. Evidence of termites. Borer damage at 1.5m and decay evident in trunk at 1m .	Short <1-15 Years Recommend removal
7	<i>Eucalyptus piperita</i> Sydney peppermint	M	0.47 5.64	0.5 2.47	16	2.5Ø	4	C	Z2	I	Bush setting Hall	N/A	2 First order branch, included and hanging over over Hall. Within APZ	Long >40 Years
8	<i>Corymbia gummifera</i> Bloodwood	M	0.34 4.08		16	12Ø	4	C	Z2		Bush setting Hall	N/A	2 Adjacent Hall. Within APZ	Long >40 Years
8A	<i>Corymbia gummifera</i> Bloodwood	M	0.23 2.76		14	8/2/8/2	4	I	ZZ12	Lean	Bush setting Hall	N/A	2 Leaning over over Hall. Within APZ	Short <1-15 Years
8B	Dead tree	D									Hall		Remove Wihin APZ	Dead
9	<i>Eucalyptus pilularis</i> blackbutt	M	0.5 6	0.6 2.67	18	12Ø	4	C	A2	N/A	Rock outcrop Bush setting	N/A	2 10m from Hall.	Long >40 Years
10	<i>Angophora costata</i> Sydney red gum	M	0.28 3.36	0.28 1.94	12	8Ø	4	C or I	Z2	N/A	Bush setting	N/A	2 7m from Hall. Within APZ	Long >40 Years
10A	<i>Banksia serrata</i> old man banksia	M							Z2	F,S			Failed – still alive however leaning on building Within APZ Immediate removal required	Recently Failed

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
11	<i>Eucalyptus pilularis</i> blackbutt	M	0.53 6	0.64 2.74	19	14/4/14/4	4	D	Z2	F, corrected Lean	Rock outcrop Bush setting	Hall	2 Lean toward Hall. Corrected. 3m from Hall Within APZ Roots are over rock outcrop.	Long >40 Years
11A	<i>Banksia serrata</i> old man banksia	M	0.15 2	0.19 1.65	5.5	1.5Ø	4	C	Z2	N/A	Hall	N/A	2 3m from Hall. Within APZ	Long >40 Years
11B	<i>Pittosporum undulatum</i> sweet pittosporum	M	0.05 0.08	0.13	5.5	1.5Ø	4	C	Z2	N/A	Dead banksia	N/A	4 3m from Hall. Within APZ	Medium 15-40 Years
12	<i>Angophora costata</i> Sydney red gum	M	0.33 3.96	0.4 2.25	12	12Ø	4	C	Z2	N/A	Bush regen	N/A	2 5.5m from Hall. Canopy well above Hall. Within AFZ	Long >40 Years
13	<i>Syncarpia glomulifera</i> Turpentine	M	0.34	0.41	10	8Ø	4	C	A2	N/A	Rock outcrop	N/A	2 15m from Hall. Roots over rock	Long >40 Years
14	<i>Syncarpia glomulifera</i> Turpentine	M	0.2	0.27	10	4Ø	4	C	A2	N/A	Rock outcrop	N/A	2 15m from Hall. Roots over rock	Long >40 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
15	<i>Angophora costata</i> Sydney red gum	M	0.24	0.28	10	4Ø	4	C	A2	N/A	Rock outcrop	N/A	2 15m from Hall.	Long >40 Years
16	<i>Eucalyptus pilularis</i> blackbutt	M	0.7 0.6 11.04	1.12 3.47	22	18Ø	4	D	Z2	Co-dom trunk, M	Bush setting Hall	Water metre	2 6m from Hall – significant remnant.	Medium 15-40 Years
17	Dead tree												8m from Hall. Within APZ	Dead
18	<i>Corymbia gummifera</i> Bloodwood	M	0.37 4.44	0.42 2.3	20	6Ø	4	C	A2	N/A	Bush setting	N/A	2 3m from Hall. Within APZ	Long >40 Years
18A	<i>Corymbia gummifera</i> Bloodwood	M	0.13 2	0.16 1.53	8	1.5Ø	3	I	Z11	N/A	Bush setting	N/A	2 4m from Hall. Within APZ Poor vigor due to competition with nearby trees.	Short <1-15 Years
19	<i>Eucalyptus pilularis</i> blackbutt (Group x 5)	M	0.32 3.84	0.35 2.13	16	10Ø	4	C	A2	Innoculation. Rubbing trunks.	Bush setting rock outcrop	N/A	2 15m from Hall. Road frontage. Interlinked branches and trunks rubbing	Long >40 Years
19A	<i>Eucalyptus pilularis</i> blackbutt	S	0.24 2.88	0.29 1.97	10m	06Ø	4	C	A2	N/A	Bush setting	N/A	2 10m from Hall. Within APZ	Long >40 Years
19B	<i>Eucalyptus pilularis</i> blackbutt	M	0.25 3	0.29 1.97	16	6Ø	4	C	A2	N/A	Bush setting	N/A	2 12m from Hall.	Long >40 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
19C	<i>Eucalyptus pilularis</i> blackbutt	M	0.12 0.15 0.17 3.12		8	Canopy over length of fallen tree. Not recorded	3	C	Z11	F Lean on trunk O	Bush setting	N/A	2 13m from Hall. Failed with regrowth along trunk. Conflicts with nearby trees. Removal may benefit nearby trees and allow improved management of embankment.	Short <1-15 Years
19D	<i>Angophora costata</i> Sydney red gum	M	0.12 2	0.15 1.5	8	6Ø	4	C	A2	N/A	Bush setting	N/A	2 15m from Hall..Visible from road- Road frontage	Long >40 Years
20	<i>Angophora costata</i> Sydney red gum	M	0.43 5.16	0.65 2.76	10	10Ø	4	C	A2	D C	Bush setting	N/A	2 9m from Hall. Within APZ Basal decay with native bee hive. Reactive growth around unoccluded wound sufficient to overcome decay. Requires further investigation. .	Long >40 Years
21A	<i>Angophora costata</i> Sydney red gum	M	0.14 2	0.17 1.57	9	3Ø	4	I	A2	N/A	Bush setting	N/A	2 7m from Hall. Within APZ Rock outcrop and conflict with adjacent trees	Short <1-15 Years
21	<i>Eucalyptus piperita</i> Sydney peppermint	M	0.37 0.34 6	0.63 2.73	16	14Ø	2	C	Z4	D T	Bush setting	N/A	2 8m from Hall. Within APZ Western trunk has buckling which indicates hollow. Termites evident. Lean toward Hall. Recommend immediate removal of western trunk	Short <1-15 Years
21B	<i>Eucalyptus pilularis</i> blackbutt	M	0.38 4.56	0.44 2.34	10	10Ø	4	C	A2	L	Bush setting	N/A	2 12m from Hall. Trunk with lean away from Hall	Long >40 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
21C	<i>Eucalyptus piperita</i> Sydney peppermint	M	0.19 2.28	0.29 1.97	10	6Ø	3	C	Z10	D, T	Bush setting	N/A	2 9m from Hall. Within APZ Unoccluded wound at base of tree with watershoots. Branch stubs. Not indicated on survey	Short <1-15 Years
22	<i>Eucalyptus pilularis</i> blackbutt	M	0.3 3.6	0.33 2.08	15	4.5/4/4.5/1	4	C	A2	D	Bush setting Carpark	N/A	2 17m from Hall. Dead branch needs removal	Long >40 Years
22A	<i>Eucalyptus pilularis</i> blackbutt	M	0.13 2	0.17 1.57	8	4Ø	3	C	A2		Bush setting Carpark	N/A	2 17m from Hall.	Long >40 Years
23	<i>Eucalyptus pilularis</i> blackbutt (Group x 2)	M	0.3 3.6 0.44 5.28	0.48 2.43	16	7/10/10/3	3	C	A2 Z4	D	Bush setting Carpark	N/A	2 18m from Hall. Smaller tree has basal decay and 45 degree lean over the road. Larger tree has metal frame embedded in trunk. Recommend removal of smaller leaning tree or reduction of canopy..	Long >40 Years
24	<i>Syncarpia glomulifera</i> Turpentine (Group x 3)	M	0.29 0.27 0.26 3.48	0.35 2.13	15	9/4/4/4	4	C	Z2	I	Rock building carpark path	N/A	2 6m from Hall. Within APZ	Long >40 Years
25	<i>Eucalyptus piperita</i> Sydney peppermint (Group x 2)	M	0.4 0.44 4.8 5.28	1.0 3.31	11 + 14.5	9/2/2/0	4	C	Z2	L	Path Asphalt carpark	N/A	2 7m from Hall. Within APZ Northern trunk has unoccluded wound at 800mm. Asymmetrical canopy.	Long >40 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
26	<i>Corymbia gummifera</i> Bloodwood	M	0.33 3.96	0.39 2.23	18	6/3/3.5/4	4	C	Z2	L	Path carpark	Light pole	2 10m from Hall. Within APZ Stump at base. Suckering now 5m tall.	Long >40 Years
26A	<i>Syncarpia glomulifera</i> Turpentine (Group x 2)	M	0.25 0.21 3.96	0.32 0.27 2.05	12	2.5/4/2.5/5	4	C	Z2	I	Rock outcrop Hall	Flag pole	2 2m from Hall.	Long >40 Years
26B	<i>Allocasuarina torulosa</i> forest oak	S	0.05 0.05 0.04 2	0.11 1.5	5	2Ø	4	C	Z2	N/A	Rock outcrop path	N/A	2 7m from Hall. Healthy Self seeded specimen	Long >40 Years
27	<i>Corymbia gummifera</i> Bloodwood	M	0.34 4.08	0.38 2.2	18	5/2.5/5/5	4	C	A2	N/A	Asphalt up to base of tree	N/A	2 13m from Hall. 6m from shed. Vehicles park up to base.	Long >40 Years
27A	<i>Eucalyptus pilularis</i> blackbutt	M	0.23 2.76	0.26 1.88	10	0/9/8/0	4	C	Z7	Excessive lean	Bush setting. Carpark and access drive	N/A	2 11m from metal shed. Located on neighbouring allotment asymmetrical canopy and excessive lean 45deg overhanging access by 12m. APZ issue	Short <1-15 Years
28	<i>Eucalyptus pilularis</i> blackbutt	M	0.25 0.28 4.56	0.64 2.74	18	1/6/2/4	3	C	Z9	D	Car park. Compaction from cars	N/A	2 30m from Hall. Located in island in carpark. Subjected to mechanical damage and root compaction from vehicles. Severe basal decay to eastern side	Short <1-15 Years



## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
28A	<i>Eucalyptus pilularis</i> blackbutt (unconfirmed)	I	0.05 2	0.07 1.5	5.5	2Ø	4	C	A2	N/A	Car park. Compaction	N/A	2 25m from Hall. Located in island in carpark. Potential mechanical damage and root compaction from vehicles.	Long >40 Years
28B	<i>Eucalyptus pilularis</i> blackbutt	I	0.05 2	0.07 1.5	5.5	2Ø	4	C	A2	N/A	Car park. Compaction	N/A	2 25m from Hall. Located in island in carpark. Potential mechanical damage and root compaction from vehicles	Long >40 Years
29	<i>Syncarpia glomulifera</i> Turpentine (Group x 5)	M	0.1, 0.2 0.2, 0.14 0.19 4.56	0.41, 0.3 2.28	10	8Ø	4	C	A2	I	Car park. Compaction	N/A	2 Located in island in carpark. Included multi trunks and Inosculation of trunks in canopy. Mechanical damage	Medium 15-40 Years
30	<i>Corymbia gummifera</i> Bloodwood	M	0.35 4.2	0.41 2.28	16	14Ø	3	C	Z9	D	Car park. Compaction	N/A	2 Located in island in carpark. Basal decay. Lean corrected. Lopped stump burnt trunk and decay evident.	Short <1-15 Years
31	<i>Eucalyptus pilularis</i> blackbutt	M	0.44 5.28	0.53 2.53	18	4/3/6/8	3	C	Z9	B, D, F	Car park. Compaction from vehicles	N/A	2 20m from Hall. Located in island in carpark. Fruiting body at 700mm on northern side. Mechanical damage. Borers evident on southern side.	Short <1-15 Years

## Murray Farm Scout Hall

Tree No	Tree Species	Age Class	DBH (m) TPZ radius (m)	DRB (m) SRZ radius (m)	Tree Height (m)	Canopy width N/S/E/W (m)	Canopy Condition	Crown class size m <sup>2</sup>	TreeAZ	Defects	Root Zone	Services	Comments/Landscape Significance Rating	Life expectancy
32	<i>Corymbia gummifera</i> Bloodwood	M	0.31 0.38 5.88	0.58 2.63	17	8/7/6/7.5	4	C	A2	Girdling roots, Branch stubs, Dieback	Car park. Compaction from vehicles	N/A	2 Located in island in carpark	Medium 15-40 Years
33	<i>Eucalyptus pilularis</i> blackbutt	M	0.5 6	0.5 2.47	20	5/4/7/6	4	C	A2	Dieback branch stubs	Bushland setting	N/A	2 Located on road frontage	Long >40 Years
34	<i>Eucalyptus</i> sp	M	0.8		18	8/8/5/7	4	C	Z2	Multi trunk with one removed	Bushland setting	N/A	2 9m from Hall. Within APZ. Located on neighbouring allotment	Long >40 Years
35	<i>Eucalyptus</i> sp	M	0.8		15	7/4/9/5	4	C	Z2	Codominant trunk	Bushland setting. Scouts gather beneath	N/A	2 7m from Hall. Within APZ. Located on neighbouring allotment	Long >40 Years

## Appendix B – Explanatory Notes for Tree Survey Data Table

**Tree No:** Relates to number on site plan prepared specifically for this report.

**Species:** Coded to tree species schedule

**Age Class:**

<b>I</b>	Immature – well-established but juvenile tree
<b>S</b>	Semi mature- established immature tree <20% of life expectancy
<b>M</b>	Mature - full sized tree with further capacity for growth - 20-80% of life expectancy
<b>O</b>	Over mature- >80% of life expectancy. About to enter decline or already declining
<b>LS</b>	Live Stage – refers to a tree in a significant state of decline. Final live stage of a tree prior to death.

**DBH:** Diameter of trunk at breast height (1.4m above ground level), in metres.

**DRB:** Diameter of trunk above root buttress, in metres

**Tree Height:** In metres

**Canopy Width:** In metres

**Crown Class:**

<b>D</b>	Dominant Crown extends above general canopy; not restricted by other tree canopies
<b>C</b>	Co-dominant Crown forms the bulk of the Canopy but crowded by adjacent trees
<b>I</b>	Intermediate Crown extends into dominant/co-dominant canopy but is restricted on all sides
<b>S</b>	Suppressed Crown development restricted by over growing trees.

**Crown Size:** Live crown size in m<sup>2</sup> provides a measurable contribution to the visual amenity.

**Crown Condition:** Overall vigour and vitality

<b>0</b>	Dead
<b>1</b>	Severe decline (<20% canopy density, major deadwood)
<b>2</b>	Declining (20-60% canopy, twig and branch dieback)
<b>3</b>	Average/low vigour (60-90% canopy density, twig dieback)
<b>4</b>	Good (90-110% canopy density, little or no dieback or other problems)
<b>5</b>	Excellent (100% canopy density, no deadwood or dieback)

**Root Zone:** Features and services located within the root zone are noted.

**Defects:**

<b>B</b>	Borers	<b>L</b>	Lopped
<b>C</b>	Cavity	<b>M</b>	Mistletoe/parasites
<b>D</b>	Decay	<b>S</b>	Splits/Cracks
<b>F</b>	Previous failures	<b>T</b>	Termites
<b>I</b>	Inclusions	<b>O</b>	Other.

**Services:** Services and adjacent infrastructure and structures that impact on the tree are noted.

**Life Expectancy:**

Long >40 Years  
 Medium 15-40 Years  
 Short <1-15 Years  
 Dead

**Tree A-Z:** Categorisation of trees into important and unimportant trees which provides a hierarchy for retention and removal based on the condition of the tree and the existing site circumstances. The categories are included in the following page which has been reproduced under permission from Barrell Tree Consultancy.

**Retention Value Key:**

	Retention Value	Description of Retention Priority
	High	Priority for retention
	Moderate	Consider for retention
	Low	Consider for removal
	Remove	Priority for removal

## Appendix C – TreeAZ

### TreeAZ Categories (Version 10.04-ANZ)

**CAUTION:** TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at [www.TreeAZ.com](http://www.TreeAZ.com).

#### Category Z: Unimportant trees not worthy of being a material constraint

**Local policy exemptions:** Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

<b>Z1</b>	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
<b>Z2</b>	Too close to a building, i.e. exempt from legal protection because of proximity, etc
<b>Z3</b>	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc
<b>High risk of death or failure:</b> Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure	
<b>Z4</b>	Dead, dying, diseased or declining
<b>Z5</b>	Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
<b>Z6</b>	Instability, i.e. poor anchorage, increased exposure, etc
<b>Excessive nuisance:</b> Trees that are likely to be removed within 10 years because of unacceptable impact on people	
<b>Z7</b>	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
<b>Z8</b>	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc
<b>Good management:</b> Trees that are likely to be removed within 10 years through responsible management of the tree population	
<b>Z9</b>	Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
<b>Z10</b>	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
<b>Z11</b>	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
<b>Z12</b>	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

**NOTE:** Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

#### Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

<b>A1</b>	No significant defects and could be retained with minimal remedial care
<b>A2</b>	Minor defects that could be addressed by remedial care and/or work to adjacent trees
<b>A3</b>	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
<b>A4</b>	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

**NOTE:** Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.

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## Appendix D – Criteria for Assessment of Landscape Significance

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
<b>1. SIGNIFICANT</b>	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 is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m <sup>2</sup> with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	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	The subject tree 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
	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 a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
<b>2. VERY HIGH</b>	The tree has a strong historical association with a heritage item (building/structure/artefact/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.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m <sup>2</sup> ; a crown density exceeding 70% (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
<b>3. HIGH</b>	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	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 large live crown size exceeding 100m <sup>2</sup> ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal)
			The tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
<b>4. MODERATE</b>	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m <sup>2</sup> ; 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% (thinning to normal); 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 makes a fair contribution to the visual character and amenity of the area.
<b>5. LOW</b>	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m <sup>2</sup> and can be replaced within the short term (5-10 years) with new tree planting
<b>6. VERY LOW</b>	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	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. 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% (sparse).
<b>7. INSIGNIFICANT</b>	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Ref:- Morton, Andrew (2006) **Determining the Retention Value of Trees on Development Sites** Proceedings of the 7<sup>th</sup> National Street Tree Symposium TreeNet Adelaide Australia

## Appendix E –Tree Management Plan

### 1.0 Tree Management Plan

- 1.1 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.
- 1.2 The following pre-determined Site Arborist stages are witness points and will require the attendance of the Site Arborist who will document the works and provide their signature stating an inspection has taken place and all works are completed in accordance this Tree Protection Plan and AS4970-2009 Protection of Trees on Development Sites.

#### WITNESS POINTS FOR PROJECT ARBORIST INSPECTIONS

Witness Point	Description	Action
<b>Tree Removal</b>	Prior to tree felling, the Site Arborist will inspect that proposed tree removal complies with Council's Notice of Determination.	Inspected, documented & certified by Site Arborist <b>Yes/No</b>
<b>Tree Protection Zones</b>	The Site Arborist shall inspect the Tree Protection Fencing & any necessary Ground Protection complies with the nominated Tree Protection Zones & Appendix I.	Inspected, documented & certified by Site Arborist <b>Yes/No</b>
<b>Machinery Access</b>	An access route for machinery shall be determined prior to demolition & construction works. Any temporary ground protection within the Tree Protection Zones shall be undertaken as per Appendix I	Inspected, documented & certified by Site Arborist <b>Yes/No</b>
<b>Demolition Works</b>	The Site Arborist shall be in attendance during the removal of any existing structures within the TPZ those trees to be retained.	Inspected, documented & certified by Site Arborist <b>Yes/No</b>
<b>Earth Works</b>	The Site Arborist to monitor any earthworks within the TPZ's. <b>Note</b> these works must be undertaken with small handheld machinery or tools.	Inspected, documented & certified by Site Arborist <b>Yes/No</b>
<b>Practical Completion</b>	The Site Arborist to inspect & assess the condition of the trees & provide certification of tree protection at all the above-mentioned Supervision Stages.	Inspected, documented & certified by Site Arborist <b>Yes/No</b>

### 2.0 Agreement

The Site Arborist and the Site Foreman shall agree upon and designate storage, dumping and wash areas prior to demolition works.

Contractors and site workers shall be informed of these Tree Protection Specifications and the significance of the trees to be retained during induction.

The Site Foreman is responsible for all tree protection procedures on the site as per this document and whenever the Arborist is not on site.

It is the responsibility of the Site Foreman to provide **a minimum 3 days notice** to the Site Arborist for the pre-determined witness points.

Any breaches to the Tree Protection Plan shall be reported immediately.

### **3.0 Tree Removal**

- 3.1 **Pre-determined Witness Point.** All trees to be removed are to be clearly marked with a single white line around the trunk. Under no circumstances are any trees to be removed until Council consent for removal has been given.
- 3.2 Confirmation of consent for removal will be indicated by a single line in a contrasting colour such as orange or yellow. The Site Arborist shall inspect, document and certify that the correct trees have been marked.
- 3.3 Tree removal work shall be carried out by an experienced practising arborist with minimum AQF Level 3 in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- 3.4 Trees to be removed are to be removed by controlled or sectional felling so as to avoid damage to the trees to be retained or other nearby infrastructure.
- 3.5 In the event that wildlife is found during the course of tree removal works, work must stop until a trained wildlife handler attends the site or the animal relocates itself. In regards to tree pruning, works may only proceed if the animals will not come into direct harm. In the event that the tree has nesting birds or native animals, works must be delayed until after the nesting period has been completed, unless in the event of an emergency.
- 3.6 Stumps located within the TPZs of trees to be retained shall be grubbed-out where required using a mechanical stump grinder (or by hand where less than 150mm in diameter) without damage to the root system of other trees. Any stump grinding required within the TPZ of a tree to be retained is to be supervised by the Site Arborist. Where trees to be removed are within the SRZ of any trees to be retained, consideration should be given to cutting the stump close to ground level and retaining the root crown intact. Stumps within the Tree Protection Zone of other trees to be retained shall **not** be pulled out using excavation equipment or similar.
- 3.7 All shrubs and woody weeds are to be removed by hand.

### **4.0 Canopy and Root Pruning**

- 4.1 All canopy pruning work required shall be carried out in accordance with Australian Standard 4373-2007 – Pruning of Amenity Trees. Written approval from Council may be required under the Tree Preservation Order prior to undertaking this work. All pruning work shall be carried out by a Practising Arboriculturalist [AQF Level 3] in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). No branches of greater than 100mm in diameter should be removed or pruned without further advice from a Consulting Arboriculturalist [AQF Level 5].
- 4.2 Climbing Spikes **MUST NOT** be used for pruning works.
- 4.3 Where root pruning is required, roots shall be severed with clean, sharp pruning implements and retained in a moist condition at all times. Roots shall not be left exposed to air for a period greater than 15 minutes. Roots may be kept moist with any of the following: - Damp hessian material, mulch or coarse washed river sand where practical.



## 5.0 Tree Damage

- 5.1 Care shall be taken when operating cranes, drilling rigs and similar equipment near trees to avoid damage to tree canopies (foliage and branches). Under no circumstances shall branches be torn-off by construction equipment. Where there is potential conflict between tree canopy and construction activities, the advice of the Site Arborist must be sought.
- 5.2 In the event of any tree becoming damaged for any reason during the construction period a consulting arborist [Australian Qualification Framework Level 5] shall be engaged to inspect and provide advice on any remedial action to minimise any adverse impact. Such remedial action shall be implemented as soon as practicable and certified by the arborist.

## 6.0 Tree Protection Zones

**Pre-determined witness point.** The Site Arborist shall inspect, document and certify Tree Protection Zones and Fencing is in accordance with this Tree Management Plan and AS4970-2009.

- 6.1 Tree Protection Fencing: Fencing 1.8m high shall be erected in accordance with the Tree Protection Plan (**Appendix I**) or within 500mm of any construction activity to include as much of the Primary Root Zone as possible prior to commencement of works and be maintained in a good condition during the construction processes.
- 6.2 Signage indicating the area is a Tree Protection Zone (TPZ) shall be displayed on the fence line at 5m intervals.

Signage shall be a minimum of 600 x 600mm and shall state **No Access – Tree Protection Zone** and include the contact details of the Site Foreman and Site Arborist.

### 6.3 Mulching

Mulch shall be spread within the TPZ's of the retained trees or as instructed by the Site Arborist. The mulch shall consist of Eucalyptus leaf mulch as certified to AS4454:1997 Composts, Soil Conditioners and Mulches. Mulch shall be spread to a depth of 100mm and maintained at this depth for the duration of works.

### 6.4 Restricted Activities within the Tree Protection Zones:

The area within the Tree Protection Zone (Appendix I) shall exclude the following works:

- Parking of vehicles or plant
- Installation of temporary site offices or amenities.
- Wash down areas, disposal of liquid waste including concrete or paint wash.
- Excavation by large machinery
- Preparation of chemicals including paint, cement or mortar.
- Vehicular movement
- Pedestrian access other than for maintenance activities.
- Trimming or removal of branches, except by a qualified Arborist
- Attaching any objects or signage to the tree.
- Excavation, trenching or tunnelling.
- No excavation or trenching unless under the supervision of the Site Arborist.

## 7.0 Trunk Protection

Where provision of tree protection fencing is impractical due to its proximity to the proposed building footprint, trunk protection shall be erected around nominated trees to avoid accidental damage, as indicated on the Tree Protection Plan (**Appendix I**). The trunk protection shall consist of a layer of carpet underfelt (or similar) wrapped around the trunk,



followed by 1.8 metre lengths of softwood timbers (90 x 45mm in section) aligned vertically and spaced evenly around the trunk at 150mm centres (i.e. with a 50mm gap) and secured together with galvanised hoop strap as shown in Figure 2 **Appendix F**. Recycled timber (such as demolition waste) may be suitable for this purpose, subject to the approval of the Project Arborist. The timbers shall be wrapped around the trunk (over the carpet underfelt), but not fixed to the tree to avoid mechanical injury or damage to the trunk. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period. Carpet underfelt (alone) is sufficient for trees with a trunk diameter of less than 200mm.

## **8.0 Ground Protection and Weight Sharing Devices**

If works occur within the TPZ of the retained trees the Site Arborist shall determine if appropriate ground protection is required and the ground surface within the TPZ shall be protected with a geotextile overlaying the existing mulch.

- 8.1 During construction, if access is required, the area is to be protected by a weight sharing device and the tree trunk is to be protected as shown in **Appendix F** 'Trunk Protection'. The weight sharing device is to be made of formwork board installed on 100mm bark mulch overlaying geotextile. The weight sharing device is to be installed for the full length of the tree protection zone. Once construction has been completed the weight sharing device is to be removed and the geotextile removed and mulch relaid over the construction area.
- 8.2 Temporary access for vehicles, should this be required, will require the installation of solid boards such as Durabase or metal plate to accommodate heavy vehicles with rubber tyres and or tracks. This board shall be placed over the geotextile to allow pedestrian and /or vehicle access. (**Appendix F**)

## **9.0 Demolition Works**

**Pre-determined Witness Points.** The Site Arborist shall be in attendance during any works within the nominated TPZ.

- 9.1 The pavement surface and sub-base within the TPZ shall be gradually removed in layers of no greater than 50mm thick and or the thickness of the slab using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise disturbance and compaction of the underlying soil profile. The machine shall work within the footprint of the existing paved surfaces to avoid compaction of the underlying soil. The final layer of sub-base material shall be removed using hand tools were required to avoid compaction of the underlying soil profile and damage to woody roots.
- 9.2 Following removal of the pavement surface and sub-base, clean, friable topsoil shall be used to fill in the excavated area and bring flush with surrounding levels within new landscape areas. Soil shall only be imported and spread when the underlying soil conditions are dry to avoid compaction of the soil profile. Where there is insufficient recovered site topsoil for this purpose, any imported material shall be free of rocks, vegetation, heavy clay or other extraneous matter. Any imported soil material should be similar in texture to the existing site topsoil.
- 9.3 Demolition of existing walls, kerbs and other structures within the Tree Protection Zone of trees to be retained shall be undertaken under the supervision of the Site Arborist. The structures shall be demolished using equipment and stationed outside the TPZ where possible or within the footprint of existing hardstand areas. Care shall be taken to avoid the root systems, trunks and lower branches of trees in the vicinity of the structures during demolition works, with special attention required during the demolition of the footings and other sub-surface members to avoid damage to woody roots.

## 10.0 Excavations within Tree Protection Zones

**Pre-determined Witness Points.** The Site Arborist shall be in attendance during any works within the nominated TPZ.

- 10.1 Trenches dug for new pipes lines within the TPZ of trees to be retained are to be carried out using non-destructive techniques. Non-destructive excavation techniques may include the use of hand-held implements, air pressure (using an Air-spade® device) or water pressure. The excavation shall be undertaken (within the TPZ) to the depth of the proposed pipe or to a maximum of 800mm from surface levels, to locate and expose any woody roots. All care shall be undertaken to preserve woody roots intact and undamaged during exploratory excavation. Any roots encountered of less than 30mm in diameter may be cleanly severed with clean sharp pruning implements at the face of the excavation. The root zone in the vicinity of the excavation shall be kept moist following excavation for the duration of construction to minimise moisture stress on the tree.
- 10.2 Where large woody roots (greater than 30mm diameter) are encountered during exploratory excavations, further advice from a qualified arborist shall be sought before severance. Where necessary, (to avoid severing large woody roots) consideration should be given to relocating the footing to one side and redesigning the structure before fabrication.

## 11.0 Works within the TPZ of Tree/Trees

**Pre-determined Witness Points.** The Site Arborist shall be in attendance during any works within the nominated TPZ. This includes the pruning of the tree canopy.

- 11.1 **Structures within the TPZ:** Where necessary, the following construction techniques are to be applied to avoid severing large woody roots should be given to the installation of an elevated structure (e.g. pier and beam footing, suspended slab or floor supported on piers, cantilevered slab, up-turned edge beam etc) in preference to structures requiring a deep edge beam or continuous perimeter strip footing. The beam section of any pier and beam footing should be placed **above** grade to avoid excavation within the SRZ. Pier footings intersecting large woody roots should be slightly offset where necessary to avoid root severance.
- 11.2 **Masonry Walls and Fences within the TPZ:** For masonry walls or fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (eg steel or timber pickets, lattice etc) fixed to pillars. For paved areas, consideration should be given to raising the proposed pavement level and using a porous fill material in preference to excavation where large woody roots are found within the subbase.
- 11.3 A Structural Engineer shall be consulted to implement these strategies.

## 12.0 Underground Services:

- 12.1 All proposed stormwater lines and other underground services should be located outside TPZs of trees proposed to be retained wherever possible or installed by alternative measures. Alternative measures include suspending pipelines beneath the floor of a building or structure (to avoid excavation with the TPZ), non-destructive excavation methods or Horizontal Directional Drilling (HDD). Where the installation of service lines within TPZs is unavoidable, the pipelines or conduits should be installed as follows:-

- 12.1.1 Where the extent of the incursion to the root zone is less than 10% of the TPZ including any excavations for benching and shoring the trench, the pipeline or conduit may be installed by open trenching using standard construction methods (excavator or trenching machine). 10% of the TPZ is equivalent to one-third of the TPZ radius on one side. Refer to **Appendix A** for the radial distances of TPZs for each tree.
- 12.1.2 Where the extent of the incursion to the root zone exceeds 10% of the TPZ but is outside the SRZ, non-destructive excavation methods must be adopted in accordance with **Section 10**. Where large woody roots are encountered during excavation or trenching (root diameter greater than 50mm), these shall be retained intact wherever possible (e.g. by tunnelling beneath roots and inserting the pipeline or conduit beneath or re-routing the service etc.). Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by a qualified arborist [AQF 5] to evaluate the potential impact on the health and stability of the subject tree.
- 12.1.3 Excavations required for underground services within the Structural Root Zone of any tree to be retained should only be undertaken by sub-surface boring (Horizontal Directional Drilling). The Invert Level of the pipe, plus the pipe diameter, must be lower than the estimated root zone depth as specified. At this site, a minimum depth of 1 metre to the invert level of the pipe is specified.

### **13.0 Pavements**

- 13.1 Pavements should be avoided within the Tree Protection Zone of trees to be retained where possible. Proposed paved areas within the Tree Protection Zone of trees to be retained should be placed above grade to minimise excavations within the root zone and avoid root severance and damage. Pavement sub-base material should be as per Section 14.2.

### **14.0 Fill Material**

- 14.1 Placement of fill material within the Tree Protection Zone of trees to be retained should be avoided wherever possible. Where the placement of fill is unavoidable, the material should be a well-drained friable material, equivalent in texture to the existing site topsoil material. The fill should be free from rocks, vegetation and other extraneous material. The fill may be consolidated but should not be compacted to engineering standards. No fill material should be placed in direct contact with the trunk.
- 14.2 Where the placement of fill is required for pavement sub-grade is required within TPZs of trees to be retained, coarse, gap-graded material such as 20 – 50mm crushed inert rock (Blue Metal) or equivalent shall be used to provide some aeration to the root zone. Note that Roadbase or crushed sandstone or other material containing a high percentage of fines is unacceptable for this purpose. The fill material should be consolidated with a non-vibrating roller to minimise compaction of the underlying soil. A permeable geotextile may be used beneath the sub-base to prevent the migration of the stone into the sub-grade.

### **15.0 Maintenance of Trees**

**Pre-determined monthly inspections.** The Site Arborist shall inspect, document and certify that the following maintenance activities are being carried out within the TPZ. Monthly inspections will be required if there is a delay in the works and other pre-determined witness points do not fall within a calendar month.

- Mulching
- Weed removal
- Crown trimming to 2m from the roofline in accordance with AS 4373-2007 Pruning of Amenity Trees.
- Soil amelioration

Maintenance activities are to commence at the beginning of the construction process by a qualified Arborist and then as required during the construction period. Regular maintenance of the trees will continue for three months after construction is completed.

#### **15.1 Soil amelioration.**

Chemical fertilizers are only to be applied, if required on completion of the works and only after soil testing identifies deficiencies in the existing soil profile.

An application of Seasol or Maxicrop may be applied to manufacturer's instructions during the installation of soft landscaping.

Mulch should be reapplied to maintain the required level as specified.

Weed control shall be by hand pulling. Treatment with glyphosate based herbicide in accordance with the manufacturer's instructions will only be carried out if approved by the client

Mechanical cultivation is not permitted nor is scraping or burning as a form of weed control

#### **15.3 Crown Cleaning of trees in the Carpark and within 10m of the building.**

Crown cleaning shall be performed in accordance with AS4373-2007 Pruning of amenity trees. The work is to be performed by a Practicing Arboriculturalist in compliance with occupational health and safety requirements.

All trees recommended for retention located in the car park must have as a minimum requirement, the removal of all deadwood greater than 50mm diameter. All diseased and crossing limbs and branch stubs are to be pruned to the branch collar.

#### **16.0 Soft and Hard Landscaping**

Installation of soft or hard landscaping including paving, turf or plant material within the TPZ shall be undertaken by hand.

Planting holes are to be hand dug with a shovel or garden trowel

#### **17.0 Non Conformance Reporting**

Any non-conformance identified by the Site Arborist should be made in writing to the site foreman and the site consenting authority within 2 working days of the breach being observed. Methods to address the breach should be outlined where possible to enable timely rectification works.

Damage to a protected tree is to be reported to the Site Arborist immediately to enable appropriate remedial works.

#### **18.0 Post Construction/ Establishment Period**

**The Site Arborist shall make a final inspection to assess tree condition.**

## Appendix F – Tree Protection Details

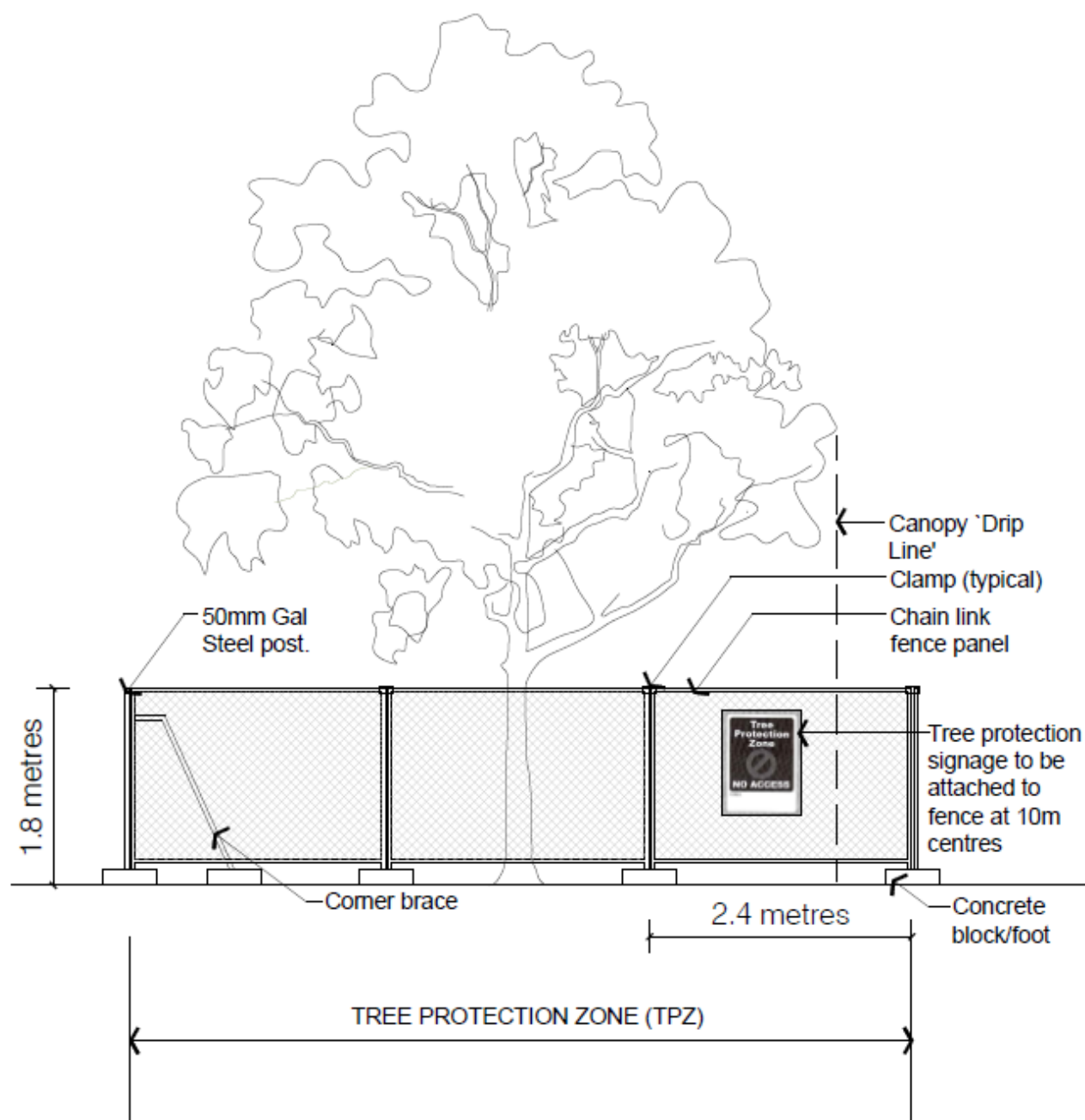


Illustration 1 Tree Protection Fence detail.

Source – AS 4970-2009 Protection of trees on development sites, p16

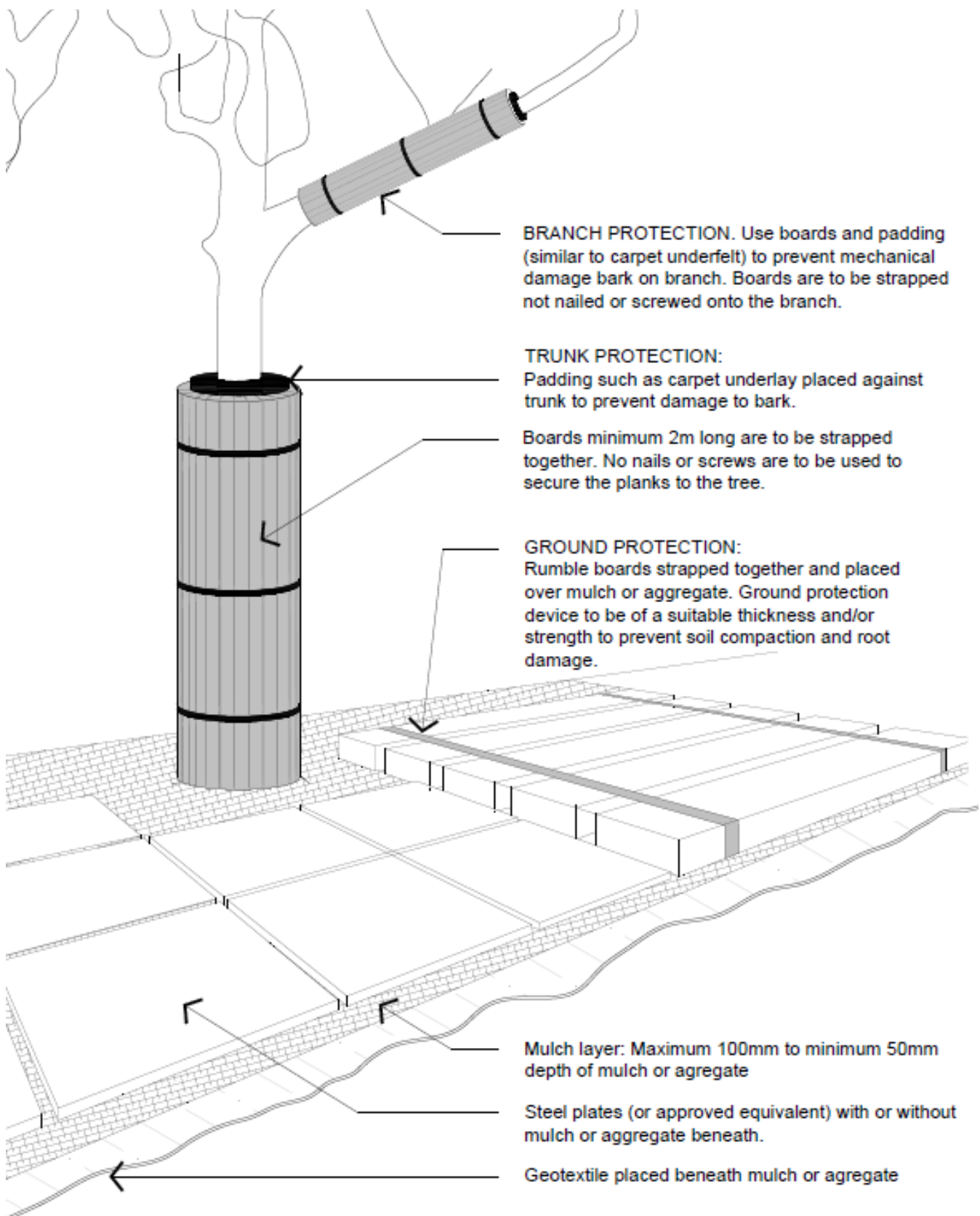


Illustration 2 Tree Trunk and Tree protection. Source AS 4970-2009 Protection of trees on development sites. This form of protection will be required during construction.



## Appendix G – Photos of Trees.

All photos used in this report were taken during a site visit by the author on the 9<sup>th</sup> December 2021



Figure 1 Trees 6-11 are located at the rear of the building, within the APZ and many have structural deficiencies necessitating their removal.





Figure 2 Tree 11 is located at the rear of the building, within the APZ and many have structural deficiencies necessitating removal.





Figure 3 + 4 Tree 16 is located within the APZ however it warrants retention. Vines can be seen in the canopy.

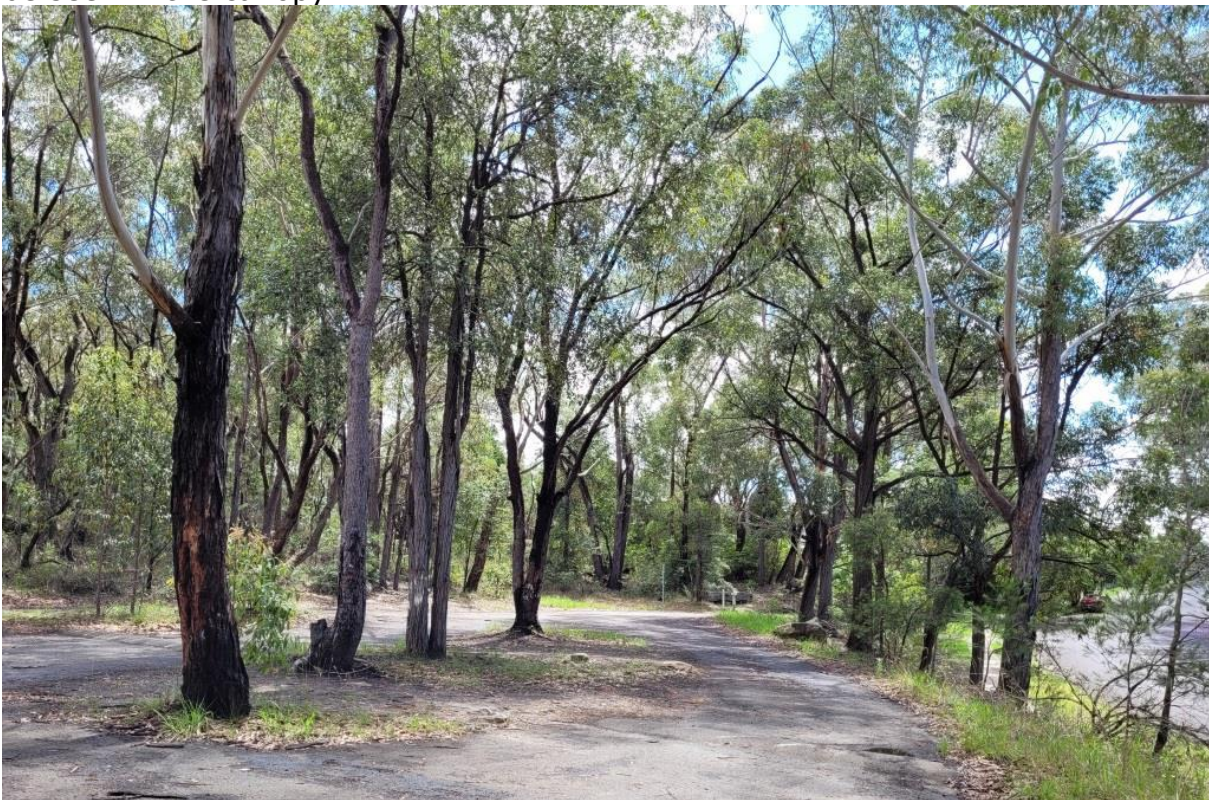


Figure 5 Trees 29 – 32 located in an island in the carpark require protection from vehicles. Tree 31 in the foreground has a fungal fruiting body at the base and further assessment is required.





Figure 6 Tree 27 on the left and T27A with the severe lean on the right. T27 to be retained and protected and T27A removed.



Figure 7 Tree 26 to be removed as it is located within APZ and close to the new proposed path, stormwater pipe and existing light.





Figure 8 Tree 24 in the foreground to be removed (group of 3 Turpentine) Tree 25 (2 x Sydney Peppermints to be retained). These trees are prominent as located in front of the hall. They are all located within the APZ.



Figure 9 Tree 34 and 34 are located within the APZ. Recommended for retention.

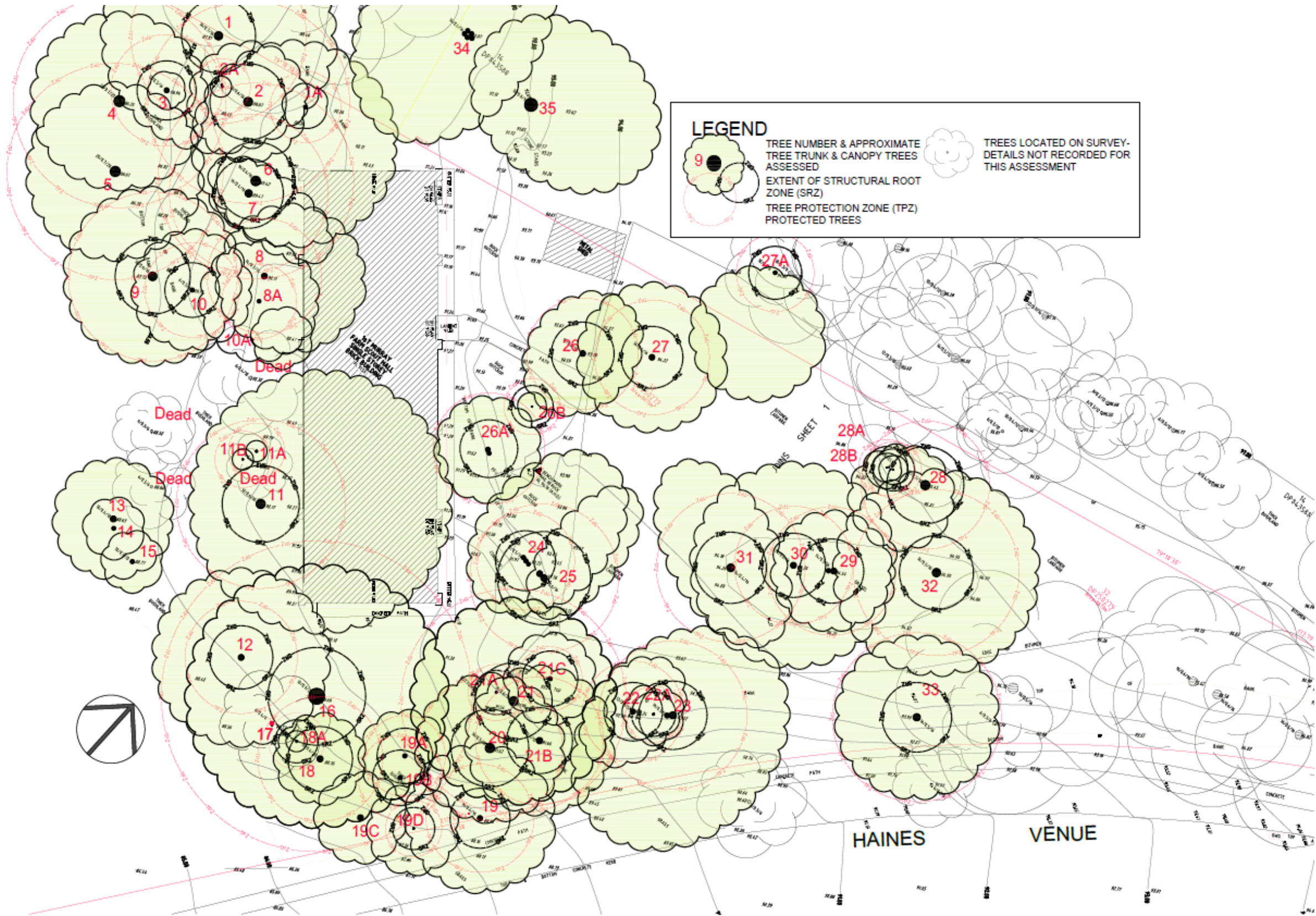




Figure 10 Tree 23 has basal decay in one trunk of a tree leaning over the road. Recommended for removal. Detail of the exposed area of decay can be seen to the right.



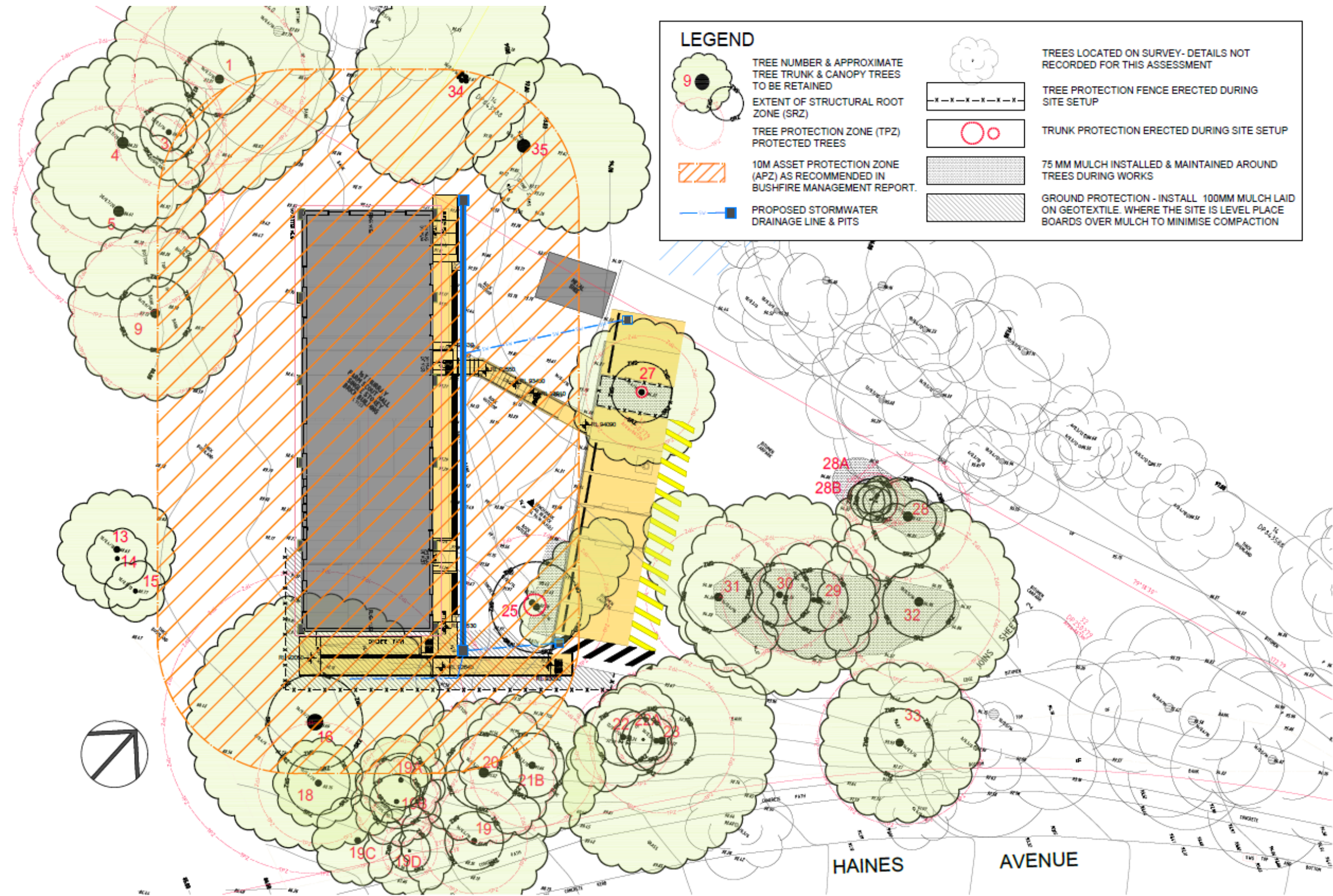
Appendix H –Tree Location Plan



Please note: This plan is not to scale. It has been reduced for inclusion in this report. TPZ indicated is that required by AS 4970-2009 Protection of trees on development sites. Actual dimensions can be found in **Appendix A**



Appendix I – Tree Protection Plan



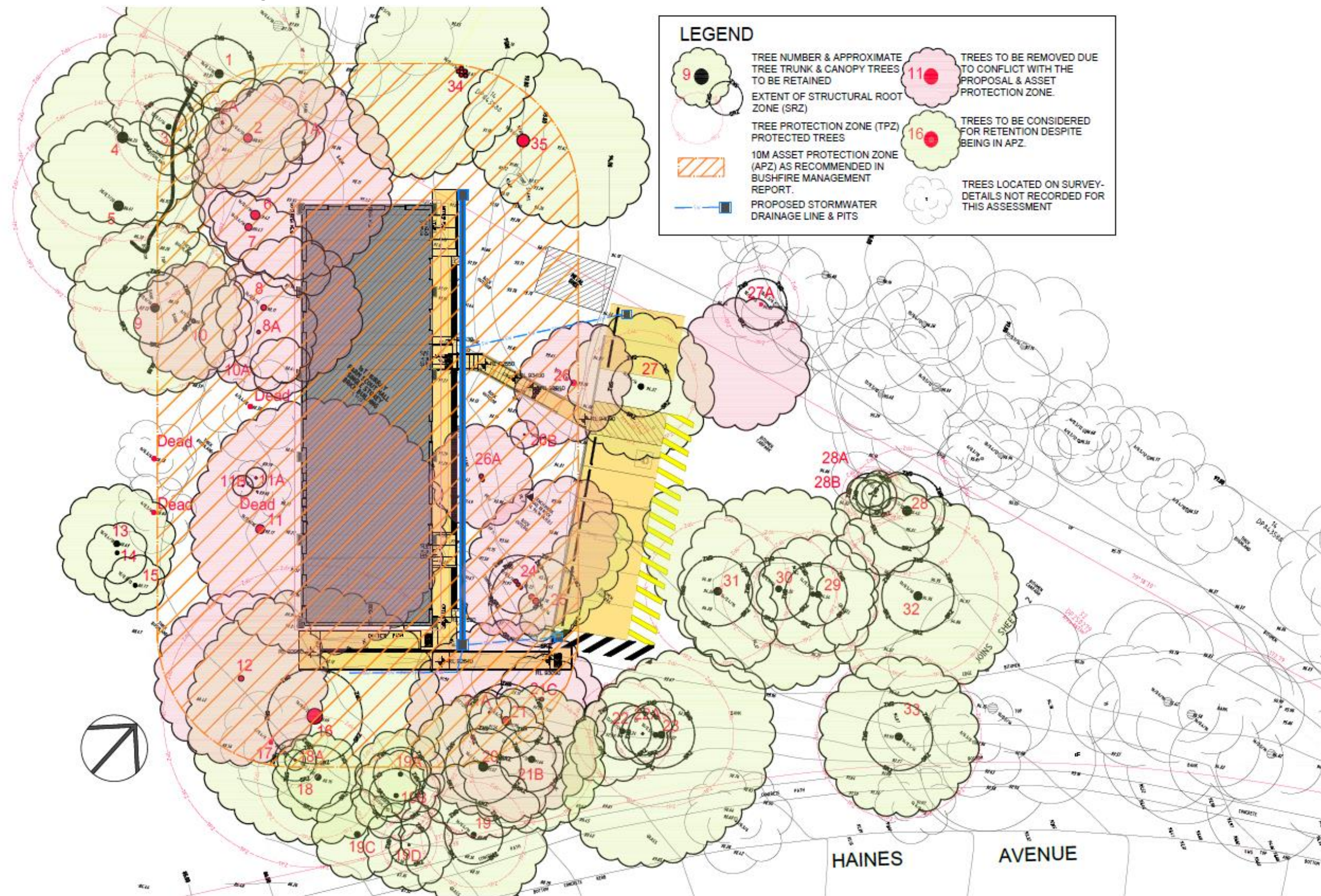
Tree Protection Plan - Murray Farm Scout Hall, Carlingford Scale 1:250

Original Site Plan prepared by Nimbus Architecture + Heritage dated 2022

Please note: This plan is not to scale. It has been reduced for inclusion in this report.



## Appendix J – Trees Impacted by Asset Protection Zone &/or Development



Please note: This plan is not to scale. It has been reduced for inclusion in this report.