ALLIED TREE
CONSULTANCY
Level 5 and 8 Arboriculturist

# Arboricultural Impact Assessment Report

For the site address

Lots A and B; (DP411211)
No. 128-134 Rickard Road,
LEPPINGTON NSW

Prepared for

School Infrastructure NSW
Department of Education

**AUTHOR**

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**STATUS**

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**DOCUMENT CONTROL**

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Preliminary Arboricultural Report

- Draft, Internal review: 18th January 2024……Greg Penkow
- Draft, Client review: 21st January 2024……Warwick Varley
- Amended, 3rd March 2024 (Plans, Section 5.0 and addition of Section 8.6) ……Warwick Varley
- Amended, 12th March 2024,(Add Document Control, amend LGA; Section 9.0) ……..Warwick Varley

Arboricultural Impact Assessment Report

- Draft, Internal review: 15th October 2024……Geoff Beisler
- Draft, Client review: 21st October 2024……Warwick Varley
- Draft 2, Client review: 28th November 2024……Warwick Varley
- Draft 3, Client review: 10th December 2024……Warwick Varley
- Final, 14th January 2025 ……Warwick Varley

## EXECUTIVE SUMMARY

This Arboricultural Impact Assessment is to support the REF for the New High School in Leppington at No. 128-134 Rickard Road, Leppington. This proposal includes the demolition of existing structures and the construction of a new school, including bulk earthworks, buildings, roadways, and associated infrastructure. One hundred and thirty-five (135) trees are included and are located on and adjacent to the lot. The viability of these trees is based on the proposed works. The trees are a combination of remnant and planted where the majority of trees are remnant and classed as High significance based on the vegetation community to which they form. This community is classed as a Critically Endangered Environmental Community and is protected by commonwealth legislation and is biocertified land under the TSC Act.

In summary, the following trees (Trees No. 1, 4-7, 111-119, 123-127, and 134), twenty (22) in total, being approximately fifteen percent (16%) of all trees included, have the option to be retained based on conditions assigned to the work methodology. The remaining trees (Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133, and 135), one hundred and thirteen (113), approximately eighty-five percent (84%) of all trees included will require removal to accommodate the design. Although trees No. 3 and 8-27 pose some options for retention pending owners' (Camden Council) consent. This tally has not included the non-assessed trees assigned to area E, or management of trees for bushfire protection. A project arborist and an Arboricultural Method Statement (Tree Management Plan) Report shall be assigned and completed to allow for protection of the trees during construction before works proceed.

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## COPYRIGHT

## 1.0 Introduction

**1.1** This Arboricultural Impact Assessment Report (AIA) has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the new high school for Leppington and Denham Court (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

The proposed activity is for the construction and operation of a new high school located at 128-134 Rickard Road, Leppington, NSW, 2179 (the site).

**1.2** The purpose of this report is to determine the viability of the site trees based on the proposed design. This report includes one hundred and thirty-five (135) trees located on and adjacent to the lot. As part of this, the report shall address the:

- species' identification, location, dimensions, and condition;
- SULE (Safe Useful Life Expectancy) and STARS (Significance of a Tree Assessment Rating System) rating;
- discussion and impact of the proposed works on each tree;
- tree protection zones and protection specifications for trees recommended for retention.

## 2.0 Standards

**2.1** Allied Tree Consultancy provides an ethical and unbiased approach to all assignments, possessing no association with private utility arboriculture or organisations that may reflect a conflict of interest.

**2.2 It is the responsibility of the Construction Project Manager to provide the requirements outlined in this report relative to the Protection Zones, Measures (Section 7.0) and Specifications (Section 8.0) to all contractors associated with the project before the initiation of work**.

**2.3** All tree-related work outlined in this report is to be conducted in accordance with the:

- Australian Standard – AS4373; Pruning of Amenity Trees.
- Guide to Managing Risks of Tree Trimming and Removal Work[1].

[1] Safe Work Australia; July 2016; Guide to Managing Risks of Tree Trimming and Removal Work, Australia

- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum five years) arboriculturist.
- For any works in the vicinity of electrical lines, the arboriculturist must possess the ISSC26 endorsement (Interim guide for operating cranes and plant in proximity to overhead powerlines).

## 3.0 Disclosure Statement

Trees are living organisms and, for this reason, possess natural variability. This cannot be controlled. However, risks associated with trees can be managed. An arborist cannot guarantee that a tree will be safe under all circumstances, nor predict the time when a tree will fail. To live or work near a tree involves some degree of risk, and this evaluation does not preclude all the possibilities of failure.

## 4.0 Methodology

**4.1** The following tree assessment was undertaken using criteria based on the guidelines laid down by the International Society of Arboriculture.

**4.2** The format of the report is summarised below;

**4.2.1 Plan 1;** Tree Location Relative to Site: This is an unscaled plan reproduced from the Survey Plan as referenced in Section 4.4.1, depicting the area of assessment.

**4.2.2 Table 1;** This table compiles the tree species, dimensions**,** brief assessment (history, structure, pest, disease or any other variables subject to the tree), significance, allocation of the zones of protection (i.e., Tree Protection Zone[2] ;TPZ and Structural Root Zone; SRZ) for each tree illustrated in Plan 1, Section 5.0. All measurements are in metres.

**4.2.3 Discussion relating to the site assessment and proposed works regarding the trees.**

**4.2.4 Protection Specification**; Section 8.0 details the requirements for that area designated as the Tree Protection Zone (TPZ), for those trees recommended for retention.

**4.3** The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

[2] Australian Standard, 4970; 2009 – Protection of Trees on Development Sites, Australia.

**4.3.1** Site assessment on the 11th and 12th January 2024 using the method of the Visual Tree Assessment[3]. This has included a Level 2 risk assessment, being a *Basic Assessment*[4]. The assessment has been conducted by Greg Penkow and[5] Geoff Beisler[6] on behalf of *Allied Tree Consultancy*.

**4.3.2** Trees included in this report are those that conform to the description of a prescribed tree by the local government policy.

**4.3.3** All measurements, unless specified otherwise are taken from the tree centre.

**4.3.4** All trees included in this report have been tagged with round aluminium embossed tags. These are facing the centre of the site or where access is apparent at eye height.

**4.3.5** Raw data from the preliminary assessment including the specimen's dimensions was compiled by the use of a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars and recording instruments.

### 4.4 Documentation provided

The following documentation has been provided to Allied Tree Consultancy and utilised within the report.

#### 4.4.1 Surveyor

Drawn by *Project Surveyors*
Date: 28 November 2023
Reference: 5576
Drawing No: 5576-DET-1; 4 Sheets
Note 1: See Section 4.5.1.

#### 4.4.2 Design

Drawn by *DJRD Architects*
Date: 15 January 2025
Reference: 24 408
Drawings: 19 Sheets; Revision 3

[3] Mattheck, C. Breloer, H.,1994, The Body Language of Trees – A handbook for failure analysis The Stationary Office, London.
[4] Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA
[5] Consulting Arborist, Diploma of Arboriculture (level 5).
[6] Consulting Arborist, Diploma of Arboriculture (level 5).

**4.4.3 Design; Bulk Earthworks**

Drawn by *TTW*
Date: 14 January 2025
Reference: not referenced
Drawings: 19 Sheets; Revision 3

**4.5 Limitations of the assessment/discussion process**

**4.5.1** Trees No. 14, 26, 28–30, 32, 33, 37, 42, 43, 49, 51, 61, 92, 118 and 124–126 have been omitted from the survey provided. However, require inclusion because they conform to the definition of a prescribed tree within the local government tree policy. The tree location has been plotted onto Plan 1 by *Allied Tree Consultancy*. The tree location was established by measuring from known points and scaling onto the drawing. *Allied Tree Consultancy* is not a registered surveyor; however, the accuracy of the survey is attempted; the true position of the trees may marginally deviate. Any such deviation provides the potential for changing the actual impact (encroachment) provided to a tree.

**4.5.2** Area E has a limitation of the assessment exercise: This area is a bog, on the verge of the wetland area; it has dense vegetation consisting of long grass, weed species, vines, and undulating grades. This area has not been assessed. It consists of approximately ten live trees and several dead trees. The species are Eucalyptus; therefore, they are potentially remnant and tentatively rated as 'High' significance, although they were limited in size with stem diameters of up to 0.4m. The trees in this area may warrant inclusion pending management decisions, although a means that can allow for access with reduced risk will be necessary.

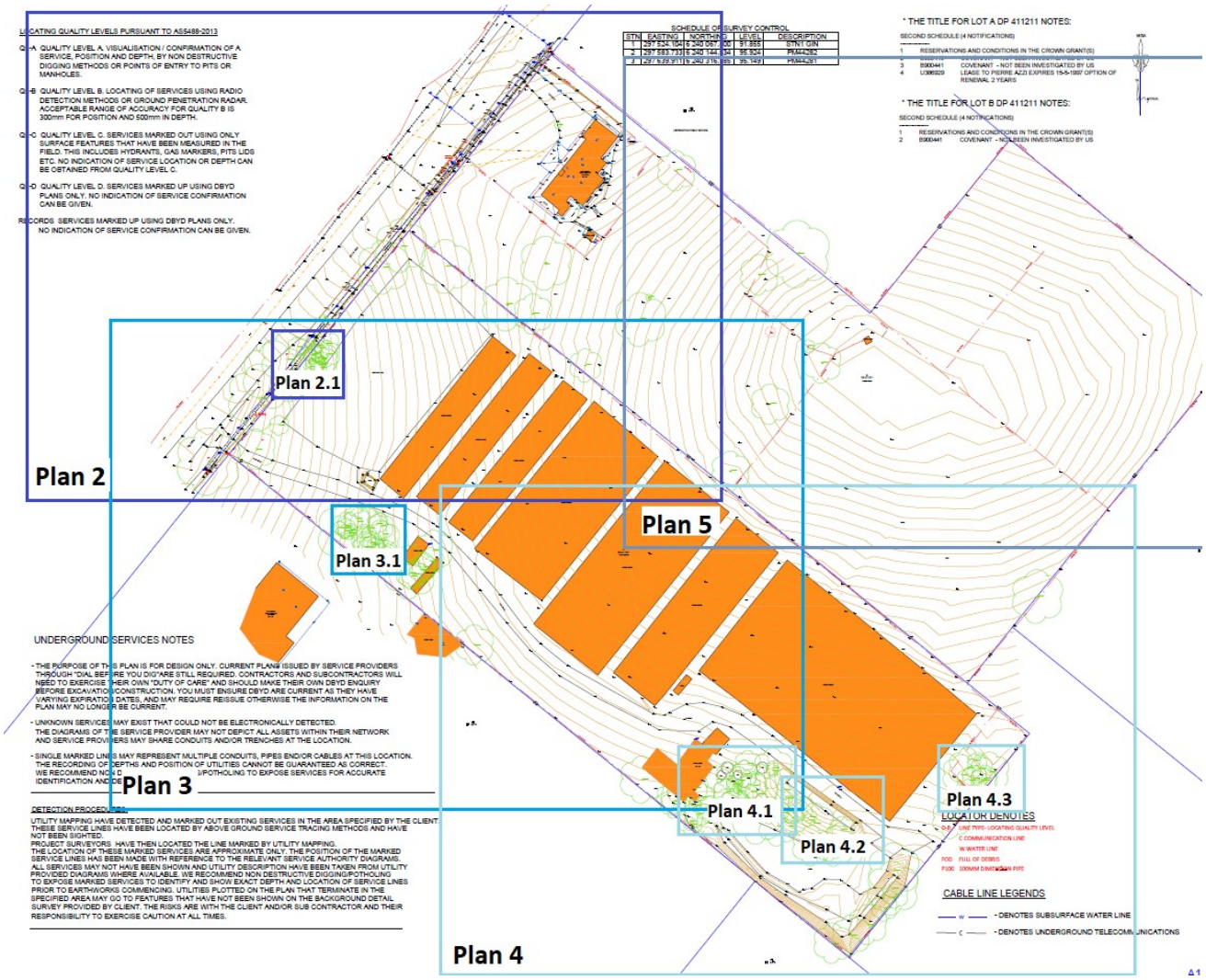
**4.5.3** The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions, during the time of assessment.

**4.5.4** Any tree regardless of apparent defects would fail if the forces applied to exceed the strength of the tree or its parts, for example, extreme storm conditions.

**4.5.5** The assessment has been limited to that part of the tree which is visible, existing from the ground level to the crown. Root decay can exist and, in some circumstances,

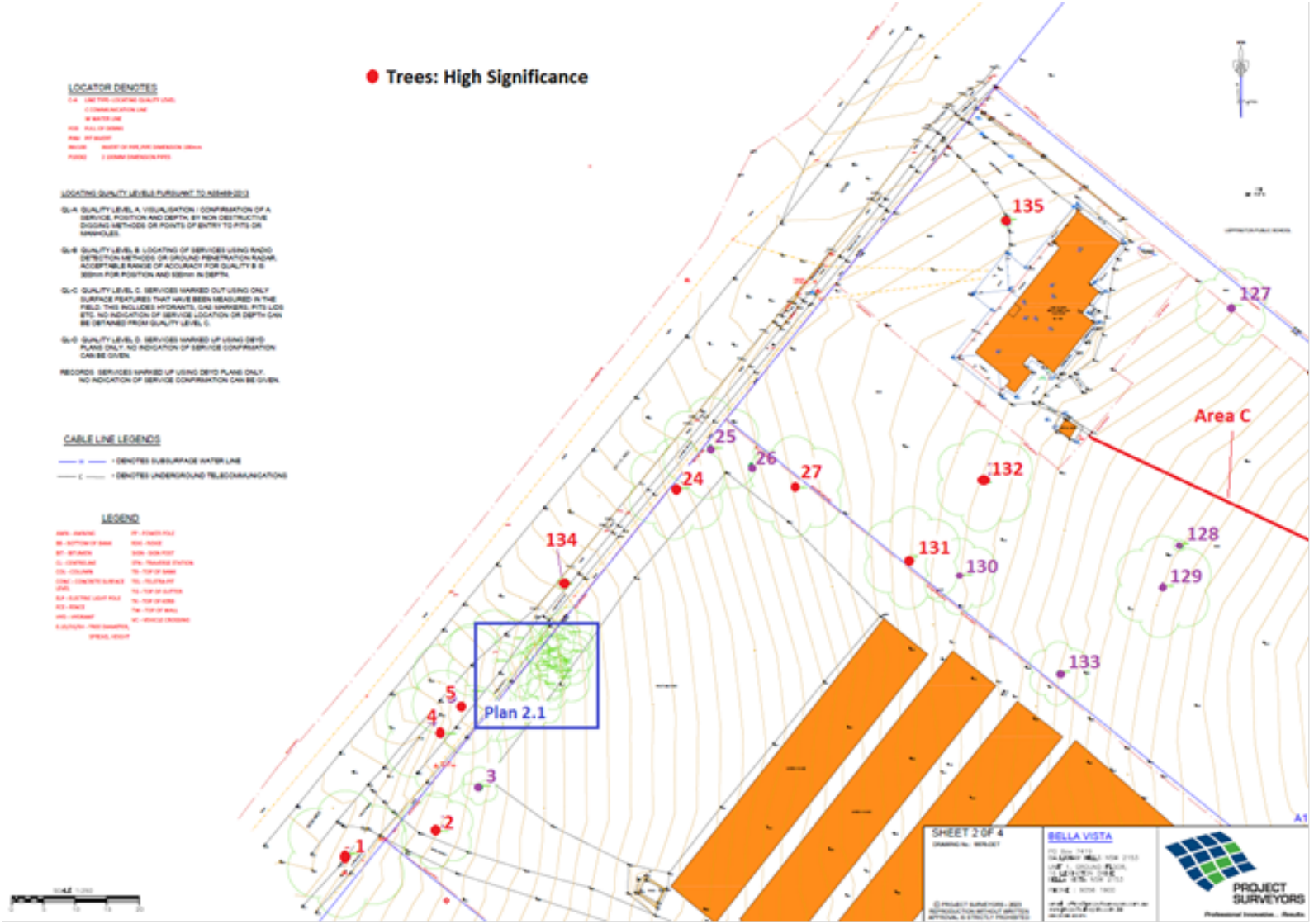
**4.5.6** This assessment responds to all the symptoms provided by a tree, however, cannot provide a conclusive recommendation regarding any tree that may have extensive root decay that leads to windthrow without the appropriate symptoms.

## 5.0 Plan 1; Area of assessment



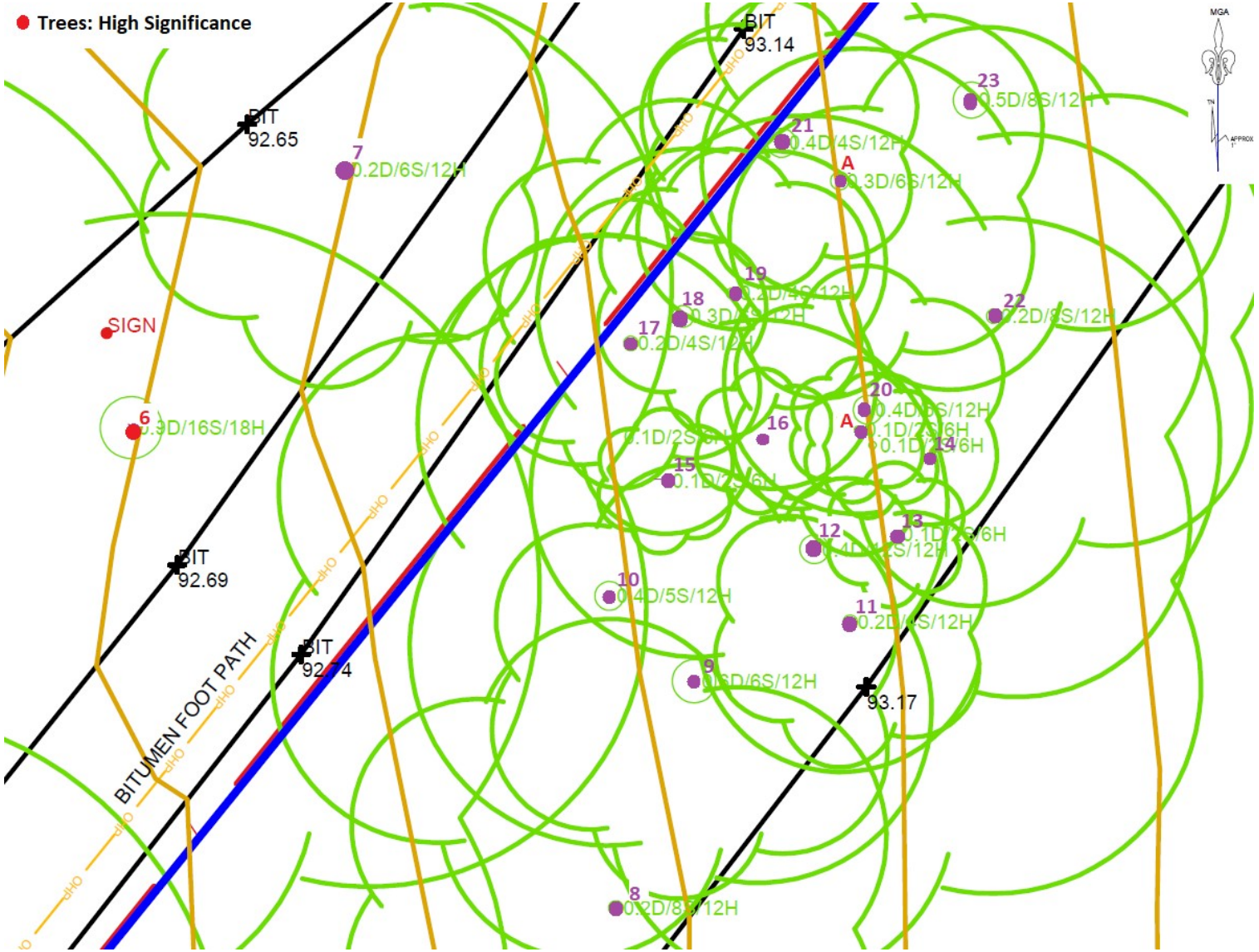

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

## 5.1 Plan 2; Area of assessment including tree location



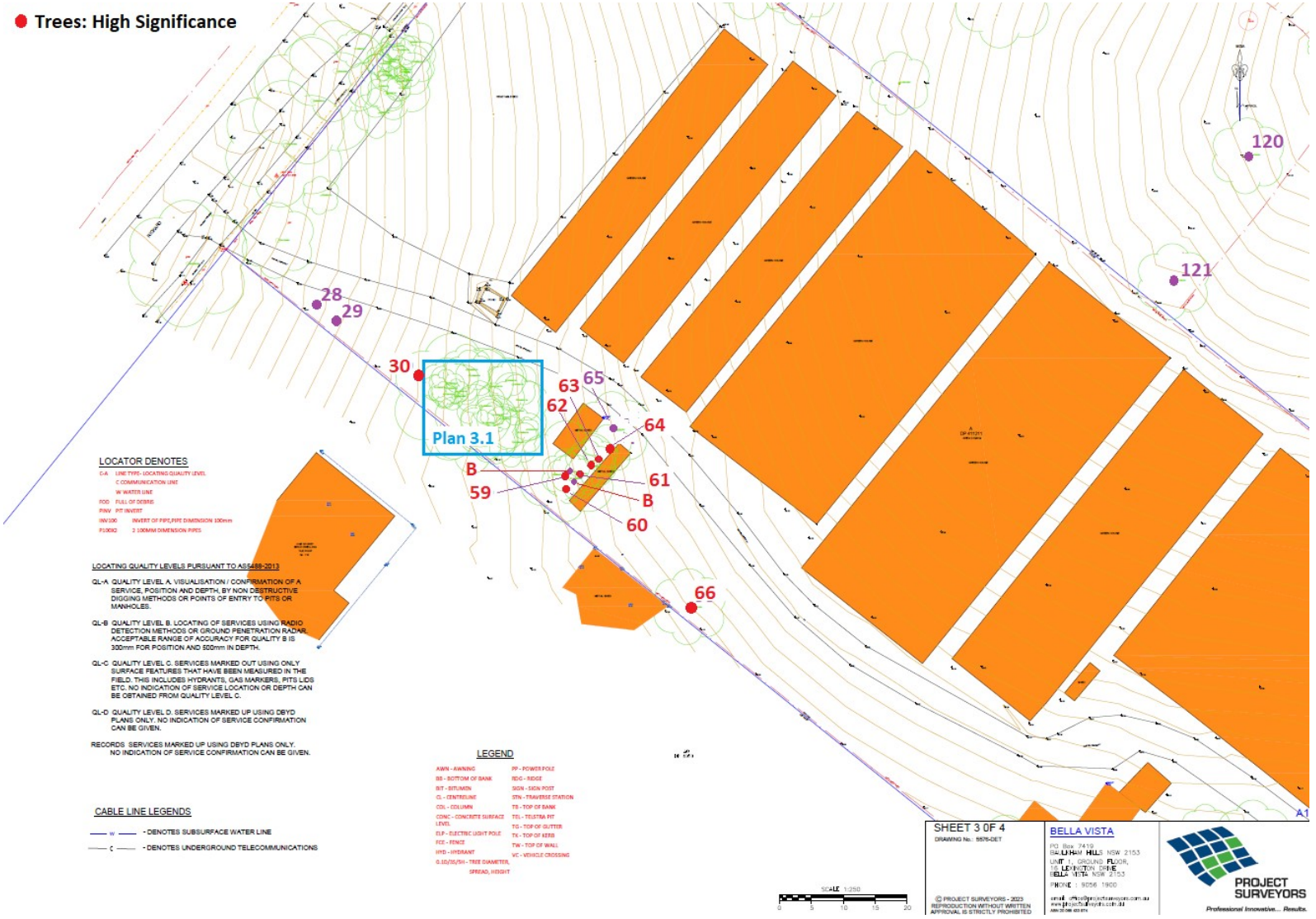

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

**5.2 Plan 2.1; Area of assessment including tree location**



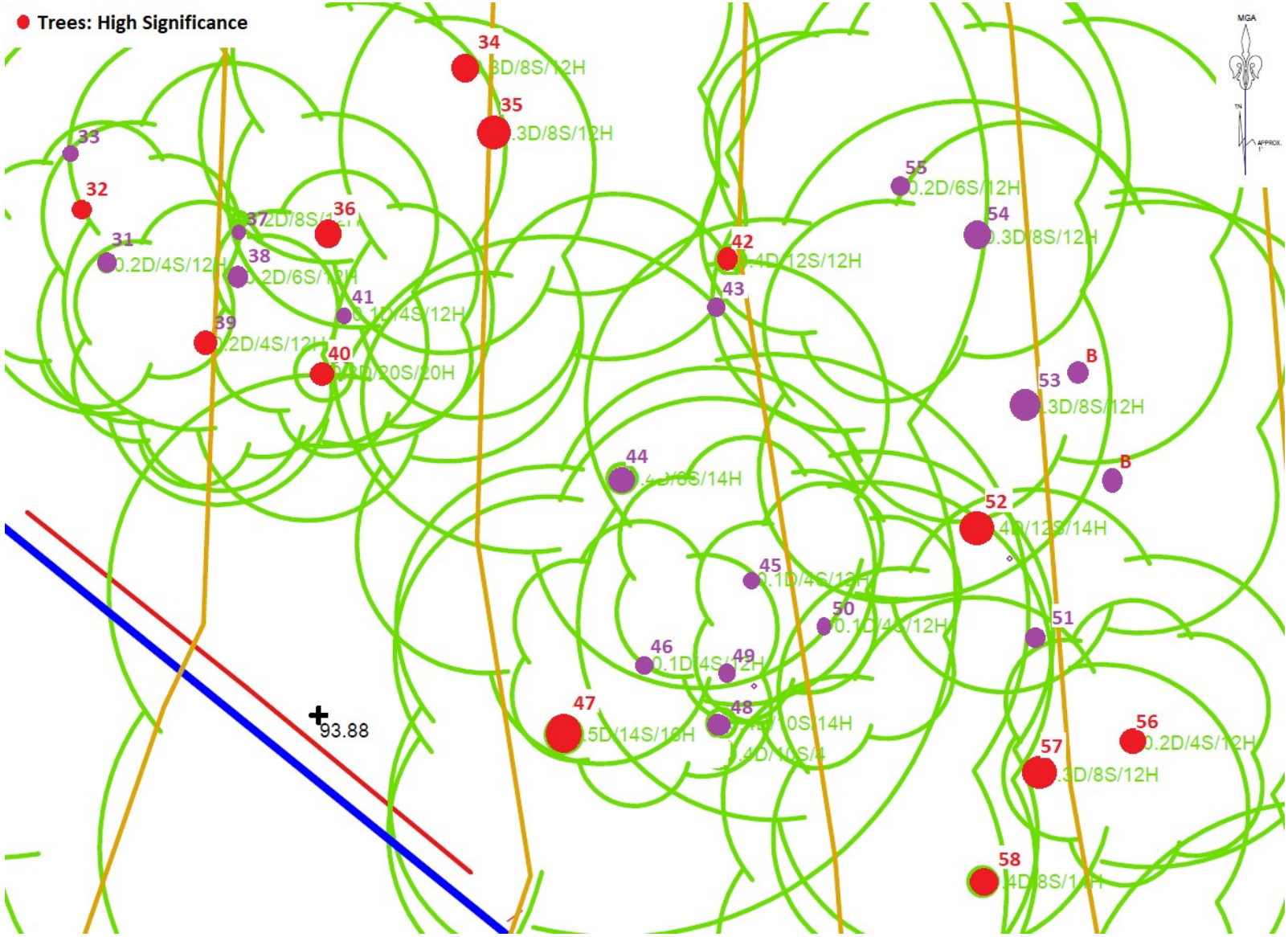

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

## 5.3 Plan 3; Area of assessment including tree location




Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

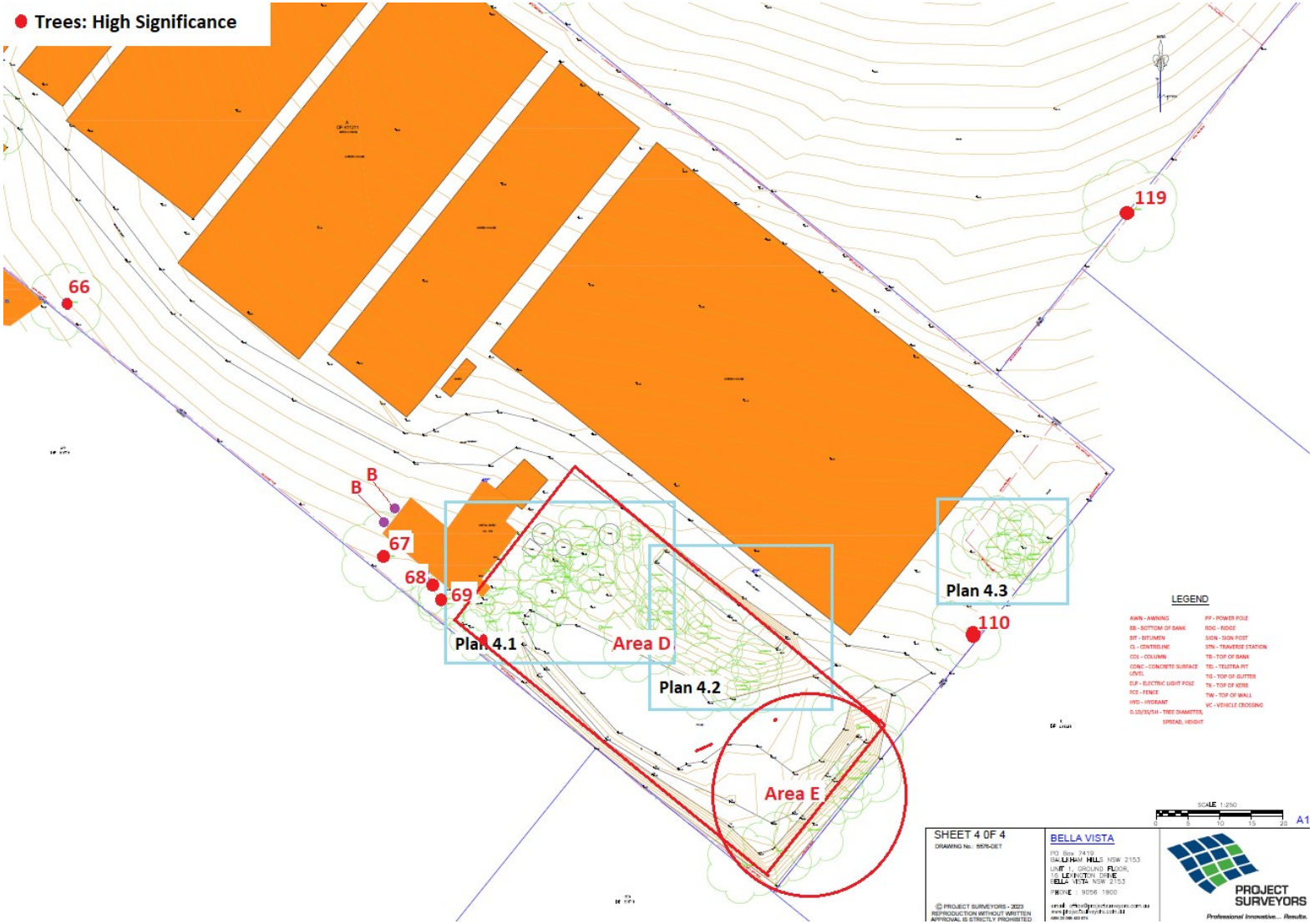
**5.4 Plan 3.1; Area of assessment including tree location**




Not to scale

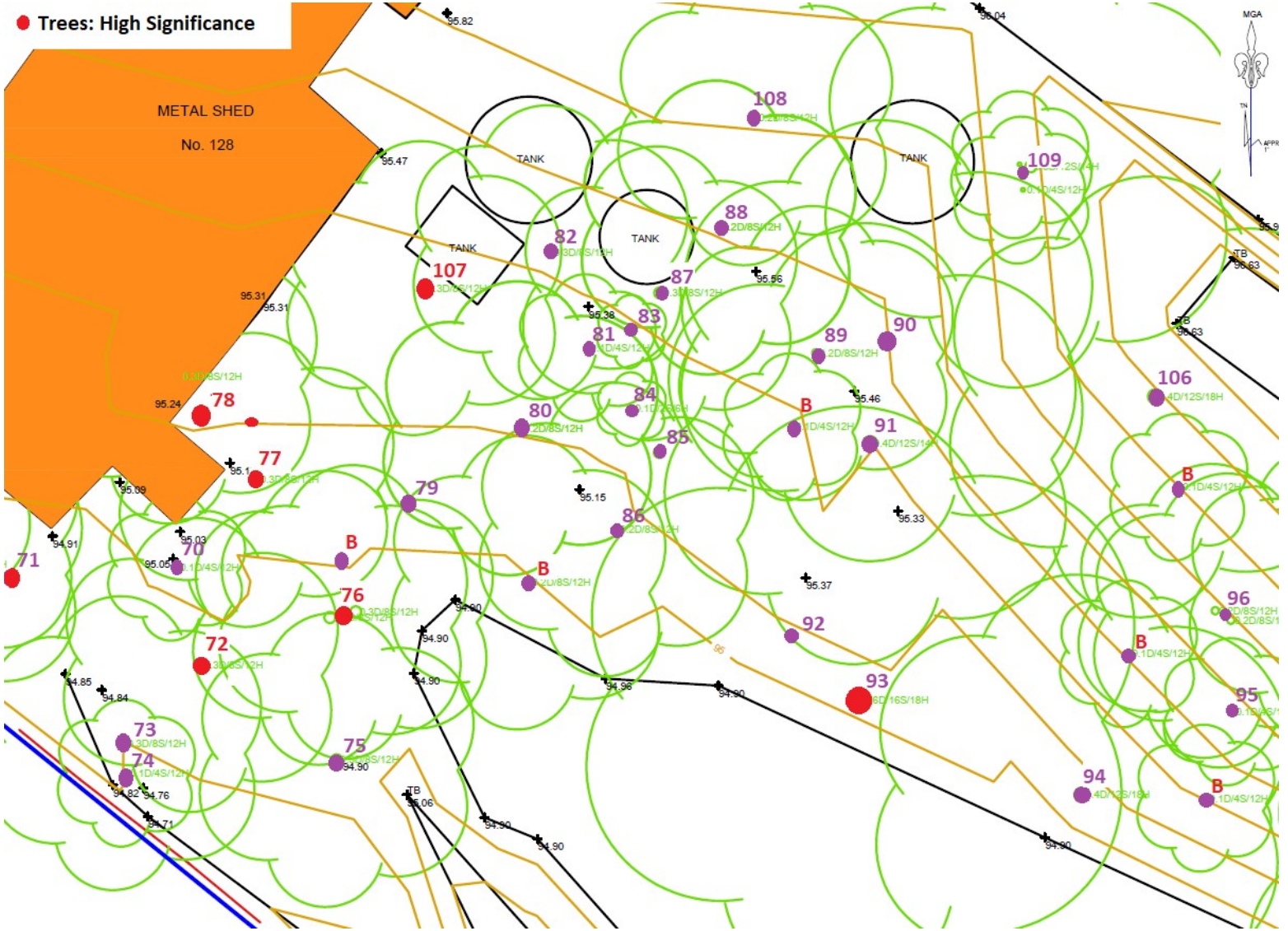
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

## 5.5 Plan 4; Area of assessment including tree location



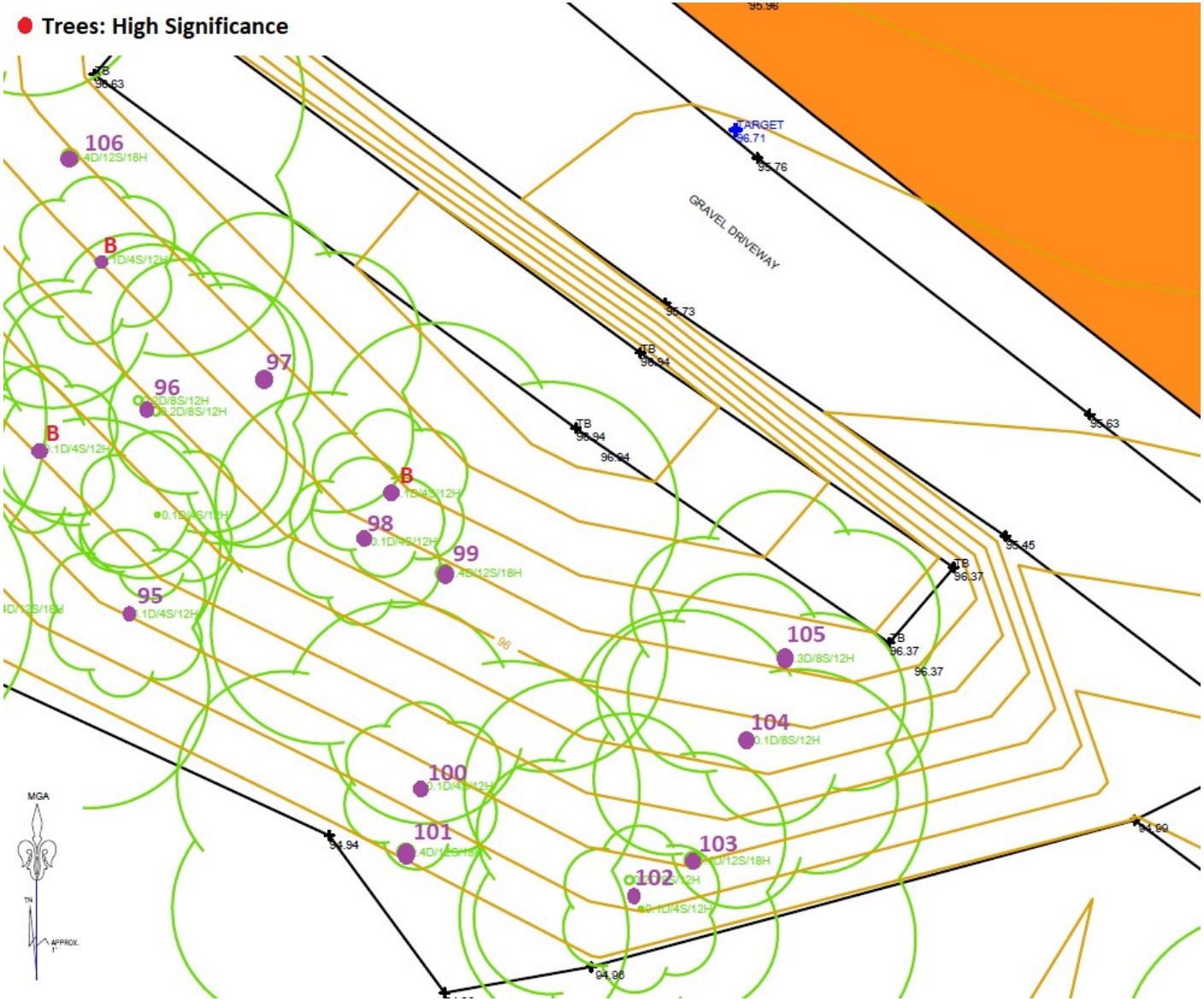

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

**5.6 Plan 4.1; Area of assessment including tree location**



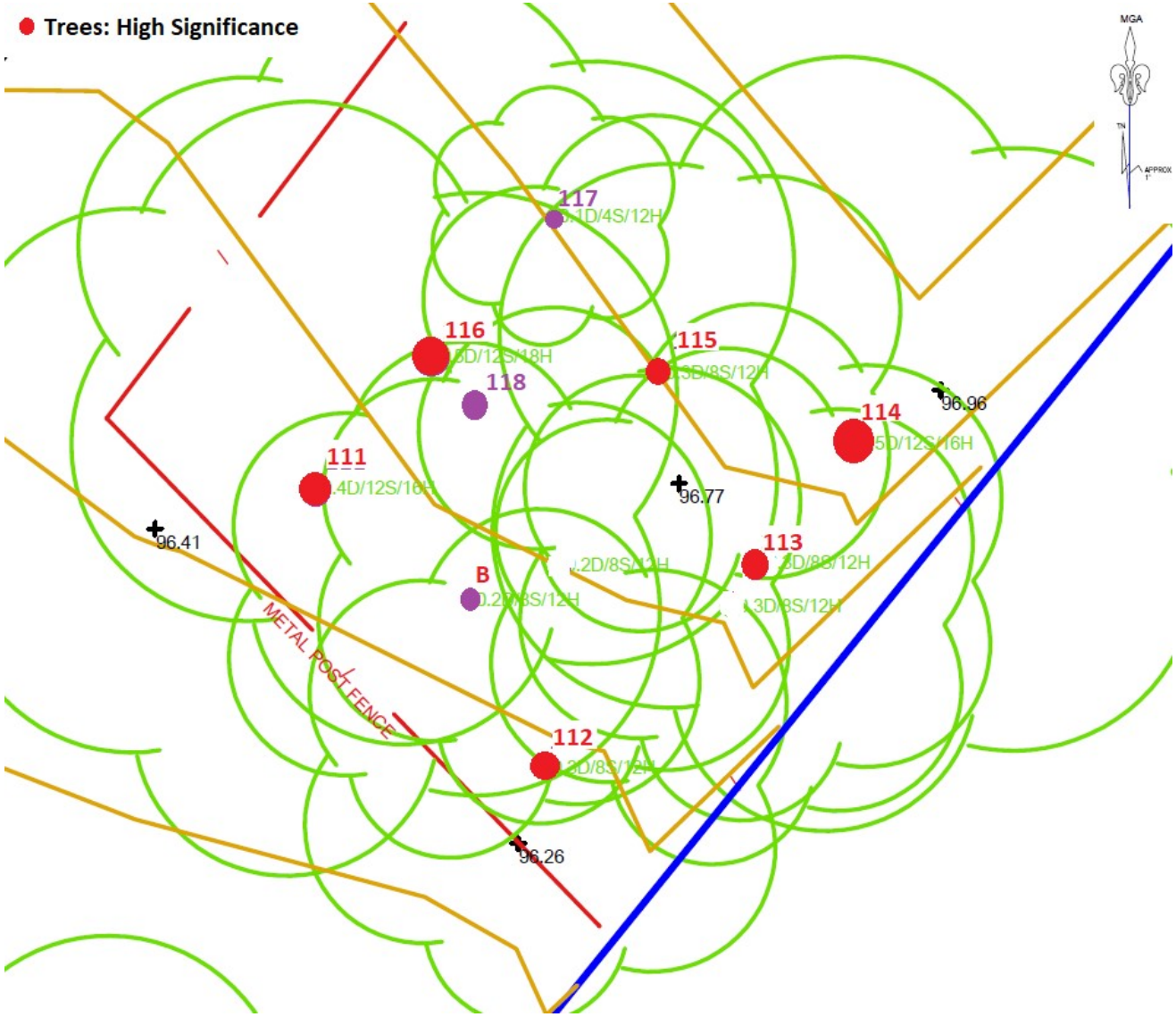

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

**5.7 Plan 4.2; Area of assessment including tree location**



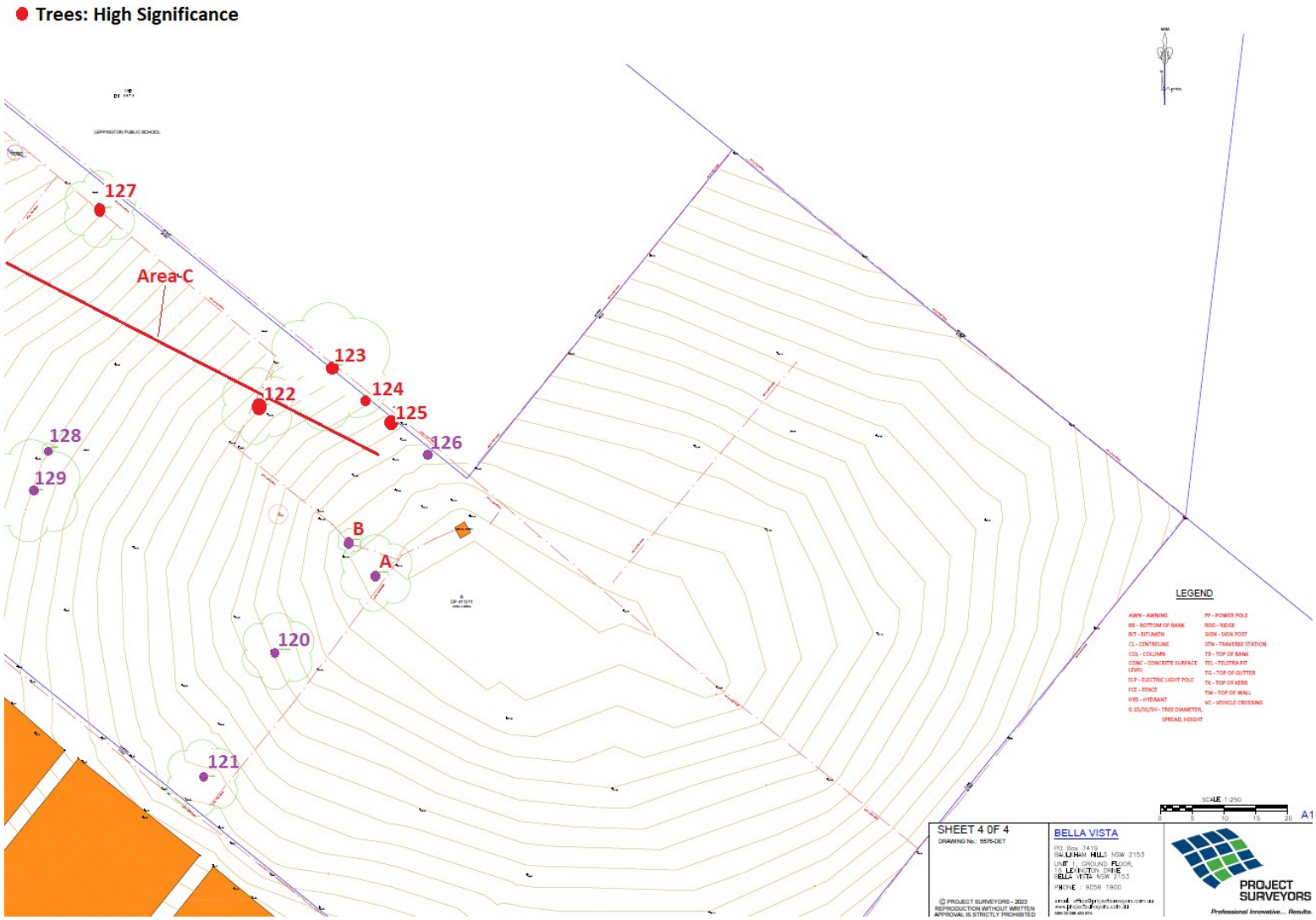

Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

**5.8 Plan 4.3; Area of assessment including tree location**




Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

## 5.9 Plan 5; Area of assessment including tree location




Not to scale
Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

## 6.0 Table 1 – Tree Species Data

Terminology/references provided in Appendix A.

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | *Eucalyptus moluccana* Grey Box | 18 | 0.76 | 13 x 13 | M | D | Sym | A | **1A** | **High** | **9.12** | **2.95** |
| **Assessment Trees** This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **2** | *Eucalyptus tereticornis* Forest Red Gum | 20 | 0.68 | 12 x 12 | M | D | Sym | A | **1A** | **High** | **8.16** | **2.81** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **3** | *Eucalyptus moluccana* Grey Box | 9 | 0.24 | 5 x 5 | M | C | Sym | A | **2A** | **Medium** | **2.88** | **1.82** |
| **Assessment** This tree presents as typical of its species however is codominant at 3m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **4** | *Eucalyptus moluccana* Grey Box | 20 | 1.10[C,B] | 14 x 14 | M | D | Sym | A | **2A** | **High** | **13.20** | **3.44** |
| **Assessment** This tree presents as typical of its species however is codominant at 3m. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **5** | *Eucalyptus moluccana* Grey Box | 20 | 0.78 | 14 x 14 | M | C | Sym | A | **2A** | **High** | **9.36** | **2.98** |
| **Assessment** This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **6** | *Eucalyptus tereticornis* Forest Red Gum | 20 | 0.65 | 11 x 10 | M | C | N | A | **2A** | **High** | **7.80** | **2.76** |
| **Assessment** This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **7** | *Eucalyptus tereticornis* Forest Red Gum | 10 | 0.33 | 5 x 5 | M | C | Sym | A | **2A** | **Medium** | **3.96** | **2.08** |
| **Assessment** | | | | | | | | | | | **Activity Impact** | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | See Section 7.1.1 | |
| **8** | *Eucalyptus moluccana* Grey Box | 6 | 0.21 | 4 x 4 | M | C | Sym | A | **2A** | **Medium** | **2.52** | **1.72** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **9** | *Eucalyptus moluccana* Grey Box | 5 | 0.12 | 3 x 3 | Y | C | Sym | A | **2A** | **Medium** | **1.44** | **1.36** |
| **Assessment** This tree presents as typical of its species. In addition to this a small Forest Redgum under 3m in height exist directly next to this tree on the north side. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **10** | *Eucalyptus moluccana* Grey Box | 7 | 0.13 | 2 x 2 | Y | C | Sym | A | **2A** | **Medium** | **1.56** | **1.40** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **11** | *Eucalyptus tereticornis* Forest Red Gum | 7 | 0.18 | 2 x 2 | Y | C | W | A | **2A** | **Medium** | **2.16** | **1.61** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **12** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.55 | 7 x 7 | M | C | Sym | A | **2D**[E] | **Medium**[E] | **6.60** | **2.57** |
| **Assessment** This tree divides into multiple leaders at 3m. The northern leader 240mm diameter has died. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **13** | *Eucalyptus tereticornis* Forest Red Gum | 6 | 0.15 | 2 x 2 | Y | C | NE | B | **2A** | **Medium** | **1.80** | **1.49** |
| **Assessment** This tree has a small dead leader on the south side of the stem. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **14** | *Eucalyptus tereticornis* Forest Red Gum | 6 | 0.11 | 1 x 1 | Y | I | NE | B | **2A** | **Low** | **1.32** | **1.31** |
| **Assessment** This tree is overcrowded by other trees and has narrow stem tapper. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | *Eucalyptus moluccana* Grey Box | 5 | 0.12 | 2 x 2 | Y | S | Sym | A | **2A** | **Medium** | **1.44** | **1.36** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **16** | *Eucalyptus moluccana* Grey Box | 5 | 0.11 | 2 x 2 | Y | S | Sym | A | **2A** | **Medium** | **1.32** | **1.31** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **17** | *Eucalyptus moluccana* Grey Box | 9 | 0.18 | 3 x 3 | M | C | W | A | **2A** | **Medium** | **2.16** | **1.61** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **18** | *Eucalyptus tereticornis* Forest Red Gum | 7 | 0.10 | 1 x 1 | Y | I | Sym | B | **4A** | **Low** | **1.20** | **1.26** |
| **Assessment** Presents with excessive crown decline. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **19** | *Eucalyptus moluccana* Grey Box | 12 | 0.22 | 4 x 4 | M | I | Sym | A | **2A** | **Medium** | **2.64** | **1.75** |
| **Assessment** This tree is overcrowded by other trees and has narrow stem tapper. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **20** | *Eucalyptus tereticornis* Forest Red Gum | 6 | 0.14 | 2 x 2 | Y | I | N | A | **2A** | **Medium** | **1.68** | **1.45** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **21** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.26 | 4 x 4 | M | C | Sym | A | **2A** | **Medium** | **3.12** | **1.88** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **22** | *Eucalyptus tereticornis* Forest Red Gum | 10 | 0.40 0.24 | 3 x 3 | M | C | Sym | A | **2A** | **Medium** | **5.60** | **2.40** |

| Tree No. | Botanical Name<br>Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **23** | *Eucalyptus tereticornis*<br>Forest Red Gum | 12 | 0.36<br>0.39[B,C] | 6 x 6 | M | D | Sym | A | **2A**[C] | **Medium** | **6.37** | **2.54** |
| **Assessment**<br>This tree presents as typical of its species however is codominant at 2m up. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **24** | *Melaleuca styphelioides*<br>Prickly Leaved Paperbark | 6 | 0.50[B,C] | 7 x 7 | M | D | Sym | A | **2A** | **High** | **6.00** | **2.47** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.4 | |
| **25** | *Melaleuca styphelioides*<br>Prickly Leaved Paperbark | 6 | 0.60[B,C] | 5 x 5 | M | C | Sym | A | **2A** | **Medium** | **7.20** | **2.67** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.4 | |
| **26** | *Melaleuca styphelioides*<br>Prickly Leaved Paperbark | 6 | 0.50[B,C] | 7 x 7 | M | C | Sym | A | **2A** | **Medium** | **6.00** | **2.47** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **27** | *Melaleuca styphelioides*<br>Prickly Leaved Paperbark | 8 | 0.60 | 7 x 7 | M | C | Sym | A | **2A** | **High** | **7.20** | **2.67** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **28** | *Eucalyptus moluccana*<br>Grey Box | 18 | 0.76 | 12 x 11 | M | D | Sym | A | **2D**[E] | **Medium** | **9.12** | **2.95** |
| **Assessment**<br>The eastern leader of this tree has recently failed. The failure pattern suggest that the cause is symptomatic of a wind generated branch tear out. At 11m on the western side of the crown a secondary leader presents with significant swelling. An | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| aerial assessment is required to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | | |
| **29** | *Eucalyptus moluccana* Grey Box | 9 | 0.27 | 5 x 5 | M | C | Sym | A | **2A** | **Medium** | **3.24** | **1.91** |
| **Assessment** This tree is overcrowded by other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **30** | *Melaleuca styphelioides* Prickly Leaved Paperbark | 5 | 0.40[B,C] | 5 x 5 | M | D | Sym | A | **2A** | **High** | **4.80** | **2.25** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **31** | *Eucalyptus moluccana* Grey Box | 7 | 0.25 | 4 x 4 | M | C | SW | A | **2A** | **Medium** | **3.00** | **1.85** |
| **Assessment** This tree presents as typical of its species and has a natural growth progression to the southwest. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **32** | *Eucalyptus moluccana* Grey Box | 16 | 0.28 0.29 | 6 x 7 | M | I | W | A | **2B** | **High** | **4.84** | **2.26** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **33** | *Eucalyptus moluccana* Grey Box | 16 | 0.40 | 8 x 8 | M | C | NW | B | **2A** | **Medium** | **4.80** | **2.25** |
| **Assessment** This tree presents as typical of its species however presents with significant crown decline. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **34** | *Eucalyptus moluccana* Grey Box | 16 | 0.37 | 8 x 6 | M | C | N | A | **2A** | **High** | **4.44** | **2.18** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **35** | *Eucalyptus moluccana* Grey Box | 18 | 0.32 | 5 x 5 | M | I | Sym | A | **2A** | **High** | **3.84** | **2.05** |
| **Assessment** This tree presents as typical of its species however is codominant at 8m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **36** | *Eucalyptus moluccana* Grey Box | 18 | 0.34 | 6 x 6 | M | I | S | A | **2A** | **High** | **4.08** | **2.10** |
| **Assessment** This tree presents as typical of its species however is codominant at 5m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **37** | *Eucalyptus moluccana* Grey Box | 9 | 0.23 | 3 x 3 | M | C | SW | A | **2A** | **Medium** | **2.76** | **1.79** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **38** | *Eucalyptus moluccana* Grey Box | 9 | 0.25 | 4 x 3 | M | C | S | A | **2A** | **Medium** | **3.00** | **1.85** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **39** | *Eucalyptus moluccana* Grey Box | 12 | 0.26 | 7 x 5 | M | C | S | A | **2A** | **High** | **3.12** | **1.88** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **40** | *Eucalyptus moluccana* Grey Box | 18 | 0.28 | 6 x 6 | M | F | Sym | A | **2A** | **High** | **3.36** | **1.94** |
| **Assessment** This tree presents as typical of its species however is codominant at 7m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **41** | *Eucalyptus moluccana* Grey Box | 10 | 0.16 | 2 x 2 | Y | I | Sym | B | **2A** | **Medium** | **1.92** | **1.53** |
| **Assessment** This tree presents as typical of its species however the western leader has died. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **42** | *Eucalyptus moluccana* Grey Box | 20 | 0.49 | 12 x 10 | M | C | Sym | A | **1B** | **High** | **5.88** | **2.45** |
| **Assessment** This tree presents as typical of its species however is codominant at 6m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **43** | *Eucalyptus moluccana* Grey Box | 6 | 0.12[C] | 3 x 3 | Y | C | SE | B | **2D** | **Medium** | **1.44** | **1.36** |
| **Assessment** | | | | | | | | | | | **Activity Impact** | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| This tree presents as typical of its species however presents with some twiggy decline. | | | | | | | | | | | See Section 7.1.2 | |
| **44** | *Eucalyptus moluccana* Grey Box | 8 | 0.13 | 1 x 1 | Y | I | Sym | A | **2A** | **Medium** | **1.56** | **1.40** |
| **Assessment** This tree presents as typical of its species however presents with some twiggy decline. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **45** | *Eucalyptus moluccana* Grey Box | 5 | 0.10 | 2 x 2 | M | C | Sym | A | **2A** | **Medium** | **1.20** | **1.26** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **46** | *Eucalyptus moluccana* Grey Box | 7 | 0.13 | 3 x 3 | Y | C | NE | A | **2A** | **Medium** | **1.56** | **1.40** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **47** | *Eucalyptus moluccana* Grey Box | 20 | 0.60 | 12 x 12 | Y | C | Sym | A | **1B**[E] | **High**[E] | **7.20** | **2.67** |
| **Assessment** This tree presents as typical of its species however is codominant with significant swelling at 6m. An aerial assessment is required to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **48** | *Eucalyptus moluccana* Grey Box | 5 | 0.14 0.10 | 3 x 2 | Y | C | S | A | **2A** | **Medium** | **2.06** | **1.58** |
| **Assessment** This consist of two trees sharing same root mass. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **49** | *Eucalyptus moluccana* Grey Box | 9 | 0.16 | 3 x 3 | M | C | SW | A | **2A** | **Medium** | **1.92** | **1.53** |
| **Assessment** This tree presents as tall with a small crown mass. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **50** | *Eucalyptus moluccana* Grey Box | 8 | 0.13 | 3 x 3 | Y | C | Sym | A | **2A** | **Medium** | **1.56** | **1.40** |
| **Assessment** This tree presents as tall with a small crown mass. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **51** | *Eucalyptus moluccana* Grey Box | 5 | 0.12 0.10 | 3 x 3 | Y | C | NE | A | **2A** | **Medium** | **1.87** | **1.52** |
| **Assessment** This tree is experiencing branch conflict with other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **52** | *Eucalyptus moluccana* Grey Box | 20 | 0.40 | 7 x 7 | M | F | Sym | A | **1B** | **High** | **4.80** | **2.25** |
| **Assessment** This tree presents as typical of its species however is codominant at 15m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **53** | *Eucalyptus moluccana* Grey Box | 12 | 0.30 | 7 x 5 | M | C | N | A | **2A**[C] | **Medium**[C] | **3.60** | **2.00** |
| **Assessment** The crown has a northern bias and is appears to be heavily covered in vine. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **54** | *Eucalyptus moluccana* Grey Box | 12 | 0.20[C] | 3 x 3 | M | I | NE | B | **2A**[C] | **Medium**[C] | **2.40** | **1.68** |
| **Assessment** The crown appears to be heavily covered in vine. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **55** | *Eucalyptus moluccana* Grey Box | 10 | 0.20[C] | 3 x 3 | M | C | NE | B | **2D**[C] | **Medium**[C] | **2.40** | **1.68** |
| **Assessment** This tree presents as typical of its species however there is some decline developing throughout the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **56** | *Eucalyptus moluccana* Grey Box | 10 | 0.25[C] | 6 x 5 | M | C | E | A | **2A**[C] | **High**[C] | **3.00** | **1.85** |
| **Assessment** This tree presents as typical of its species however. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **57** | *Eucalyptus moluccana* Grey Box | 18 | 0.34[C] | 6 x 6 | M | C | Sym | A | **2A** | **High** | **4.08** | **2.10** |
| **Assessment** This tree presents as typical of its species however is codominant at 7m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **58** | *Eucalyptus moluccana* Grey Box | 17 | 0.44[E] | 8 x 8 | M | C | Sym | A | **2A**[E] | **High**[E] | **5.28** | **2.34** |
| **Assessment** | | | | | | | | | | | **Activity Impact** | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| This tree presents as typical of its species however is codominant with swelling in the stem at 4m. This would require an internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | See Section 7.1.2 | |
| **59** | *Eucalyptus moluccana* Grey Box | 10 | 0.29 | 6 x 6 | M | C | E | A | **2A** | **High** | **3.48** | **1.97** |
| **Assessment** This tree presents as typical of its species however is codominant at 4m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **60** | *Eucalyptus moluccana* Grey Box | 12 | 0.27 | 5 x 5 | M | C | S | A | **2A** | **High** | **3.24** | **1.91** |
| **Assessment** This tree presents as typical of its species however is codominant at 4m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **61** | *Eucalyptus moluccana* Grey Box | 14 | 0.30 | 5 x 6 | M | C | Sym | A | **2A** | **High** | **3.60** | **2.00** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **62** | *Eucalyptus moluccana* Grey Box | 23 | 0.41[C] | 7 x 7 | M | F | Sym | A | **1B**[C] | **High**[C] | **4.92** | **2.28** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **63** | *Eucalyptus moluccana* Grey Box | 9 | 0.21 | 4 x 4 | M | C | Sym | A | **2A**[C] | **High**[C] | **2.52** | **1.72** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **64** | *Eucalyptus moluccana* Grey Box | 16 | 0.46[C] | 8 x 9 | M | C | NW | B | **2A**[C] | **High**[C] | **5.52** | **2.39** |
| **Assessment** This tree presents as typical of its species however there is some decline on the south side of crown. A shipping container has been placed on the ground close to the tree. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **65** | *Eucalyptus moluccana* Grey Box | 18 | 0.50 | 10 x 10 | M | C | N | B | **2D** | **Medium** | **6.00** | **2.47** |
| **Assessment** This tree presents with excessive twiggy decline. A shipping container has been placed on the ground close to the tree. There | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| is a pile of mixed debris and rubbish under tree. | | | | | | | | | | | | |
| **66** | *Melaleuca styphelioides* Prickly-leaved Paperbark | 8 | 0.60[B,C] | 8 x 8 | M | D | Sym | A | **2A** | **High** | **7.20** | **2.67** |
| **Assessment** This tree presents with excessive twiggy decline. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **67** | *Eucalyptus tereticornis* Forest Red Gum | 20 | 0.84 | 15 x 15 | M | D | Sym | A | **2A** | **High** | **10.08** | **3.08** |
| **Assessment** This tree presents as typical of its species however is codominant at 3m and some twiggy decline has exists within the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **68** | *Eucalyptus moluccana* Grey Box | 11 | 0.25 | 3 x 3 | M | D | Sym | A | **2A** | **High** | **3.00** | **1.85** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **69** | *Eucalyptus moluccana* Grey Box | 11 | 0.35 | 5 x 5 | M | C | Sym | A | **2A** | **High** | **4.20** | **2.13** |
| **Assessment** This tree presents as typical of its species however is codominant at 2m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **70** | *Eucalyptus moluccana* Grey Box | 7 | 0.20[C] | 3 x 3 | M | I | Sym | B | **2D**[E,C] | **Medium**[C] | **2.40** | **1.68** |
| **Assessment** This tree presents as typical of its species however some twiggy decline exists throughout the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **71** | *Eucalyptus tereticornis* Forest Red Gum | 7 | 0.26[C] | 2 x 2 | M | C | SW | A | **2A**[C] | **High**[C] | **3.12** | **1.88** |
| **Assessment** This tree presents as typical of its species however is codominant at 2m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **72** | *Eucalyptus tereticornis* Forest Red Gum | 13 | 0.30[C] | 4 x 4 | M | F | Sym | A | **1B**[C] | **High**[C] | **3.60** | **2.00** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **73** | *Eucalyptus tereticornis* | 10 | 0.30 | 4 x 3 | M | C | Sym | B | **2A** | **Medium** | **3.60** | **2.00** |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Forest Red Gum | | | | | | | | | | | |
| **Assessment**<br>This tree presents as typical of its species however there is some twiggy decline exists throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **74** | *Eucalyptus moluccana*<br>Grey Box | 5 | 0.14 | 3 x 3 | M | C | Sym | B | **3A** | **Medium** | **1.68** | **1.45** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy decline exists throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **75** | *Eucalyptus moluccana*<br>Grey Box | 13 | 0.30 | 5 x 5 | M | C | Sym | B | **2A**[C] | **Medium**[C] | **3.60** | **2.00** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy decline exists throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **76** | *Eucalyptus tereticornis*<br>Forest Red Gum | 13 | 0.30<br>0.30 | 6 x 7 | M | F | Sym | A | **2A** | **High** | **5.09** | **2.31** |
| **Assessment**<br>This is two trees sharing the same root mass. The trees present as typical of the species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **77** | *Eucalyptus moluccana*<br>Grey Box[A] | 13 | 0.27[C] | 5 x 5 | M | C | Sym | A | **2A**[C] | **High**[C] | **3.24** | **1.91** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **78** | *Eucalyptus moluccana*<br>Grey Box[A] | 13 | 0.32[C] | 6 x 6 | M | C | Sym | A | **2A**[C] | **High**[C] | **3.84** | **2.05** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **79** | *Eucalyptus moluccana*<br>Grey Box | 11 | 0.24[C] | 3 x 3 | M | F | Sym | - | **4C** | **Low** | **2.88** | **1.82** |
| **Assessment**<br>This tree is dead and therefore requires to be removed. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **80** | *Eucalyptus moluccana*<br>Grey Box | 13 | 0.25[C] | 5 x 4 | M | C | Sym | B | **2A**[C] | **Medium** | **3.00** | **1.85** |
| **Assessment**<br>This tree presents as typical of its species however epicormic growth has formed on some branches and some twiggy dieback | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |

| Tree No. | Botanical Name<br>Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| exists throughout the crown. | | | | | | | | | | | | |
| **81** | *Eucalyptus moluccana*<br>Grey Box | 11 | 0.14[C] | 2 x 2 | M | I | Sym | B | **4A**[C] | **Medium**[C] | **1.68** | **1.45** |
| **Assessment**<br>The tree has excessive amounts of epicormic growth on the stem and branches. The crown presents with some decline. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **82** | *Eucalyptus moluccana*<br>Grey Box | 12 | 0.34[C] | 5 x 6 | M | C | SW | B | **2A**[C] | **Medium**[C] | **4.08** | **2.10** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy dieback exists throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **83** | *Eucalyptus moluccana*<br>Grey Box | 5 | 0.12[C] | 3 x 3 | Y | C | W | - | **4C** | **Low** | **1.44** | **1.36** |
| **Assessment**<br>This tree is dead and therefore requires to be removed. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **84** | *Eucalyptus tereticornis*<br>Forest Red Gum | 6 | 0.15[C] | 3 x 2 | M | C | Sym | C | **4A**[C] | **Low**[C] | **1.80** | **1.49** |
| **Assessment**<br>The tree appears to be in irreversible decline. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **85** | *Eucalyptus tereticornis*<br>Forest Red Gum | 13 | 0.35[C] | 5 x 5 | M | C | Sym | C | **2A**[C] | **Medium**[C] | **4.20** | **2.13** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **86** | *Eucalyptus tereticornis*<br>Forest Red Gum | 9 | 0.24[C] | 3 x 4 | M | C | S | C | **4A**[C] | **Low**[C] | **2.88** | **1.82** |
| **Assessment**<br>The tree appears to be in irreversible decline. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **87** | *Eucalyptus moluccana*<br>Grey Box | 13 | 0.27[C] | 6 x 4 | M | I | Sym | B | **2A**[C] | **Medium**[C] | **3.24** | **1.91** |
| **Assessment**<br>The stem of this tree has been charred and burnt. The crown of the tree presents with some decline. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **88** | *Eucalyptus moluccana*<br>Grey Box | 7 | 0.30[C,B] | 5 x 5 | M | C | Sym | - | **4A**[C] | **Low**[C] | **3.60** | **2.00** |

| Tree No. | Botanical Name<br>Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Assessment**<br>This tree is dead and therefore requires to be removed. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **89** | *Eucalyptus tereticornis*<br>Forest Red Gum | 11 | 0.29[C] | 5 x 5 | M | C | Sym | B | **3A**[C] | **Medium**[C] | **3.48** | **1.97** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy dieback exists throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **90** | *Eucalyptus tereticornis*<br>Forest Red Gum | 18 | 0.45[C] | 11 x 12 | M | C | N | A | **2A**[C] | **Medium**[C] | **5.40** | **2.37** |
| **Assessment**<br>This tree presents as typical of its species however the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **91** | *Eucalyptus tereticornis*<br>Forest Red Gum | 18 | 0.40[C] | 5 x 5 | M | C | Sym | C | **3A**[C] | **Medium**[C] | **4.80** | **2.25** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy dieback is developing throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **92** | *Eucalyptus tereticornis*<br>Forest Red Gum | 6 | 0.15[C] | 4 x 3 | Y | C | Sym | C | **4A**[C] | **Low**[C] | **1.80** | **1.49** |
| **Assessment**<br>This tree presents as typical of its species however some twiggy dieback developing throughout the crown. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **93** | *Eucalyptus tereticornis*<br>Forest Red Gum | 18 | 0.70[B,C] | 10 x 10 | M | C | Sym | A | **2A**[C] | **High**[C] | **8.40** | **2.85** |
| **Assessment**<br>This tree presents as typical of its species however is codominant at 2m. The lower portion of the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **94** | *Eucalyptus tereticornis*<br>Forest Red Gum | 17 | 0.50[C] | 7 x 7 | M | C | NE | A | **2A**[C,E] | **Medium**[C,E] | **6.00** | **2.47** |
| **Assessment**<br>This tree presents as typical of its species however part of the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |
| **95** | *Eucalyptus tereticornis*<br>Forest Red Gum | 7 | 0.16[C] | 5 x 5 | Y | C | Sym | C | **4A**[C] | **Low**[C] | **1.92** | **1.53** |
| **Assessment**<br>The tree is senescing and appears to be in irreversible decline. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **96** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.23 0.23[C] | 5 x 6 | M | C | Sym | B | **3A**[C] | **Low**[C] | **3.90** | **2.06** |
| **Assessment** This is two stems sharing the same root base. Much of the stem of this tree has been charred and burnt. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **97** | *Eucalyptus tereticornis* Forest Red Gum | 15 | 0.35 | 7 x 8 | M | C | NE | B | **3A**[C] | **Medium**[C] | **4.20** | **2.13** |
| **Assessment** An excessive amount soil and rubbish has been built up around the base of the tree. The crown has formed excessive amounts of epicormic growth on branches. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **98** | *Eucalyptus tereticornis* Forest Red Gum | 9 | 0.14[C] | 2 x 2 | M | C | Sym | A | **2A**[C] | **Medium**[C] | **1.68** | **1.45** |
| **Assessment** This tree presents as typical of its species however part of the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **99** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.20 0.35[C] | 6 x 7 | M | C | N | B | **2A**[C] | **Medium**[C] | **4.84** | **2.26** |
| **Assessment** This tree presents with a significant crown decline. An excessive amount soil and rubbish has been built up around the base of the tree. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **100** | *Eucalyptus tereticornis* Forest Red Gum | 8 | 0.22[C] | 3 x 3 | M | C | W | A | **2A**[C] | **Medium**[C] | **2.64** | **1.75** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **101** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.36[C] | 8 x 8 | Y | C | Sym | A | **2A**[C] | **Medium**[C] | **4.32** | **2.15** |
| **Assessment** This tree presents as typical of its species however is codominant at 5m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **102** | *Eucalyptus tereticornis* Forest Red Gum | 14 | 0.30[C] | 7 x 6 | M | C | Sym | A | **2A**[C] | **High**[C] | **3.60** | **2.00** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **103** | *Eucalyptus tereticornis* | 14 | 0.50[C,B] | 6 x 6 | M | C | Sym | B | **2A** | **Medium** | **6.00** | **2.47** |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Forest Red Gum | | | | | | | | | | | |
| **Assessment** This tree presents as typical of its species however some twiggy dieback exist within the lower portion of the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **104** | *Eucalyptus tereticornis* Forest Red Gum | 9 | 0.24[C] | 3 x 3 | M | C | Sym | B | **2A**[C] | **Medium**[C] | **2.88** | **1.82** |
| **Assessment** This tree presents as typical of its species however some twiggy dieback exist within the lower portion of the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **105** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.30[C] | 7 x 7 | M | C | N | A | **2A**[C] | **Medium**[C] | **3.60** | **2.00** |
| **Assessment** An excessive amount soil and rubbish has been built up around the base of the tree. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **106** | *Eucalyptus tereticornis* Forest Red Gum | 14 | 0.30[C] | 7 x 7 | M | C | N | B | **2A**[C] | **Medium**[C] | **3.60** | **2.00** |
| **Assessment** An excessive amount soil and rubbish has been built up around the base of the tree. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **107** | *Eucalyptus moluccana* Grey Box | 16 | 0.30[C] | 7 x 7 | M | C | N | A | **2A**[C] | **High**[C] | **3.60** | **2.00** |
| **Assessment** This tree presents as typical of its species however part of the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **108** | *Eucalyptus moluccana* Grey Box[C] | 13 | 0.25 | 3 x 3 | M | C | Sym | - | **4A** | **LOW** | **3.00** | **1.85** |
| **Assessment** This tree presents as typical of its species however the stem has been charred and burnt. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **109** | *Eucalyptus tereticornis* Forest Red Gum | 12 | 0.29 | 6 x 7 | M | C | Sym | B | **3A**[C] | **Medium**[C] | **3.48** | **1.97** |
| **Assessment** An excessive amount soil and rubbish has been built up around the base of the tree. The crown area of this tree appears to be declining. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **110** | *Eucalyptus moluccana* Grey Box | 15 | 0.40[C] | 7 x 7 | M | D | Sym | A | **2A**[C] | **High**[C] | **4.80** | **2.25** |
| **Assessment** | | | | | | | | | | | **Activity Impact** | |

| Tree No. | Botanical Name<br>Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| This tree presents as typical of its species however. | | | | | | | | | | | See Section 7.1.2 | |
| **111** | *Eucalyptus moluccana*<br>Grey Box | 16 | 0.48[C] | 9 x 8 | M | C | SW | A | **1B** | **High** | **5.76** | **2.43** |
| **Assessment**<br>This tree presents as typical of its species however | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.4 | |
| **112** | *Eucalyptus tereticornis*<br>Forest Red Gum | 16 | 0.35 | 6 x 6 | M | C | Sym | A | **1B** | **High** | **4.20** | **2.13** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.4 | |
| **113** | *Eucalyptus moluccana*<br>Grey Box | 16 | 0.48<br>0.50 | 12 x 11 | M | C | Sym | A | **1B** | **High** | **8.32** | **2.84** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.3 | |
| **114** | *Eucalyptus moluccana*<br>Grey Box | 11 | 1.10[C] | 12 x 11 | M | C | NE | A | **1B**[E] | **High**[E] | **13.20** | **3.44** |
| **Assessment**<br>This tree presents as typical of its species however has developed a wound on west side of bole at 2m. This would require an Internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.4 | |
| **115** | *Eucalyptus moluccana*<br>Grey Box | 11 | 0.35 | 7 x 7 | M | C | Sym | A | **2A** | **High** | **4.20** | **2.13** |
| **Assessment**<br>This tree presents as typical of its species however is codominant at 4m. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.1 | |
| **116** | *Eucalyptus moluccana*<br>Grey Box | 16 | 0.50 | 10 x 11 | M | C | N | A | **2A** | **High** | **6.00** | **2.47** |
| **Assessment**<br>This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.1 | |
| **117** | *Eucalyptus moluccana*<br>Grey Box | 7 | 0.17 | 4 x 3 | Y | C | Sym | C | **3A** | **Medium** | **2.04** | **1.57** |
| **Assessment**<br>This tree presents as typical of its species however seems to be experiencing some branch conflict with other trees. | | | | | | | | | | | **Activity Impact**<br>See Section 7.1.1 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **118** | *Eucalyptus moluccana* Grey Box | 7 | 0.20[B,C] | 4 x 4 | M | S | Sym | A | **3A** | **Medium** | **2.40** | **1.68** |
| **Assessment** This tree presents as typical of its species however seems to be experiencing some branch conflict with other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.1 | |
| **119** | *Eucalyptus moluccana* Grey Box | 15 | 0.76[B] | 12 x 12 | M | D | Sym | A | **1B**[E] | **High**[E] | **9.12** | **2.95** |
| **Assessment** There is a vertical wound on the west side of the bole. The tree is codominant at 3m. This would require an Internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact** See Section 7.1.1 | |
| **120** | *Eucalyptus tereticornis* Forest Red Gum | 11 | 0.30[C] | 6 x 6 | M | D | Sym | B | **2A** | **Medium** | **3.60** | **2.00** |
| **Assessment** This tree presents as typical of its species however there is some twiggy dieback is evident in the upper portion of the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **121** | *Eucalyptus paniculata* Grey Ironbark[A] | 10 | 0.42[C] | 7 x 7 | M | D | Sym | B | **2A** | **Medium** | **5.04** | **2.30** |
| **Assessment** There is some swelling in the stem surrounding a wound at 2m. This would require an internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **122** | *Eucalyptus tereticornis* Forest Red Gum | 14 | 0.46[B,C] | 8 x 8 | M | D | Sym | A | **2A** | **High** | **5.52** | **2.39** |
| **Assessment** This tree presents as typical of its species however is codominant at 6m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **123** | *Eucalyptus microcorys* Tallowwood[A] | 16 | 0.57 | 12 x 12 | M | C | Sym | A | **1B** | **High** | **6.84** | **2.61** |
| **Assessment** This tree presents as typical of its species however appears to be experiencing some branch conflict with the adjacent tree. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **124** | *Corymbia maculata* Spotted Gum | 10 | 0.28 | 7 x 6 | M | C | Sym | A | **2A** | **High** | **3.36** | **1.94** |
| **Assessment** This tree presents as typical of its species however appears to be experiencing some branch conflict with other trees. | | | | | | | | | | | **Activity Impact** See Section 7.1.3 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **125** | *Corymbia maculata* Spotted Gum[A] | 16 | 0.52[C] | 12 x 12 | M | C | Sym | A | **1B** | **High** | **6.24** | **2.51** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.4 | |
| **126** | *Eucalyptus tereticornis* Forest Red Gum[A] | 11 | 0.28[C] | 5 x 5 | M | C | Sym | B | **2A** | **Medium** | **3.36** | **1.94** |
| **Assessment** This tree presents as typical of its species however there is some twiggy dieback within the crown. | | | | | | | | | | | **Activity Impact** See Section 7.1.3 | |
| **127** | *Eucalyptus robusta* Swamp Mahogany[A] | 10 | 0.47 | 9 x 8 | M | D | Sym | A | **2A** | **High** | **5.64** | **2.41** |
| **Assessment** This tree presents as typical of its species however is codominant at 3m. | | | | | | | | | | | **Activity Impact** See Section 7.1.1 | |
| **128** | *Eucalyptus tereticornis* Forest Red Gum[A] | 5 | 0.14 | 2 x 2 | M | C | Sym | A | **2A** | **Medium** | **1.68** | **1.45** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **129** | *Eucalyptus tereticornis* Forest Red Gum[A] | 10 | 0.59 | 8 x 8 | M | D | Sym | B | **2A** | **Medium** | **7.08** | **2.65** |
| **Assessment** This tree presents as typical of its species however is codominant at 4m. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **130** | *Eucalyptus punctata* Grey Gum | 10 | 0.30[C,B] | 5 x 5 | Y | D | Sym | A | **2A** | **Medium** | **3.60** | **2.00** |
| **Assessment** This is three stems sharing the same root base. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **131** | *Eucalyptus punctata* Grey Gum | 15 | 0.59 | 12 x 12 | M | D | Sym | A | **2A**[E] | **High**[E] | **7.08** | **2.65** |
| **Assessment** This tree presents as typical of its species however is codominant at 3m. There is an open wound surrounded by swelling on the western side of the stem. This would require an internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

| Tree No. | Botanical Name Common Name | Height (m) | DBH (m) | Crown Spread (m) | Age | Crown Class | Crown Aspect | Vitality Rating | SULE Rating | STARS Rating | TPZ | SRZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **132** | *Eucalyptus punctata* Grey Gum | 15 | 0.70 | 13 x 13 | M | D | Sym | A | **2A**[E] | **High**[E] | **8.40** | **2.85** |
| **Assessment** This tree has a large canker on the stem. The canker may be prone to infection. An active codominant crack is visible at 3m up. This would require an aerial assessment to allow for further comment on the tree in relation to the proposed activity. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **133** | *Acacia spp.* [A] Wattle | 4 | 0.30[B,C] | 4 x 4 | M | C | Sym | B | **3A** | **Low** | **3.60** | **2.00** |
| **Assessment** This is a grove of four *Acacia*. The trees within the grove present as typical of the species however are generally known to have short life expectancy. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |
| **134** | *Eucalyptus punctata* Grey Gum[A] | 7 | 0.17 | 2 x 2 | Y | I | Sym | A | **2A** | **High** | **2.04** | **1.57** |
| **Assessment** This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council. | | | | | | | | | | | **Activity Impact** See Section 7.1.1 | |
| **135** | *Cupressus leylandii* Leyland Cypress [A] | 5 | 0.20[B,C] | 3 x 3 | Y | C | Sym | A | **1B** | **High** | **2.40** | **1.68** |
| **Assessment** This tree presents as typical of its species. | | | | | | | | | | | **Activity Impact** See Section 7.1.2 | |

[A]. Incomplete identification of species due to insufficiently available plant material

[B]. Diameter taken below 1.4m due to low stem bifurcation

[C]. Estimate due to the overgrown area and/or limited access

[D]. Deciduous species, void of foliage at the time of assessment

[E]. Level 3 assessment required to determine the accurate rating.

## 7.0 Site Assessment

The site is known as 128-134 Rickard Road, Leppington, NSW, 2179 and is legally described as Lots A and B in Deposited Plan 411211. The site is located on the eastern side of Rickard Road and is approximately 4.1ha in area. The site is located immediately south of the existing Leppington Public School at 144 Rickard Road and is approximately 700m south of Leppington Train Station. The northern portion of the site is currently used for residential purposes. The southern portion of the site is used for agricultural purposes, with multiple greenhouses and an existing pond on the property. Figure 1 below provides an aerial image of the site.


**Figure 1: Aerial image of site**
Source: Nearmap

The trees are predominately remnant trees, with several deliberate plantings, being a combination of exotic and native species and predominately remnant trees. The site forms part of the South West Growth Area and is biodiversity certified. The planted trees are of similar age and likely related to the school construction.

Most of the trees are remnant and form part of the vegetation assembly of the Cumberlands Plain Woodland. This vegetation community is classed as a Critically Endangered Environmental Community (CEEC) and protected under Biosecurity Act, 2015 and under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). None of the trees contained in this report are endangered species, and do not warrant legislative protection other than the vegetation community for which they belong. The significance

for this planting, relative to the vegetation community, is beyond the scope of an arborist and should be based on the recommendations of the Ecology report.

**7.0.1 Exempt trees**

The trees labeled as A and B, which have been included on the survey drawing (Plan 1), however, are excluded from this report because of the failure to conform to the description of a prescribed tree based on the Camden Council's Development Control Plan.

**Tree A**: Trees that occur and are exempt species.

**Tree B**: Dead trees

**7.0.2 Areas of risk**

Within the area of assessment, and as a duty of care, two areas of high risk regarding future site access are included. These areas are illustrated in the Plans, Section 5.0.

**Area C**: Electrical wires are routed between poles, which at the lowest point between the poles are approximately 2m above ground and within access of persons and vehicles. It is unknown if these wires are active. Caution is required within this area.

**Area D**: This area contains remnant trees and appears to be a natural wetland /drainage pond (possible dam). The area has been used as a dumping ground for chemical-based storage containers. These containers are a combination of empty and partially full. The chemical component is classed as toxic, where labels range up to Grade 6 chemicals exist. Many are leaching and carry deposits of dried chemicals. Allied staff experienced skin irritation where dust from one container came into contact with a staff member and fumes (likely acerbated by the hot day), which caused respiratory irritation and prompted masks to be worn to allow continued assessment of the surrounding trees. Fire has recently moved through this area, where some of the chemical containers appear to have been bundled and burnt.

**7.0.3 Areas of not assessed**

**Area E:** This area is a bog and on the verge of a wetland area. It has dense vegetation consisting of long grass, weed species, vines, and undulating grades. This area has not been assessed, see Section 4.5.2. It consists of approximately ten live trees and several dead trees. The species are Eucalyptus; therefore, they are potentially remnant and tentatively rated as 'High' significance, although they were limited in size with stem diameters of up to 0.4m.

**7.1 Proposed Activity Description**

The proposed activity is for a new high school for Leppington and Denham Court. The new high school will accommodate up to 1,000 students across 3

new buildings that will comprise 48 permanent teaching spaces (PTS), 3 support teaching spaces (STS), 9 specialist labs/workshops/kitchens and a hall. Buildings A, B and C will wrap the western and southern boundaries of the site, with the hall being located in south-east corner. The activity also includes the construction of a sports field in the centre of the site and 3 x multipurpose courts along the northern boundary. The proposed scope of works is illustrated in Figure 2 below.


**Figure 2: New High School for Leppington and Denham Court**
Source: DJRD Architects

This report discusses the impact of the proposed design on the trees. One hundred and thirty-five (135) trees have been listed within this report based on the vicinity of the proposed works. Twenty-seven (27) trees are located within the road corridor, and the remaining one hundred and eight (108) trees occur within the lots proposed for the activity[7]. This includes any tree where any part of the zones of protection, such as the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ), encroach into the area proposed for work. Recommendations based on the tree significance and condition, together with the impact on these trees regarding the proposed activity (based on the documents contained in Section 4.4) and mitigation where available follow.

**7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design**

Trees No. 7, 115-119, 127, and 134.

None of the proposed work conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

[7] This is an estimate because the survey does not delineate the two defined areas unlike other drawings that do not offer all trees.

### 7.1.2 Trees directly conflicting with the design

Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133 and 135.

These trees are located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is a combination of numerous design features, including buildings, roads, and stormwater infrastructure. However, the bulk earthworks form the primary impact where all trees occur within cut and fill areas. This is based on the drawing: LHS-TTW-01-00-DR-C-03101-3, see Section 4.4.3.

Trees No. 2, 3, and 8-27 occur within the road reserve and are referred for removal based on future road widening works. In relation to the proposed design, the impact (other than tree No. 2) is based on increased grades to accommodate drainage patterns. However, accounting for the small proportion of increase to the grades adjacent to these trees, the impact can be negligible and can allow for tree retention. Allowing for a high significance rating to be applied to the majority of these trees, any opportunity to retain these trees should be considered. These trees will require confirmation and consent from Camden Council for removal.

### 7.1.3 Trees subject to a minor encroachment

Trees No. 113, 124, and 126.

These trees are not directly located in the footprint of the proposed design; however, they are subject to a *minor encroachment*. That is, the proportion (<10%) of encroachment provided by design will not adversely impact on the tree. These trees could be retained relative to the design.

### 7.1.4 Trees subject to a major encroachment

Trees No. 1, 4-6, 24, 25, 111, 112, 114, 123, 125 and Area E[8].

These trees are not directly located in the footprint of the proposed design; however, they are located close and adjacent to the design footprint and subject to a *major encroachment*, that is, in excess of 10% of the TPZ. Table 2 discusses the proportion and type of encroachment for each tree implications and mitigation.

**Table 2; Summary of major encroachments**

| Tree No. | Encroachment (%) | Encroachment Type | Comments |
|---|---|---|---|
| 1 | Approximately 40% Inside SRZ | Crossover (36%) Headwall (5%) | Note 1 |
| 4 | 33% Inside SRZ | Minor fill (<0.5m) | Note 2 |
| 5 | 20% Outside SRZ | Minor fill (<0.5m) | Note 2 |
| 6 | 16% | Minor fill (<0.5m) | Note 2 |

[8] See Section 7.0.3.

| Tree No. | Encroachment (%) | Encroachment Type | Comments |
|---|---|---|---|
| | Outside SRZ | | |
| 24 | 50% Inside SRZ | Minor fill (<0.5m) | Note 4 |
| 25 | 50% Inside SRZ | Minor fill (<0.5m) | Note 4 |
| 111 | 14% Outside SRZ | Cut (<1.2m) | Note 3 |
| 112 | 12% Outside SRZ | Cut (<1.2m) | Note 3 |
| 114 | 21% Outside SRZ | Cut (<1.2m) | Note 3 |
| 123 | 28% Inside SRZ | Minor fill (<0.5m) | Note 4 |
| 125 | 25% Inside SRZ | Minor fill (<0.5m) | Note 4 |
| Area E | Estimated <20% | Cut (<1.2m) | Note 5 |

**Notes**

Note 1: Public tree; the encroachment consists of the cross-over where some expected cut would likely be required; however, the extent of this is unknown. In addition is the headwall, where a note on the civil drawings suggests amending the design for the tree. Further detail would be required for the cross-over to determine the impact. The tree caters to High significance. However, future road widening work may also impact or require the removal of this tree. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the design feature forming the impact, this could be catered for during construction. However will require feedback from Camden Council regarding intended future road works.

Note 2: Public tree; the encroachment consists of fill material to establish grades for drainage. The encroachment is on the edge of the fill, suggesting a battered fill, therefore, minimal depth that is minimal impact to the root system. Although the excavator compaction could offer increasing impact. These trees can be retained, and the proposed work will offer some, yet minor, impact. This can be limited more so via the restricted mass of the machine involved with this work and should be determined by the project arborist. The tree caters to High significance. However, future road widening work may also impact or require the removal of these trees. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the impact, this could be catered for during construction. However, will require feedback from Camden Council regarding intended future road works.

Note 3: these trees are subject to a cut, and a retaining wall is likely required to accommodate this, although has not been illustrated on the

drawing set. Therefore, any overcut required for drainage/foundations has not been allowed for in the calculations and could increase the encroachment calculation. Trees No. 111 and 112 are sustainable without impact; although tree No. 114 can be retained, some impact on health in the short term may occur.

Note 4: The encroachment consists of fill material to establish grades for drainage and the sports courts. The encroachment is on the edge of the fill, suggesting a battered fill, therefore, minimal depth that is minimal impact to the root system. However, the excavator compaction could offer increasing impact. These trees can be retained, and the proposed work will offer some, yet minor, impact. This can be limited more so via the restricted mass of the machine involved with this work and should be determined by the project arborist. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the impact, this could be catered for during construction.

Note 5: these trees have not been assessed[9]. Accounting for the tree size and respective estimated zones of protection (TPZ/SRZ), are subject to a cut, and a retaining wall is likely required to accommodate this. These trees could likely be retained; however, allowing for the environment and restricted area for work; additional encroachment may occur, which will limit the opportunity for tree retention. This area will require further consultation based on the results of an assessment to determine the viability of tree retention.

### 7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

### 7.3 Mitigation Measures

The following measures are required to avoid, minimise and offer options for rectification to reduce or eliminate any adverse environmental impacts of a Division 5.1 activity. These are summarised in Section 7.3.1, Table 3; Environmental Mitigation.

[9] See Section 4.5.2.

**7.3.1 Table 3: Environmental Mitigation**

| Activity Type | Hold Point | Mitigation Measure | Reason for mitigation |
|---|---|---|---|
| Tree retention/removal Trees No. 3, and 8-27 | Before start of work | Consideration in association with the tree owner for retention of these trees based on high significance. Consent from tree owner | Clarify tree retention/removal |
| Tree retention/removal Trees No. 2, 3, and 8-27 | Before start of work | These trees will require confirmation and consent from Camden Council for removal. | Consent from tree owner |
| Tree management | Before start of work | A project arborist (conforms to the AS 4970) is required to be nominated before works start, and they are to be provided with all related site documents. | Protection of trees |
| Demolition | Before start of work | As a minimum requirement, all trees recommended for retention in this report must have removed all dead, diseased, and crossing limbs and branch stubs to be pruned to the branch collar. This work must comply with the Section 2.3. | Reduce risk related to retained trees |
| Demolition/Construction | Before start of work | A Tree Management Plan (Arboricultural Method Statement) is prepared and issued to the entity responsible for the demolition/construction. | Protection of trees |
| Tree protection | Before start of work | Installation of tree protection measures as per Tree Management Plan (Arboricultural Method Statement) | Protection of trees |
| Retention of trees No. 1, and 4-6. | Before start of work | Pending feedback from Camden Council regarding the future viability of these trees. Based on the outcome, mitigation at the time of work is required. This requires feedback from the project arborist. | Reduce tree impact/Retain trees |
| Retention of trees No. | Before start of work | Mitigation at the time of work is required. This requires | Reduce tree impact/Retain |

| Activity Type | Hold Point | Mitigation Measure | Reason for mitigation |
|---|---|---|---|
| 111, 112, 114, 123, and 125. | | feedback from the project arborist. | trees |
| Retention/removal of trees; Area E | Before start of work | Area E requires access to assess trees and determine the viability of retention during site works. This requires feedback from the project arborist. | Reduce tree impact/Retain trees |
| Tree removal | Demolition | Trees are identified and marked for removal | Avoid incorrect tree removal. |
| Tree removal | Demolition | Native wildlife habitats are identified to avoid injury to animals. A licensed wildlife handler[10] supervises the tree removal. Tree removal shall avoid nesting season. Refer to the biodiversity report for additional guidance. | Protection of native fauna. |
| Tree protection | Demolition/Construction stages | Site induction; All workers must be briefed about the conditions outlined in Tree Management Plan before the initiation of work. This is required as part of the site induction process. | Protection of trees |
| Subsurface utilities not been included in the design | Construction stages | Trenching, shall avoid the TPZ's. Proposed routes shall be re-routed outside of the TPZ. Underboring required if unable reroute. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist. | Protection of trees intended for retention |
| Demolition/Construction Methods | Demolition/Construction stages | Work-related to demolition/construction, e.g. stockpiling, site sheds, and scaffolding, shall avoid the TPZs. Any activity within a TPZ must be authorised and conditioned by the project arborist. | Protection of trees intended for retention |

[10] NSW National Parks and Wildlife Act 1074

| Activity Type | Hold Point | Mitigation Measure | Reason for mitigation |
|---|---|---|---|
| Demolition/Construction Methods | Demolition/Construction stages | Measures/Conditions outlines in Section 8.0; Protection Specification. | Protection of trees intended for retention |
| Environmental Impact Tree loss; ecological impact | Project outcome | Planting of advanced specimens of the same species in groups. | Compensation for the loss of protected flora and related fauna habitats. |
| Environmental Impact Tree loss; amenity impact | Project outcome | Planting of advanced specimens of the same species in areas that offer visual/noise screening. | Compensation for the loss of amenity value. |

### 7.4 Protection measures

Tree protection measures will be required during the demolition and construction stage. However, the design of these will be pending the work methodology and final design. The project arborist[11] shall be contracted after the completion/confirmation of design work for the instruction of the protection measures implementation, that is the Arboricultural Method Statement. Examples of the protection measures are contained in Appendix B.

## 8.0 Protection Specification

The retention and protection of these trees requires the remaining Tree Protection Zone (TPZ) not subject to encroachment to conform to the conditions outlined below. These conditions provide the limitations of work permitted within the area of the Tree Protection Zone (TPZ) and must be adhered to unless otherwise stated.

Any engineering drawings issued as part of the construction certificate must conform with these requirements.

1. Foundation/footing types should not be strip type, but utilise footing types that are sympathetic towards retaining root system that is, screw, pier, etc. Slab on the ground can be accommodated in some circumstances and will be nominated by the project arborist. The extent of encroachment will be dependent upon the tree species, soil type (texture and profile) and gradients.

2. Subsurface utilities can extend through the TPZ and Structural Root Zone (SRZ), however, are limited to the method of installation. That is under boring is permitted, however trenching is limited and depends on the proposed route within the TPZ. No trenching is permitted within the area of the TPZ unless stipulated by the project arborist.

3. Soil levels within the TPZ must remain the same. Any excavation within the TPZ must have been previously specified and allowed for by the project arborist:

   a) So it does not alter the drainage to the tree.

   b) Under specified circumstances,

      - Added fill soil does not exceed 100mm in depth over the natural grade. Construction methodologies exist that can allow grade increases in excess of 100mm, via the use of an impervious cover, an approved

[11] Project Arborist: person nominated as responsible for the provision of the tree assessment, arborist report, consultation with stakeholders, and certification for the development project. This person will be adequately experienced and qualified with a minimum of a level 5 (AQF); Diploma in Horticulture (Arboriculture).

permeable material or permanent aeration system or other approved methods.

- Excavation cannot exceed a depth of more than 50mm within the area of the TPZ, not including the SRZ. The grade within the SRZ cannot be reduced without the consent from a project arborist.

4. No form of material or structure, solid or liquid, is to be stored or disposed of within the TPZ.

5. No lighting of fires is permitted within the TPZ.

6. All drainage runoff, sediment, concrete, mortar slurry, paints, washings, toilet effluent, petroleum products, and any other toxic wastes must be prevented from entering the TPZ.

7. No activity that will cause excessive soil compaction is permitted within the TPZ. That is, machinery, excavators, etc. must refrain from entering the area of the TPZ unless measures have been taken, in consultation with the project arborist.

8. No site sheds, amenities or similar site structures are permitted to be located or extend into the area of the TPZ unless the project arborist provides prior consent.

9. No form of construction work or related activity such as the mixing of concrete, cutting, grinding, generator storage or cleaning of tools is permitted within the TPZ.

10. No part of any tree may be used as an anchorage point, nor should any noticeboard, telephone cable, rope, guy, framework, etc. be attached to any part of a tree.

11. (a) All excavation work within the TPZ will utilise methods to preserve root systems intact and undamaged. Examples of methods permitted are by hand tools, hydraulic, or pneumatic air excavation technology.

(b) Any root unearthed which is less than 50mm in diameter must be cleanly cut and dusted with a fungicide, and not allowed to dry out, with minimum exposure to the air as possible.

(c) Any root unearthed which is greater than 50mm in diameter must be located regarding their directional spread and potential impact. A project arborist will be required to assess the situation and determine future action regarding retaining the tree in a healthy state.

## 9.0 Summary of tree impact by design

Based on the design supplied, the following summary provides the impacts imposed on the trees included in this report.

### 9.1 Trees to be retained

**Trees No. 7, 24, 25, 113, 115-119, 124, 126, 127, and 134**

These trees are not adversely impacted by the design, that is, they conform to an acceptable encroachment based on the nominated zones of protection (TPZ, SRZ) and the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees.

### 9.2 Trees nominated for removal based on conflict

**Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133 and 135.**

The proposed design will impact adversely on these trees and are unable to be retained based on the design.

Trees No. 2, 3, and 8-27

These trees occur within the road reserve and are referred for removal based on future road widening works. However, the impact can be negligible and can allow for tree retention. Allowing for the high significance rating, any opportunity to retain these trees should be considered. These trees will require consent from Camden Council for removal.

### 9.3 Trees to be retained with design/work method mitigation

**Trees No. Trees No. 1, 4-6, 111, 112, 114, 123, and 125.**

These trees are subject to a major encroachmnet, although design and work methodology can accommodate the tree and allow for retention.

Trees No. 1, and 4-6

These trees are public assets and the viability of future road works based on feedback from Camden Council shall determine the outcome and whether mitigation at the time of work is required to retain these trees or otherwise.

### 9.4 Area E

This area has not been assessed based on risk, and requires access to assess trees and determine the viability of retention during site works.

### 9.5 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is

restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

### 9.6 Protection measures

Tree Protection during the proposed activity

A project arborist (conforms to the AS 4970) is required to be nominated before works start, and they are to be provided with all related site documents.

A Tree Management Plan (Arboricultural Method Statement) is prepared and issued to the entity responsible for the demolition/construction.

Protection measures are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

**The opinions expressed in this report by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.**

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## 10.0 Appendix A- Terminology Defined

**Height**

Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

**DBH**

Diameter at Breast Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.; Mult. refers to multiple stems, that is in excess of 4 stems.

**Crown Spread**

A two-dimension linear measurement (in metres) of the crown plan. The first figure is the north-south span, the second being the east-west measurement.

**Age**

Is the estimate of the specimen's age based upon the expected lifespan of the species. This is divided into three stages.

| | |
|---|---|
| Young (Y) | Trees less than 20% of life expectancy. |
| Mature (M) | Trees aged between 20% to 80% life expectancy. |
| Over-mature (O) | Trees aged over 80% of life expectancy with probable symptoms of senescence. |

**Crown Aspect**

In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), South (S), East (E) or West (W).

**Vitality Rating**

Is a rating of the health of the tree, irrespective and independent of the structural integrity, and defined by the 'ability for a tree to sustain its life processes' ((Draper, Richards, 2009). This is divided between three variables, and based on the assessment of symptoms including, but not limited to; leaf size, colour, crown density, woundwood development, adaptive growth formation, and epicormic growth.

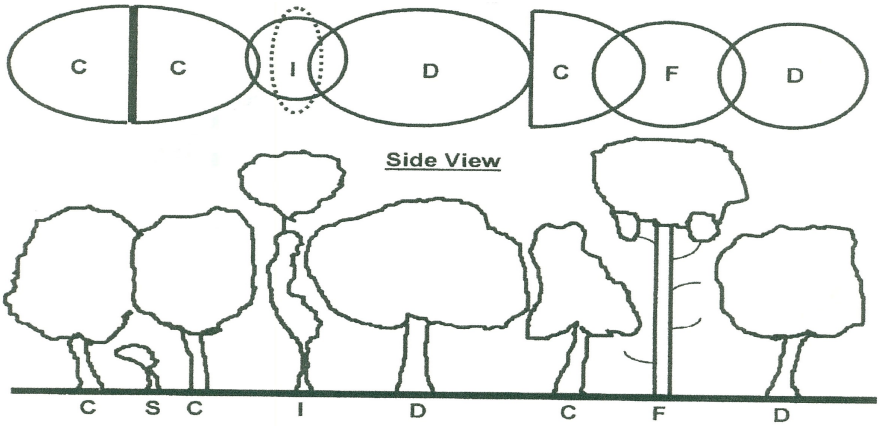
**A**: Normal vitality, typical for the species
**B**: Below average vitality, possibly temporary loss of health, partial symptoms.
**C**: Poor vitality; obvious decline, potentially irreversible

**Crown Class**

Is the differing crown habits as influenced by the external variables within the surrounding environment. They are:

| | | |
|---|---|---|
| **D** | – *Dominant* | Crown is receiving uninterrupted light from above and sides, also known as emergent. |
| **C** | – *Codominant* | Crown is receiving light from above and one side of the crown. |
| **I** | – *Intermediate* | Crown is receiving light from above but not the sides of the crown. |
| **S** | – *Suppressed* | Crown has been shadowed by the surrounding elements and receives no light from above or sides. |
| **F** | – *Forest* | Characterised by an erect, straight stem (usually excurrent) with little stem taper and virtually no branching over the majority of the stem except for the top of the tree which has a small concentrated branch structure making up the crown. |

**Top View**




D C, I & S, and side view, after (Matheny, N. & Clark, J. R. 1998, Trees Development, Published by International Society of Arboriculture, P.O. Box 3129, Champaign IL 61826-3129 USA, p.20, adapted from the Hazard Tree Assessment Program, Recreation and Park Department, City of San Francisco, California).

**Levels of assessment**

Level 1: Limited visual: a visual tree assessment to manage large populations of trees within a limited period and in order to identify obvious faults which would be considered imminent.

Level 2: Basic assessment: a standard performed assessment providing for a detailed visual assessment including all parts of the tree and surrounding environment and via the use of simple tools.

Level 3: Advanced assessment: specific type assessments conducted by either arborist who specialise with specific areas of assessment or via the use of specialised equipment. For example, aerial assessment by use of an EWP or rope/harness, or decay detection equipment.

**TPZ; Tree Protection Zone**

Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

The size of the Tree Protection Zone (TPZ) has been calculated from the *Australian Standard, 4970; 2009* – Protection of Trees on Development Sites

The TPZ does not provide the limit of root extension, however, offers an area of the root zone that requires predominate protection from development works. The allocated TPZ can be modified by some circumstances; however will require compensation equivalent to the area loss, elsewhere and adjacent to the TPZ.

**SRZ; Structural Root Zone**

Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

**Protection Measures**

These are required for the protection of trees during demolition/construction activities.
Protective barriers are required to be installed before the initiation of demolition and/or construction and are to be maintained up to the time of landscaping. Samples of the recommended protection measures are illustrated in Appendix C.

**All other definitions are referenced from**;

Draper D.B., Richards P.A., 2009, Dictionary for Managing Trees in Urban Environments
CSIRO Pub., Australia

**Significance Rating,** Significance of a Tree Assessment Rating System (S.T.A.R.S), IACA, 2010[12]

Tree Significance – Assessment Criteria

**1.** High Significance in landscape

- The tree is in good condition and good vitality;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ – tree is appropriate to the site conditions.

**2.** Medium Significance in landscape

- The tree is in fair-good condition and good or low vitality;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

**3.** Low Significance in landscape

- The tree is in fair-poor condition and good or low vitality;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences,

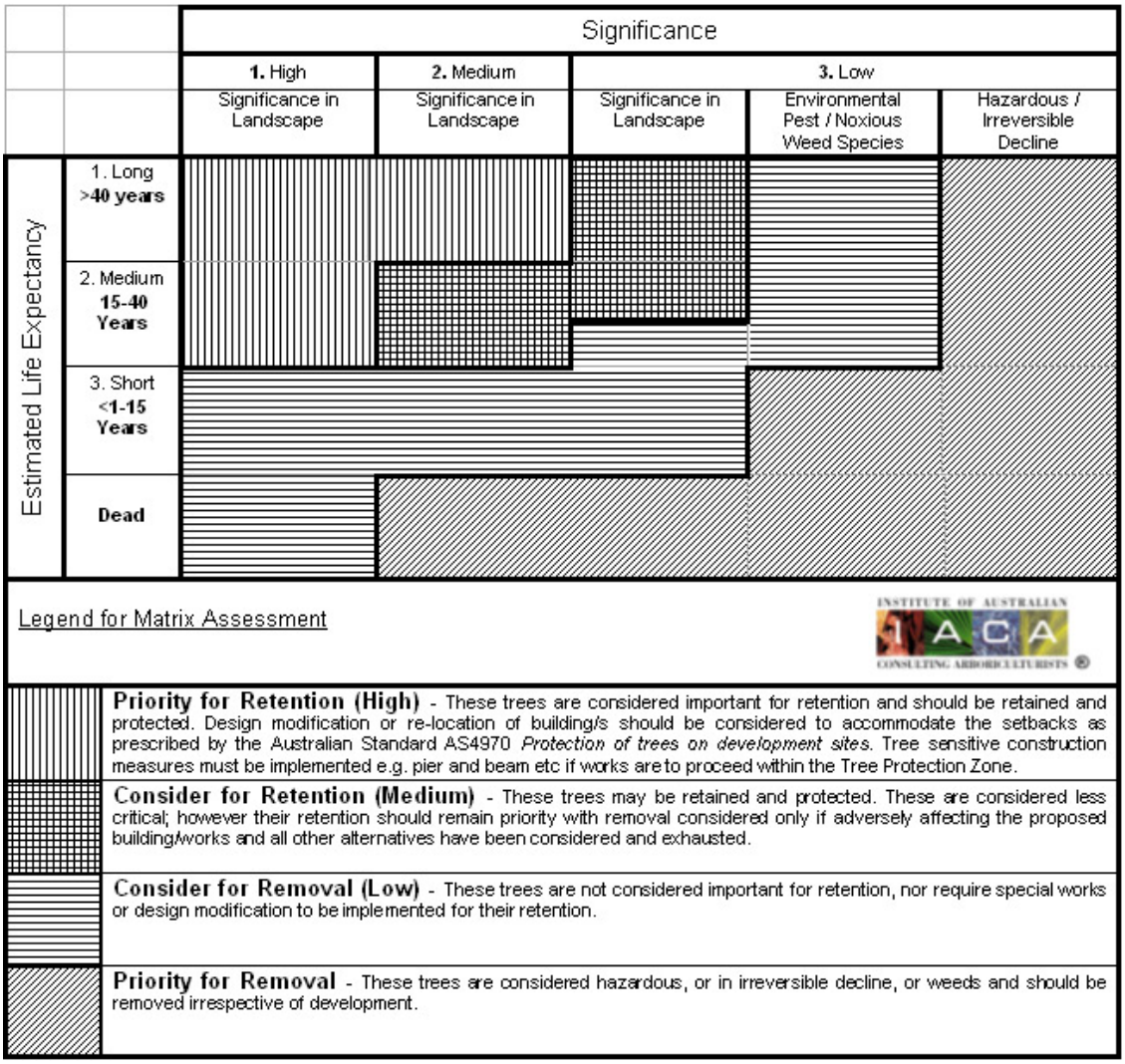
[12] IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

unlikely to reach dimensions typical for the taxa in situ – tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.
Environmental Pest / Noxious Weed Species
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.
Hazardous/Irreversible Decline
- The tree is structurally unsound and/or unstable and is considered potentially dangerous, - The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short-term.

**The tree is to have a minimum of three (3) criteria in a category to be classified in that group.**

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g.

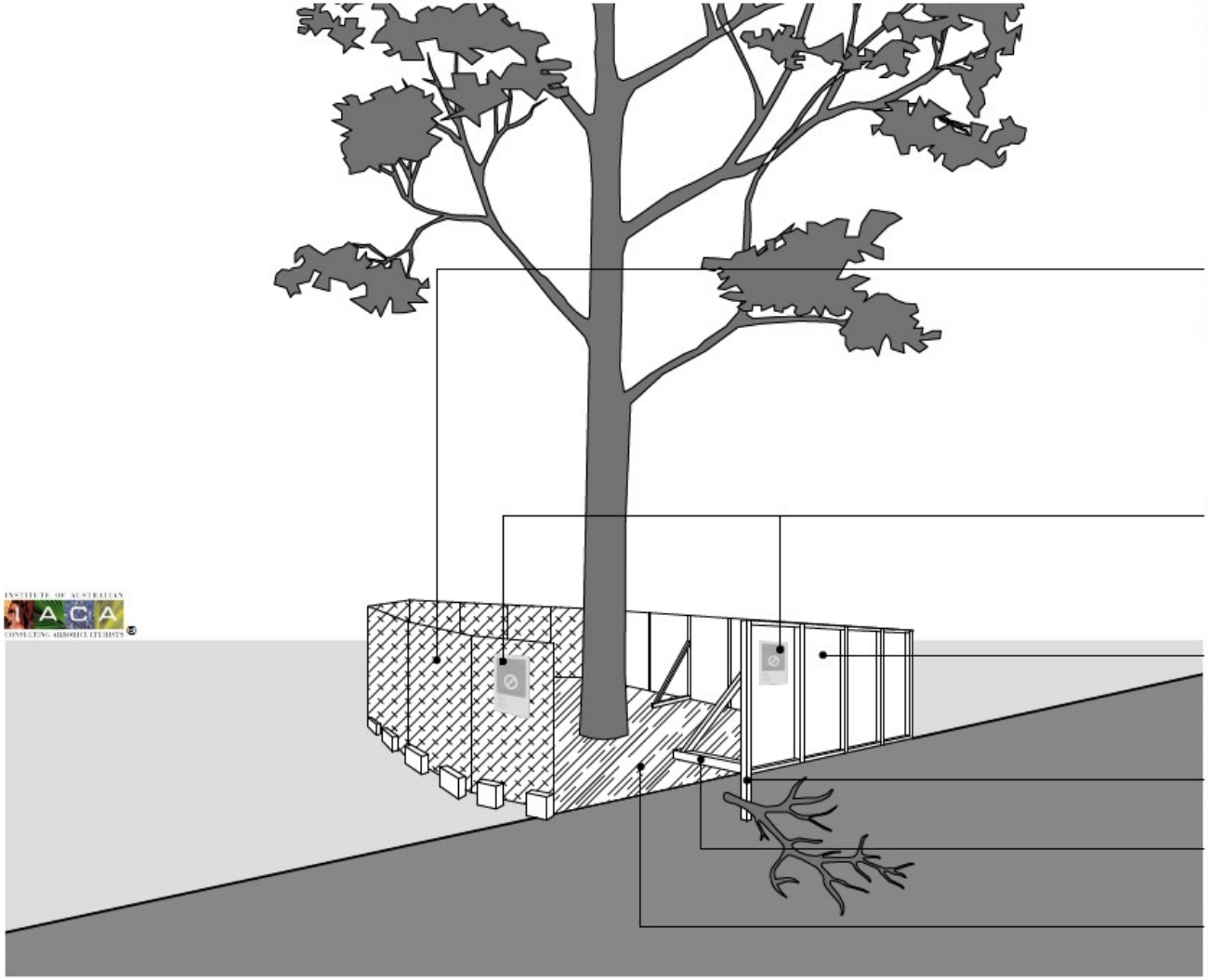
**Table 3; Tree Retention Value – Priority Matrix.**



## Safe Useful Life Expectancy – S.U.L.E (Barell 1995)

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

**Appendix B- Protection measures;**
**Protective fence**



**Note:**
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

**Option 1 - Fencing**
1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

**Option 2 - Fencing**
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

**Stem and Ground protection**