



ARBORICULTURAL IMPACT ASSESSMENT

STACK SYD01 Data Centre (Power Lead-In Works)

Erskine Park NSW 2759

Project No: H953

Date: 20 March 2026

Revision: A

CREATIVE PLANNING SOLUTIONS PTY LIMITED

Level 3, 397 Riley Street, Surry Hills NSW 2010 | Unit 3.01, 8 Rodborough Road, Frenchs Forest NSW 2086
PO Box 1074 Broadway NSW 2007

+61 2 8039 7461 | info@cpsplanning.com.au | www.cpsplanning.com.au | ABN: 70 135 093 926

Document Control

Project No. H953
Prepared for STACK Infrastructure


Prepared by Toby Piper
 Principal Consulting Arborist
 Dip. Arboriculture – AQF Level 5
 Regd. Consulting Arborist No. 12352
 B.LArch


Reviewed by Greg Tesoriero
 Director
 Dip. Hort. (Arboriculture) – AQF Level 5
 Regd. Consulting Arborist No. 3008
 QTRA No. 6291
 B.LArch (Hons)


Authorised by Greg Tesoriero
 Director
 Dip. Hort. (Arboriculture) – AQF Level 5
 Regd. Consulting Arborist No. 3008
 QTRA No. 6291
 B.LArch (Hons)

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TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION	2
2.1	Background	2
2.2	Objectives	2
2.3	Legislation & Regulating Documents	2
2.4	Documentation Received	3
2.5	Study Area	3
2.6	Proposed Power Lead-In Works	3
2.7	Limitations	3
3	METHODOLOGY	4
3.1	Methodology	4
4	OBSERVATIONS	7
4.1	General	7
4.2	The Trees	7
4.3	Biodiversity	7
5	DISCUSSION	9
5.1	Impact Assessment	9
5.2	Trees Recommended for Retention & Protection	9
5.3	Ancillary Construction Related Impacts	10
6	CONCLUSION	11
6.1	Proposed Development Impact	11
7	RECOMMENDATIONS	12
7.1	Tree Retention & Protection	12
8	REFERENCES	13

APPENDICES

APPENDIX 1 - TREE ASSESSMENT SCHEDULE

APPENDIX 2 - TREE LOCATION PLAN

APPENDIX 3 - IACA SIGNIFICANCE OF A TREE, ASSESSMENT RATING SYSTEM (STARS)

APPENDIX 4 - EXTRACT FROM AS4970-2025 PROTECTION OF TREES ON DEVELOPMENT SITES

APPENDIX 5 - GENERAL TREE PROTECTION SPECIFICATION

APPENDIX 6 - TYPICAL TREE PROTECTION DETAILS

1 EXECUTIVE SUMMARY

This Arboricultural Impact Assessment (AIA) was commissioned by STACK Infrastructure on behalf of the 10th of March 2026. This report relates to one-hundred (100) trees located within proximity to proposed Power Lead-In works associated with the construction of the STACK SYD01 Data Centre located at 78 Lockwood Road, Erskine Park.

This report provides an evaluation of the likely impact to existing trees as a result of a State Significant Development Application (SSDA) this development. It is understood that this report is required to satisfy the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) relevant to Application No. SSD- 82211208.

A summary of those trees identified has been provided in **Table 1** below along with a description of their retention values and nominated retention/removal status under the proposal.

Table 1 – Tree assessment summary

Retain / Remove	Identified Retention Values				Number of Trees
	High	Medium	Low	Dead	
Remove	-	-	-	-	Nil
Retain & Protect	12 trees <i>(Trees 22, 23, 24, 27, 28, 29, 30, 31, 33, 57, 71 & 96)</i>	26 trees <i>(Trees 1, 2, 3, 4, 5, 6, 7, 8, 18, 19, 20, 25, 32, 36, 38, 41, 42, 48, 66, 70, 73, 74, 86, 87, 94 & 95)</i>	62 trees <i>(Trees 1, 2, 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 26, 34, 35, 37, 39, 40, 43, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 67, 68, 69, 72, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 88, 89, 90, 91, 92, 93, 97, 98, 99 & 100)</i>	-	100 trees
Total					100 trees

Based on the plans supplied, and should the proposed works proceed in their current form, it is recommended that all one-hundred (100) trees be retained and protected (**Trees 1-100**).

Specific recommendations as per **Section 7** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate any potential negative impacts to retained trees.

2 INTRODUCTION

2.1 Background

This Arboricultural Impact Assessment (AIA) evaluates the potential impacts to existing trees as a result of proposed Power Lead-In works associated with the STACK SYD01 Data Centre located at 78 Lockwood Road, Erskine Park (refer to **Figure 1**).

Accordingly, the purpose of this report is to assess the potential impact of the proposed development on the subject trees, as well as provide recommendations for further amendments to the design or construction methodology where necessary to minimise any adverse impact. The report also provides recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate.

2.2 Objectives

This report has been prepared to assess the level of impact development works are likely to cause to existing trees and make a determination as to whether trees will be adversely affected. The report will aim to provide guidance as to those trees requiring removal, retention or protection in accordance with the provisions of AS4970-2025 *Protection of trees on development sites*. Where necessary, it will also provide recommendations for design modifications and any replacement planting. As such, the objectives of this report are as follows:

- Assess the current site and growing conditions of trees;
- Assess the current health, condition, lifespan & significance of the trees within the site;
- Identify relative retention values of trees within the site;
- Calculate anticipated encroachment levels resulting from proposed works;
- Determine the likely impact as a result of the calculated encroachments;
- Assess potential for retention and protection of trees where possible;
- Advise any design modifications necessary to retain important trees;
- Recommend tree and root sensitive design and construction methodologies to mitigate impacts to trees to be retained;
- Inform of any tree removal necessary due to unsustainable impacts;
- Provide guidance and recommendations for any replacement planting necessary.

No aerial inspection, root mapping or internal diagnostic testing has been carried out as part of this report. Additionally, no cation exchange capacity testing or plant tissue analysis has been undertaken.

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*;
- *Penrith Local Environment Plan 2010 (Penrith LEP 2010)*;
- *Mamre Road Precinct Development Control Plan (DCP) 2021*
- *Greater Sydney Regional Strategic Weed Management Plan 2023-2027 (GSRSWMP)*

2.4 Documentation Received

The following documents were received and have been relied upon for this Assessment:

Table 2 – Documentation received and reviewed as part of the Arboricultural Impact Assessment

Document Description	Author	Revision No. / Date
Cable Route Plans	Transgrid	- / 10 March 2026
HV Supplementary Construction Methodology	Transgrid	06 / No date

Note: care has been taken to obtain all information from reliable sources; however, the author makes no representations, guarantees or warranties as to the accuracy of information provided by others. No other information has been reviewed, should this become available impacts may be subject to change.

2.5 Study Area

The study area forming part of this assessment is defined by a proposed High Voltage (HV) cable route of approximately 2.1km in length which starts at the Transgrid Sydney West Substation at 200 Old Wallgrove Road, Eastern Creek before moving west along Lenore Drive, crossing Ropes Creek and entering the subject site at 78 Lockwood Road, Erskine Park (refer to **Figure 1** below).

2.6 Proposed Power Lead-In Works

The Power Lead-In Works are to include the installation of two (2) 330kV underground transmission cable circuits comprising six (6) cables installed within six (6) conduits – all laid within one (1) double circuit trench with maximum dimensions of 3600mm wide and 4000mm deep. Where the works are to cross the Ropes Creek corridor, these are to be conducted via Horizontal Directional Drilling (HDD), achieving an approximate depth of 15m.

2.7 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for one (1) year only from the date of the report, unless otherwise stated. Any changes to the site as it stands at present, for example building extensions, excavation works, importing of soils, extreme weather events etc. will invalidate this report. Any reproduction of this report must be in full colour using the report in its entirety.

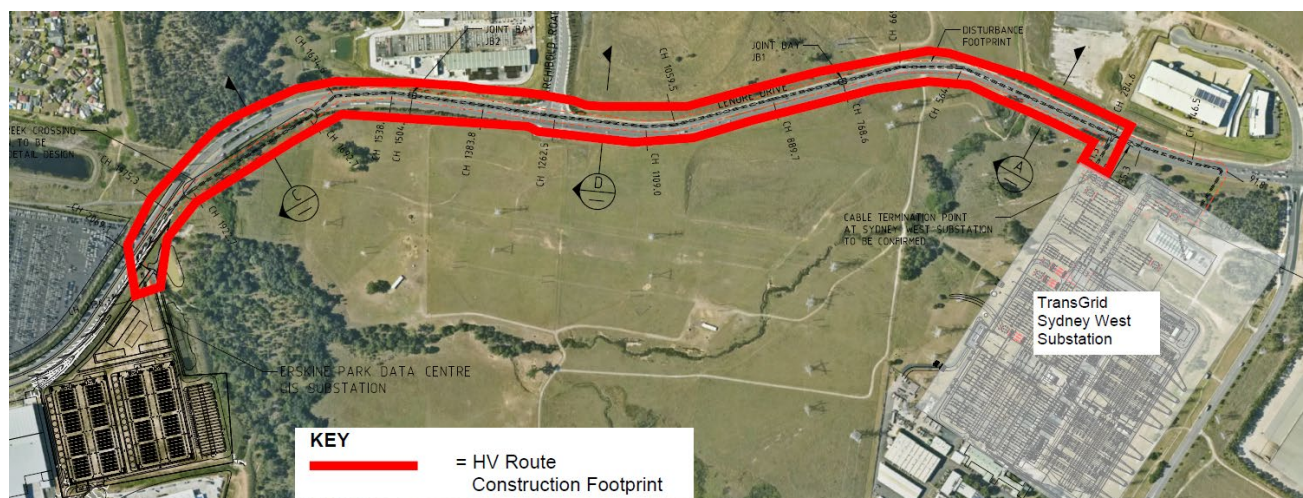


Figure 1 – Project area map with the proposed cable route outlined red.
Source: Transgrid – March 2026

3 METHODOLOGY

3.1 Methodology

3.1.1 Site Inspection

A site inspection was carried out by Toby Piper (CPS AQF Level 5 Arborist) with the subject trees and the general growing environment evaluated on the 11th of March 2026. The weather at the time of the inspection was sunny and dry with good visibility.

The subject trees were inspected visually from ground level with the following information recorded and provided in tabulated form at **Appendix 1**:

- Tree Species (Botanical & Common Name);
- Approximate height;
- Approximate canopy spread;
- Trunk Diameter (measured at 1.4 metres from ground level);
- Trunk Diameter at base (above root crown);
- Age class;
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators;
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators;
- Suitability of the tree to the site and its existing location;
- Safe Useful Life Expectancy (SULE).

3.1.2 Visual Tree Assessment (VTA)

The modified Level 1 limited Visual Tree Assessment (VTA) was undertaken for all trees during the site inspection. The VTA consists of a detailed inspection of the subject tree from ground level to the upper canopy. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture (ISA), Arboriculture Australia and The Institute Australian of Consulting Arborists (IACA). No aerial inspections or major root excavations were undertaken.

3.1.3 Safe Useful Life Expectancy (SULE)

The remaining Safe Useful Life Expectancy of a tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of each tree has been further modified where necessary in consideration of its current health, vigour, condition and suitability to the site. The estimated SULE of each tree is shown in **Appendix 1**.

The following ranges have been allocated to each tree:

- Long SULE: Trees that appear to be retainable with an acceptable level of risk for > 40 years.
- Medium SULE: Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.
- Short SULE: Trees that appear to be retainable with an acceptable level of risk for 5–15 years.
- Remove: Trees with a high level of risk that would need removing within the next 5 years.
- Small, Young or Regularly Pruned.

3.1.4 Landscape Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. Several factors contribute towards the assessment of a tree's significance including but not limited to condition and vigour, form, visual prominence, heritage status, indigeneity, legislative protection, cultural sentiment and future growth potential.

For the purposes of this report the Australian Institute of Consulting Arborists (IACA) Significance of a Tree, Assessment Rating System (STARS)® has been utilised. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Appendix 3 provides a full outline of assessment criteria for each significance rating as per IACA STARS (2010).

3.1.5 Retention Value

Retention values have been determined for each tree on site to establish a hierarchy for tree retention. Retention values are based on estimated life spans and their associated landscape significance rating in accordance with the Tree Retention Value Priority Matrix. This matrix established the following retention values and can be found at **Appendix 3** with attributed retention values found within **Appendix 1**:

- Priority for Retention (**High**)
- Consider for Retention (**Medium**)
- Consider for Removal (**Low**)
- Priority for Removal

3.1.6 AS4970-2025 Protection of Trees on Development Sites

The Australian Standard, AS4970-2025 - '*Protection of trees on development sites*', has been used as a guide to provide recommendations for the assessed trees. The Standard provides guidance on the principles for protecting trees on land subject to development as well as principles for determining viability of tree retention. Terminology and recommended methods are consistent with AS4970-2025.

3.1.7 Notional Root Zone

The assessed trees have been allocated a Notional Root Zone (NRZ). The Australian Standard, AS4970-2025- '*Protection of trees on development sites*', has been used as a guide in the allocation of NRZs for the assessed trees. The NRZ is calculated based on trunk (stem) diameter at standard height (DSH), measured at 1.4 metres above ground level. The radius of the NRZ is calculated by multiplying the trees DSH by 12. The method provides a NRZ that addresses health and growing requirements of a tree as well as the trees stability. NRZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The maximum NRZ should be no more than 15m radius and the minimum NRZ should be no less than 2m radius.

An extract of the AS4970-2025 for calculating the NRZ has been provided at **Appendix 4** for reference.

3.1.8 Structural Root Zone

The assessed trees have been allocated a Structural Root Zone (SRZ). The Australian Standard, AS4970-2025 - 'Protection of trees on development sites', has been used as a guide in the allocation of SRZs for the assessed trees. The SRZ is a radial area extending outwards from the centre of the trunk and is calculated as follows:

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

3.1.9 Tree Protection Zone

Using the NRZ as a starting point, a Tree Protection Zone (TPZ) is a specified area located both above and below ground that is required for the protection of trees during development works. The purpose of a TPZ is to protect of a tree's roots and crown throughout the development process via the installation of tree protection measures and appropriate site management.

3.1.10 Tree Locations

The location of assessed trees has been approximated by CPS using a Trimble DA2 GNSS Receiver with satellite corrections generally capable of delivering sub-metre accuracy. It is noted that that a Detail Survey of the study area was not provided to CPS as part of the preparation of this report.

All trees should be accurately plotted by a suitably qualified surveyor prior to design development.

4 OBSERVATIONS

4.1 General

The site area subject to this assessment was observed as disturbed with minimal to no understorey present. Species observed were predominately locally indigenous. Health, vigour and condition was also highly varied across the trees forming part of the assessment. Root zones of assessed trees were generally observed as modified groundcover within deep soil areas.

4.2 The Trees

A total of one-hundred (100) trees were observed within proximity to proposed Power Lead-In works which been considered as part of this assessment¹. All tree data recorded on site has been tabulated and is contained **Appendix 1** with relevant tree locations denoted on the attached Tree Location Plans held at **Appendix 2**.

Of those trees assessed, thirty-three (33) are planted specimens positioned at regular spacings along the southern side of Lenore Drive (**Trees 1-33**).

The remaining trees are situated within the Ropes Creek corridor and generally appear to be either remnant, or recently self-seeded specimens (**Trees 34-100**)

4.3 Biodiversity

A number of the Subject Trees are of a species consistent with the Critically Endangered Ecological Community (CEEC): *Cumberland Plain Woodland in the Sydney Basin Bioregion* and Endangered Ecological Community (EEC): *River-Flat Eucalypt Forest on Coastal Floodplains in the Sydney Basin Bioregion*. The preservation of this communities is outlined under the provisions of the both the NSW *Biodiversity Conservation (BC) Act 2016* and the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. It is noted that Plant Community Types (PCTs) associated with these communities are indicated to occur within the study area under the NSW State Vegetation Type Map (SVTM)– refer to **Figure 2**.

Also noted is that a portion of the study area is included within the NSW Biodiversity Values (BV) Map² – refer to **Figure 5**. Any further interpretation of the ecological implications of the proposed works is outside the scope of this report.

¹ All other trees located within the Lenore Drive road corridor are distanced well-away from the proposed trenching works and will not have any works occur within their NRZs. These trees have been omitted from this report

² Map prepared by the Department of Climate Change, Energy, the Environment and Water under Part 7 of the Biodiversity Conservation Regulation 2017 (NSW)

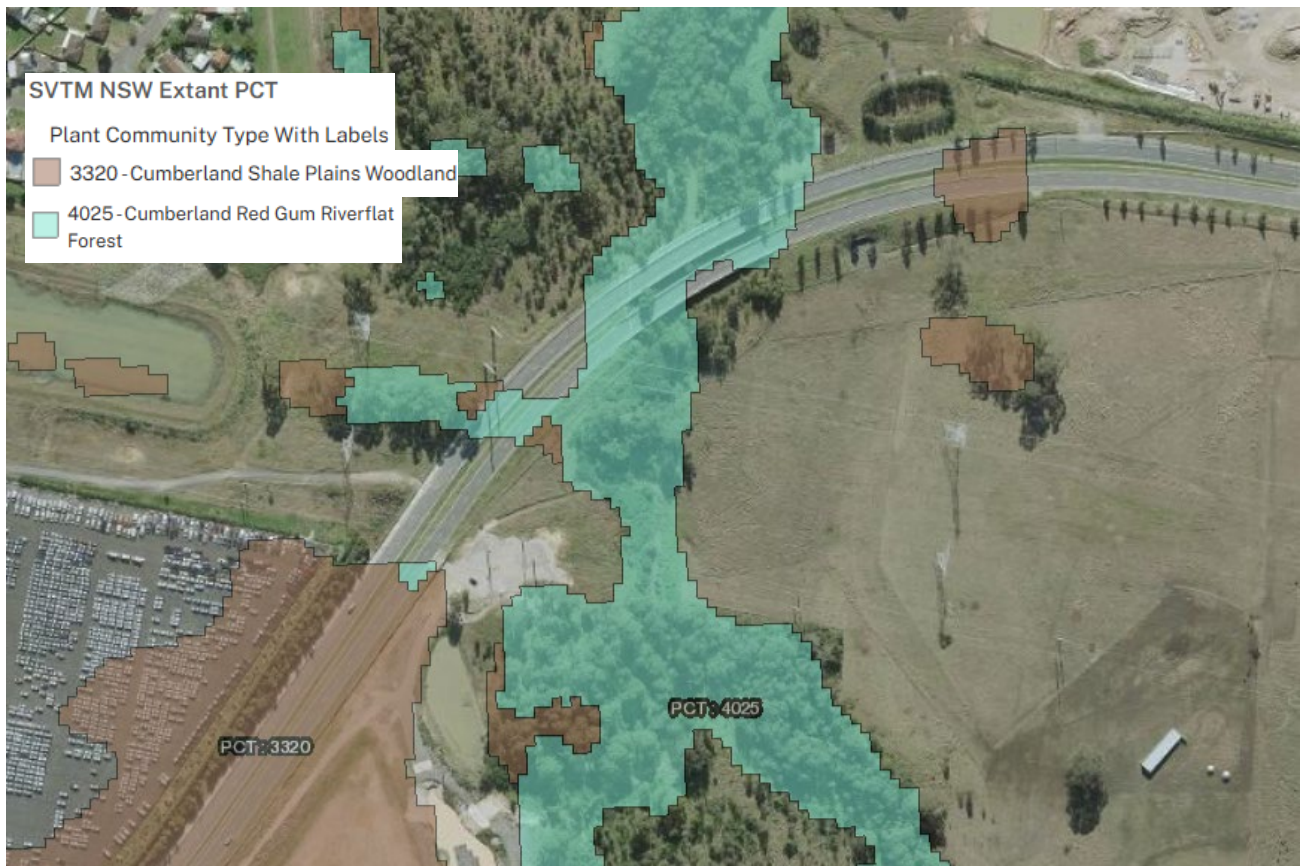


Figure 2 – SVTM extract showing the extent of mapped PCTs occurring on site
Source: NSW Department of Climate Change, Energy, the Environment and Water



Figure 3 – NSW Biodiversity Values Map extract showing areas mapped as containing high biodiversity value.
Source: NSW Department of Climate Change, Energy, the Environment and Water

5 DISCUSSION

5.1 Impact Assessment

The impact assessment is to calculate the incursions to the root zones and canopies as a result of the proposed demolition and construction works and evaluate the likely impact of the proposed works on the subject trees. A summary of the impacts anticipated are contained within the Tree Schedule at **Appendix 1**. Additionally, plans demonstrating the level of incursion and conflict to NRZs and SRZs can be found at **Appendix 2**. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Notional Root Zones (NRZ);
- Structural Root Zones (SRZ);
- Footprint of the proposed development (incl. stormwater and services) and temporary structures (scaffolding, hoardings etc.);
- Incursions to the NRZ & SRZ, including estimated cut & fill beyond the building footprint;
- Incursions to the tree canopy from the building envelope and temporary structures;
- Pruning necessary for building clearance;
- Remediation works for soil contaminants;
- Species tolerance to disturbance; and
- Assessment of the likely impact of the works on existing trees.

5.2 Trees Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that all one-hundred (100) trees be retained and protected. This includes **Trees 1-100**. Refer to **Appendix 2** for a plan indicating the location of trees that are to be retained and protected (shaded green).

Table 3 below provides a summary of impacts to be sustained as part of the proposed works and subsequent reasoning for retention.

Retention of each of these trees is contingent on implementation of the tree protection measures outlined within **Section 7** below.

Table 5 – Trees recommended for retention & protection

Works Within the Notional Root Zone (NRZ)	Trees Recommended for Retention & Protection				
	High Retention Value	Medium Retention Value	Low Retention Value	Dead	Total
Horizontal Directional Drilling (HDD) proposed within the NRZ – root disturbance unlikely due to approximate depth of bore (15m)	One (1) tree: Tree 71	Four (4) trees: Trees 48, 66, 74 & 86	Seventeen (17) trees: Trees 49, 61, 63, 64, 65, 67, 75, 80, 81, 82, 83, 88, 89, 90, 91, 92 & 93	-	Twenty-two (22) trees
No works proposed within the NRZ.	Eleven (11) trees: Trees 22, 23, 24, 27, 28, 29, 30, 31, 33, 57 & 96	Twenty-two (22) trees: Trees 1, 2, 3, 4, 5, 6, 7, 8, 18, 19, 20, 25, 32, 36, 38, 41, 42, 70, 73, 87, 94 & 95	Forty-five (45) trees: Trees 9, 10, 11, 12, 13, 14, 15, 16, 17, 21, 26, 34, 35, 37, 39, 40, 43, 44, 45, 46, 47, 50, 51, 52, 53, 54, 55, 56, 58, 59, 60, 62, 68, 69, 72, 76, 77, 78, 79, 84, 85, 97, 98, 99 & 100	-	Seventy-eight (78) trees
Total					One-hundred (100) trees

5.2.1 Impact Avoidance – Horizontal Directional Drilling

As part of impact avoidance measures for retained trees within the Ropes Creek corridor, it is acknowledged that the retention of many of these trees has been facilitated by the proposed installation of HV cables via Horizontal Directional Drilling (HDD) which is to be located beneath the root zones of **Trees 48, 49, 61, 63, 64, 65, 66, 67, 71, 74, 75, 80, 81, 82, 83, 86, 88, 89, 90, 91, 92 & 93**. With an approximate bore depth of 15m, it is unlikely that these works will disturb any roots associated with these trees.

5.3 Ancillary Construction Related Impacts

Vehicles, machinery and equipment requiring access to the site have potential to result in inadvertent impacts to those trees being retained including compaction of the root zone, soil disturbance, physical damage to roots, trunk damage etc. and as such will require management.

Furthermore, storage and stockpiling of material may result in similar impacts and will require management. In this regard, protection for those trees to be retained is to be carried out in accordance with **Appendix 5**.

6 CONCLUSION

6.1 Proposed Development Impact

Based on the plans and information supplied, the proposal would result in the following impacts to existing trees:

Retention and protection of one-hundred (100) trees, including:

- Twenty-two (22) trees which are to which are to have works occur within their Notional Root Zones, however are unlikely to be significantly impacted due to root sensitive construction techniques (HDD), and;
- Seventy-eight (78) trees which are generally located away from the proposed construction works and are to have nil encroachment to their respective Notional Root Zones;

Specific recommendations as per **Section 7** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate the potential negative impacts to trees nominated for retention.

7 RECOMMENDATIONS

7.1 Tree Retention & Protection

Retain and protect **Trees 1-100** (100 trees) in accordance with the Tree Location Plan & Tree Protection Specification held at **Appendix 2 & 5**, AS4970-2025 *Protection of trees on development sites* and the specific recommendations below:

7.1.1 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites should be engaged prior to the commencement of any works on site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained trees during the works. The Project Arborist is to supervise and monitor any excavation, machine trenching or compacted fill placement within the TPZ of retained trees throughout construction.

7.1.2 Tree Protection Plan and Specification

Following design development and prior to any construction works taking place on site, a dedicated Tree Protection Plan and Specification is to be prepared by a suitably qualified AQF Level 5 Arborist. The purpose of this document is to provide a suitable framework for tree protection to ensure all trees nominated for retention are not adversely impacted by the proposed works.

8 REFERENCES

- Council of Standards Australia, 2025 AS 4970 – 2025 – Protection of Trees on Development Sites Standards Australia, Sydney.
- Council of Standards Australia, 2007 AS 4373 – 2007 – Pruning of Amenity Trees Standards Australia, Sydney.
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APPENDIX 1: TREE ASSESSMENT DATA - STACK SYD01 DATA CENTRE, ERSKINE PARK (POWER LEAD IN WORKS)

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
1	<i>Eucalyptus moluccana</i>	Grey Box	8	6	200, 150	300	3.00	2.00	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Bifurcated from 0.5m
2	<i>Eucalyptus moluccana</i>	Grey Box	9	6	250	300	3.00	2.00	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Minor deadwood
3	<i>Eucalyptus moluccana</i>	Grey Box	9	8	300	350	3.60	2.13	SM	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from 2m. Union appears sound
4	<i>Eucalyptus moluccana</i>	Grey Box	8	6	250	300	3.00	2.00	SM	Average	Fair	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from 2m. Union appears sound
5	<i>Eucalyptus moluccana</i>	Grey Box	8	7	250	300	3.00	2.00	SM	Good	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Minor deadwood
6	<i>Eucalyptus moluccana</i>	Grey Box	7	6	150, 150	250	2.55	1.85	SM	Good	Fair	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from breast height. Union appears sound
7	<i>Eucalyptus moluccana</i>	Grey Box	8	6	250	300	3.00	2.00	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Minor deadwood
8	<i>Eucalyptus moluccana</i>	Grey Box	9	7	250	300	3.00	2.00	SM	Good	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Multiple co-dominant leaders from 3m
9	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	3	4	100, 100	150	2.00	1.50	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
10	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	3	3	50, 50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Sooty mold
11	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	2	3	50, 50, 50, 50	150	2.00	1.50	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
12	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	4	100, 100, 100	200	2.08	1.68	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
13	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	2	3	100	150	2.00	1.50	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
14	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	3	150	200	2.00	1.68	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
15	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	3	150, 100	200	2.16	1.68	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
16	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	2	3	100	150	2.00	1.50	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
17	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	3	3	150	200	2.00	1.68	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
18	<i>Eucalyptus moluccana</i>	Grey Box	8	6	250, 200	350	3.84	2.13	SM	Average	Fair	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Included second order leader @1m
19	<i>Eucalyptus moluccana</i>	Grey Box	7	6	200	250	2.40	1.85	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Nil
20	<i>Eucalyptus moluccana</i>	Grey Box	9	7	250	300	3.00	2.00	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Minor deadwood
21	<i>Eucalyptus moluccana</i>	Grey Box	8	5	200	250	2.40	1.85	SM	Average	Poor	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Significant stem inclusion @2m

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
22	<i>Corymbia maculata</i>	Spotted Gum	14	8	450	500	5.40	2.47	M	Good	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from 2m. Union appears sound
23	<i>Corymbia maculata</i>	Spotted Gum	12	6	300	350	3.60	2.13	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Included co-dominant leaders from 5m. Unions appear sound
24	<i>Corymbia maculata</i>	Spotted Gum	11	7	400	450	4.80	2.37	M	Good	Good	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Nil
25	<i>Corymbia maculata</i>	Spotted Gum	8	6	300	350	3.60	2.13	M	Good	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Minor branch failures and deadwood
26	<i>Corymbia maculata</i>	Spotted Gum	8	6	300	350	3.60	2.13	M	Average	Poor	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain & Protect	Significant canker ascending north-western side of stem. Cambial dieback and borer activity
27	<i>Corymbia maculata</i>	Spotted Gum	11	7	350	400	4.20	2.25	M	Good	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from 4m. Union appears sound
28	<i>Corymbia maculata</i>	Spotted Gum	13	6	350	400	4.20	2.25	M	Average	Good	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Slender form
29	<i>Corymbia maculata</i>	Spotted Gum	10	7	300	350	3.60	2.13	M	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Nil
30	<i>Corymbia maculata</i>	Spotted Gum	9	7	350	400	4.20	2.25	M	Good	Good	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Nil
31	<i>Corymbia maculata</i>	Spotted Gum	11	5	300	350	3.60	2.13	M	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Geofabric attached to base of trunk
32	<i>Corymbia maculata</i>	Spotted Gum	8	6	300	350	3.60	2.13	M	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Geofabric attached to base of trunk
33	<i>Corymbia maculata</i>	Spotted Gum	10	6	300, 300	450	5.09	2.37	M	Good	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from base. Union appears sound
34	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	5	4	100, 100, 100	200	2.08	1.68	SM	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Coppiced growth from base
35	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	7	7	150, 150	300	2.55	2.00	SM	Good	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Crossing co-dominant stems from base
36	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	9	4	150	200	2.00	1.68	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Slender form
37	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	5	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
38	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	8	3	150	200	2.00	1.68	SM	Good	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Nil
39	<i>Casuarina glauca</i>	Swamp Oak	7	5	150, 100	300	2.16	2.00	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
40	<i>Casuarina glauca</i>	Swamp Oak	7	3	50, 50, 50	150	2.00	1.50	SM	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Multi-stemmed from base
41	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	8	4	100, 100, 100	200	2.08	1.68	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Multi-stemmed from base
42	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	7	7	100, 100, 100	250	2.08	1.85	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Multi-stemmed from base
43	<i>Casuarina glauca</i>	Swamp Oak	9	3	100, 50	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from 0.5m

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure / Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
44	<i>Casuarina glauca</i>	Swamp Oak	7	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
45	<i>Casuarina glauca</i>	Swamp Oak	9	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
46	<i>Casuarina glauca</i>	Swamp Oak	8	4	100	150	2.00	1.50	SM	Fair	Average	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain & Protect	Reduced foliage density
47	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	7	3	100	150	2.00	1.50	SM	Fair	Average	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain & Protect	Reduced foliage density
48	<i>Eucalyptus tereticornis</i>	Forest Red Gum	8	5	150	200	2.00	1.68	SM	Average	Average	Long 40 years +	Low	Medium	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Minor tip dieback on lower laterals
49	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	7	2	100, 100	200	2.00	1.68	SM	Average	Fair	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Included co-dominant stems from base
50	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	9	4	200	250	2.40	1.85	SM	Good	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Included co-dominant stems from 4m
51	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	3	50, 50, 50	100	2.00	1.50	SM	Fair	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Reduced foliage density. Previously tooed
52	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	6	4	100, 100, 50	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
53	<i>Eucalyptus tereticornis</i>	Forest Red Gum	7	4	100	150	2.00	1.50	SM	Fair	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Reduced foliage density
54	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	4	50, 50, 50, 50	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
55	<i>Casuarina glauca</i>	Swamp Oak	7	4	100, 100	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
56	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	5	4	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
57	<i>Eucalyptus moluccana</i>	Grey Box	13	9	400	450	4.80	2.37	M	Good	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain & Protect	Minor deadwood
58	<i>Casuarina glauca</i>	Swamp Oak	10	5	150	200	2.00	1.68	SM	Fair	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Moderately reduced foliage density
59	<i>Casuarina glauca</i>	Swamp Oak	7	4	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
60	<i>Casuarina glauca</i>	Swamp Oak	9	5	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
61	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	5	4	50, 50, 50, 50	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
62	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	3	3	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
63	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	3	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
64	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	4	3	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Bifurcated from base
65	<i>Eucalyptus tereticornis</i>	Forest Red Gum	11	6	200, 200	400	3.39	2.25	SM	Average	Fair	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Epicormic leaders from old stump

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure / Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
66	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	10	8	400, 400	600	6.79	2.67	M	Good	Average	Medium 15-40 years	Medium	Medium	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Bifurcated from 1m
67	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	5	4	50, 50	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
68	<i>Senna pendula var. glabrata</i>	Cassia	4	4	50, 50, 50	100	2.00	1.50	M	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Weed species
69	<i>Casuarina glauca</i>	Swamp Oak	6	3	100, 50, 50	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
70	<i>Angophora subvelutina</i>	Broad-leaved Apple	10	10	400	450	4.80	2.37	M	Good	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain & Protect	Partially suppressed with crown bias to east
71	<i>Eucalyptus tereticornis</i>	Forest Red Gum	19	14	700	800	8.40	3.01	M	Good	Good	Long 40 years +	High	High	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Dominant
72	<i>Casuarina glauca</i>	Swamp Oak	12	8	250, 200	400	3.84	2.25	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base. Suppressed by adjacent trees
73	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	9	7	300	350	3.60	2.13	M	Good	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain & Protect	Crown bias to south-west
74	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	7	8	300, 200, 200, 200	600	5.50	2.67	M	Good	Average	Medium 15-40 years	Medium	Medium	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Multi-stemmed from base
75	<i>Casuarina glauca</i>	Swamp Oak	5	2	50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Slender form
76	<i>Casuarina glauca</i>	Swamp Oak	10	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Crown bias to north
77	<i>Casuarina glauca</i>	Swamp Oak	5	6	100, 50, 50, 50	150	2.00	1.50	SM	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Significant trunk lean and crown bias to north
78	<i>Casuarina glauca</i>	Swamp Oak	6	2	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Bifurcated from base
79	<i>Casuarina glauca</i>	Swamp Oak	8	5	150	200	2.00	1.68	SM	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Trunk lean and crown bias to north
80	<i>Casuarina glauca</i>	Swamp Oak	11	5	150, 150, 150	500	3.12	2.47	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Multi-stemmed from base
81	<i>Casuarina glauca</i>	Swamp Oak	9	4	200	250	2.40	1.85	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
82	<i>Casuarina glauca</i>	Swamp Oak	9	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
83	<i>Casuarina glauca</i>	Swamp Oak	12	6	250, 200, 200, 200	400	5.13	2.25	M	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Multi-stemmed from base
84	<i>Casuarina glauca</i>	Swamp Oak	10	5	250	300	3.00	2.00	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
85	<i>Casuarina glauca</i>	Swamp Oak	13	6	300	350	3.60	2.13	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
86	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	11	11	600, 600	1100	10.18	3.44	M	Good	Average	Medium 15-40 years	Medium	Medium	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Bifurcated from base. Moderate deadwood
87	<i>Casuarina glauca</i>	Swamp Oak	14	7	350	400	4.20	2.25	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain & Protect	Nil

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
88	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	7	5	100, 100, 100	300	2.08	2.00	SM	Average	Poor	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Epicormic leaders from old stump
89	<i>Acacia decurrens</i>	Early Black Wattle	8	6	150	200	2.00	1.68	M	Good	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
90	<i>Acacia decurrens</i>	Early Black Wattle	8	6	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
91	<i>Acacia decurrens</i>	Early Black Wattle	7	5	150	200	2.00	1.68	M	Good	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
92	<i>Acacia decurrens</i>	Early Black Wattle	6	5	100, 50	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Nil
93	<i>Acacia decurrens</i>	Early Black Wattle	5	4	100	150	2.00	1.50	M	Average	Fair	Short 5-15 years	Low	Low	HDD within NRZ. Root disturbance unlikely	Retain & Protect	Crown impacted by vine
94	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	8	7	300, 200, 200, 200	500	5.50	2.47	M	Good	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain & Protect	Multi-stemmed from 1m
95	<i>Angophora floribunda</i>	Rough-barked Apple	9	6	250, 150	350	3.50	2.13	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain & Protect	Bifurcated from base
96	<i>Eucalyptus tereticornis</i>	Forest Red Gum	18	15	1000	1100	12.00	3.44	M	Average	Fair	Medium 15-40 years	High	High	No works proposed within NRZ	Retain & Protect	Failed former co-dominant leaders. Moderate reduction in foliage density
97	<i>Casuarina glauca</i>	Swamp Oak	10	6	200, 200, 200, 200	300	4.80	2.00	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Group of 4
98	<i>Eucalyptus tereticornis</i>	Forest Red Gum	9	5	250	300	3.00	2.00	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil
99	<i>Casuarina glauca</i>	Swamp Oak	4	3	50, 50, 50, 50	100	2.00	1.50	J	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Group of 4 saplings
100	<i>Casuarina glauca</i>	Swamp Oak	7	4	150	200	2.00	1.68	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain & Protect	Nil

Tree Inspection Data Notes & Terminology

Tree No. (Tree Number)

The tree number associated to each tree located on or adjacent to the subject site.

Botanical Name and Common Name

The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. is recorded to indicate this.

Height, Crown Width and DSH

- The trees height and crown spread is recorded in metres (m);
- The tree DSH is recorded in millimetres (mm). DSH is an abbreviation of Diameter (of the trunk) measured at Standard Height (or 1.4m from the base of the trunk). If more than one trunk is present the DSH is calculated in accordance with AS4970-2025 Protection of Trees on Development Sites

Age Class

The age class of each tree is estimated as either:

- J – Juvenile refers to a well established but young tree
- SM – Semi Mature, a tree that has not grown to mature size
- M – Mature, a tree that has reached mature size and will slowly increase in size over time
- OM – Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches
- S – Senescent, an over mature tree that is now in decline

Health & Condition

The trees health and vigour is recorded as a measurement of:

Good - the tree does not appear to appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots

Average - the tree appears stressed and has some crown dieback, and /or a few epicormic shoots, and/or some deadwood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health

Fair - the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve trees health

Poor - the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long period of time, remediation of the growing environment would not return the tree to good health.

SRZ (Structural Root Zone)

The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the trees structural integrity. The SRZ is calculated as follows (This calculation is taken from the Australian Standard 4970 – 2025 Protection of Trees on Development Sites): $(D \times 50)/0.42 \times 0.64$

NRZ (Notional Root Zone)

The NRZ is a radial area measured by multiplying the DSH by twelve (12) or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The NRZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2025 Protection of Trees in Development Sites. NRZ encroachment is potentially acceptable if no other option is available and is classified under AS4970-2025 as 'Minor' ($\leq 10\%$), 'Moderate' ($>10\text{ to }20\%$) or 'Major' ($>20\%$). A major encroachment (in excess of 20%) is required to be clearly justified by the Project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or individual tree's health, vigour and ability to withstand disturbance and may require root investigation.

Landscape Significance

The landscape significance of a tree or group of trees is determined using a combination of health/vigour/condition, amenity, heritage and ecological values in accordance with IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©.

1. High Significance in Landscape**2. Medium Significance in Landscape****3. Low Significance in Landscape****Retention Value (RV)**

Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce SULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

High Retention - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites.

Tree sensitive construction measures must be implemented e.g. pier and beam etc. If works are to proceed within the Tree Protection Zone.

Medium Retention - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

Low Retention - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

S.U.L.E. Categories

Safe Useful Life Expectancy (after Barrell 1996, modified by the author). A trees S.U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. S.U.L.E. assessments may be modified as dictated by changes in trees health and environment.

Long - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.

Medium - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.

Short - Trees appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk assuming reasonable maintenance.

Very Short - Removal - Trees which should be scheduled for removal within the very short term or as specified within this report.

Small, Young or Regularly Pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

Development Impact

Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

Retain/Remove

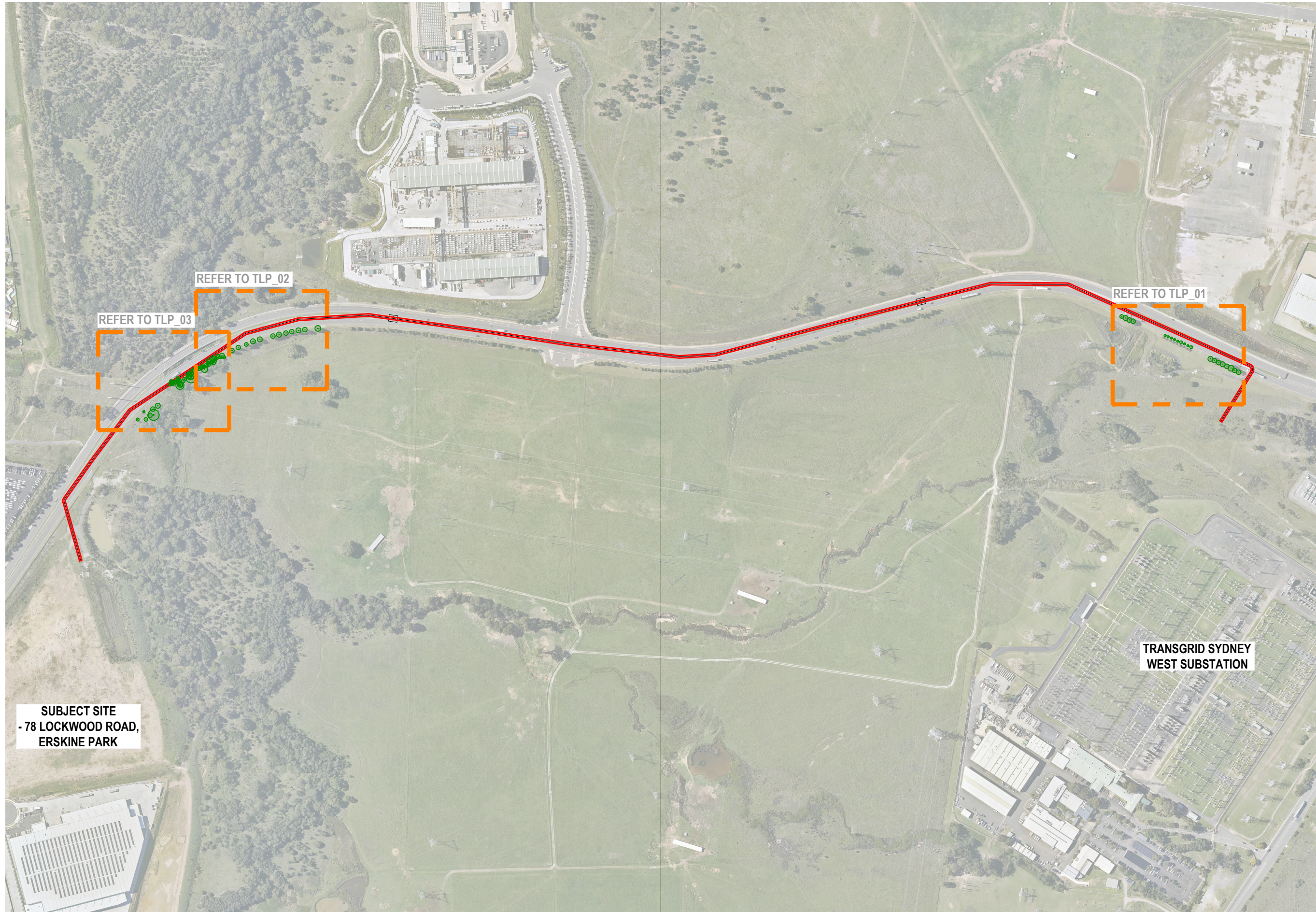
The proposed removal or retention recommendation in light of the proposed development related impacts.

NOTES: This report acknowledges the current Australian Standard 'Protection of Trees on Development Sites' AS 4970 – 2025 with reference to the National Root Zone (NRZ): being a combination of the root and crown area requiring protection. The NRZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. The standard states where a greater than 20% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.2.

Encroachments are referred to within this report as major or minor encroachments [AS4970 s. 3.3.2 & 3.3.3]. To retain specific trees and ensure their viability, development must take into consideration protection of the NRZ radius.

APPENDIX 2 - TREE LOCATION PLANS

NOTE: MUST BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT



DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	16.03.26

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT
**STACK SYD01 DATA CENTRE, ERSKINE PARK
- POWER LEAD IN WORKS**

DRAWING TITLE

CONTEXT PLAN

CLIENT





DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

LEGEND

- EXISTING TREE TO BE RETAINED
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- PROPOSED HV CABLE ALIGNMENT

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	16.03.26

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

STACK SYD01 DATA CENTRE, ERSKINE PARK - POWER LEAD IN WORKS

DRAWING TITLE

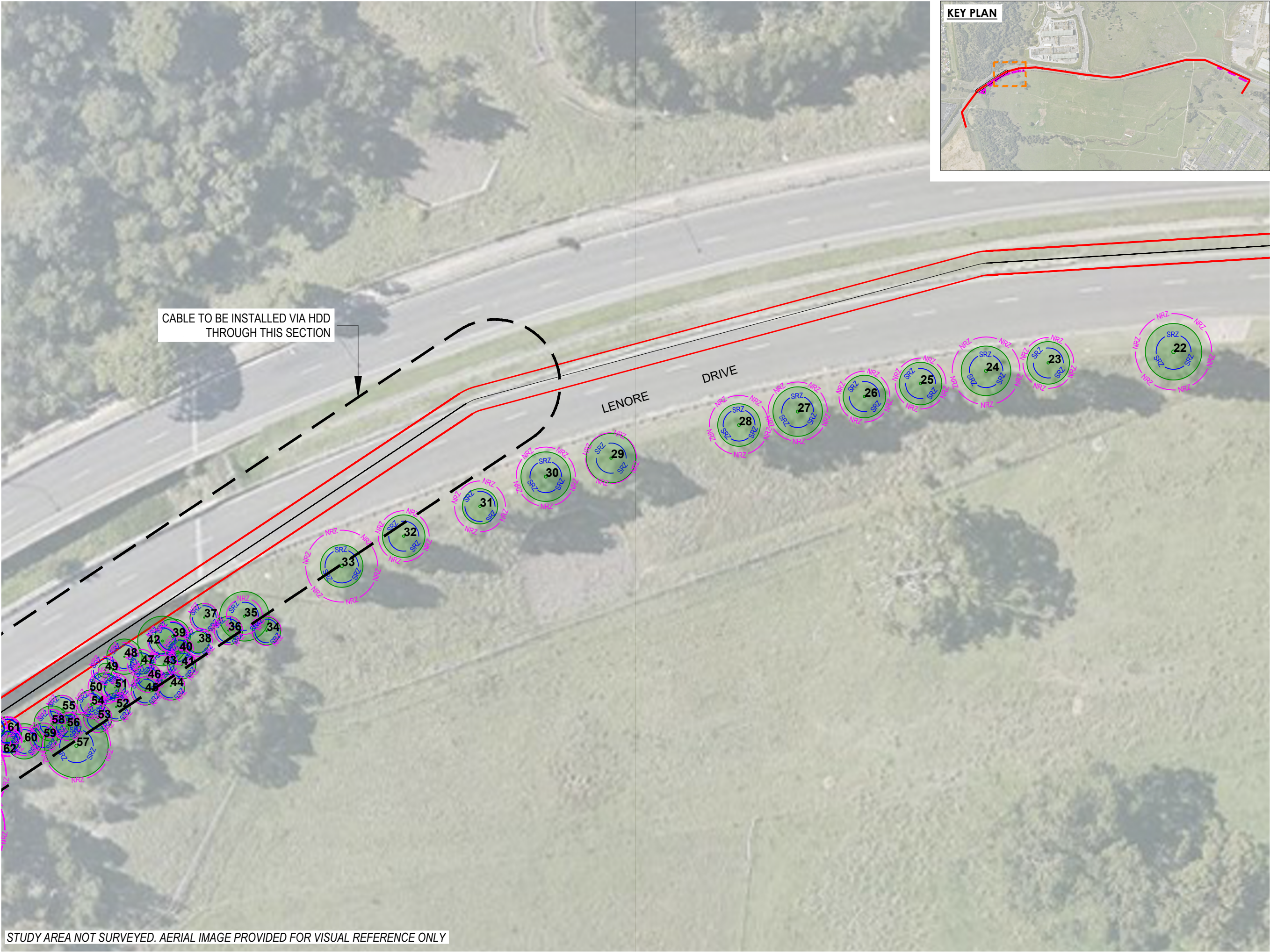
TREE LOCATION PLAN 01

CLIENT



Drawn	: TP	
Designed	: -	
Project No.	: H953	
Bar Scale		
1:500 @ A3		
SHEET NUMBER	REVISION	
H953_TLP_01	A	

STUDY AREA NOT SURVEYED. AERIAL IMAGE PROVIDED FOR VISUAL REFERENCE ONLY



STUDY AREA NOT SURVEYED. AERIAL IMAGE PROVIDED FOR VISUAL REFERENCE ONLY

KEY PLAN



CPS

CREATIVE PLANNING SOLUTIONS
LEVEL 3
397 RILEY STREET
SURRY HILLS NSW 2010
PO BOX 1074 BROADWAY NSW 2007
TEL: + (61) 2 8039 7461
INFO@CPSPLANNING.COM.AU
CPSPLANNING.COM.AU

DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
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LEGEND

- EXISTING TREE TO BE RETAINED
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- PROPOSED HV CABLE ALIGNMENT

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	16.03.26

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

STACK SYD01 DATA CENTRE, ERSKINE PARK - POWER LEAD IN WORKS

DRAWING TITLE

TREE LOCATION PLAN 01

CLIENT



Drawn : TP
Designed : -
Project No. : H953
Bar Scale
1:500 @ A3
SHEET NUMBER
H953_TLP_02
REVISION
A



CPS
CREATIVE PLANNING SOLUTIONS
LEVEL 3
397 RILEY STREET
SURRY HILLS NSW 2010
PO BOX 1074 BROADWAY NSW 2007
TEL: + (61) 2 8039 7461
INFO@CPSPLANNING.COM.AU
CPSPLANNING.COM.AU

DIMENSIONS :
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Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
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- LEGEND**
- EXISTING TREE TO BE RETAINED
 - NOTIONAL ROOT ZONE (NRZ)
 - STRUCTURAL ROOT ZONE (SRZ)
 - PROPOSED HV CABLE ALIGNMENT

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	16.03.26

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

STACK SYD01 DATA CENTRE, ERSKINE PARK - POWER LEAD IN WORKS

DRAWING TITLE

TREE LOCATION PLAN 01

CLIENT



Drawn : TP
Designed : -
Project No. : H953
Bar Scale
1:500 @ A3
SHEET NUMBER
H953_TLP_03
REVISION
A

APPENDIX 4

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria and Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria



1. High Significance in landscape

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

2. Medium Significance in landscape

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

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

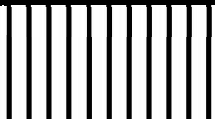
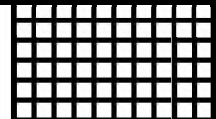
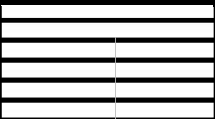
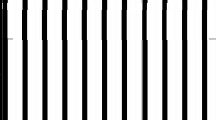
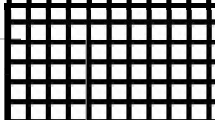
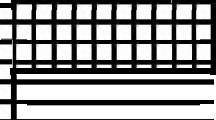
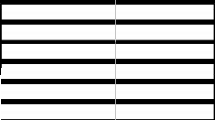
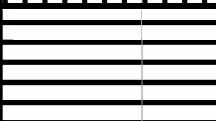
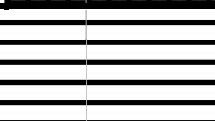
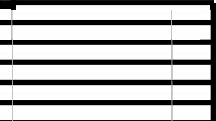
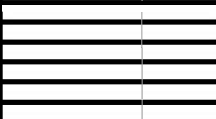
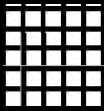
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

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

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

Table 1.0 Tree Retention Value - Priority Matrix.

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					
<u>Legend for Matrix Assessment</u> 						
	Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.					
	Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.					
	Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.					
	Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.					

USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

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

REFERENCES

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

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

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

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

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good form and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.

APPENDIX 5 - EXTRACT FROM AS4970-2025: PROTECTION OF TREES ON DEVELOPMENT SITES

Section 3 Determining protection zones

3.1 Tree Protection Zone (TPZ)

Establishing and maintaining a TPZ is the most important part of protecting trees during the onsite stages of work (e.g. site establishment, demolition, construction). The TPZ is the zone determined by the project arborist using the process set out below. It shall be shown on the TPP to be isolated or managed so that the tree remains viable.

The NRZ is the starting point for determining the TPZ, along with the considerations in [Clause 3.3.2](#). Alternatively, the TPZ may be specified by the consent authority.

3.2 Calculating the Notional Root Zone (NRZ)

The radius of the NRZ is calculated for each tree by multiplying its diameter at standard height (DSH) by 12.

$$\text{Radius of the NRZ} = \text{DSH} \times 12$$

where

DSH = trunk diameter measured at 1.4 m above ground

The radius of the NRZ is measured from the centre of the stem.

The NRZ for palms, cycads, tree ferns and the like, is not calculated but shall not be less than 2 m.

Any NRZ radius shall not be less than 2 m nor greater than 15 m. [Clause 3.3](#) details the methods to produce the TPZ based on the NRZ.

3.4 Structural Root Zone (SRZ)

The SRZ is a notional area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ shall be calculated when major encroachment (greater than 20 %) into an NRZ is proposed. SRZ locations and dimensions may be included on arboriculture documentation.

Many factors affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). Natural or built structures, such as rocks and footings, can also influence the SRZ. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or [Figure 2](#). Root investigation can provide more information on the extent of these roots.

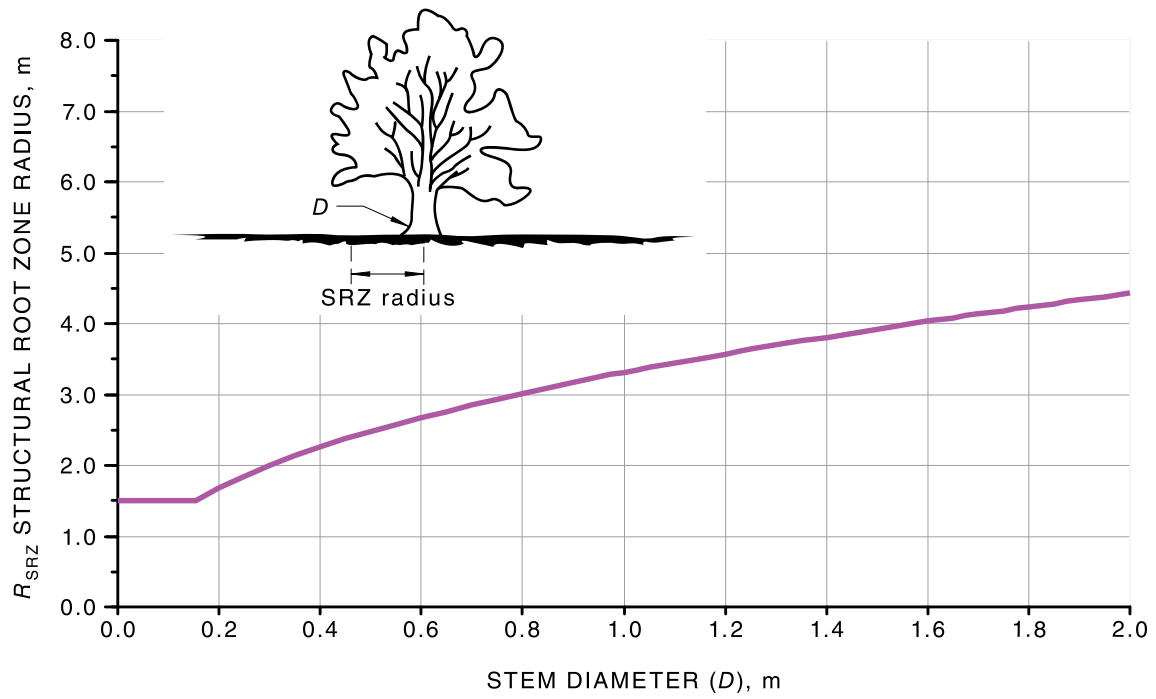
$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

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

Where the tree is multi-stemmed, the project arborist should determine if they will measure around all stems or work out the cross-sectional area, as noted in [Figure A.1](#), and provide their reasons for the method selected. The SRZ calculation does not apply to palms, cycads, tree ferns and the like.

NOTE The SRZ for trees with trunk diameters less than 0.15 m is 1.5 m, as shown in [Figure 2](#).



The curve can be expressed by the following formula:
 $R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

Figure 2 — Structural Root Zone (SRZ) calculation

APPENDIX 6 – GENERAL TREE PROTECTION SPECIFICATION

1.0 Project Arborist

A Project Arborist with AQF Level 5 qualifications may be appointed prior to works commencing to ensure trees to be retained are appropriately monitored and protected throughout the proposed works. The Project Arborist shall review all tree protection measures, ensure compliance with requirements set out by the Principal Certifying Authority and provide compliance reports as per the schedule of works and responsibilities below.

Table 5 - Schedule of Works and Responsibilities

HOLD POINT	TASK	RESPONSIBILITY	CERTIFICATION	TIMING OF INSPECTION
1	Review & certification of all tree protection measures	Principal Contractor	Project Arborist (AQF5)	Prior to demolition or site establishment
2	Supervise all excavation works proposed within the TPZ	Principal Contractor	Project Arborist (AQF5)	As required prior to works proceeding within TPZ
3	Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Quarterly during construction
4	Final Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Following removal of tree protection measures prior to Occupation Certificate

2.0 Compliance

Compliance Documentation shall be prepared by the Project Arborist following each site inspection. The Compliance Documentation shall include documentary evidence of compliance with the tree protection measures and methods as outlined within this Specification. Upon the completion of the works, a final assessment of the trees shall be undertaken by the Project Arborist and future management strategies recommended.

3.0 Tree Removal

The trees to be removed shall be removed prior to the establishment of the tree protection measures. Tree removal works shall be undertaken in accordance with the *Workcover Code of Practice for the Amenity Tree Industry (1998)*. All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with AS4373-2007 - Pruning of Amenity Trees, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation. Care should be taken to avoid damaging trees to be retained.

4.0 Tree Protection Zone

The Tree Protection Zone (TPZ) is a specified area above and below ground set aside for the protection of a tree. The TPZ should be protected to ensure development activities do not have an adverse effect on the viability and stability of trees to be retained. Activities restricted within the TPZ include:

- Soil cutting or filling, including excavation and trenching
- Soil compaction and modification
- Storage of materials and waste
- Parking of vehicles and plant
- Temporary or permanent installation of sheds, utilities and signs
- Cement or chemical preparation
- Refuelling
- Any other action leading to damage of the tree

5.0 Tree Protection Fencing

TPZ fencing shall be located at the perimeter of the TPZ. Where TPZ areas overlap, TPZ fencing may be combined to form a single larger TPZ area. The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works.

Fencing may be setback to allow for demolition/construction access only where appropriate ground protection is installed and approved by the Project Arborist.

Tree Protection Fencing shall consist of galvanised steel temporary fencing panels supported by concrete feet with panels coupled together. Care should be taken to avoid damaging the tree during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (**Appendix 6**).

6.0 Scaffolding

Scaffolding shall be erected outside of the TPZ. If scaffolding is deemed essential within the TPZ, the ground shall be protected, and branch removal minimised. Ground below scaffolding shall be protected by boarding placed over a layer of mulch to prevent soil compaction. Scaffolding shall be designed to avoid branches or branches tied back. Refer to Typical Tree Protection Details (**Appendix 6**).

7.0 Ground Protection

Where deemed necessary by the Project Arborist, temporary ground protection, such as ground mats or steel road plates placed over a mulch layer with geotextile fabric underneath, shall be utilised to prevent damage to tree roots during construction. Refer to Typical Tree Protection Details (**Appendix 6**).

8.0 Trunk Protection

Trunk protection shall be installed by wrapping padding around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (**Appendix 6**).

9.0 Works within the Tree Protection Zones

The Principal Certifying Authority may approve works within Tree Protection Zones. The Project Arborist shall ensure compliance with the prescribed requirements as set out by the Principal Certifying Authority to ensure trees nominated for retention are adequately retained and protected throughout the works.

10.0 Structure & Pavement Demolition

Demolition of existing structures/pavement within the TPZ shall be supervised by the Project Arborist. Machinery is to be excluded from the TPZ unless operating from the existing slabs, pavements or areas of ground protection.

Pavement is to be shattered with a hand-operated pneumatic/electric breaker prior to removal taking place and carefully lifted to minimise damage to the underlying soil profile and tree roots. The underlying soil profile and existing sub-base materials shall remain in-situ.

When removing slab sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un-demolished sections of slab at all times. Machinery should not contact the tree's roots, trunk, branches and crown.

Exposed roots shall be irrigated by hand and covered with a 75-100mm layer of mulch as soon as possible after being exposed. The mulch must remain in place until new surfaces are put into place.

11.0 Underground Services

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using in a root-sensitive manner utilising manual hand excavation methods or employ a pneumatic excavation device to ensure roots are maintained and undamaged under supervision of the Project Arborist. Services are to be threaded in between and/or under to preserve existing roots.

13.0 Excavations, Root Protection & Root Pruning

Excavation required within the TPZ shall be undertaken using non-motorised hand tools or a pneumatic excavation device under supervision of the Project Arborist. Excavation must be undertaken in a root sensitive manner to ensure roots are maintained and un-damaged. Should significant roots be identified (>25mmØ) during construction, works are to cease and direction sought from the Project Arborist with regards to root pruning, modification of construction methodology or design alteration.

APPENDIX 7 - TYPICAL TREE PROTECTION DETAILS

