

# ARBORICULTURAL IMPACT ASSESSMENT

(AIA)

**185 POSTLE STREET,  
MOUNT RASCAL**

**APRIL 2026**

**PREPARED FOR**

Steinmuller Property Pty Ltd

Contact: Mick Steinmuller

Email: steinmullercon@gmail.com

Mobile: 0418 717 014

**PREPARED BY**

Treescience Pty Ltd atf The Treescience Trust

Contact: Tim Rival (Senior Arboricultural Consultant) for Treescience

Email: timr@treescience.com.au

Mobile: 0458 156 522

Office: 1300 731 859

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### Limitation

This report is only concerned with the condition and management strategies required for the subject tree(s). It includes an assessment based on the site visits and the information that I have been advised.

This report does not take into account the possibility of extreme climatic events not normally expected in this locality. Such events could include, but are not restricted to, severe windstorms, floods, or drought. This report also does not take into account the possibility of future outbreaks of pests or diseases.

Information contained in this report covers only the tree(s) that were examined and reflects the condition of the tree(s) at the time of inspection.

There is no warranty or guarantee, expressed or implied, that problems and/or deficiencies of a tree may not arise in the future.

## DETAIL of REVISION AMENDMENTS

Arboricultural Impact Assessment report (AIA) Control – the latest approved version of the AIA is to be made available for all project personnel in consultation with the project’s representative and/or Treescience Pty Ltd.

### *Amendments*

*Each new revision to the AIA will be distributed to all required personnel for review and approval.*

*The revision type is noted in the footer of each page. The document will be allocated a new revision type if the changes made affect the overall meaning of the document.*

*When a new revision to the document is available, a notification email is to be distributed to all project personnel by the project’s representative advising of the update.*

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1	Arboricultural Impact Assessment (Arborist Report)	TR	KK	TR	08/04/2026

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This document was prepared for the sole use of Steinmuller Property and the regulatory agencies that are directly involved in the approval process. Treescience is not an advocate for a particular party. The duty of Treescience is to assist in providing information for Steinmuller Property for their review of this matter. No other party should rely on the information contained herein without the prior written consent from the Director of Treescience Pty Ltd.

## Definitions and Abbreviations

<b>CLIENT</b>	An organisation inviting and receiving tenders and letting contracts. For the purposes of this project – Steinmuller Property
<b>CONTRACTOR</b>	An organisation that contracts with a client to carry out construction and related services. For the purposes of this project – Treescience Pty Ltd.
<b>LOCAL or STATE GOVERNMENT DEPARTMENT</b>	Toowoomba Regional Council (TRC)
<b>GOVERNMENT AGENCY</b>	A government department, authority, corporation, or entity established by an Act of the State Parliament
<b>PROJECT</b>	Driveway crossover associated with lot subdivision.
<b>SUB CONTRACTOR</b>	Organisation that contracts with a principal contractor as the client to carry out construction and related services.

## DOCUMENTS REVIEWED

Conceptual Effluent Disposal Plan for Development Application RAL (1 into 3 Lot Subdivision) 185 Postle Street Mount Rascal.pdf
Engineering Survey Plan RAL (1 into 3) 185 Postle Street Mount Rascal.pdf
Information Request 185 Postle Street.pdf

**NOTE:** This report is to be read in conjunction with the documents reviewed as referenced above unless otherwise stated within the body of the AIA.

## EXECUTIVE SUMMARY

Steinmuller Property have requested advice from a suitable qualified Arborist to satisfy the interest of the consenting authority regarding the potential impacts of the proposed construction works.

A total of four (4) trees were assessed from an arboricultural perspective.

All trees are established within the Council controlled Road reserve.

It is understood that none of the four (4) trees assessed require removal works to facilitate the works.

A total of four (4) trees were identified for retention.

With consideration of the guidelines within AS4970–2025, 04.5 arboricultural key, 04.6 tree protection specifications, and 04.7 tree plan illustrate and provide appropriate construction guidelines in addition to Chapter 8 AWMS for the implementation of tree protection measures.

We concluded that the identified NRZ encroachments are manageable given adequate tree protection measures are implemented in accordance with this conditional report, along with the implementation of the Treescience AWMS.

Therefore, we are of the professional opinion that the subject tree(s) will not result in premature decline or be significantly compromised based on the proposed design if the proposed works are undertaken in accordance with this report.

In order to construct the proposed development, there are limited encroachments proposed into the NRZ of the subject tree(s).

The following factors were considered in relation to the proposed development:

- Potential construction impacts.
- Tree health and structure.
- NRZ & TPZ areas.
- Environmental influences

Therefore, we recommend:

- All works are to be conducted in accordance with this conditional AIA, unless alternative tree preservation measures are developed and approved by the relevant representatives and Treescience.

- That this report is reviewed according to the final development approval and immediately prior to operational works approval.
- Appoint Treescience as the Supervising Project Arborist to perform the ‘watching brief’ throughout the development to monitor the tree protection requirements and liaise with the consenting authority and relevant representatives.
- The appointed Supervising Project Arborist will assist in supervising where required the associated works within the defined NRZ’s and outline the action mitigation measures as required.
- Establish a line of communication between the consenting authority, site Manager and Treescience, prior to any works commencing.
- All contractors to attend a tree preservation induction and then sign and comply with the requirements of a ‘Certificate of Recognition and Acceptance’ of the conditional AIA specifications for the subject project/trees.
- Ensuring design specifications and construction methodologies consider the subject tree above and below the ground before implementation as outlined within the Arboricultural Work Method Statement(s).
- Employment of careful documented arboricultural supervision and diligent management during the construction process.
- Ensure that any tender documents for the project reflect the requirement to undertake works and include supervision by Treescience.

The recommendations made within this report are subject to approval by the consenting authority.

Although this report proposes strategies and various specification for tree protection and associated site works, it may require amendments prior to Operational Works commencing, in order to reflect the development approval and any changes in tree health.

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## KEYWORDS & DEFINITIONS

- Supervising Project Arborist – AQF Level 5 Arborist
- Notional Root Zone– a radius that is calculated for each tree by multiplying its diameter at standard height x 12 from the centre of the trunk
- Tree Protection Zone – is a distance from the trunk set aside for the protection of a tree's crown and roots to provide for the viability
- Structural Root Zone – is an area considered essential for tree stability
- Consenting Authority – Local and/or State Government
- A tree – “A woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground. Compare with SHRUB. ~ (in general use) any bush, shrub, or herbaceous plant with tall erect stem, e.g., a banana plant (The New Oxford Dictionary of English, 1st edn (1998))”.
- Tree keeper – The land that is, the soil in which the plant was initially planted even if its roots or branches subsequently stray beyond the property boundary.

## LIST of ABBREVIATIONS

- DSH – Diameter at Standard Height @ 1.4m
- NRZ – Notional Root Zone
- TPZ – Tree Protection Zone
- SRZ – Structural Root Zone
- AWMS – Arboricultural Work Method Statement.
- TPS – Tree Protection Specifications
- TPP – Tree Protection Plan

NOTE: the area between the tree protection fencing and the subject tree is deemed the TPZ or exclusion zone.

# 01 INTRODUCTION AND BACKGROUND

Treescience Pty Ltd was engaged by Steinmuller Property to conduct a site inspection and prepare an Arboricultural Impact Assessment (AIA) to accompany a permit application to interfere with Council-controlled vegetation for the project type works at 185 Postle Street, Mount Rascal.

In accordance with Australia Standards, AS4970-2025: Protection of Trees on Development Sites (AS4970-2025), this report provides concise work methods for the proposed works adjacent to the various tree(s) of critical interest (herein referred to as the ‘subject trees’) that are established within the Council Road reserve (herein referred to as the ‘project area’) for the construction of a driveway crossover associated with proposed Lot 17 at 185 Postle Street, Mount Rascal.

This report has been prepared with respect to various subject tree(s) that are established within the study area which are deemed vegetation of critical interest when assessed in accordance with AS4970–2025.

AS4970–2025 provides guidance for:

- A balanced approach on deciding which trees are appropriate for retention.
- Effects of trees on design considerations.
- Means of protecting and monitoring retained trees during development.

The application of diligent arboricultural management as outlined in this report will avoid unnecessary tree removal or damage to the subject tree(s). This report requires a re-examination according to any subsequent changes to the proposed infrastructure design based on the referenced documents prior to operational works approval.

The purpose of the report is to assist the Client to set appropriate constraints, in the form of a report, including a tree preservation specification, that will ensure the construction processes and use of the land suitably allows for a tree nominated for retention.

The constituted views within this report meet the criteria for tree protection under the Local and State Planning Scheme and were performed in accordance with AS4970–2025 by a suitable qualified Arborist (AQF Level 8).

It is assumed by Treescience that the reviewed and issued design drawing(s) are final, which the recommendations within this AIA are founded.

#### 01.1 client brief.

Steinmuller Property have requested advice from a suitably qualified Arborist (min AQF level 5) to satisfy the interest of the consenting authority regarding the potential impact(s) of the proposed construction outcomes adjacent and/or within a Notional Root Zone (NRZ).

### 01.2 reporting compliance outcomes.

Specifically, the intent of the AIA was to collect the tree attributes and provide arboricultural relevant information that would assist in developing appropriate tree management strategies in accordance with AS4970–2025.

## 02 SCOPE OF THE REPORT

This report sets out to consider the subject tree(s) physical and structural requirements in order to maintain suitable tree health and stability in relation to the pending construction works through identifying and reducing potential conflicts.

This report will provide measures to ensure the protection and long-term survival of the nominated trees above and below the ground. The report shall include but not be limited to the following items:

- Individual tree appraisal that identifies and locates subject tree(s) that are established adjacent and/ or directly inside the study area.
- Demonstrate that any impacts to a tree have been assessed and methods have been put in place to either remove, mitigate, or reduce such impacts to a lower level (as practical) for trees proposed to be retained.
- Provide guidance on the protection of a retained tree.
- ensure the tree management procedures within this report are in accordance with the AS4970–2025.

It should be noted that the proposed tree management strategies by Treescience are of a dynamic nature and of changeable character that underscores the flexibility of this working document.

Therefore, as part of the continuing consultancy process, this document will be updated from time to time and will also form the basis for the historical documentation of the tree management practices and processes surrounding the construction works adjacent to the subject tree(s) nominated for retention.

## 03 METHOD AND ASSESSMENT LIMITATIONS

Prior to any onsite inspection(s) being carried out, a site survey plan and relevant drawings were provided to Treescience in order to help identify and assess the condition of the subject tree(s).

The tree assessment summary presented in this report is based on inspections and investigative measures that have been conducted by Treescience in April 2026.

Since any part of a tree could fall, depending on the physical condition, it would be clearly impracticable to undertake a detailed investigation of every part of every tree. The subject tree(s) have been inspected visually while standing at ground level, using binoculars as an aid where appropriate. Visual Tree Assessment (VTA) criteria was employed to assess the mechanical integrity of the aerial parts of the subject tree as proposed by Mattheck & Breloer (2002); with methods of hazard assessment as proposed by Matheny & Clark (1994) and Lonsdale (1999).

The first part of the VTA takes into account biological factors such as vitality (leaves, bark, twig growth etc), presence of fungi, old branches, wound occlusion or wound wood development and/or compartmentalisation, and other biological factors that contribute to tree growth. The second part of VTA deals with tree structure or the mechanical aspects of trees such as breakages (defect symptoms such as bulges or ribs, wounds, leaning that causes transverse cracks, bark cracks and other abnormalities) and wind throw (root buttresses, soil cracks, sail area, root severance etc).

By applying up-dated arboricultural principles and practices, the tree assessment consisted of a comprehensive visual inspection of all parameters pertaining to the subject tree(s) present and future health, and the influence of previous and future activities which may have impacted the subject tree(s).

Soil characteristics and tree architecture were generally noted and/or analysed employing standard industry tools such as optical laser equipment, measuring tapes, microscopes, and auger/coring devices etc. The assessment did not involve a detailed examination of the below ground characteristics that were not exposed or internal tree parts.

The assessment was undertaken from the ground to determine tree health, structure, form, and tree classification with measurements taken to establish trunk and canopy dimensions.

The weather was clear and there was an unobstructed view of the subject tree(s).

## 04 INDIVIDUAL TREE APPRAISAL

In assessing the subject tree(s) adjacent to the proposed construction footprint, the following factors have been considered:

- Tree species
- Tree dimensions.
- Tree health & structure.
- Arboricultural values (see Appendix ONE).
- Tree species construction tolerances.
- Ecological considerations.
- Remove, retain or other; and
- Notes, explanations or descriptions.

### 04.1 arboricultural rating table.

Arboricultural rating relates to the combination of tree condition factors, including health and structure (arboricultural merit), and conveys an amenity value. Amenity relates to the trees biological, functional, and aesthetic characteristics (Hitchmough 1994) within the developing urban landscape context.

CATEGORY	DESCRIPTION
High	Trees of high quality with an estimated remaining life expectancy of at least 30 plus years. A tree of extraordinary qualities which displayed good to fair structure with good vitality which is a good example of the species, or prominent large specimen, or has botanical significance or historical interest or commemorative interest or cultural significance. A single tree which is a part of group or avenue of trees. Generally, a tree that presents prominent arboricultural features with various areas of visual interest within the urban forest. Retention of these trees is highly desirable.

CATEGORY	DESCRIPTION
Moderate	Trees of moderate quality with an estimated remaining life expectancy of at least 20 plus years. A tree of moderate qualities which displayed a minimum of fair structure and health with a high emerging potential. A large to moderate tree which contributes to the landscape character, which could have material conservation or other cultural values. The tree could be marginally structurally compromised or display ill health qualities but has the potential to respond to beneficial arboricultural or tree surgery treatment(s). Retention of these trees is desirable.
Low	A tree of depleted and/or little landscape amenity. The tree presented poor health and/or with poor structure with an estimated remaining life expectancy of less than 10 years. The tree is not a significant specimen in its size and could easily be replaced. The tree is functionally inappropriate to a specific location and would be expected to be problematic if retained now or in the near foreseeable future. Basically, the tree is an unremarkable tree of very limited merit or such impaired condition that they do not qualify in higher categories. Retention of such trees may be considered if they do not require a disproportionate expenditure
None	A tree that is significantly structurally compromised, dead and/or displayed health problems that cannot be mitigated through beneficial arboricultural treatment(s) and therefore cannot realistically be retained as a living tree in the context of the current land use for longer than 10 years. The tree should be considered for removal. This category excludes stag trees or trees with ecological values.

The following images encapsulate the subject tree's growing environment, canopy morphology, branching arrangements, site characteristics and/or critical area(s) of interest from the start of works to the end of works.



T1

T2



T3



T4



Space between T1 (Right) and T4 (Left) for proposed driveway

#### 04.2 individual tree attributes and landscape amenity table

The individual tree attributes and landscape amenity table is a collaboration of the individual tree dimensions, attributes, and landscape amenity values for a subject tree within and/or adjacent to the project area.

Tree #	Tree species	Age class	Average DSH (mm)	Tree height (m)	Average canopy spread (m)	Tree health	Tree structure	Arboricultural rating table	Construction tolerance	Retain, remove or other	Notes, explanations or descriptions
1	<i>Eucalyptus tereticornis</i>	Mature	590	16	18	Fair	Fair	Moderate	Fair	Retain	Codominant stem from root plate. Likely sharing same root plate with Trees #2 & #3. Single surface root (growing over buried rock) at 2.2m from trunk (South side), root undergoes rapid taper and sharp downward incline on either side of buried rock to depth >150mm.
2	<i>Eucalyptus tereticornis</i>	Mature	590	14	12	Fair	Fair	Moderate	Fair	Retain	Canopy asymmetrical (dominant to north) from crown shyness.
3	<i>Eucalyptus tereticornis</i>	Mature	680	12	10	Fair	Fair	Moderate	Fair	Retain	Canopy asymmetrical (dominant to west), from crown shyness. Minor deadwood noted in canopy.
4	<i>Eucalyptus tereticornis</i>	Mature	390	12	10	Fair	Fair	Moderate	Fair	Retain	

#### 04.3 individual tree attributes and landscape amenity table summary.

Generally, the tree health was fair as evident by leaf colour, shoot extension, canopy density and production of wound wood.

The structural form generally appeared typical for the species and age class based on their available growing space and above ground influences.

A total of four (4) trees were assessed.

It is understood that none of the four (4) trees assessed require removal works to facilitate the works.

Trees #1 to #4 are established within the Council controlled Road reserve.

A total of four (4) trees were identified for retention from an Arboricultural perspective.

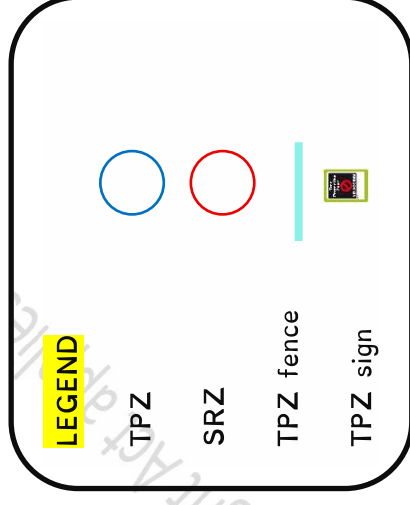
It should be noted that no detail fauna survey was undertaken by Treescience, and where general habitat features were observed they have been documented within the individual tree attributes and landscape amenity table.

04.4 tree/site survey



04.5 arboricultural key.

Open excavation under Arborist supervision 



**A PRESTART MEETING IS REQUIRED BEFORE THE PROPOSED WORKS COMMENCE, WITH THE APPOINTED PROJECT ARBORIST (min AQF Level 5 with 5 years post graduate experience) AND RELEVANT REPRESENTATIVES.**

**FAILURE TO COMPLY COULD RESULT IN PREMATURE TREE DECLINE AND/OR COMPROMISE A TREE'S STRUCTURAL INTEGRITY.**

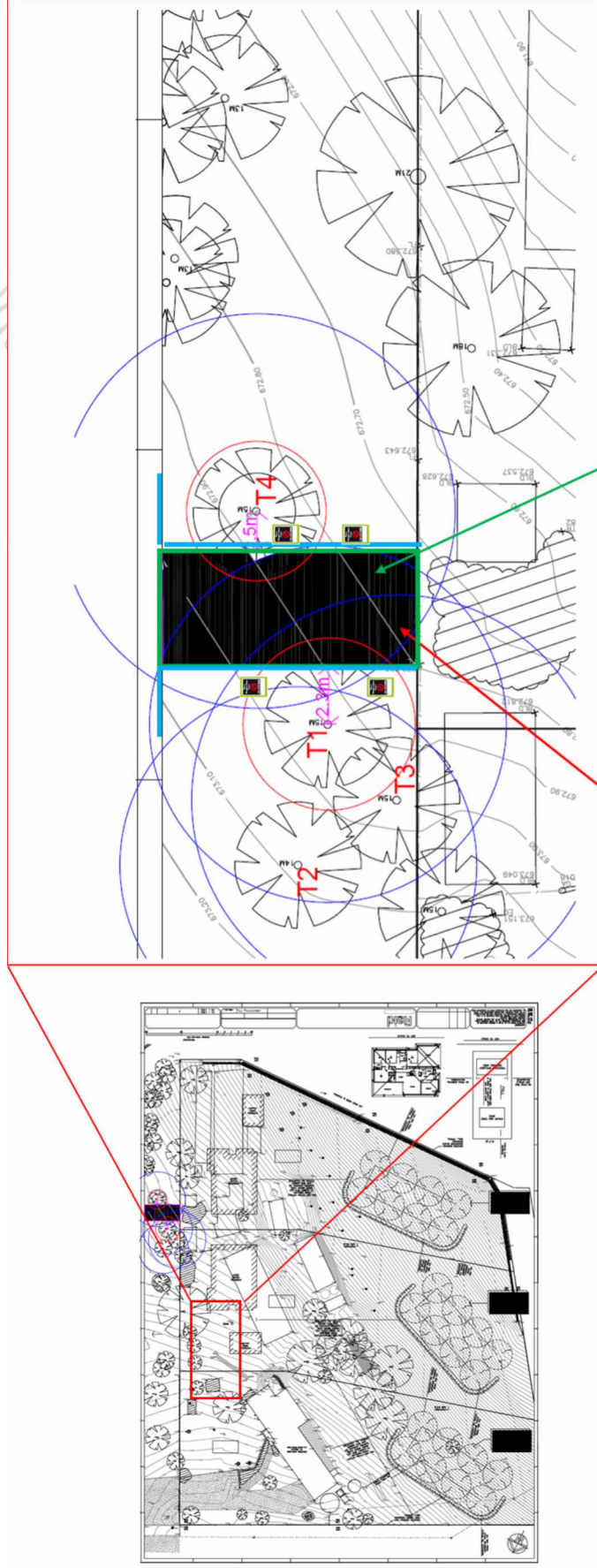
**REMOVAL OF VEGETATION MAY REQUIRE A PERMIT FROM THE CONSENTING AUTHORITY.**

#### 04.6 tree protection specifications

- Further detail design drawing/s are to be reviewed by Treescience prior to the commencement of any works within an NRZ.
- Prior to the commencement of any works, Treescience and relevant representatives are to meet on site to assess and document the status of the tree/s health and agree on the relevant work method(s) and outline the communication pathway for all works within an NRZ.
- The tree protection fence and/or other protection measures are to be correctly installed and positioned prior to the commencement of works and for the duration of the project as defined by Treescience.
- Based on the type of works and proximity to the subject trees nominated for protection, the final tree protection fencing is to be determined on site by the appointed project arborist (min AQF Level 5 with 5 years post graduate experience) prior to the commencement of any works.
- A prestart meeting is required before the proposed works commence, with the appointed project arborist (min AQF Level 5 with 5 years post graduate experience) and relevant representatives.
- No machinery with an upward pointing exhaust is to be operated under a low-lying tree canopy (to avoid heat damage to the tree canopy) where possible for greater than 4hrs.
- Where possible any exposed tree roots are to be treated and covered with indigenous topsoil and organic matter with a neutral pH value, free from weed growth and harmful materials or alternative methods.
- Exposed woody tree root (75mm dia & above) are to be labelled with the corresponding girth size, depth, position from the tree of critical interest and functional contribution i.e., live, or dead or other to help with correspondence with the Council City Arborist via an additional Arborist report.

- Should damage be sufficiently serious to jeopardize tree stability via tree root removal or a tree root over 75mm in diameter require reduction pruning or removal, authorization is required from Council's City Arborist prior to undertaking works.
- A level of ramping may be required to bridge a **SRZ** and/or an identified significant tree root/s. The bridging is to occur via a level of soil infill with marginal soil compaction measures undertaken with an **NRZ/TPZ**.
- The driveway crossover is to be constructed on the existing soil grade where appropriate and shall not be significantly lowered beyond one hundred & fifty (150) millimeters (mm) or significantly raised beyond three hundred (300) millimeters (mm) without prior design outcomes documented and arboriculturally certified by Treescience. Additionally, if possible, the pathway is to be graded toward the root zone area of a tree so excess water runoff is harvested for numerous health benefits to trees and soil.

04.7 tree protection plan (not to scale).



Excavation for driveway crosscover to be limited to no greater than 150mm depth. Excavation undertaken under Project Arborist supervision.

Potential 5m wide crosscover location – utilised for impact assessment purposes

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## 05 DEVELOPMENT IMPACTS ON SITE TREE/S IN ACCORDANCE WITH AS4970-2025

During development works, trees often become damaged or killed because of injury they receive throughout the construction phases. This is usually due to root crushing injury, root severance, mechanical injury from collision with above ground parts, soil compaction from vehicular movement or soil contamination through spillage or tipping out of toxic materials within canopy dripline. In order to prevent injury from occurring, a TPZ is established for each tree worthy of retention. The amount of protection required is evaluated and based on several factors in accordance with the guidelines outlined within AS4970-2025 and related industry experience.

### 05.1 NRZ encroachment considerations

To meet the legislative requirements of Australian Standards AS4970-2025: Protection of Trees on Development Sites, the potential impacts of encroachment into the NRZ's has been considered as outlined below:

- a) the location and distribution of tree roots has been determined via onsite assessment and hand excavation methods within the NRZ's.
- b) the potential loss of root mass resulting from the encroachment has been appraised as manageable with the inclusion of engineering solutions, the adoption of arboricultural work method statements and arboricultural supervision from Treescience.
- c) the subject tree(s) principally has appropriate construction tolerances.
- d) the subject tree(s) are a maturing specimen as outlined within table ONE.
- e) the subject tree(s) are generally upright specimen with an extensive tree root habitat.
- f) soil characteristics and volume, topography and drainage have been considered by the Treescience.
- g) the presence of pre-existing or past structures or obstacles affecting root growth have been considered by Treescience.
- h) design factors have been considered and will be assessed/considered by Treescience.

05.2 NRZ encroachment calculations for the subject tree(s) nominated for retention/preservation

#	TREE SPECIES	DSH (mm)	TPZ/NRZ RADIUS (m)	SRZ RADIUS (m)	EXISTING NRZ ENCROACHMENTS	ESTIMATED DISTANCE FROM PROPOSED CONSTRUCTION WORKS TO THE SUBJECT TREE (m)	PROPOSED WORKS WITHIN OR DIRECTLY ADJACENT TO THE NRZ	ORIGINAL NRZ AREA m <sup>2</sup>	ENCROACHED AREA m <sup>2</sup>	Un-ENCROACHED AREA m <sup>2</sup>	LEVEL OF NRZ ENCROACHMENT %	COMMENTS
1	<i>Eucalyptus tereticornis</i>	590	7.08	3.44	Nil	2.30	Shallow/restricted to max. 150mm depth excavation for driveway crossover	157.48	36.29	76.451	23 – Major	The localised, shallow earth works near the subject tree refers to small-scale, precise, and confined excavation which can be mitigated through AWMS's, hold points and Arborist supervision.
2	<i>Eucalyptus tereticornis</i>	590	7.08	2.90	Nil	7.80	Shallow/restricted to max. 150mm depth excavation for driveway crossover	157.48	-	157.48	0 – Nil	No impact.
3	<i>Eucalyptus tereticornis</i>	680	8.16	2.92	Nil	5.28	Shallow/restricted to max. 150mm depth excavation for driveway crossover	209.18	24.89	184.29	12 – Moderate	The localised, shallow earth works near the subject tree refers to small-scale, precise, and confined excavation which can be mitigated through AWMS's, hold points and Arborist supervision.
4	<i>Eucalyptus tereticornis</i>	390	4.68	2.51	Nil	1.5	Shallow/restricted to max. 150mm depth excavation for driveway crossover	68.81	13.37	55.44	19 – Major (works in SRZ)	The localised, shallow earth works near the subject tree refers to small-scale, precise, and confined excavation which can be mitigated through AWMS's, hold points and Arborist supervision.

### 05.3 NRZ encroachment calculations summary

AS4970–2025 guidelines are largely founded on the distance of disturbance from a tree.

It should be noted that it is extremely difficult to speculate the volume and/or directional growth of a tree’s entire woody root system, particularly in the case of an urban tree.

Therefore, the expert view provided by Treescience is that the type and volume of disturbance is more important than the distance from a tree.

The NRZ encroachment calculations table provides in meters as a radial measurement, unless otherwise stated, taken from the centre of the trunk region for an individual tree applying the generic matrix within AS4970–2025.

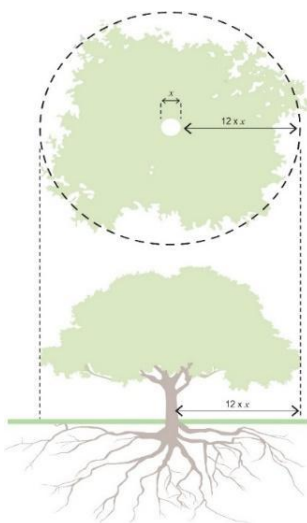
## 06 UNDERSTANDING THE FUNDAMENTALS OF AN NRZ & SRZ

The AS4970–2025 states that the NRZ is the “zone enclosed by a radius of 12 times the DSH that is a primary trigger for arboricultural input on a development site.... The NRZ is the starting point for determining the TPZ.”

The AS4970–2025 states that the SRZ is a “theoretical area around the base of a tree required for the tree’s stability in the ground.”

The AS4970–2025 states that the TPZ is “a specified zone above and below ground and at any given offsets from the trunk set aside to protect a tree’s roots and crown where these might be damaged by development.”

The area equivalent to the NRZ/SRZ encroachment shall be incorporated into the TPZ.



The NRZ for individual trees is calculated based on trunk (stem) diameter (DSH), measured at 1.4 metres up from ground level.

The radius of the NRZ is calculated by multiplying the tree’s DBH by 12.

For example, a tree with 40cm DBH has a NRZ of 4.8 metres.

The method provides a calculated TPZ with offsets that addresses both tree stability and growth requirements where NRZ encroachments will occur during development.

## 07 PROPOSED CONSTRUCTION ACTIVITIES

The review carried out by Treescience of the relevant scaled drawings and onsite assessment determined the potential development/construction impacts and ascertained how the identified impacts may be mitigated to assist with tree preservation.

The engagement of a Supervising Arborist to perform a 'watching brief' is probably the single most essential component to ensure successful preservation, in correlation with the Arboricultural Work Method Statement (AWMS). This will involve regular monitoring and providing of technical tree advice on a need by basis.

### 07.1 manual excavation using appropriate machinery within the defined NRZ.

The Treescience Supervising Project Arborist will steer the site works and outline the action mitigation measures as required.

In other defined areas of sensitivity for this project where excavation is required within a defined NRZ, the Treescience Supervising Project Arborist will likely request a combination of a small mud bucket and/or ripper arrangement on an excavator or similar machinery configuration to help conduct comprehensive root investigation measures along the edge closest to the tree of critical interest NRZ to help locate the presence of tree roots in an attempt to prevent unforeseen tree root severance.

Tree roots which are deemed to be removed will be removed by the Treescience Supervising Project Arborist or in combination with the machinery operator on a need by basis. Tree roots which are defined for retention will be clearly marked with marker paint by the Treescience Supervising Project Arborist to help guide/define the machinery operator work practices.

In determining tree root retention, the type of tree, tree canopy formation, tree structure, tree health, soil structure/profile, number of tree roots etc., will be considered on a tree root by tree root process with consideration of the constraints placed on the installation methodology and tree preservation prerequisite.

### 07.2 driveway design.

The driveway is to be constructed on the existing soil grade within the tree of critical interest NRZ were possible and shall not be significantly lowered beyond one hundred & fifty (150) millimetres (mm) or significantly raised beyond three hundred (300) millimetres (mm) without prior design outcomes documented and arboriculturally certified by Treescience.

Additionally, the driveway is to be graded toward the root zone area of tree #2 so excess water runoff is harvested for numerous tree and soil health benefits.

### 07.3 design summary

Given the extent of existing vegetation within the road reserve, locating a driveway crossover for Lot 17 will inevitably require excavation within the SRZ of existing Council controlled trees within the road reserve of Postle Street. While ideally excavation should be excluded from within the SRZ, where it is not feasible to achieve such, limited, shallow and confined excavation within the Structural Root Zone (SRZ) of retained trees can be permissible where it is carefully controlled to avoid compromising root plate stability and tree health. Treescience have reviewed the subject trees within the road reserve of Postle Street and the soil composition and propose the driveway crossover location for Lot 17 to be sited no closer than 2.2 metres from Tree #1 and 1.5 metres from Tree #4. Whilst this location will require localised shallow earthworks within the SRZ, it is our professional opinion that as the earthworks are shallow, the works are permissible under Project Arborist guidance and is unlikely to cause any sustained injury to the subject trees.

Thus, the most significant impacts on the subject tree(s) based on the review carried out by Treescience will be from:

- Shallow scraping/excavation for driveway construction.

Perceived minor impacts are:

- General construction activities within and/or adjacent to the NRZ/TPZ.

However general construction works, site storage and access issues also have the potential to impact the trees on the site. Therefore, the intricacies associated with construction works should be addressed at Operation Works by the associated representatives and Treescience to ensure suitable tree preservation measures are adopted with consideration of the design outcomes, site constraints and tree preservation requirements within the study area.

## 08 ARBORICULTURAL WORK METHOD STATEMENT

The following Arboricultural Work Method Statement (AWMS) outlines the tree protection measures for the general excavation construction works within defined NRZ's. This AIA and AWMS pro-actively identifies any impacts from the proposed construction works that could potentially harm a tree nominated for retention.

This working document also informs the appropriate people undertaking the related work tasks of their responsibilities as outlined in the following AWMS for works within a defined NRZ:

- Arboricultural Work Method Statement – Activity: general excavation within the NRZ

The following arboricultural work method statements provides general guidance on the physical protection and appropriate precautionary measures required in order to reduce any detrimental impacts on tree health or compromise the structural integrity of trees which is provided for your consideration. However, it is imperative that construction activities should not transpire until the relevant requirements of this report have been implemented.

These guidelines are by no means fixed as trees are dynamic in nature and each site has different considerations and variations that may alter or eradicate the need for certain steps. Continued consultation with the Supervising Arborist throughout works is necessary to ensure compliance and avoid unnecessary costs that may be incurred by attempting to interpret these guidelines without the aid of an arboricultural specialist assigned to the project.

### 08.1 Arboriculture Work Method Statement – activity: general excavation.

Tree roots which are deemed to be removed will be removed by the Supervising Project Arborist or in combination with the machinery operator. Tree roots which are defined for retention will be clearly marked with marker paint by the Supervising Project Arborist to help guide and define the machinery operator work practices. In determining tree root retention, the type of tree, tree canopy formation, tree structure, tree health, soil structure/profile, number of tree roots etc., will be considered on a tree root by tree root process with consideration of the constraints placed on the design requirements and tree preservation prerequisite.

**Arboricultural Work Method Statement (AWMS)**



**Activity: General Excavation**

**Description of Works**

Excavation with the use of a mechanical device within the Notional Root Zone (NRZ) and adjacent to the Tree Protection Zone (TPZ) of tree(s) nominated for retention. The methodologies within this AWMS follow a logical sequence of events. Variation to the sequence could significantly reduce the efficiency of the tree protection measures. This method statement should be read in conjunction with the relevant design drawing(s) and supporting technical reports.

**Work Method**

1. All site works/plant operators are to receive tree protection site induction by the Site Manager and/or Treescience Supervising Project Arborist if deemed necessary.
2. No vehicle or plant with upward pointing exhausts are to be operated under the subject tree canopy (to avoid heat damage to the tree canopy) where possible.
3. No vehicle or plant is to be operated within the designated Tree Protection Zone (TPZ) unless authorisation has been obtained by the Treescience Supervising Project Arborist.
4. No bulk or harmful materials such as concrete wash is to be placed in a defined TPZ.
5. Access into a defined TPZ or movement of the protection barriers/fencing will only be permitted in consultation with the Treescience Supervising Project Arborist.
6. The excavator bucket is to be inverted so that it presses down into the soil, severing any roots that may have been missed rather than lifting and tearing roots toward the lower trunk region when working near trees.
7. Ensure a spotter is available to confirm that any vehicles and machinery do not come into contact with any tree nominated for preservation.
8. All tree roots that are uncovered when excavating which are less than 50mm in diameter are to be cut cleanly and straight by the Treescience Supervising Project Arborist and all root pruning must be documented.
9. Hand digging must occur if machinery is not capable of work in and around tree roots deemed worthy of retention without causing damage as determined by the Treescience Supervising Project Arborist on a case-by-case basis.
10. Where air spades/water knife are to be used to aid identification of tree roots, the pressure must be reduced to mitigate the potential of bark being stripped from the roots or the occurrence of root severance.
11. Water is not to be used for cutting purposes unless instructed by the Treescience Supervising Project Arborist and in consultation with the relevant representatives.
12. If the area of excavation has an extensive network of tree roots or a tree root with a 50mm diameter or greater, the area of excavation is to be backfilled within 12hrs of opening without causing damage to tree roots or covered using wet hessian, to ensure the tree roots retain moisture and do not dry out. The hessian is to be comprised from 100% Jute which is a natural fibre & will rot down over time.
13. When backfilling around tree roots, the subject soil is to be comprised of an indigenous topsoil and organic matter with a neutral pH, free from weed growth and harmful materials. The backfilling of soil is to be carefully rammed & watered in and around tree roots to eliminate air pockets.
14. All works within the defined exclusion zone as outlined within this report requires authorisation by the Treescience Supervising Project Arborist.

**Reporting of Incidents**

All damage to protective barriers or accidental damage to trees (above or below ground) no matter how insignificant it may seem, must be reported to the relevant representative and the Treescience Supervising Project Arborist immediately. A record of the damage is to be made by the Site Manager and reported to the relevant representatives and the Treescience Supervising Project Arborist.

Name:	Date:	Signature:	Name:	Date:	Signature:
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The proposed arboricultural method statements provide general guidance on the physical protection and appropriate precautionary measures required in order to reduce any detrimental impacts on tree health or compromise the structural integrity of trees which is provided for your consideration.

## 09 IMPACT ASSESSMENT AND TREE-SPECIFIC MITIGATION MEASURES

This section outlines the identified impacts of the proposed operational works adjacent to the trees within the study area in accordance with AS4970-2025. AS4970-2025 highlights the requirements for tree protection where construction works will transpire.

### 09.1 establishing the TPZ

The TPZ helps protect tree roots from preventable incidents such as but not limited to soil compaction damage, mechanical damage and chemical spills and are critical to ensure the viability of the subject tree(s). Tree protection materials are to be installed prior to the commencement of any construction activity being undertaken on site. Furthermore, no construction activities should take place until the relevant requirements of this AIA have been implemented. The exact extent/design of the tree protection fencing will be nominated by the Supervising Arborist and relevant representatives in accordance with the development approval, site constraints and tree protection requirements following the industry guidelines set out within AS4970-2025 and approved reports/drawings.

Any proposed activities within a defined NRZ as outlined within this report require approval by the Supervising Arborist prior to any works commencing in this region. The contractor will be required to identify all activities and control measures to ensure the subject tree(s) are adequately protected and considered above and below the ground, with tree protection to form a part of the everyday site induction manual. All inductees must be made aware of the subject tree(s) that are to be retained and the prohibited activities. Entry into the fenced TPZ areas by persons, vehicles or machinery is not permitted without consent from the Supervising Arborist and in consultation with the relevant representatives.

### 09.2 prohibited activities within a defined TPZ

For the protection of tree(s), roots, and natural soil condition from preventable incidents such as but not limited to soil compaction, mechanical damage and chemical spills, no construction activities are to be undertaken within the fenced TPZ which may have any harmful effect on the protected tree(s).

Machinery and other equipment must be kept away from the tree(s), branches, trunks, and roots, as well as any potentially harmful activities outside of the TPZ that may impact

the protected tree(s) such as but not limited to soil erosion, radiant heat from machinery exhausts and polluting agents draining into the protected area.

Activities generally excluded from the defined TPZ include the following but not limited to in consultation with the Supervising Arborist:

- a. re-positioning or removal of the tree protection materials at any time during the construction work unless approval has been obtained by the Supervising Arborist. The tree protection materials will only be removed once these works have been fully completed;
- b. any construction activities within the fenced TPZ which may have any harmful effect on the protected tree;
- c. compaction occurring within the TPZ;
- d. harmful activities outside of the TPZ's e.g., soil erosion, radiant heat from machinery exhausts and polluting agents draining into the protected area;
- e. excavation for silt fencing;
- f. cultivation;
- g. storage;
- h. preparation of chemicals, including preparation of cement products, including outside of the TPZ where polluting agents may drain into the protected area;
- i. parking of vehicles and plant;
- j. refuelling;
- k. dumping of waste, including outside of the TPZ where polluting agents may drain into the protected area;
- l. wash down and cleaning of equipment, including outside of the TPZ where polluting agents may drain into the protected area;
- m. placement of fill;
- n. lighting of fires;
- o. soil level changes;
- p. temporary or permanent installation of utilities and signs; and
- q. physical damage to the tree

**Note:** The tree protection materials are not to be re-positioned at any time during the construction work unless approval has been obtained by the Supervising Arborist or Treescience. Furthermore, the tree protection materials will only be removed once these works have been fully completed. Entry into the fenced TPZ areas by persons, vehicles or machinery is not permitted without consent from the Supervising Arborist and in consultation with the relevant representatives.

### 09.3 tree protection fencing design

The tree protection fence should be erected prior to the commencement of works as determined at the pre-start meeting with Treescience and the relevant representatives.

Generally, the tree protection fencing should be installed at the edge of the defined TPZ and/or near the interface of the earth works and/or in consultation with relevant representatives and Treescience.

The tree protection fencing shall be suitably robust to provide sufficient protection for the tree(s) nominated for retention and shall be maintained in good order for the duration of the development/construction period. Inspection of the tree protection fencing should be undertaken frequently by the Project Manager and/or Treescience.

The performance requirements for the tree protection fencing will be determined by the type of activity that will take place within the NRZ, topography, and length of the construction period in consultation with the relevant representatives and Treescience.

Typically, the performance requirement for the tree protection fencing will be:

- Tree protection fencing shall only be removed, altered, or relocated with the authorisation from Treescience.
- Installation, removal and, where required, replacement of tree protection fencing will be supervised and signed off by the relevant representative and Treescience.
- The area between the tree protection fencing and the subject tree is deemed the defined TPZ or exclusion zone
- The defined TPZ should be secured to restrict access in and around the tree(s) nominated for retention.

The tree protection fencing is to be of an agreed design/construction style in consultation with the consenting authority, relevant representatives and Treescience with consideration of the overall TPZ area, defined TPZ, topography, and length of the development/construction period. It should be noted that existing perimeter fencing, and other structures may be suitable as part of the overall protective fencing design.

Ideally, tree protection fencing shall consist of 1.8-metre-high temporary/relocatable galvanised steel mesh panels in accordance with Australian Standards AS4687-2007: Temporary fencing and hoardings.

The tree protection fence is to be supported by steel poles, concrete anchor blocks and clamped at the top of each pair of panels. The tree protection fence must have a lockable

opening for access. The subject tree's woody roots shall not be damaged during the installation, modifying, and dismantling of the tree protection fence.

Shade cloth material shall be attached to the outer surface of the tree protection fence where deemed necessary in consultation with the relevant representatives and Treescience. The shade cloth material shall be transparent to provide visibility into the defined TPZ where possible.

#### 09.4 TPZ signage

Tree protection signage should be attached to the tree protection fencing and be displayed in prominent positions as determined at the pre-start meeting with Treescience and the relevant representatives.

The TPZ sign shall be repeated at 15 metre intervals or closer where the TPZ fence changes direction. The signage shall be installed prior to the commencement of works on-site and shall be maintained in good condition for the duration of the development period.

Below is an example of a tree protection fence sign design.



## 10 WHEN TO CONSULT WITH THE SUPERVISING ARBORIST

The Project Manager is to consult with the Supervising Arborist when any of the following occurs:

- If there needs to be any deviation from the approved final plans regarding any of the construction activities within defined NRZ's.
- If access is required within the defined TPZ/fenced TPZ.
- If the nominated tree for protection foliage starts to wilt or changes colour.
- If any cracks or splits appear in the branches or trunks (especially if this accompanied by the exudation of sap, liquids, or discolouration of the bark) of the tree nominated for protection.
- If any damage occurs to any part of the tree nominated for protection.
- The appearance of any infestation by insects, fungi or any other unusual displays within/upon the tree nominated for protection.
- There is a need to move or dismantle the tree protection fencing and any other associated materials.

Note: A guide to understanding some commonly encountered tree impacts and their potential effects is provided in Appendixes and should form part of available site induction material.

## 11 SYNOPSIS AND CONCLUSIONS

This document has been prepared to assist those involved within the pre- design stage to make balanced and informed decisions with regard to the proposed construction works and its juxtaposition with the established subject tree(s).

This assessment outlines the tree protection specifications that affect the proposed project and demonstrates how the retained tree(s) can be protected throughout the various construction stages.

Successfully retaining trees on any development site depends on a number of controls being in place and a determination and willingness by all parties is required. Primarily, the Site Manager will have overall responsibility to ensure all control measures are observed.

The engagement of Treescience to perform a 'watching brief' is probably the single most essential component to help ensure successful tree preservation is up-held on a need-by-need basis in consultation with the relevant representatives. This will involve regular monitoring with the provision of technical tree advice on a need by basis.

The identified construction impacts adjacent to the subject tree(s) nominated for retention are considered manageable but dependent upon:

- Employment of careful documented arboricultural supervision and diligent management during the construction process.
- Ensuring design specifications and construction methodologies consider the subject tree(s) nominated for protection above and below the ground; and
- Ensure that any tender documents for the project reflect the requirements for tree preservation and include an Arboricultural supervision element.

A total of four (4) trees were assessed from an arboricultural perspective. It is understood that none of the four (4) trees assessed require removal works to facilitate the works.

Trees #1 to #4 are established within the Council controlled Road reserve.

With consideration of the guidelines within AS4970-2025 the following NRZ encroachments were identified:

- Moderate = #3
- Major = #1 & #4

Tree #2 has no NRZ encroachments.

With consideration of the guidelines within AS4970-2025, 04.5 arboricultural key, 04.6 tree protection specifications, and 04.7 tree plan illustrate and provide appropriate construction guidelines in addition to Chapter 8 AWMS for the implementation of tree protection measures.

The final TPZ fence location or trunk protection measures will be determined at the pre-start in consultation with the relevant representatives given the degree of works within the NRZ's.

It is critical that all works within the defined NRZ are to be carried out under the direct guidance of Treescience and in accordance with this report.

Treescience endorses the proposed design and construction requirements, but conditional constraints must be placed on all works within and/or directly adjacent to NRZ's, to ensure a level of compliance within AS4970-2025, and as outlined within this report.

We concluded that the identified NRZ encroachments are manageable given adequate tree protection measures are implemented in accordance with this conditional report and demonstrated within the tree protection plan, along with the implementation of the Treescience AWMS.

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

The findings and recommendation contained within this report are valid for a period of twelve months given trees are living organisms and their condition can change significantly over a relatively short period of time.

## Additional information

This report describes the role of the Treescience in the protection of a tree nominated for retention within and/or directly adjacent to the project area which has been documented within this report, as well as methods and materials required as a minimum for the duration of the project.

Moreover, this report has clearly defined and quantifies the level of professional advice and tree protection methods that will be required.

The purpose of this report is to provide consistent and uniform standards and minimum guidelines for retention and protection of a tree nominated for retention with regards to construction works within or directly adjacent to an **NRZ**.

Please read carefully and follow the guidelines as well-meaning individuals usually cause serious damage to trees during construction. This can sometimes result in death, severe short and long-term decline, or physical failure of the tree.

Thank you for the opportunity to provide advice on this matter and if you have any questions about this report, please contact Treescience on 1300 731 859.

Yours Faithfully

Treescience Pty Ltd



Tim Rival (Senior Arboricultural Consultant) for Treescience Pty Ltd atf The Treescience Trust

Caveat

Unless states otherwise:

This report cannot be used within a court of law or any legal situation without the prior consent of Treescience Pty Ltd atf The Treescience Trust which will not be unreasonably withheld.

## CERTIFICATION of PERFORMANCE

I am university educated and certify I have formal qualifications that meet AQF level 8 in Arboriculture. I have post graduate qualifications with credentials and experience in all areas pertaining to urban forestry.

I have inspected the tree(s) and/or the property referred to in this report and have stated my findings accurately to the best of my ability. The extent of the evaluation and appraisal is stated in the report.

That I have no current or prospective interest in the vegetation or the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

That the analysis, opinions, and conclusions stated herein are my own, and are based on current scientific procedures and facts.

That my compensation is not contingent upon the reporting of a predetermined conclusion that favours the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

That my analysis, opinions, and conclusions were developed, and the report has been prepared according to commonly accepted arboricultural practices.

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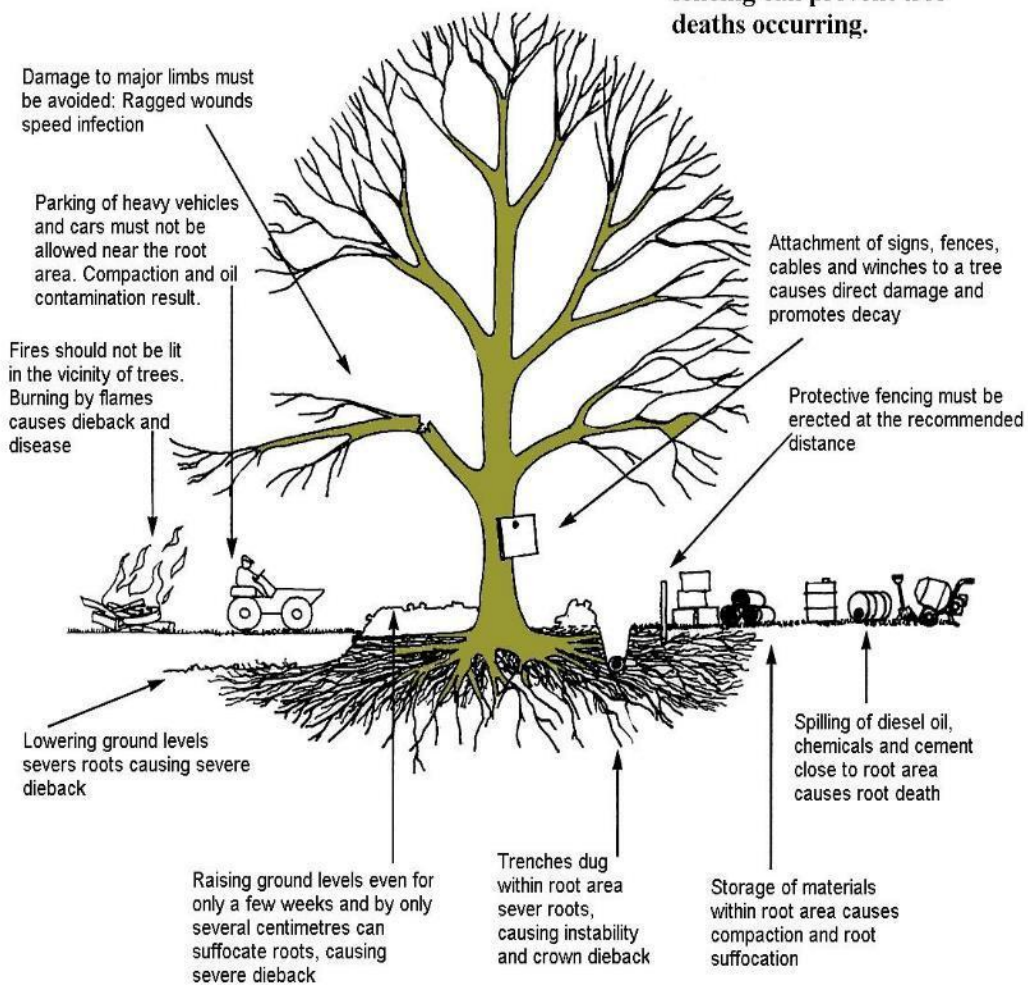
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Appendix ONE: tree protection signage



## Common causes of Tree Death

The use of properly positioned protective fencing can prevent tree deaths occurring.



## Appendix THREE: tree protection handout

The Tree Protection Information Handout will be available at formal site inductions.

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# Construction and Trees

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### Why do we need to erect fencing around trees?

The fencing is designed to protect the tree/s and their roots from the harmful effects commonly associated with construction work, for example, any direct and indirect damage to the tree and its roots from, soil compaction, storage of materials radiant heat (e.g., from machinery exhausts) chemicals and any other polluting agents draining into the protected area e.g., contaminated water from cleaning.

The major cause of damage to trees on construction sites is due to compaction of the soil around their roots.

- Roots use the spaces between soil particles to obtain oxygen, water, and nutrients.
- Heavy plant and machinery compresses (compacts) the soil, squashing out the air spaces, effectively suffocating the roots.
- Compacted soil stays compacted i.e., it does not recover on its own.
- The main symptom of the loss or damage of roots is often seen as die-back of the ends of the branches.
- Symptoms such as die-back may take several years to appear.
- The fencing type and distances are specified by an Arborist by referring to the appropriate Australian standards.

The installation and maintenance of protective fencing is a condition of the permit approvals and substantial fines apply for the unauthorised interference of any tree protective fencing and materials.

### Appendix FOUR: type and effects of tree damage

The table below has been provided in order to convey some of the most common causes of development related damage to trees and their various parts.

Examples of damage relating to construction work	Crown Die Back	Root Death	Tree Instability	Loss of Vigor	Susceptibility to pest and diseases	Reduction in the availability of water and nutrients
Root damage / loss	Yes	Yes	Yes	Yes	Yes	/
Soil Compaction	Yes	Yes	/	Yes	Yes	Yes
Excavation within root zone	Yes	Yes	Yes	Yes	Yes	Yes
Physical damage to trunk or branches	/	/	/	/	Yes	/
Changes to ground levels (filling or grading)	Yes	Yes	Yes	Yes	Yes	Yes
Contamination of the ground with toxic materials	Yes	Yes	/	Yes	Yes	/
Installation of impermeable surfaces	Yes	Yes	/	Yes	Yes	/
Fluctuations or permanent changes to the water table	Yes	Yes	Yes	Yes	Yes	Yes
Fires and Heat	Yes	Yes	/	Yes	Yes	/

**PRECEDENT DISCLAIMER for CONSULTANCY**

Clients may choose to accept and/or disregard the recommendation formulated within this report.

The devices and techniques used to develop this report have been selected to minimise the reporting costs, while ensuring that the reporting information and the subsequent recommendation outlines within the report are suitable to the specific site.

This disclaimer is governed by the law in force in the state of Queensland, Australia.

Report assumptions:

- Any legal description provided of Treescience Pty Ltd. is assumed to be correct. Any titles and ownerships to any property are assumed to be correct. No responsibility is assumed for matter outside the consultant's control.
- Treescience Pty Ltd. assumes that any property or project is not in violation of any application codes, ordinances, statutes or other local, state, or federal government regulations.
- Treescience Pty Ltd. shall take care to obtain all information from reliable sources. All data shall be verified insofar as possible; however, Treescience can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under Treescience control.
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- Unless expressed: a) Information contained in the report will cover those items that were outlined in the brief or that were examined during the assessment and reflect the condition of those items at the time of the inspection; and b) The inspection is limited to visual examination of accessible components without dissection, excavation or probing unless otherwise stipulated within the report document.
- There is no warranty or guarantee, expressed or implied by Treescience Pty Ltd., that the problems or deficiencies of the plants on site in question may not arise in the future.
- All instructions (verbal or written) that define the scope of the report document have been included in the report document and all documents and other materials that the Treescience consultant has been instructed or consider or to take into account in preparing the report document have been included or list within the report document.
- To the authors knowledge all facts, matter, and all assumptions upon which the report document proceeds have been stated within the body of the report document and all opinion contained within the report document will be fully researched and referenced and any such opinion not duly researched is based upon the authors experience and observation.