



ARBORIST REPORT

Creating vibrant communities through powerful conversations

Consultation and urban design working together

Prepared for
Northern Beaches Council
Passmore Reserve
Date: 13-11-2020
Revision: A

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1 Introduction

Mara Consulting have been engaged by Northern Beaches Council to undertake an assessment of trees located within Passmore Reserve, Campbell Parade, Manly Vale. The purpose of the report is to determine whether the proposed sports field lighting will have any impacts on trees located around the perimeter of the reserve and to provide comment on minimizing any impacts.

Assessing Arborist

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2 Methodology

The site was visited on the 11th of November 2020. During the site visit, each tree was inspected and assessed using the following tools and criteria.

- Visual Tree Inspection (VTA): The VTA method developed by Matheck and Broeler, 1994 was used for each tree. Trees located on the site were inspected and assessed from the ground. The visual tree inspection included all visible above ground parts of the tree including exposed roots, trunk, branches and foliage. No below ground inspections or analyses was undertaken in the root zone. No internal inspections or tissue analysis was undertaken on the subject trees. No aerial inspections were undertaken.
- Useful Life Expectancy (ULE): ULE is a measure of the tree's sustainability. It is an indication of how long a tree is expected to live under specific conditions. Appendix 4 provides an in depth description of ULE..
- Tree Protection Zone (TPZ): The TPZ is an area around the tree that may cause damage to the tree if the soil is disturbed and/or roots are injure or severed. The method of determining the TPZ follows AS 4970 Protection of trees on development sites Refer to Appendix 5 for more detail.

3 Site

The site is located on the northern side of Campbell Parade. Other surrounding development consists of public open space, educational facilities and residential development. The site consists of two soccer fields, cricket pitch, playground, amenities block and a cycle way which encircles the playing fields. Trees are located around the perimeter of the site.



Figure 1. Site outlined in red.

4 Proposed Development

Northern Beaches council are proposing to install eight light towers to illuminate the playing fields located within Passmore Reserve. The installation of the lights includes the installation of a 2x2m wide by 0.9m deep concrete footing and conduit runs.

5 Development Impacts

Pole 1: Located between trees 1 and 2. The footing and trench location are outside of the TPZ and Structural Root Zone (SRZ) of both trees and therefore there is no impact.

Pole 2: Is located well away from trees and therefore there is no impact.

Pole 3: Is located between Trees 5 and 6. The installation of the concrete footing and conduits will affect 9% of the TPZ of Tree 6 and 11% of the TPZ of Tree 7. AS4970 Protection of trees on development sites stipulates that an incursion of 10% is deemed minor. The proposed works are also outside of the SRZ and with the correct construction procedures in place the potential impact will be minimal.

Pole 4: Is located between Trees 3 and 4. The installation of the concrete footing and conduits will affect well below 10% of the trees respective TPZ's and therefore impacts will be minimal.

Pole 5: Is located well away from trees and therefore there is no impact.

Pole 6: Is located well away from trees and therefore there is no impact.

Pole 7: Is located well away from trees and therefore there is no impact.

Pole 8: Is located well away from trees and therefore there is no impact.

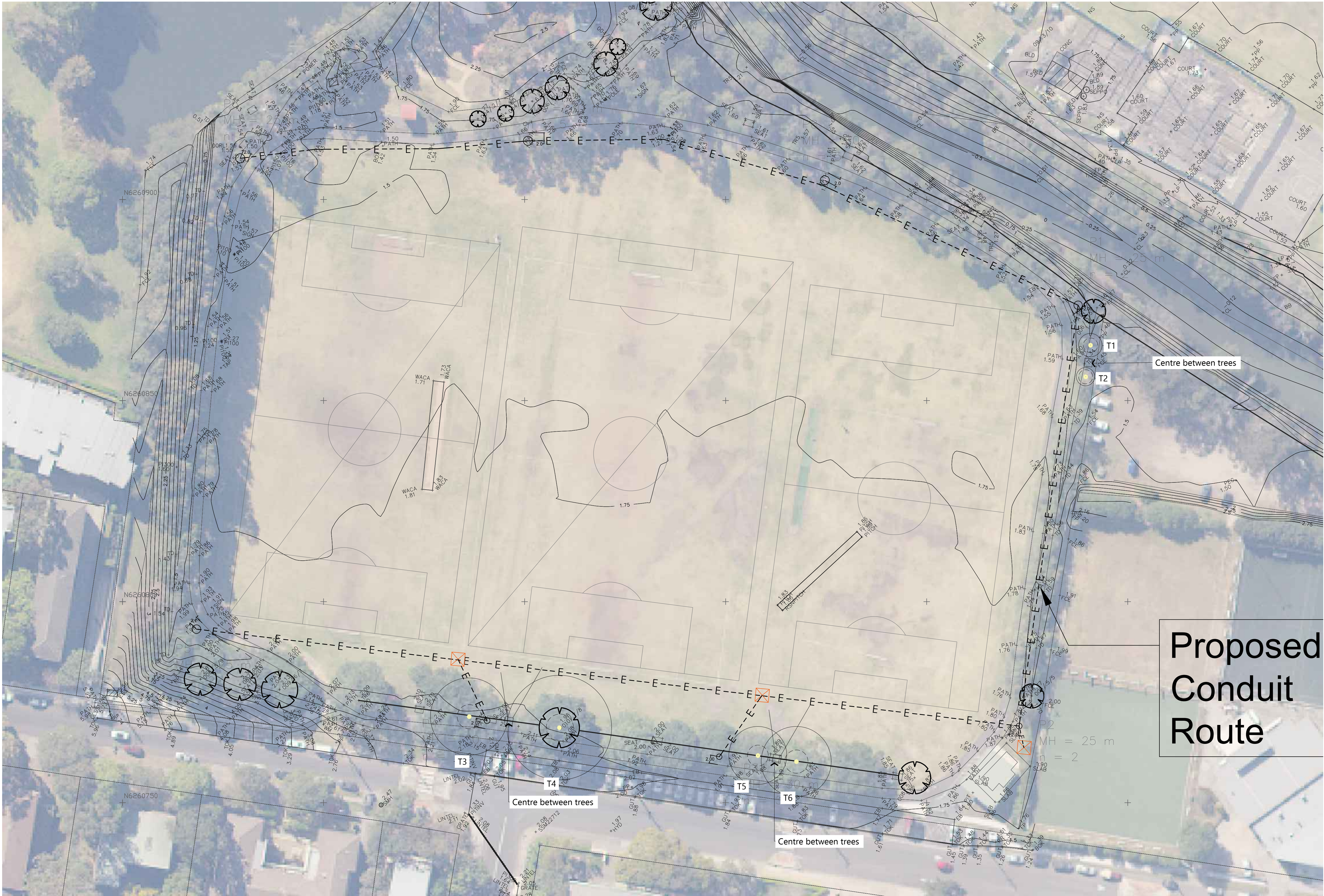
6 Recommendations

- Root severance is to be undertaken with sharp, sterile tools prior to and during excavation works within the TPZ of trees. Hand digging around the roots is to be undertaken to allow for a clean cut.
- Any pruning of the trees to allow for the erection of the towers is to be in accordance with AS 4373 Pruning of amenity trees.
- Tree protection measures are to be in accordance with AS 4970 Protection of trees on development sites. This includes but is not limited to
 - The erection of fencing around the TPZ allowing for an area for the works to be undertaken.
 - No cleaning of concreting tools within the TPZ.
 - No storage or stockpiling of equipment or construction material within the TPZ.
- Install a 75mm layer of mulch to the TPZ's of tree 5 and 6 to stimulate root growth and to compensate for the loss of roots.

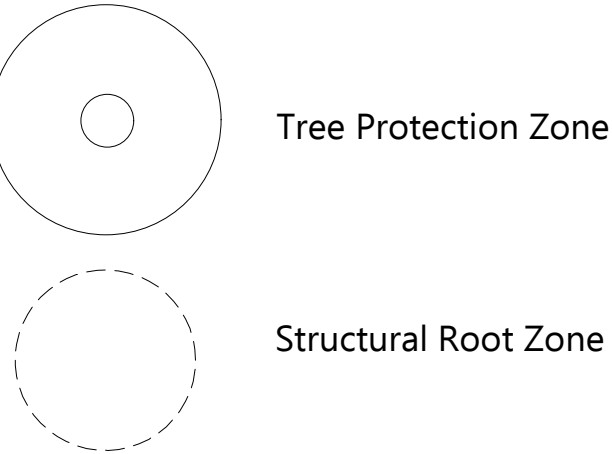
7 Bibliography

Barrell, J.	<i>Pre-Development Tree Assessment</i> , (in Watson/Neely 1995) [Modified]
Link Tree System Ltd. Barrell, J.	Arboricultural Journal 1993, Vol. 17pp. 33-46, 01/03/98
Standards Australia	Australian Standard <i>AS 4970 Protection of Trees on Development Sites</i> . (September 2009)
Standards Australia	Australian Standard <i>AS 4373 Pruning of Amenity Trees</i> (March 2007)

8 Appendix 1 Site Plan



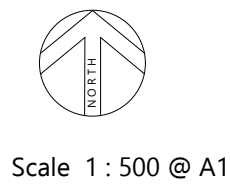
EXISTING TREE RETENTION VALUE



Note: radius of trees indicates the Tree Protection Zone calculated in accordance with AS4970 Protection of trees on development sites.



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Revisions			Revisions		
Issue	Details	Date	Issue	Details	Date
A	DA Issue	18.11.20			

Project:
Passmore Reserve

Client:
Northern Beaches Council

Title:
Site Plan

Site: Passmore Reserve, Campbell Parade, Manly Vale
Date: 18 November 2020
Job No: 2068
Revision: Sheet:

9 Appendix 2 Tree Assessment Sheet

Tree Assessment Data Sheet – Passmore Reserve, Manly Vale

Tree No.	Species	Common Name	DBH		TPZ (M)	SRZ	Height (M)	Crown Spread (M)				Health	Structure	Age Class	ULE			Notes
			(mm)					N	E	S	W							
1	<i>Schinus molle</i>	Peppercorn Tree	150		2.9	1.8	6	1	1	1	1	P	P	M		4B		Poorly pruned stunted tree of low vigour.
			190															
2	<i>Schinus molle</i>	Peppercorn Tree	190		2.9	1.7	4	3	3	3	3	F	F	M		2A	M	Stunted tree.
3	<i>Ficus rubiginosa</i>	Rusty Leaved Fig	800		9.6	3	8	8	5	11	6	A	A	M		1A		
4	<i>Ficus rubiginosa</i>	Rusty Leaved Fig	1160		13	3.4	12	8	5	12	6	A	A	M		1A		
5	<i>Ficus rubiginosa</i>	Rusty Leaved Fig	610		7.2	2.6	10	8	9	10	7	A	A	M		1A		
6	<i>Ficus rubiginosa</i>	Rusty Leaved Fig	400		8.7	2.9	10	8	8	10	8	A	A	M		2A		Bark decortivating from southern side of buttress.
			450															
			430															

LEGEND

DBH – Diameter at Breast Height (1.4m)	DRB– Diameter Above Root Buttress	TPZ - Tree Protection Zone 12xDBH	SRZ – Structural Root Zone (DRB x 50) ^{0.42} x 0.64	Health P-Poor F-Fair A-Average E-Excellent	Structure P-Poor F-Fair A-Average E-Excellent	Age Class I-Immature – Recently Planted or Sapling Growth SM-Semi Mature - <20% life expectancy M-Mature – 20-80% life expectancy OM-Over Mature/Senescent >80% life expectancy	LS – Landscape Significance S-Significant VH-Very High H-High M-Moderate L-Low VL-Very Low I-Insignificant	ULE – Useful Life Expectancy (Sustainability in years) Refer to appendices for more detailed explanation 1->40 2-15-40 3-5-15 4-<5	RV – Retention Value H-High M-Moderate L-Low VL-Very Low
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10 Appendix 3 Useful Life Expectancy (ULE)

ULE CLASSIFICATIONS

1 LONG ULE : GREATER THAN 40 YEARS [>40]

TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR MORE THAN 40 YEARS

- A Structurally sound trees located in positions that can accommodate future growth.
- B Storm damaged or defective trees that could be made suitable for retention by remedial tree surgery.
- C Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

2 MEDIUM ULE : MORE THAN 15 YEARS, LESS THAN 40 YEARS [15 - 40]

TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 15 TO 40 YEARS

- A Trees that may only live between 15 and 40 more years
- B Trees that may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons
- C Trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D Storm damaged or defective trees that can be made suitable for retention in the medium term by remedial work

3 SHORT ULE : MORE THAN 5 YEARS, LESS THAN 15 YEARS [5 - 15]

TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 5 TO 15 YEARS

- A Trees that may only live between 5 and 15 more years
- B Trees that may live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons
- C Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D Storm damaged or defective trees that require substantial remedial work to make safe, and are only suitable for retention in the short term

4 REMOVE : LESS THAN 5 YEARS [<5]

TREES WITH A HIGH LEVEL OF RISK THAT WOULD NEED REMOVING WITHIN THE NEXT 5 YEARS

- A Dead, dying, suppressed or declining trees because of disease or inhospitable conditions
- B Dangerous trees through instability or recent loss of adjacent trees
- C Dangerous trees through structural defects, including cavities, decay, included bark, wounds or poor form
- D Damaged trees that are clearly not safe to retain
- E Trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- F Trees which are damaging or may cause damage to existing structures within the next 5 years
- G Trees that will become dangerous after removal of others for the reasons given in A to F
- H Trees in categories (a) to (g) that have high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review

5 SMALL YOUNG OR REGULARLY PRUNED

TREES THAT CAN BE RELIABLY MOVED OR REPLACED

- A Small trees less than 5m in height
- B Young trees less than 15 years old but over 15m in height
- C Formal hedges and trees intended for regular pruning to artificially control growth

Barrell, J (1996, updated 2001)

11 Appendix 4 Extract from AS 4970

Extract from AS 4970

3.1 Tree Protection Zone (TPZ)

The tree protection zone is the principal means of protecting trees on development sites. The TPZ is a combination of root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its Diameter at Breast Height (DBH) x 12

$$\text{TPZ} = \text{DBH} \times 12$$

DBH= Trunk diameter measured at 1.4m above ground.

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2m nor greater than 15m (Except where crown protection is required).

The TPZ of palms and other monocots, cycads and tree ferns should not be less than 1m outside of the crown projection.

3.3 Variations to the TPZ

3.3.1 General

It may be possible to encroach into or make variations to the standard TPZ. Encroachment includes excavation, compacted fill and machine trenching.

3.3.2 Minor Encroachment

If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. Variations must be made by the project arborist considering relevant factors listed in clause 3.3.4.

3.3.2 Major Encroachment

If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ, the project arborist must demonstrate that the tree would remain viable. The area lost to the encroachment should be compensated for elsewhere and contiguous with the TPZ. This may require root investigation by non destructive methods and consider relevant factors listed in clause 3.3.4.

3.3.5 Structural Root Zone

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

The SRZ only needs to be calculated when major encroachment into the TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks or footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula. Root investigation may provide more information on the extent of these roots SRZ radius.

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

where

D = trunk diameter, in metres, measured above the root buttress

The SRZ for trees with trunk diameters less than 0.15 will be 1.5 metres