



Phone 0416929717
Fax 8395 9024
9 Armiger Court
Holden Hill
SA 5088

consultant@treevision.com.au

Written by:
Duncan McGregor
BSc For, AATech Cert, MICFor

Pre-Development Arboricultural Impact Assessment



Prepared For: **Dash Architects**
Site Location: **Unley High School, Kitchener Street, Netherby SA 5062**
Council Area: **City of Mitcham**
Date: **10 May 2023**

CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page No.</u>
1.0	Introduction	3 - 4
2.0	Tree Survey Methodology	5
3.0	Site Description	6 - 7
4.0	Tree Health and Condition	8 - 9
5.0	Preliminary Recommendations	10
6.0	Arboricultural Impact Assessment	11 - 18
7.0	Tree Protection Plan	19 – 22
8.0	Recommendations	23 - 26
Appendix A	Tree Protection Zones	27
Appendix B	Protective Fencing	28
Appendix C	Tree Protective Fencing Plan	29
Appendix D	TPZ Signage	30
Appendix E	Trunk and Branch Protection	31
Appendix F	References	32

1.0 Introduction

This tree survey report and arboricultural impact assessment relates to one tree growing within the grounds of Unley High School. It is adjacent to a proposed new hockey pitch and associated facilities on one of the existing sports fields at Unley High School, Kitchener Street, Netherby SA 5062.

The report has been commissioned by Mr David Holland of Dash Architects, in support of a proposed new hockey pitch and associated facilities for Forestville Hockey Club at Unley High School. This report relates directly to the implications of a proposed new hockey pitch near a tree located within the northwest corner of the existing sports field.

The survey and report set out to achieve the following objectives:

- To briefly assess the current condition of the tree within northwest corner of the sports field.
- To assess the suitability of retention of the tree on site in relation to AS 4970-2009, Protection of Trees on Development Sites.
- To assess the arboricultural implications of the proposed new hockey pitch.

The survey has been based on a visual inspection of the tree completed from the ground by Mr. Duncan McGregor on 21 April 2023. The weather at the time of the survey was dry and overcast.

The inspection was completed from within the confines of the site.

1.1 Caveat Emptor

This report is the result of an arboricultural inspection of both the site and the tree in question.

The trees were inspected using an industry best practice, level 2 basic assessment; an aerial inspection was not performed.

An assessment of the current condition of the trees is made and any issues relating to the tree's current health and structural integrity in view of any proposed development and the impact that may affect public safety, structures of value or loss of amenity value are brought forward.

These findings are interpreted and the best course of action to abate these concerns is provided.

No subsurface inspection was conducted, and no soil samples were taken for analysis.

No decay detection equipment was used in assessment of the tree and no tissue samples taken for analysis.

This report is limited to the time of inspection and reflects the tree as found on the day of assessment. Modifications and changes to the site conditions or surrounding environment due to impacts from construction work; landscaping, weather and pruning works or other issues may alter the findings of this report.

The findings presented in this assessment are limited to no more than two months upon receipt of this report. Any modification to the site, development proposal or the tree itself will render the findings of this report inaccurate.

All information contained within this report is predicated on material, documents and plans made available by the client or other parties and deemed to be from an accurate source. Tree Vision Arboricultural Consultants hold no responsibility for inaccuracies within the materials or information provided.

2.0 Tree Survey Methodology

One tree in northwest corner of the existing sports field has been surveyed in detail. Other trees and large shrubs were also observed within the school grounds.

A total of one (1) tree was surveyed in detail and assessed against the proposed development. The tree is in the northwestern corner of the school grounds and is adjacent to a pedestrian access point.

There are other trees present elsewhere on the proposed development site and elsewhere within the school grounds and neighbouring properties. No other trees were subject of a detailed assessment.

3.0 Site Description

3.1 Site Boundaries and Location

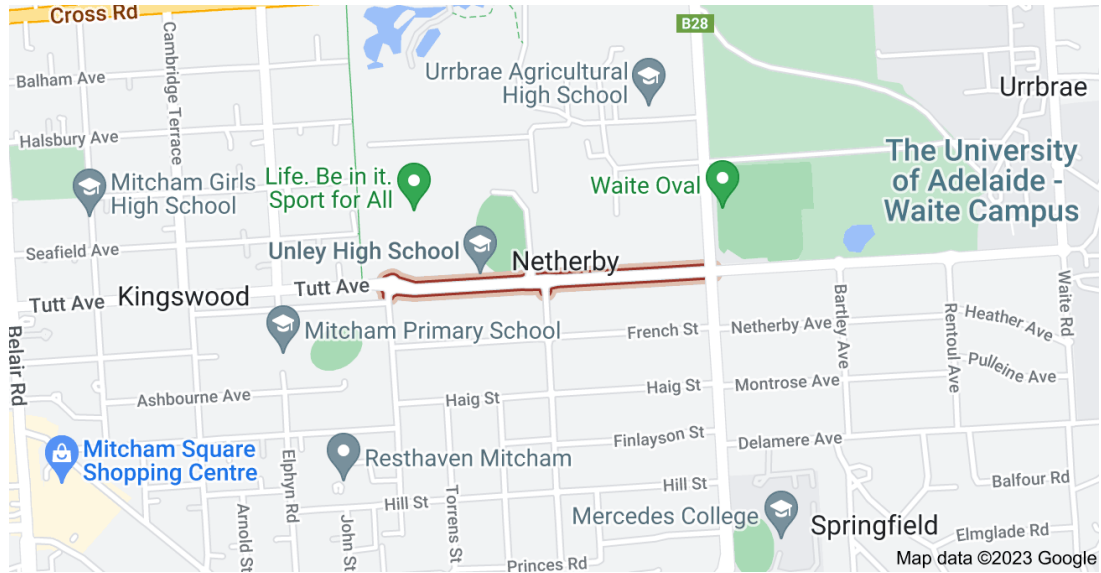


Figure 1 – showing site location in relation to major arterial, residential roads.



Figure 2 – above shows an aerial image of the development site taken in 2018. The approximate boundaries of the site are indicated in red.

3.2 Tree Cover

The tree that was subject to this assessment is a noticeable specimen in the northwestern part of the school and provides an important contribution to the amenity in the locality. The tree and others in the vicinity are maturing and as such new tree planting should be considered to ensure a sustainable tree population on the site.

Two non-regulated trees have been identified for removal towards the southeastern end of the development site, adjacent to the main vehicle access point. Replacement tree planting is proposed to compensate for the loss of these trees and is detailed in the landscaping plan prepared by Dash Architects, reference number 22.072 and dated 6 May 2023.

The assessed tree is at the western end of a line of similar species (*Fraxinus oxycarpa* 'Raywood') that form part of the northern boundary of the school. It is a distinct and separate specimen.

The tree has been integrated into the design of the proposed development and consideration has been given to its successful retention on the site.



Figure 3 - shows an aerial image of the site subject to survey and assessment taken in 2018. The approximate location of the assessed tree is indicated in red.

4.0 Tree Health and Condition

Several issues concerning tree health and condition were identified and apparent from the inspection. These are identified and highlighted below. Recommendations for remedial action are made in section 5.

a) **Decay and Wounds**

There was no external evidence of decay within the tree. Pruning wounds were evident within the lower crown.

b) **Structural Defects**

No major structural defects were observed during the inspection.

c) **Crown Symmetry and Suppression**

The tree has co-dominant stems from ground level and has a crown bias to the west towards the existing tennis courts.

d) **Stress and Low Vigour**

There was no evidence of stress or reduced vigour within the crown of the tree.

e) **Deadwood**

Minor deadwood was observed in the tree and appears to be associated with natural shading.

f) **Trees near Infrastructure**

The western section of the crown partly overhangs an existing pedestrian access point into the school grounds. An existing stormwater sump pit is located approximately 5m from the base of the tree to the southwest. The pipeline associated with this stormwater pit dissects the tree's Structural Root Zone at approximately 1.5m from the base of the tree and there is clear evidence of historic ground disturbance.

4.1 Tree Inspection and Assessment

Tree Number	Species	Height (m)	Circumference (m)	Diameter at 1.4m (cm)	Canopy Spread	Age Class	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Life expectancy (years)	Comments
1	<i>Fraxinus angustifolia</i> / Narrow-leafed Ash	13	4.26	77 / 53	N - 4 S - 7 E - 5 W - 8	M	Good	Fair	Reduction prune southern extension back to upright	>10	2x stems from ground level

Health and

Vigour:

The tree is in good health. Foliage distribution, density, colour, and size are normal. Tree vigour is good.

Structure/Stability:

The tree presents as twin stemmed specimen from ground level. There is a general crown bias to the south and west towards the existing tennis courts and pedestrian access point.

Management

History:

The tree has a history of pruning to maintain clearance over the existing sports field and boundary fence line.

Recommendations:

It is recommended the tree be retained.

5.0 Preliminary Recommendations

The following recommendations are made in the interests of good arboricultural management and should be undertaken regardless of any development proposals. A timescale for undertaking these works is also provided.

All recommendations are consistent with the guidance provided by Australian Standard AS 4373 – 2007: Pruning of Amenity Trees.

5.1 Pruning

- Reduction prune southern extension back to upright primary limb to allow for clearance over proposed new hockey pitch.

5.2 Arboricultural Standards

All tree removal and pruning should be undertaken by a suitably qualified, experienced and insured Arborist to Australian Standard 4373 -2007 '*Pruning of amenity trees*'. Where Council approvals are required, this is noted.

It is recommended for these tree works to be complete prior to start of construction works on site.

5.3 Risk Management of Trees

All the trees within the site are within an area of frequent public access and should accordingly be the subject of regular inspections.

It is recommended this is carried out at least once a year or in the aftermath of severe storms and should be carried out by a suitably qualified, experienced, and insured Consulting Arborist.

6.0 Arboricultural Impact Assessment

This report has been produced for the purpose of providing best practice guidelines for tree protection measures in accord with Australian Standard 4970-2009 'Protection of trees on development sites'.

6.1 Tree Protection Zones

The principle means of protecting trees on development sites is the Tree Protection Zone (TPZ). The TPZ is a combination of the root area and crown area of the tree(s) that requires protection. This area is isolated from construction disturbance to maintain the long-term viability of the tree(s). The TPZ incorporates the Structural Root Zone (SRZ).

The design proposal may require modifications to the TPZ to allow for the development. Encroachment within the optimal TPZ through trenching, excavation, and compaction filling may be possible although it is likely further investigative works will need to be undertaken to assess the potential impacts.

Should the overall area of encroachment into the TPZ be less than 10% of the total area and outside the SRZ then it is generally considered that the impact on the tree is minimal and within the tolerable limits of the tree and as such investigative root zone excavations may not be necessary. The area lost to this encroachment should be compensated for elsewhere and must be contiguous with the TPZ. Variations to the Tree Protection Plan must be made by the project arborist considering all relevant factors listed in clause 3.3.4 of the Australian Standard.

Should the design proposal require an encroachment of more than 10% into the total area of the TPZ or within the SRZ the project arborist must demonstrate that the tree will remain viable. The area lost to this encroachment should be compensated for elsewhere and must be contiguous with the TPZ. It is likely non-destructive diagnostic root zone excavations may need to be undertaken and consideration given to clause 3.3.4 of the Australian Standard.

6.2 Structural Root Zone

The Structural Root Zone (SRZ) is a calculated area around the tree required for tree stability. The SRZ only needs to be calculated in the cases where major encroachment into the Tree Protection Zone (TPZ) is proposed.

Generally, no development activities are permitted within this zone.

6.3 Tree Protection Zone Calculations

To calculate the Tree Protection Zone (TPZ) a measurement of the stem Diameter at applied:

$$DBH \times 12 = TPZ \text{ (Tree Protection Zone)}$$

As stated in clause 3.2 of the Australian Standard AS 4970 that the maximum TPZ area should not be less than 2metres or more than a 15metre radius from the centre of the tree except in cases where crown protection is required.

In the case of palms, monocots, cyads and tree ferns the TPZ should not be less than 1 metre outside the crown spread of the tree.

The optimal Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) are measured radially from the centre of the tree.

Table 1: Tree Protection Zones

	Tree No. 1
TPZ (radius)	11.16m
TPZ (area)	391 m ²
SRZ (radius)	3.34m

6.4 Tree Protection Zone Encroachment Considerations

Encroachment into the Tree Protection Zone (TPZ) will be calculated based on information obtained from the plans provided by the client, the tree assessment, the site survey, and guidelines contained within the standard.

The proposed lines of encroachment are calculated, and the area of encroachment subtracted from the overall area of the optimal TPZ, and a percentage result achieved. In this instance the total area of encroachment from the house and associated retaining walls, and provided for under the Australian standard is shown below:

Tree Number	Encroachment Area (m2)	Encroachment Percentage	SRZ Encroachment
1	88m ²	23%	Yes

Table 2: TPZ Encroachments

6.4 TPZ Encroachment Discussion

Encroachment into the Tree Protection Zones (TPZ) of those trees to be retained is calculated based on the information obtained during the Arboricultural Assessment, the plans provided by the client, the tree assessment, the site survey, and guidelines contained within the standard.

The proposed new hockey pitch and associated facilities at Unley High School will encroach within the Tree Protection Zone of the assessed trees. The approximate levels of encroachment are detailed in Table 2 above.

Tree

Part of the proposed footprint of the new pitch and associated retaining wall conflicts directly with the TPZ of the assessed tree. The calculations show an encroachment of 23% for the tree. This is a major encroachment under the terms and definitions within the standard and cannot be adequately compensated by offsetting the TPZ.

An existing and proposed stormwater pipeline is located within the calculated SRZ at approximately 1.5m away from the tree to the south.

Retaining Wall

The formation of the new hockey pitch will see raising of the ground levels to the south of the tree within the designated TPZ. Minimal excavation works are proposed to create small diameter (300mm) pier footings for the I beam columns that support the retaining wall. The excavation works for these pier footings are to be completed by hand or hydro-vac to prevent or reduce the likelihood of damage to tree roots. Additionally, the design and location of the footing are to be flexible enough to be adjusted to accommodate any roots that might be present in the excavated hole. All excavations are to be supervised by the Project Arborist.

A proposed new stormwater sump and pipeline are proposed for within the new hockey pitch, where it is to be located within the designated TPZ. This is to be within the proposed fill material behind the retaining wall and as such will not require any direct excavation within the TPZ. The location of this new sump provides an opportunity to re-direct some of the collected stormwater

to the tree's root zone. By re-directing this stormwater this will help to offset the loss of permeable ground around the tree.

Footpath Paving

The formation of a new paving conflicts with both the TPZ and SRZ of assessed tree. To ameliorate the potential impacts associated with the paving formation the existing soil levels must always remain undisturbed during the construction works and maintained in the long term to minimize changes to the tree's surrounding the environment and avoid damage to the root system. It is further suggested that the extent of the footpath must be located outside of the SRZ.

The footpath is to be constructed using an above existing grade non-compacting permeable surfacing solution, where it is located within the designated TPZ, such as Ecotrihex or Hydropavers. This is to be installed over a load spreading cellular confinement system founded a three-dimensional geogrid on top of a geotextile base. The appropriate aggregate fill with no fines is to be used as per the final product requirements, manufacturers' recommendations, and the project engineers' recommendations. Limestone products are not to be used due to the potential for ph. changes of the soil. The subbase is to be suitably engineered to suit the expected traffic volumes and loading. It will be necessary for the permeable surface system to be retained using reinforced formed kerb stones constructed on a piered footing. The pier holes will need to be kept to a minimum size and excavated using nondestructive means such as an air knife or hydro-vac. The excavations are to be assessed by the project arborist. It may be necessary to over engineer the kerb stones to allow for movement of the pier holes. The proposed permeable surface solution is to provide the functionality required to protect the soil from compaction and to allow water penetration and gaseous exchange to occur. It will be necessary for the product and installation methodology to be reviewed by the project arborist in consultation with the project engineer.

Site Access

The primary site access for the construction of the new hockey pitch and associated facilities will be to the south of the site. To further minimize the potential for damage to the tree during the construction works it is recommended that all of works within the TPZ are completed from inside out.

Underground Services

Where underground services or pipes are proposed to lay within the designated TPZ these are to avoid the SRZ completely and to be located as far away from the tree as possible. Any excavation trench is to be completed by hand or using a hydro-vac (on low pressure setting) to avoid the potential for damage to tree roots. Trenching works are to be completed under the direct supervision of the project arborist. In this instance a proposed new stormwater pipe is to be installed along the line and to the same depth as the existing stormwater pipe within the SRZ.

Amelioration recommendations

The potential impacts associated with the encroachments can be further minimized with additional ameliorative measures aimed at improving the overall environment of the tree. These measures are further described in section 7.3 Other Protection Measures.

The drawing number SK01, dated 26 April 2023, titled 'Works around Northern Trees' by Dash Architects shows the extent of works proposed within the trees TPZ. Additional notes on this drawing also indicate several recommended ameliorations works as discussed above.

6.5 Australian Standard 4970: Section 3.3.4 Assessment

The following shows consideration and direct responses to the framework of assessment presented in section 3.3.4 of the standard;

- a) Root Location and Distribution – In general, it is considered that the trees have an even distribution of roots generally located within a radial framework. Where ground conditions are favorable tree roots can extend up to twice the height of the tree away from the tree. In this instance, the presence of the underground stormwater pipe within 1.5m of the base of the tree may have resulted in an asymmetric root system.
- b) Loss of Root Mass – Minimal excavation works are proposed within the designated TPZ and as such this is likely to result in a minimal loss of root mass.
- c) Species tolerances to root loss – The assessed tree is a *Fraxinus angustifolia* and is not known for its tolerance to root loss.
- d) Tree Age, Vigor and Size – As can be seen from the tree inspection and assessment in section 4.1 the tree is a maturing tree demonstrating a good level of vigor.
- e) Tree Lean and Stability – The assessed tree has a generally upright form and displays a crown bias to the west. Historic soil disturbance was noted along the alignment of the existing underground stormwater pipe.
- f) Soil Characteristics, Topography and Drainage – Soil tests have not been undertaken. The topography is generally flat with a slight fall towards the northwestern corner of the site adjacent to the tree. An existing underground stormwater sump is located 5m to the southwest of the tree.
- g) Root Restricting Existing / Past Structures / Obstacles – The existing underground stormwater pipe to the south of the tree will have restricted root growth in that direction.
- h) Design Factors – The percentage of proposed TPZ lost to development is considered a major encroachment, as determined by AS 4970:2009. Minimal excavation works are proposed within the designated TPZ for the pier holes for the retaining wall that are to be excavated by hand or hydro-vac and flexible enough to be adjusted to be

able to take account of the any tree roots that are encountered. In addition, the use of permeable surfacing encompassing a no-dig technique and stormwater re-direction will further help limit the potential for detrimental damage to the root system of the tree.

7.0 Tree Protection Plan

The Tree Protection Plan (TPP) is the principal method of protecting trees on a development site. The following plan provides details of the measures to successfully satisfy the juxtaposition between the trees and the development. The protection measures introduced below are recommended to be fully implemented to ensure the protection of the trees.

7.1 Tree Protection Zone

A Tree Protection Zone (TPZ) has been identified for each of the regulated and significant trees identified for retention. The TPZ is a restricted area defined by protective fencing, which is installed prior to site establishment and retained intact until completion of the works. See table 1 for the calculated TPZ's for each tree.

The following is a list of activities that are restricted within the TPZ: -

- Machine trenching including trenching,
- Excavation for silt fencing,
- Cultivation,
- Storage,
- Preparation of chemicals, including preparation of cement products,
- Parking of vehicles and plant,
- Re-fueling,
- Dumping of waste,
- Wash Down and cleaning of equipment,
- Placement of fill,
- Lighting of fires,
- Soil level changes
- Temporary or permanent installation of utilities and signs, and
- Physical damage to trees.

Some works and activities may be authorized by the determining authority within the TPZ, and these are to be supervised by the Project Arborist. Any additional encroachment that becomes apparent during the development must be the subject of review by the Project Arborist and be accepted by the determining authority prior to commencement on site.

Approved tree removal and pruning should be carried out prior to the installation of the tree protection measures.

7.2 Tree Protective Fencing

Typically, the tree protective fencing is to be erected prior to any machinery or materials being brought onto the site and to any works starting, including demolition. Appendix B gives details of the type of fencing required as detailed in the Australian Standard 4970. It may be permissible to incorporate perimeter fencing or other structures as part of the tree protective fencing and prior consultation with the Project Arborist should be sought. Appendix C provides details of the tree protective fencing plan and outlines the location of the proposed tree protective fencing.

The Tree Protective Fencing must not be altered or removed without prior approval of the project arborist.

Appropriate signage will be attached to the Tree Protective Fencing to clearly state:

TREE PROTECTION ZONE – NO ENTRY

The contact details of the project arborist and site manager should also be clearly visible on the sign. This signage should be clearly visible both inside and outside the site.

7.3 Other Tree Protection Measures

When tree protection fencing cannot be installed or requires temporary removal, other tree protection measures should be used, including those set out below.

Trunk and Branch Protection

Where necessary, install protection to the trunk and branches of trees as detailed in Appendix E. Appropriate materials and positioning of the protection are to be specified by the Project Arborist. A minimum height of 2m is recommended. Do not attach temporary power lines, stays, guys and the like to the tree. Do not drive nails into the trunks or branches.

Ground Protection

If temporary access for machinery is required within the TPZ ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Measures may include a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rock below rumble boards as illustrated in Appendix E. These measures may be applied to root zones beyond the TPZ.

Root Protection

Some approved works within the TPZ, such as re-grading, may have the potential to damage roots and alter the growing conditions for the tree.

- Where the existing grade is to be raised the material should be coarser or more porous than the underlying material. Depth and compaction should be minimized.
- Supplementary watering of the TPZ areas must be undertaken during dry periods or as deemed necessary by the project arborist.

Maintaining the TPZ

Mulching

- The area within the TPZ should be mulched. The mulch must be maintained to a depth of 50-100mm using material that complies with AS 4454. Where the existing landscape within the TPZ is to remain unaltered (e.g., gardens beds or turf) mulch may not be required.

Watering

- Soil moisture levels should be regularly monitored by the Project Arborist.
- Temporary irrigation or watering may be required within the TPZ.

Weed removal

- All weeds should be removed by hand without soil disturbance or should be controlled with appropriate use of herbicide.

8.0 Recommendations

Having considered all the issues associated with the assessed tree, the development proposal, and its potential impacts, it is my opinion that the proposed development is within the tolerable limits of the tree, provided steps are in place to ensure the following recommendations are undertaken in full.

Pre-Construction Phase.

1. All trench excavation works for underground pipes or services (including the retaining wall piers) when proposed within the designated TPZ are to be located outside the SRZ and as far away from the tree as possible. These works must be completed by hand or hydro-vac (on low pressure setting) and under the direct supervision of the project arborist. See drawing number SK01, dated 23 April 2023, titled 'Works around Northern Trees' by Dash Architects.
2. Consideration must be given to the design of the re-direction of the proposed stormwater within the new hockey pitch back into the tree's root system. This will help ameliorate the introduction of fill material on top the designated TPZ.
3. The recommended tree protection requirements are to be clearly identified during the project tender process. A contractual agreement is to be drawn up with accepted tenderers which outlines their responsibilities and ensures contractor compliance.
4. A contractor with the technical knowledge and experience to correctly install the above existing grade permeable paving is to be used. A method statement for the installation of the permeable paving is to be submitted with the relevant tender submission and reviewed by the project arborist in consultation with the project engineer to ensure compliance with the agreed tree protection plan.
5. A meeting between the project arborist and the site manager is to be held to finalize the tree protection plan. The construction management plan is to be reviewed to ensure compliance with the tree protection plan.

6. A predetermined number of site inspections are to be agreed upon and a brief visual assessment of the project and certification of tree protection measures undertaken by the project arborist at these points. This is generally recommended to occur at key stages of the project such as site establishment, footing installation, scaffold erection, when works are undertaken within the TPZ and upon completion of the project.
7. A preconstruction meeting is to be held and attended by the site manager, the project Arborist, and relevant contractors to introduce the tree protection plan. Tree protection plan requirements and a responsibility for compliance are to be clearly outlined within the contractors site induction process.

8. Tree Protection Fencing

Tree protection fencing is to be installed in the locations provided in the final Tree Protection Fencing Plan. Fencing compliant with specifications listed in AS 4687-2007 Temporary Fencing and Hoardings should be installed and shade cloth or a similar material should be attached to reduce the transport of dust, other particulates, and liquids into the TPZ. TPZ fencing must not be removed or altered without prior approval of the project arborist.

A sign is to be placed on the fence that states:

TREE PROTECTION ZONE - NO ENTRY.

The contact details for the project arborist and site manager should also be clearly visible on the sign. In this instance the existing or proposed boundary fencing can act as the designed tree protection fencing.

9. **The installation of all tree protection measures is to be certified by the project arborist upon completion and prior to the commencement of the development stage of the project.**

Construction Phase

1. **Tree Protection Fencing and other Protection measures.**

All tree protection measures including fence locations must be maintained as set in the Tree Protection Plan throughout the duration of the project, unless otherwise agreed by the project arborist. The fence cannot be altered without the expressed permission of the project arborist and no materials may be stored, mixed, or disposed of within the fenced area.

No materials may be stored, mixed, or disposed of within the allocated working area subject to ground protection.

No vehicles or machinery are allowed within the TPZ, this includes throughout the period of installation of the TPZ fencing.

All temporary services that enter the property throughout the construction phase of the project are to avoid the TPZ; if compromise of the TPZ is likely, the project arborist should be notified.

No temporary underground services or pipes are to be constructed within the designated TPZ.

If incidents occur throughout the development phase which compromise the TPZ or damage the tree in any manner the project arborist or site manager should be notified.

2. **Monitoring** - The project arborist is to monitor the impact of the construction on the retained tree at regular intervals and in consultation with the project manager. Site inspection records are to be kept as part of the tree protection plan.
3. Where works are to be carried out within the TPZ these are to be completed working from outside, in. All machinery and vehicles are to be positioned outside the TPZ and under strict supervision.

Post Construction Phase

1. **Final Certification**

A post development inspection of the trees should be undertaken upon practical completion of the project. A written statement of assessment providing details on the

condition of the retained trees, detailed of any deviations from approved tree protection measures and the expected long-term implications is to be produced. A review of the monitoring records is to be incorporated into the assessment.

A further inspection and review of the trees approximately 12 months after completion is to be undertaken by the project arborist, any relevant recommendations are to be made.

2. Landscaping / Tree Planting

Upon completion of construction works the landscaping works are to commence as detailed within the landscape plan prepared by Dash Architects, reference number 22.072 and dated 6 May 2023. The proposed new succession tree planting along the northern boundary and the replacement tree planting close to the site entrance are to be completed.

I thank you for the opportunity to provide this report and trust that it meets your requirements. If any further information or clarification is required, please do not hesitate to contact me.

Duncan McGregor

BSc For, AATech Cert, MICFor



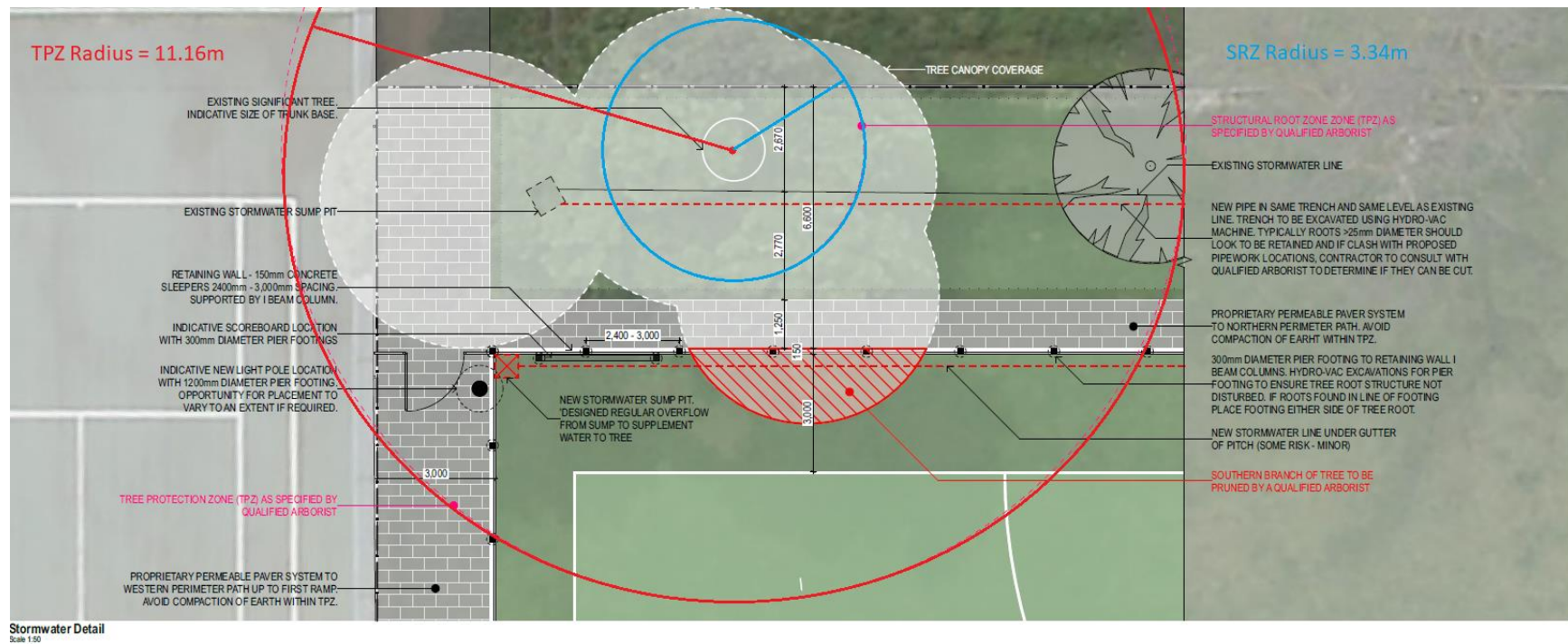
Chartered Arboriculturalist

Date: 10 May 2023

Appendix A – Tree Protection Zone

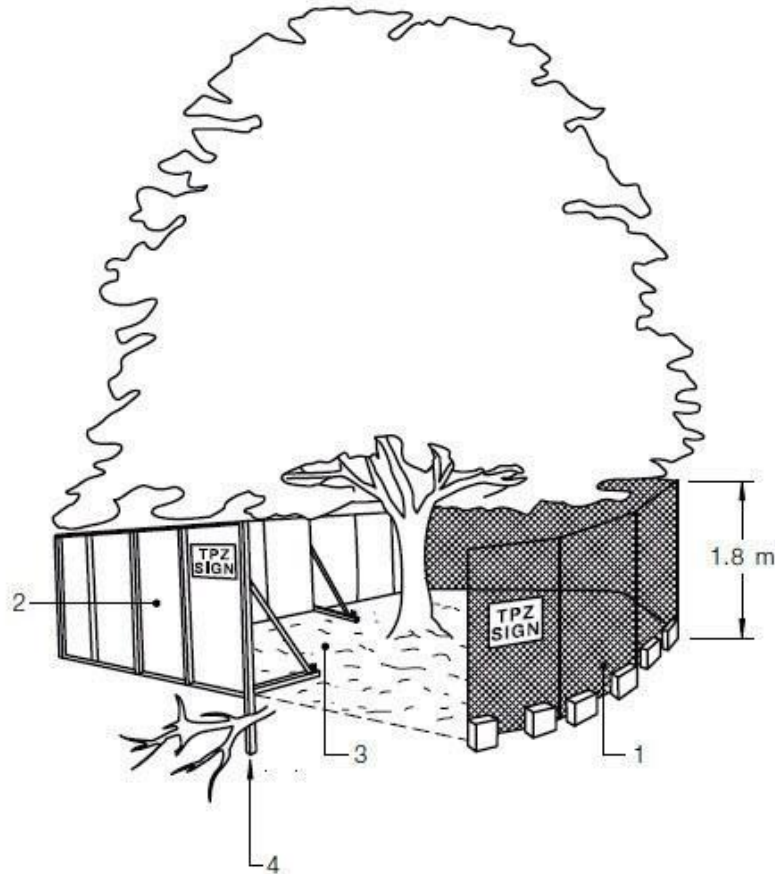
NOT TO SCALE

The diagram below shows the indicative Tree Protection Zones (TPZ) in red and the Structural Root Zones (SRZ) in blue of the assessed tree.



Appendix B – Protective Fencing

Example tree protective fencing taken from Australian Standard AS 4970 – 2009.



LEGEND:

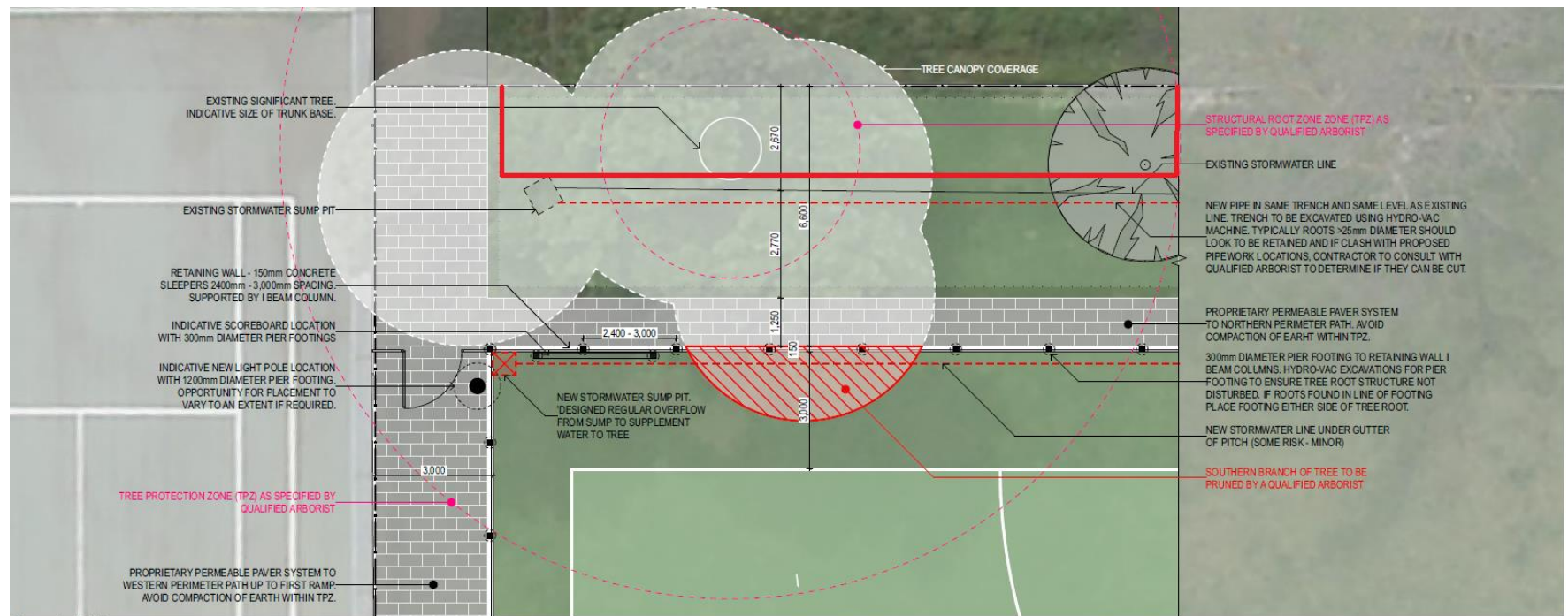
- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

Appendix C – Tree Protective Fencing Plan

NOT TO SCALE

The diagrams below show the indicative tree protective fencing location. The final location will be based on the final layout design utilized for the development. All areas within the TPZ will be subject to protection measures. The existing boundary fence will also form part of the protective fencing. Upon completion of the new stormwater pipeline the fencing is to be moved closer to the proposed pitch.

TPZ Fencing = 



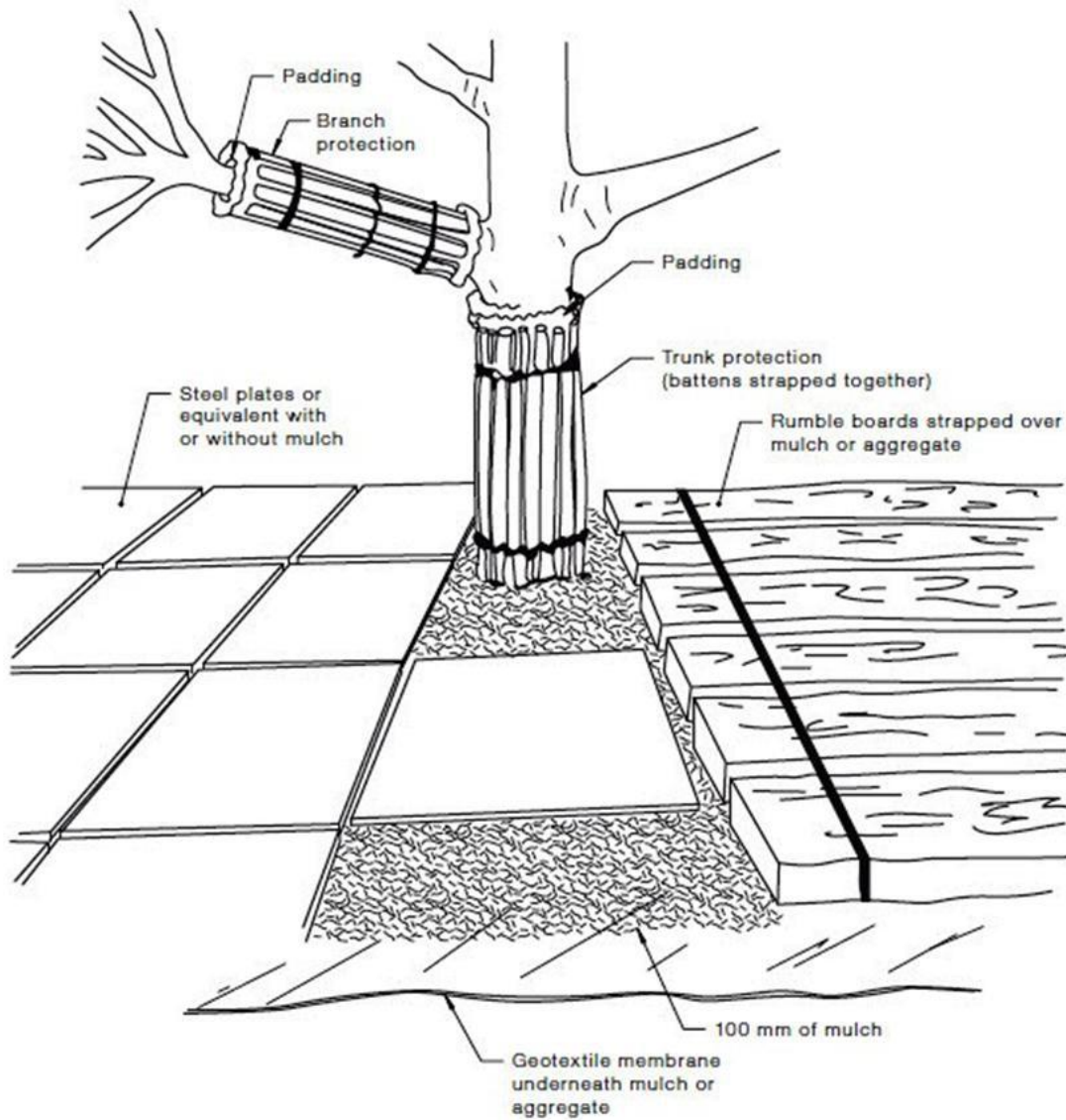
Stormwater Detail
Scale 1:50

Appendix D – TPZ Signage



Appendix E – Trunk and Branch Protection

Example of Trunk, Branch and Ground Protection taken from Australian Standard AS 4970 – 2009.



Appendix F – References

- Mattheck, K.; Breloer, H. 1994. The body language of trees, a handbook for failure analysis.
- Nelda P. Matheny, James R. Clark: A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas
- PJ Keane, GA Kile, FD Podger and BN,
CSIRO Publishing: Diseases and Pathogens of Eucalypts
- David Lonsdale: 1999 The Principles of Tree Hazard Assessment and Management (Research for Amenity Trees S.)
- Francis W. M. R. Schwarz: Diagnosis and Prognosis of the Development of Wood Decay in Urban Trees
- Australian Standard 4970-2009 Protection of Trees on Development Sites
- British Standard 5837-2012 Tree in Relation to Design, Demolition and Construction. Recommendations
- Trees in the Urban Landscape: Principles and Practice

END OF DOCUMENT