URBAN TREE MANAGEMENT

CONSULTING ARBORICULTURISTS & HORTICULTURISTS

Urban Tree Management Australia Pty Ltd
ACN 098 599 805
ABN 56 098 599 805

65 Excelsior Street
Merrylands NSW 2160

D Draper m. 0418471806

admin@utma.com.au
www.utma.com.au

INSTITUTE OF AUSTRALIAN CONSULTING ARBORICULTURISTS
IACA
ACCREDITED MEMBER™

REPORT:

ARBORICULTURAL IMPACT ASSESSMENT

LEWISHAM STATION UPGRADE

Lewisham Railway Station
2 Victoria Street
(Thomas Street section)
Lewisham NSW

For

AECOM for TfNSW

Prepared 18/11/2024
Reference 27010

Contents

SUMMARY and CONCLUSIONS

This report considers 7 trees (*the trees*), (TN1-7) located within the southern end of the road reserve of Thomas Street, Lewisham (*the site*) adjacent Lewisham Railway Station. The site has 5 mature exotic palms *Phoenix canariensis* – Canary Island Date Palm (trees TN1-TN5), TN6 *Melaleuca bracteata* – River Tea Tree and TN7 *Lagerstroemia indica* x *L. fauriei* 'Indian Summer' - Crepe Myrtle Indian Summer. Trees TN1-4 are to be retained and protected *in situ*, TN5 to be transplanted *ex situ* nearby within *the site* and TN6 and TN7 to be removed as part of renovation to the vehicular and pedestrian access to Lewisham Station. The trees are protected under the Inner West Tree Management Development Control Plan 2023 (IWTMDCP2023).

Statutory considerations

This Report forms part of a Review of Environmental Factors currently being undertaken by Aecom. This Project is being carried out by a determining authority under Part 5 of the EP&A Act 1979 and does not require the consent of a local council.

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

Tree Assessment

In determining tree significance the trees are assessed against Appendix A - IACA Significance of a Tree, Assessment Rating System (STARS) © (IACA 2010)©. The Tree Protection Zone (TPZ) setbacks for soil volumes required for tree viability are determined per Appendix B - Extract from Australian Standard, AS4970 2009 *Protection of trees on development sites,* Section 3, Determining the tree protection zones of the selected trees. The Structural Root Zone (SRZ) setbacks required for tree stability are determined per Appendix C - Extract from Australian Standard, AS4970 2009 *Protection of trees on development sites* Section 3, Determining the protection zones of the selected trees. The suitability of a tree to be retained based on its value classes of Age, Vigour and Condition are determined by applying Appendix D - Matrix - Sustainable Retention Index Value (SRIV) ©. The trees assessed are numbered and their genus, species, common name and other characteristics presented in Appendix E - Tree Assessment. Tree number/s are marked on Appendix F – Tree Location Plan, and the trees to be retained, transplanted and protected subject to the proposed project or development are shown in Appendix G – Tree Protection Plan.

Removal

Trees TN6 and TN7 (2 trees); it is proposed to remove these small trees from within the road reserve and proposed building envelope.

Transplant

Tree TN5 (1 tree); is proposed to be transplanted to a new location nearby within a garden as part of the building works (Appendix G – Tree Protection Plan). Tree TN7 also has the potential to be transplanted *ex situ*.

Retention

Trees TN1-5 (5 trees); it is proposed to retain *in situ* trees TN1-4 and tree TN5 *ex situ* by transplanting to a new location within a garden as part of the building works per Appendix G – Tree Protection Plan.

Tree Significance

Tree significance is determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix A. The trees are rated, High, Medium or Low. The number of trees in each category is summarised in Table 1.0. The STARS significance rating of each individual tree is shown in Appendix F – Tree Assessment.

Table 1.0 Tree Significance – summary of trees in different categories using the Significance of a Tree, Assessment Rating System (STARS)© (IACA, 2010).

Significance Scale	High	Medium	Low
Number of trees in each category	6	1	0

Tree Retention Value

Determined by using the Retention Value – *Sustainable Retention Index Value* (SRIV)© (IACA, 2010), Appendix D. The trees are rated, High, Medium, Low or Remove. The number of trees in each category is summarised in Table 2.0. The SRIV retention rating of each individual tree is shown in Appendix F – Tree Assessment.

Table 2.0 Retention Value - summary of trees in different categories using the Sustainable Retention Index Value (SRIV)© (IACA, 2010).

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Number of trees in each category	6	1	0	0

Tree Protection Setbacks (to be applied as required)

Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) setbacks are based on Australian Standard AS4970 2009 Protection of trees on development sites, Section 3 Determining the protection zone of the selected trees, see Appendices B and D, respectively. Approved building works should be no closer, including excavation, than the dimensions stated in Appendix G - Tree Protection Plan, Table 1.0.

AS4970(2009) sec. 3.3 Variations to the TPZ:

- Section 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; and*
- Section 3.3.3 Major Encroachment - *If the proposed encroachment is greater than 10% of the area of the TPZ or inside the SRZ the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ.*

1.0 INTRODUCTION

Urban Tree Management © has prepared this report for Rachel O'Hara - Associate Director – Environment of Aecom, Level 21, 420 George Street, Sydney NSW 2000 on behalf of Transport for NSW (TfNSW). The land is located in the Inner West Council (IWC) Local Government Area (LGA).

The development proposes to demolish the existing pedestrian canopy at a Lewisham Station entrance at the southern end of Thomas Street and rebuild a new canopy in a similar location and part of the roadway and adjacent footpath area as a redesign of a vehicular and pedestrian *kiss and ride* space. This requires the retention and protection of a linear stand of 5 mature *Phoenix canariensis* – Canary Island Date Palms (tree TN1-5) with TN5 to be transplanted to a new garden within the building works and the removal of 2 smaller trees TN6 *Melaleuca bracteata* – River Tea Tree and TN7 *Lagerstroemia indica* x *L. fauriei* 'Indian Summer' - Crepe Myrtle Indian Summer. The trees were not on Heritage listed land (Appendix F – Tree Location Plan, Heritage Map, 3 of 6).

Danny Draper (*the author*) attended *the site* on Friday 15 November 2024 and examined and assessed *the trees* from the ground (Appendix E – Tree Assessment). This Report forms part of a Review of Environmental Factors currently being undertaken by Aecom. This Project is being carried out by a determining authority under Part 5 of the EP&A Act 1979 and does not require the consent of a local council.

Urban Tree Management © then prepared this Arboricultural Impact Assessment (AIA) Report in accordance with AS4970 (2009) *Protection of trees on development sites*. The objective of this report is to detail and comply with the tree protection requirements specified in AS4970 (2009) by preparing:

- a Preliminary Tree Assessment 'AS4970 Section 2.3.2';
- a 'Preliminary Arboricultural Report 'AS4970. 2.3.3 (which may be combined),
- a Development Design and Review Report 'AS4970 Section. 2.3.4'.

Specifically the AIA report provides tree management and protection through all stages of development and:

- identifies the condition of the subject tree/s;
- determines the impact of development on the subject tree/s,
- provides recommendations for retention or removal of the subject tree/s,
- provides specifications for protection of tree/s to be retained,
- provides recommendations for replacement tree/s where appropriate.

The trees are indicated in Appendix F – Tree Location Plan. This report has relied upon the following plan/s and document/s:

TfNSW - Main Suburban Line - 6.426 Km, Safe Accessible Transport Program, Lewisham, Landscape, General, General Arrangement Plan - North, Sheet 1 of 1, Status: 100% Concept Design, Drg. No. SATP1-DIS-LEW-DRG-010101, Revision B, Approved 27/9/2024, Prepared for Transport for NSW by DesignInc Pty Ltd ACN 003008820 and AECOM.

TfNSW - Main Suburban Line - 6.426 Km, Safe Accessible Transport Program, Lewisham, Landscape, General Demolition Plan, Sheet 1 of 1, Status: 100% Concept Design, Drg. No. SATP1-DIS-LEW-DRG-010010, Revision B, Approved 27/9/2024, Prepared for Transport for NSW by DesignInc Pty Ltd ACN 003008820 and AECOM.

2.0 METHODOLOGY

Note: Individual methodologies applied as applicable

2.1 The method of assessment of tree/s applied was adapted from the principles of Visual Tree Assessment undertaken from the ground, which considers and includes:

- tree health and subsequent stability, both long and short term;
- SRIV Version 4 (IACA, 2010) (Appendix D) © ,
- hazard potential to people and property,
- amenity values,
- habitat values,
- significance – Significance of a Tree, Assessment Rating System (STARS) (IACA, 2010) © (Appendix A).

2.2 Tree Assessment - This assessment was undertaken using standard tree assessment criteria for each tree based on the values above and is implemented as a result of at least one comprehensive and detailed site inspection to undertake a visual tree assessment of each individual tree, or stand of trees, or a representative population sample. See Appendix F – Tree Assessment.

2.3 Any dimensions recorded as averages, or by approximation were noted accordingly.

2.4 This report adopted Australian Standard AS4970 (2009) *Protection of trees on development sites* as a point of reference and guide to calculate minimum setbacks for the Tree Protection Zone (TPZ) (see Appendix B) and Structural Root Zone (SRZ) (see Appendix C) for each retained tree. The distances may be increased or decreased by the author in accordance with AS4970 as a result of other factors providing mitigating circumstances or constraints as indicated by, but not restricted to the following:

- condition of individual trees,
- tolerance of individual species to disturbance
- geology e.g., physical barriers in soil, rock floaters, bedrock to surface
- topography e.g., slope, drainage
- soil e.g. depth, drainage, fertility, structure
- microclimate e.g., due to landform, exposure to dominant wind
- engineering e.g., techniques to ameliorate impact on trees such as structural soil, gap graded fill, lateral boring
- construction e.g., techniques to ameliorate impact on trees such as pier and beam, bridge footings, suspended slabs
- root mapping
- physical limitations - existing modifications to the environment and any impact to tree/s by development, e.g., property boundaries, built structures, houses, swimming pools, road reserves, utility services easements, previous impact by excavation, or construction in other directions, soil level changes by cutting or filling, existing landscaping works within close proximity, modified drainage patterns
- extraneous factors e.g., potential future impacts from development on adjoining land when the tree is located on or near to a property boundary.

2.5 Stands of Trees - Trees in groups may be referred to as stands and a stand may exclusively contain specimens to be either retained or removed or a combination of both. A stand may be used to discuss all the trees on a given site to expedite their assessment, or refer to trees growing proximate to one another or within a defined space. Stands may be comprised by mass boundary or screen plantings, to form a group of the same or a mixture of taxa. Each stand is considered as a single unit with each component tree assessed and expressed in tabular form, or indicated by a given percentage as a population sample of each stand. Where it is appropriate for a stand of trees to be retained in full or part, the location and setback of Tree Protection Zone fences or works, are prescribed to provide for the preservation of the stand or selected component trees, in a condition not less than that at the time of initial inspection for its incorporation into the landscape works for the site, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures.

2.6 Tree Significance - The trees were allocated a significance rating as determined by using the Tree Significance - Assessment Criteria of the IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA, 2010), Appendix A.

2.7 The meanings for terminology used in this report were taken from the IACA Dictionary for Managing Trees in Urban Environments (Draper & Richards, 2009).

3.0 PRUNING STANDARDS

3.1 Any pruning recommended in this report is to be to the Australian Standard® AS4373 *Pruning of amenity trees*, and conducted in accordance with the Guide to Managing Risks of Tree Work, (Work Safe Australia 2023).

3.2 All pruning or removal works are to be in accordance with the appropriate planning instrument for the management of trees or vegetation.

3.3 Tree maintenance work is specialised and must be undertaken by staff qualified in arboriculture to ensure the works conducted are not detrimental to the tree or its survival. To assist in the safe removal of any tree, works should be undertaken by a qualified Arboriculturist with appropriate competencies recognised within the Australian Qualification Framework, with a minimum of 5 years of continual experience within the industry of operational amenity arboriculture, and covered by appropriate and current types of insurance to undertake such works.

4.0 DISCUSSION

This section addresses the relevant parts of the Local Government Act 1993, and planning instruments for tree protection for tis project.

Local Government Act 1993, Part 2 Public places, 629

629 Injuring or removing plants, animals, rocks and soil in or from public place
(1) A person who, without lawful excuse, wilfully or negligently injures, damages or unnecessarily disturbs any plant, animal, rock or soil in a public place is guilty of an offence.

(2) A person who, without lawful excuse, removes any plant, animal, rock or soil from a public place is guilty of an offence.

4.1 There are 7 street trees (TN1-7) in Thomas Street road reserve adjacent the Lewisham Station and trees TN1-4 are to be retained and protected, tree TN5 transplanted within the project and trees TN6 and TN7 removed.

Environmental Planning and Assessment Act 1979, (EP&A Act) and amendments,

4.3 This Project is being carried out by a determining authority under Part 5 of the EP&A Act and does not require the consent of a local council.

4.4 The land is zone SP2 Infrastructure – Rail Infrastructure Facility (Appendix F – Tree Location Plan, Land Zoning Map 2 of 6).

5.0 RECOMMENDATIONS

5.1 Five trees (TN4 - 5) are proposed to be retained and protected as shown in Appendix G - Tree Protection Plan. Trees TN1-4 are to be retained and protected *in situ*, TN5 is to be transplanted *ex situ* nearby within *the site*.

5.2 Where Tree Protection Zone works are to be modified or relocated this must be undertaken in consultation with the Project Arborist to ensure that tree protection is maintained.

5.3 Two trees (TN6 and TN7) are to be removed and each tree removal is to be conducted in accordance with section 3.0, parts 3.1 - 3.3. Tree TN7 is suitable to be transplanted *ex situ,* dependent on the timing of the project works.

Danny Draper
Principal Consultant
IACA Accredited Member (ACM) #001 2003
D Draper mob. 0418471 806
Urban Tree Management Australia P/L
Dip. Hort. (Arboriculture)(AQF 5),
Assoc. Dip. Hort. (Pk. Mgmt.),
Hort. Cert.
Tree Risk Assessment

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DISCLAIMER

The author and Urban Tree Management take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations pertaining to safety by way of exercising our responsibility to our client and the public as our duty of care commitment, to mitigate or prevent hazards from arising or risks from being eliminated or mitigated or managed to reduce harm or damage, from a failure moment in full or part, from a structurally deficient or unsound tree or a tree likely to be rendered thus by its retention and subsequent deterioration from modification/s to its growing environment either existing or proposed, either above or below ground, contrary to our advice.

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Appendix A

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

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

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

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

Tree Significance - Assessment Criteria

1. High Significance in landscape

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

2. Medium Significance in landscape

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

3. Low Significance in landscape

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

Environmental Pest / Noxious Weed Species

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

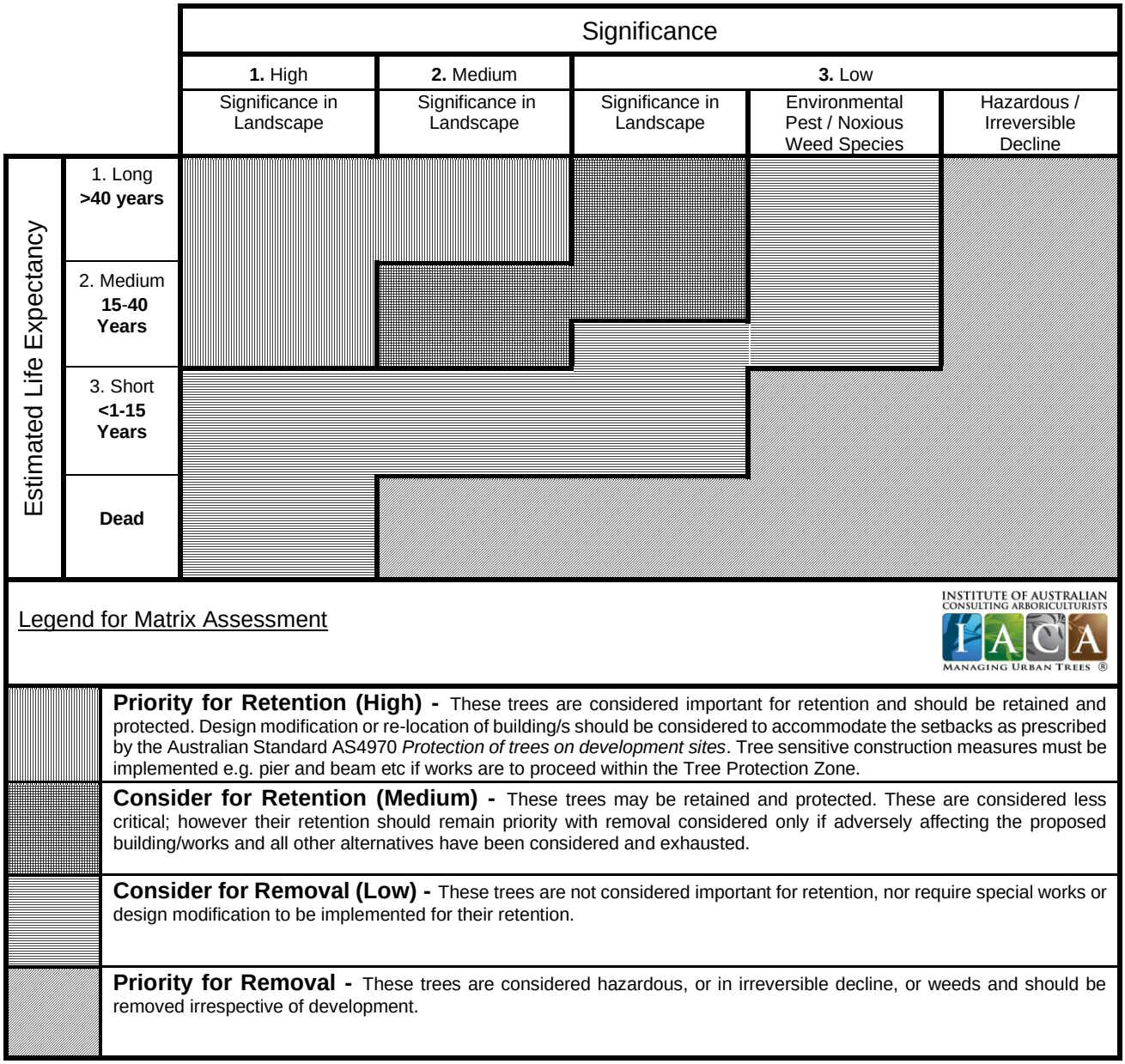
Hazardous/Irreversible Decline

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

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

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

Table 1.0 Tree Retention Value - Priority Matrix.



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Appendix B

Extract from Australian Standard AS4970 2009 Protection of trees on development sites

Section 3, Determining the tree protection zones of the selected trees

3.1 Tree protection zone (TPZ)

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

The TPZ incorporates the structural root zone (SRZ) (refer to Clause 3.3.5)."

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

where

DBH = trunk diameter measured at 1.4 m above ground

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

Appendix C

Extract from Australian Standard AS4970 2009 Protection of trees on development sites

Section 3, Determining the protection zones of the selected trees

3.3.5 Structural root zone (SRZ)

"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 a major encroachment into a TPZ is proposed. Root investigation may provide more information on the extent of these roots."

Determining the SRZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

SRZ radius expressed by the curve is calculated by the following formula,

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

where

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

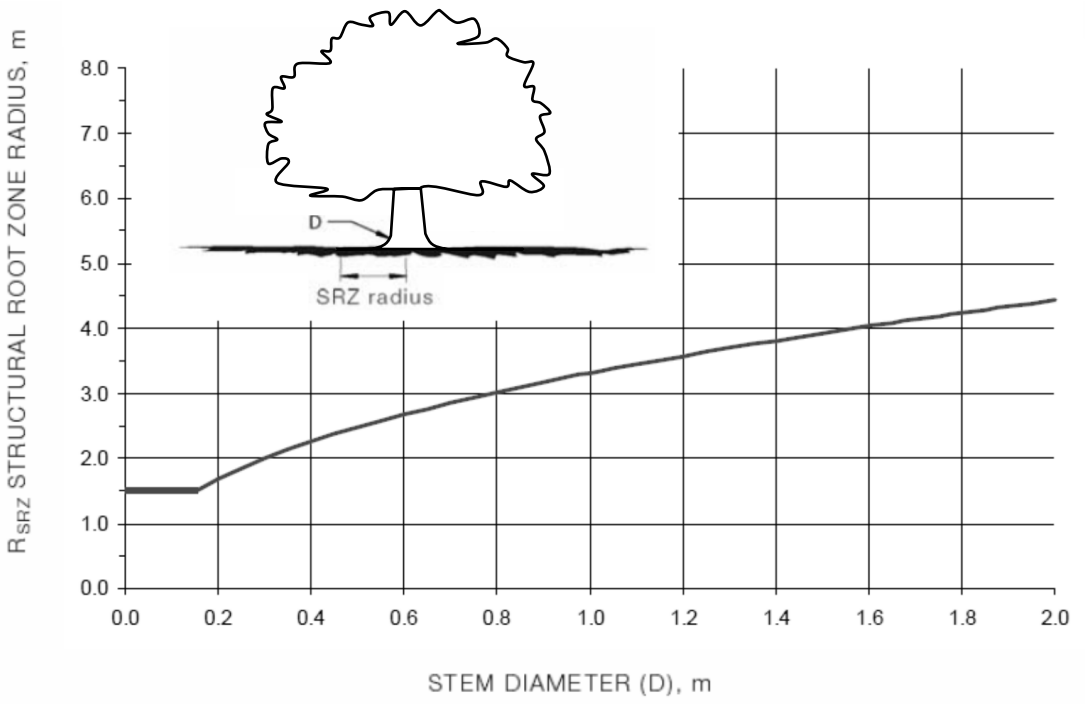


FIGURE 1 STRUCTURAL ROOT ZONE CALCULATION

(AS 4970 – 2009, Amendment No. 1 March 2010)

NOTES:

1 R_{SRZ} is the calculated structural root zone radius (SRZ radius).

2 D is the stem diameter measured immediately above root buttress.

3 The R_{SRZ} for trees less than 0.15 m diameter is 1.5 m.

4 The R_{SRZ} formula and graph do not apply to palms, other monocots, cycads and tree ferns.

5 This does not apply to trees with an asymmetrical root plate.

Appendix D

Matrix - Sustainable Retention Index Value (SRIV) ©

Version 4, 2010
Developed by IACA – Institute of Australian Consulting Arboriculturists www.iaca.org.au

The matrix is to be used with the value classes for Age / Vigour / Condition.
An index value is given to each category where ten (10) is the highest value.

Age Class	Vigour Class and Condition Class					
	Good Vigour & Good Condition (GVG)	Good Vigour & Fair Condition (GVF)	Good Vigour & Poor Condition (GVP)	Low Vigour & Good Condition (LVG)	Low Vigour & Fair Condition (LVF)	Low Vigour & Poor Condition (LVP)
	Able to be retained if sufficient space available above and below ground for future growth. No remedial work or improvement to growing environment required. May be subject to high vigour. Retention potential - Medium – Long Term.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work may be required or improvement to growing environment may assist. Retention potential - Medium Term. Potential for longer with remediation or favourable environmental conditions.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work unlikely to assist condition, improvement to growing environment may assist. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. No remedial work required, but improvement to growing environment may assist vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment may assist condition and vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	Unlikely to be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment unlikely to assist condition or vigour. Retention potential - Likely to be removed immediately or retained for Short Term. Potential for longer with remediation or favourable environmental conditions.
(Y) Young	**YGVG - 9** **Index Value 9** Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height <5 m. High potential for future growth and adaptability. Retain, move or replace.	**YGVF - 8** **Index Value 8** Retention potential - Short – Medium Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Medium-high potential for future growth and adaptability. Retain, move or replace.	**YGVP - 5** **Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**YLVG - 4** **Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Medium potential for future growth and adaptability. Retain, move or replace.	**YLVF - 3** **Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	**YLVP - 1** **Index Value 1** Retention potential - Likely to be removed immediately or retained for Short Term. Likely to provide minimal contribution to local amenity if height <5 m. Low potential for future growth and adaptability.
(M) Mature	**MGVG - 10** **Index Value 10** Retention potential - Medium - Long Term.	**MGVF - 9** **Index Value 9** Retention potential - Medium Term. Potential for longer with improved growing conditions.	**MGVP - 6** **Index Value 6** Retention potential - Short Term. Potential for longer with improved growing conditions.	**MLVG - 5** **Index Value 5** Retention potential - Short Term. Potential for longer with improved growing conditions.	**MLVF - 4** **Index Value 4** Retention potential - Short Term. Potential for longer with improved growing conditions.	**MLVP - 2** **Index Value 2** Retention potential - Likely to be removed immediately or retained for Short Term.
(O) Over-mature	**OGVG - 6** **Index Value 6** Retention potential - Medium - Long Term.	**OGVF - 5** **Index Value 5** Retention potential - Medium Term.	**OGVP - 4** **Index Value 4** Retention potential - Short Term.	**OLVG - 3** **Index Value 3** Retention potential - Short Term. Potential for longer with improved growing conditions.	**OLVF - 2** **Index Value 2** Retention potential - Short Term.	**OLVP - 0** **Index Value 0** Retention potential - Likely to be removed immediately or retained for Short Term.

Appendix E – Tree Assessment – Lewisham Railway Station, 2 Victoria Street, Lewisham (Thomas Street section) NSW

Tree ID number	**Botanical Name / Common name**	**Age** Y: Young M: Mature OM: Overmature (senescent)	**Height** (m)	**Spread** (m)	**DBH** (mm)	**DARB** (mm)	**TPZ** (m. rad) AS 4970 (2009)	**SRZ** (m. rad) AS 4970 (2009)	**SRIV** Age, Vigour, Condition / Index Rating (see Appendix D) www.iaca.org.au / Estimated Life Expectancy 1 = Long 2 = Medium 3 = Short	**STARS** Significance scale (see Appendix A) www.iaca.org.au 1 = High 2 = Medium 3 = Low / Retention Value 1 = High 2 = Medium 3 = Low 4 = Remove	**Retain / Remove / Transplant** **pr = prune cr = crown rt = roots**	Comments and Recommendations
1	*Phoenix canariensis* Canary Island Date Palm	M	10	5.6	560	N/A for palms	3.8	N/A for palms	MGVG - 10 / 1	1 / 1	Retain	Crown cover (CC) >90%, Crown Density (CD) >90%. Crown pruned for clearance to south from over rail corridor. To be retained *in situ* and protected (Appendix G - Tree Protection Plan).
2	*Phoenix canariensis* Canary Island Date Palm	M	11	5.6	660	N/A for palms	3.8	N/A for palms	MGVG - 10 / 1	1 / 1	Retain	CC 90% and CD 90%. Crown pruned for clearance to south from over rail corridor. To be retained *in situ* and protected (Appendix G - Tree Protection Plan).
3	*Phoenix canariensis* Canary Island Date Palm	M	12	5.6	600	N/A for palms	3.8	N/A for palms	MGVG - 10 / 1	1 / 1	Retain	CC 90% and CD 90%. Crown pruned for clearance to south from over rail corridor. To be retained *in situ* and protected (Appendix G - Tree Protection Plan).
4	*Phoenix canariensis* Canary Island Date Palm	M	12	5.6	600	N/A for palms	3.8	N/A for palms	MGVG - 10 / 1	1 / 1	Retain	CC 90% and CD 90%. Crown pruned for clearance to south from over rail corridor. To be retained *in situ* and protected (Appendix G - Tree Protection Plan).
5	*Phoenix canariensis* Canary Island Date Palm	M	11.5	5.6	530	N/A for palms	3.8	N/A for palms	MGVG - 10 / 1	1 / 1	Transplant	CC 90% and CD 90%. Crown pruned for clearance to south from over rail corridor. To be transplanted to new location similar to tree TN7 (Appendix G - Tree Protection Plan).
6	*Melaleuca bracteata* River Tea Tree	M	6	5	210	230	2.5	1.9	MGVG - 10 / 1	2 / 2	Remove	CC 90% and CD 90%. Trunk slightly crooked, upright to 2.5 m, crown asymmetrical, bias to west. Crown pruned for clearance to south from over rail corridor.
7	*Lagerstroemia indica x L. fauriei* 'Indian Summer' Crepe Myrtle Indian Summer	M	5.5	6	220	250	2.64	1.9	MGVG - 10 / 1	1 / 1	Remove	CC 90% and CD 90%. Crown dominant. Basal epicormic shoots to N. Previously pruned in lower crown for pedestrian access beneath crown. Tree a mature specimen of good form and good vigour that could be transplanted.

Photograph 1.0 Taken 15/11/2024 by D Draper. View to south from Thomas Street towards Lewisham Railway Station showing trees TN1-5 *Phoenix canariensis* - Canary Island Date Palm and tree TN6 *Melaleuca bracteata* - River Tea Tree.

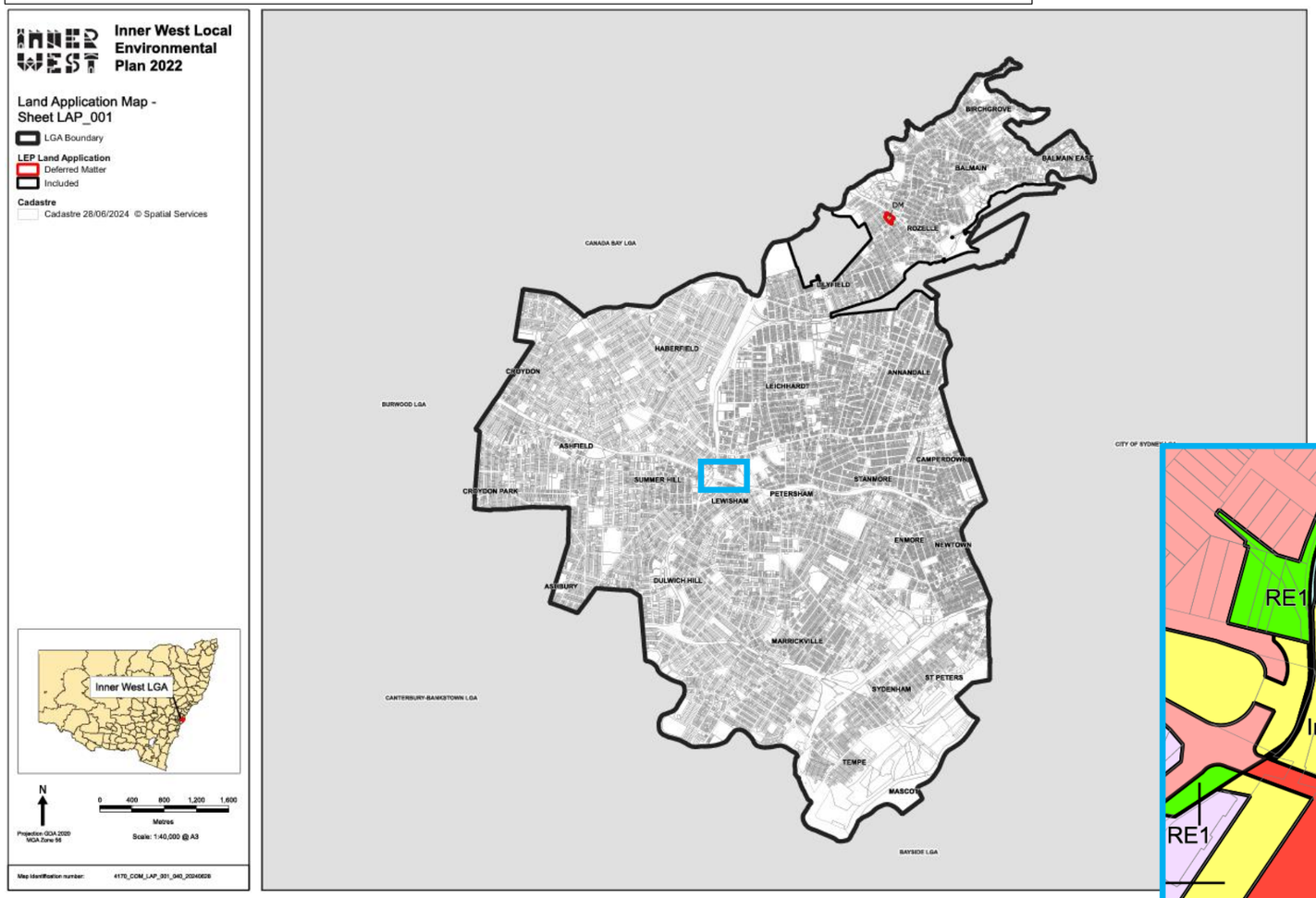
Photograph 1.1 Taken 15/11/2024 by D Draper. View to west from Thomas Street towards Lewisham Railway Station showing tree TN7 *Lagerstroemia indica* x *L. fauriei* 'Indian Summer' - Crepe Myrtle Indian Summer.

Appendix F – Tree Location Plan, Land Application Map, 1 of 6

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

Source: Inner West Council, Inner West Local Environmental Plan 2022, Land Application Map – Sheet LAP_001, viewed 18/11/2024, https://eplanningdlprod.blob.core.windows.net/pdfmaps/4170_COM_LAP_001_040_20240628.pdf
NSW Government, Inner West Local Environmental Plan 2022, Land Zoning Map - Sheet LNZ_005, viewed 18/11/2024, https://eplanningdlprod.blob.core.windows.net/pdfmaps/4170_COM_LZN_005_010_20220414.pdf



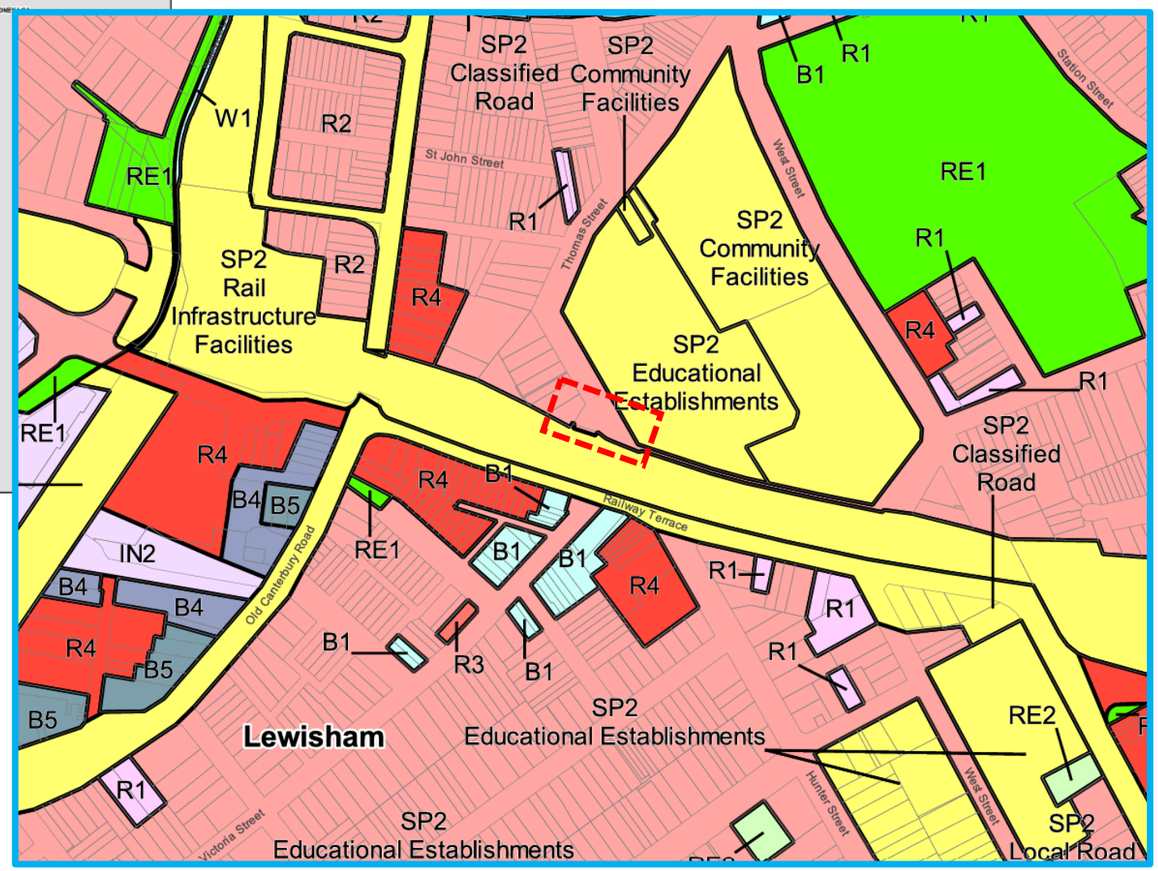
Inner West Council Local Government Area (outlined black), section showing vicinity of the site: Lewisham Railway Station, 2 Victoria Street, Lewisham NSW (outlined blue).

Zone

B1	Neighbourhood Centre
B2	Local Centre
B4	Mixed Use
B5	Business Development
B6	Enterprise Corridor
B7	Business Park
IN1	General Industrial
IN2	Light Industrial
R1	General Residential
R2	Low Density Residential
R3	Medium Density Residential
R4	High Density Residential
RE1	Public Recreation
RE2	Private Recreation
SP1	Special Activities
SP2	Infrastructure
W1	Natural Waterways
W2	Recreational Waterways
DM	Deferred Matter
CP	Callan Park
SEPP	State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021

Cadastre

Cadastre 14/04/2022 © Spatial Services



Inset detail (outlined blue) showing the site: Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, north section with trees in Thomas Street (outlined red broken line).

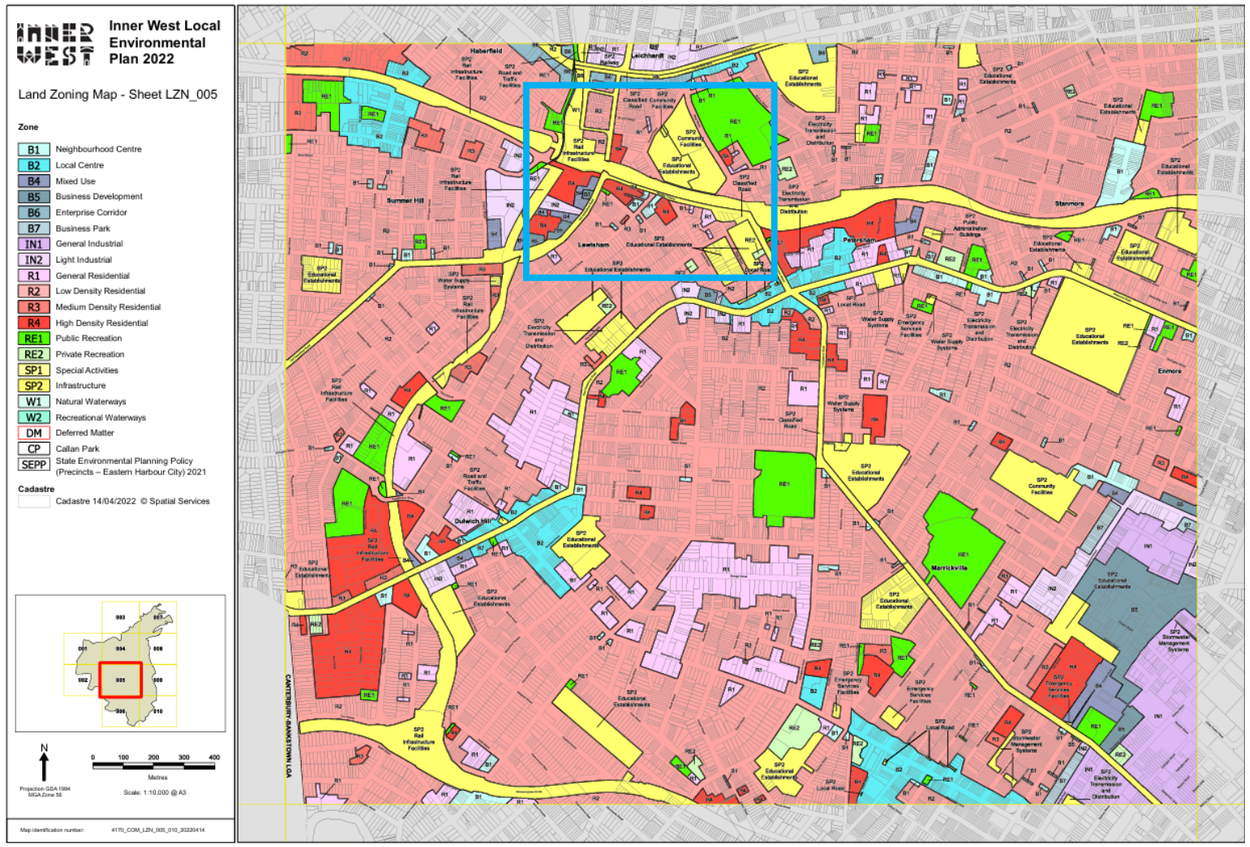
Appendix F – Tree Location Plan, Land Zoning Map, 2 of 6

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

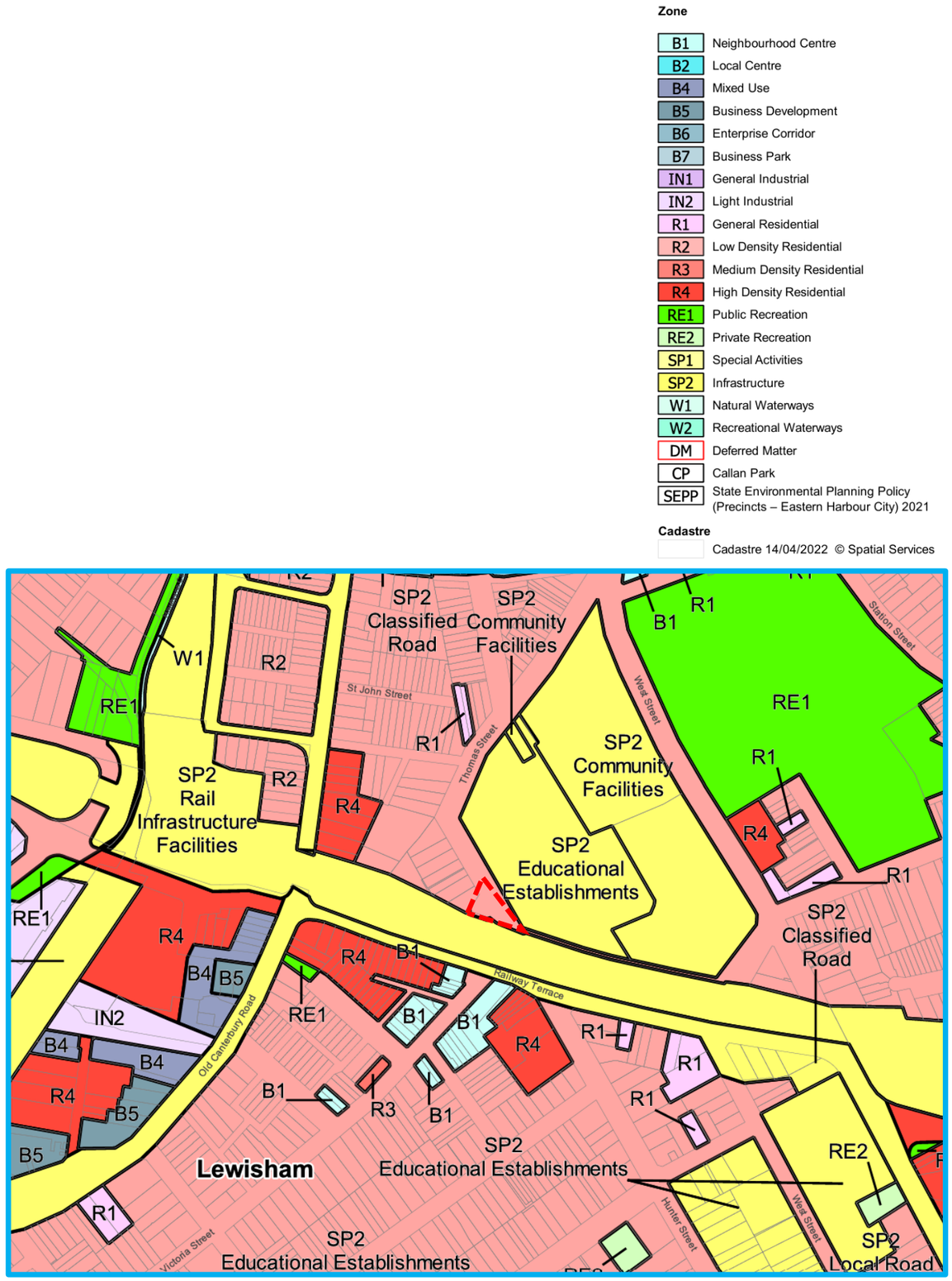
Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

NSW Government, Inner West Local Environmental Plan 2022, Land Zoning Map - Sheet LNZ_005, viewed 18/11/2024, https://eplanningdlprod.blob.core.windows.net/pdfmaps/4170_COM_LZN_005_010_20220414.pdf

URBAN TREE MANAGEMENT



From Inner west Council, Local Environmental Plan 2022, Land Zoning Map showing vicinity of the site: Lewisham Railway Station, 2 Victoria Street, Lewisham NSW (outlined blue).



Inset detail (outlined blue) Land Zoning Map, showing the site section with trees: Lewisham Railway 2 Victoria Street, Lewisham NSW, north section with trees in Thomas Street (outlined red broken line).

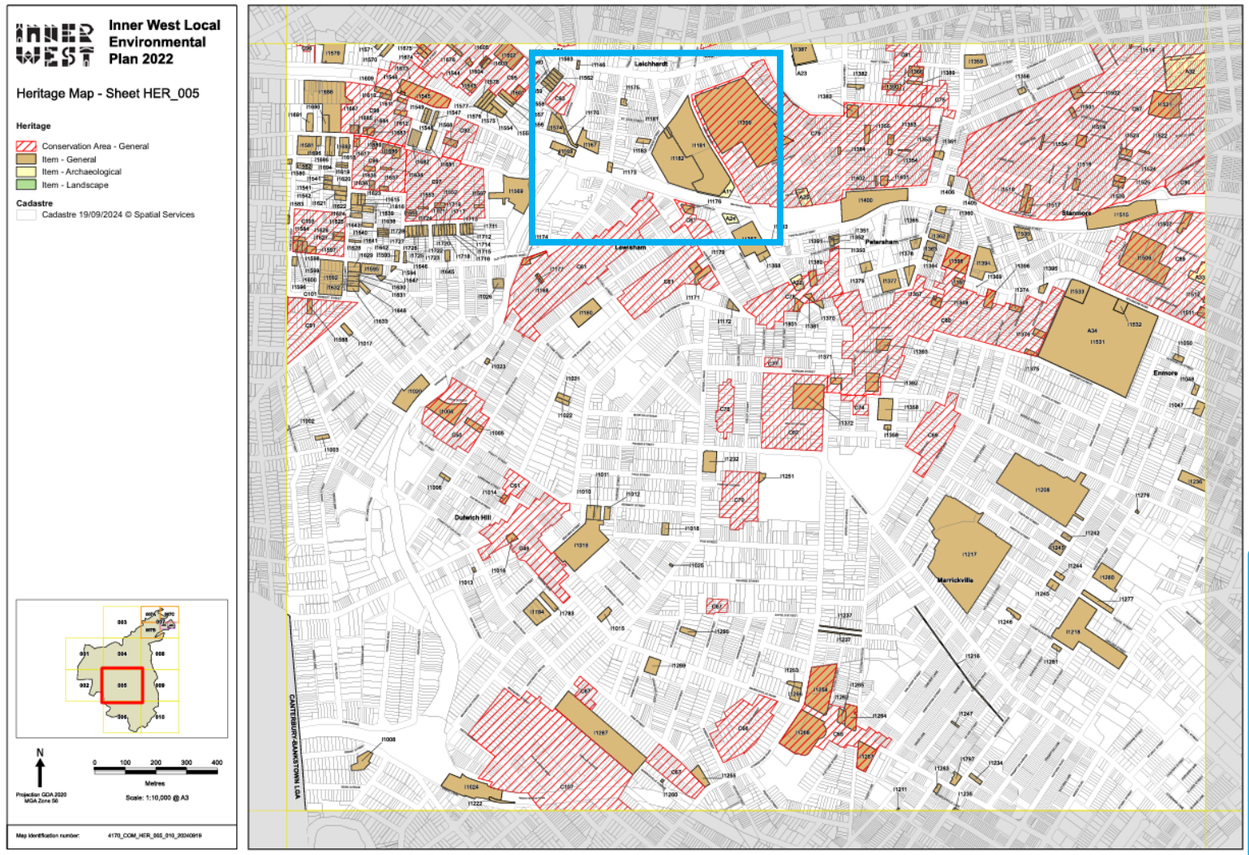
Appendix F – Tree Location Plan, Heritage Map, 3 of 6

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

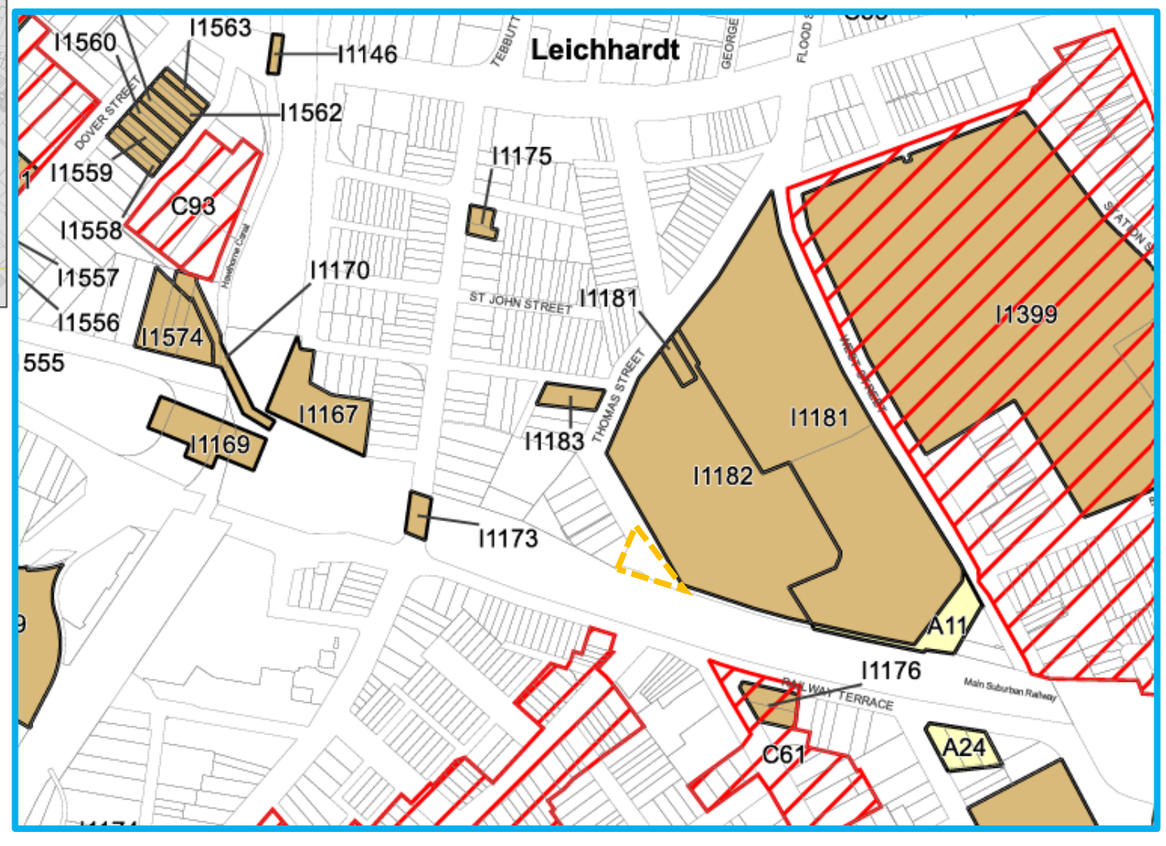
Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

NSW Government Planning Portal, Inner West Local Environmental Plan 2022, Heritage Map - Sheet HER_005, viewed 18/11/2024, https://eplanningdlprod.blob.core.windows.net/pdfmaps/4170_COM_HER_005_010_20240919.pdf

URBAN TREE MANAGEMENT



From Inner west Council, Local Environmental Plan 2022, Heritage Map – section showing vicinity of the site: Lewisham Railway Station, 2 Victoria Street, Lewisham NSW (outlined blue).



Inset detail (outlined blue) Land Zoning Map, showing the site section with trees: Lewisham Railway 2 Victoria Street, Lewisham NSW, north section with trees in Thomas Street (outlined orange broken line).

Appendix F – Biodiversity Values Map and Threshold Report, 4 of 6

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

NSW Government Department of Planning and Environment Planning, Property Report, Thomas Street, Lewisham, adjacent Lewisham Station, Lewisham NSW, viewed 18/11/2024, https://www.lmbc.nsw.gov.au/Geocortex/Essentials/GXE414/REST/TempFiles/BMATReport.pdf?guid=a8e585d0-e517-428f-b157-9c5e51e76afb&contentType=application%2Fpdf

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		18/11/2024 6:31 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	no
1.2	**Was ALL BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
1.3	**Date of expiry of dark purple 90 day mapping**	N/A
1.4	**Is the Biodiversity Values Map threshold exceeded?**	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	538.7 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	231.0 sqm
2.3	**Method for determining Minimum Lot Size**	Lot size
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	32,579 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	5,000 sqm
2.6	**Does the estimate exceed the Area Clearing Threshold?** (NVACE results are an estimate and can be reviewed using the Guidance)	no
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		**no**

NSW GOVERNMENT Department of Planning and Environment

What do I do with this report?

- If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

- If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is '"likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

- If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

- If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

- If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

- If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: Danny Draper _____ Date:_____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

18/11/2024 06:31 PM

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Biodiversity Values Map

The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

Appendix F – Tree Location Plan, Aerial Photograph, 5 of 6

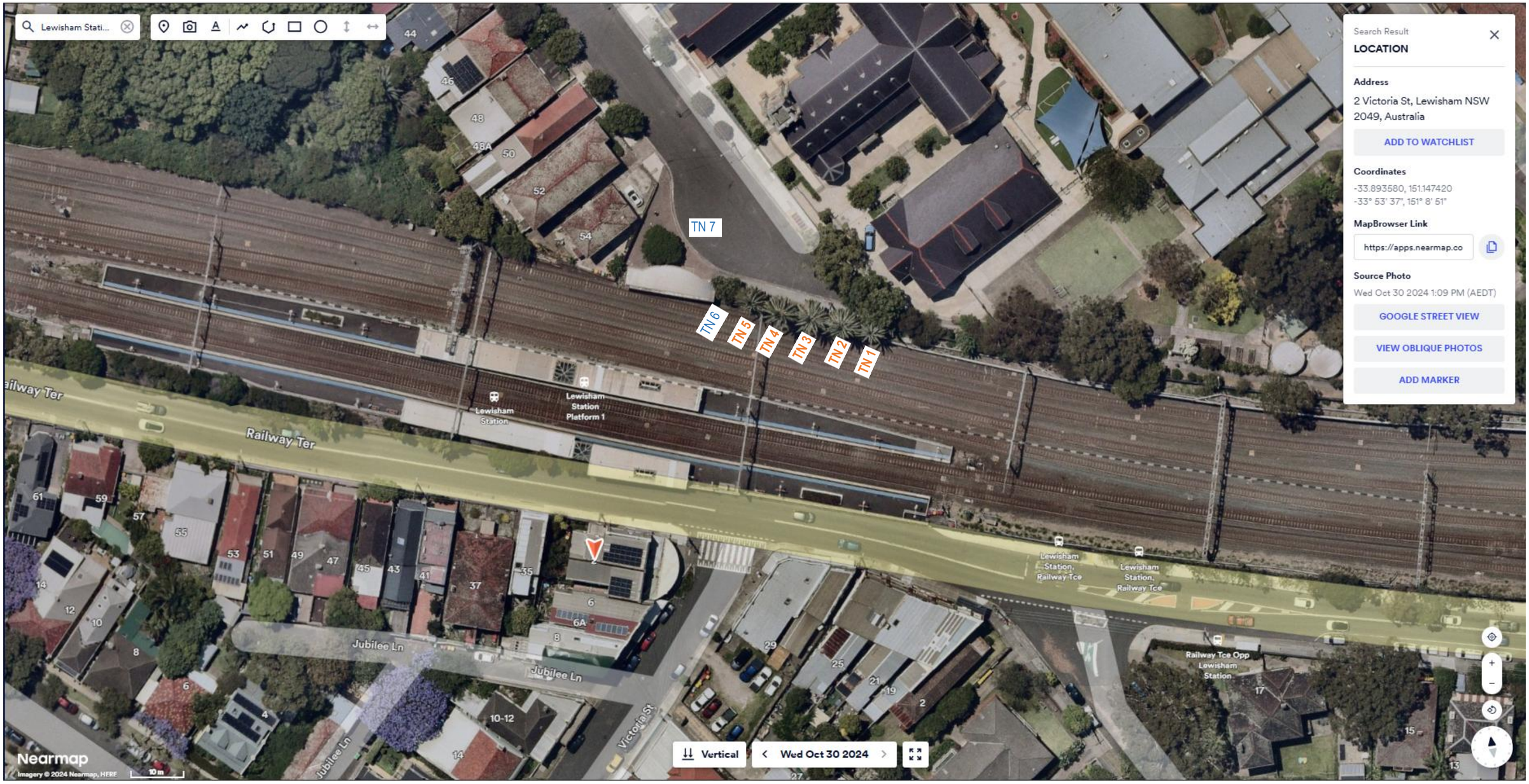
(trees numbered per Appendix E - Tree Assessment)

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

Source: Nearmap Imagery 2024, Wed Oct 30 2024, 2 Victoria St, Lewisham NSW 2049, viewed 18/11/2024, Vhttps://apps.nearmap.com/maps/#/-EqLo3ViTJ2pp-pYlLcWpw/@-33.8933350,151.1477855,20.00z,9d/V+R/20241030

URBAN TREE MANAGEMENT



Appendix F – Tree Location Plan, Survey, 6 of 6

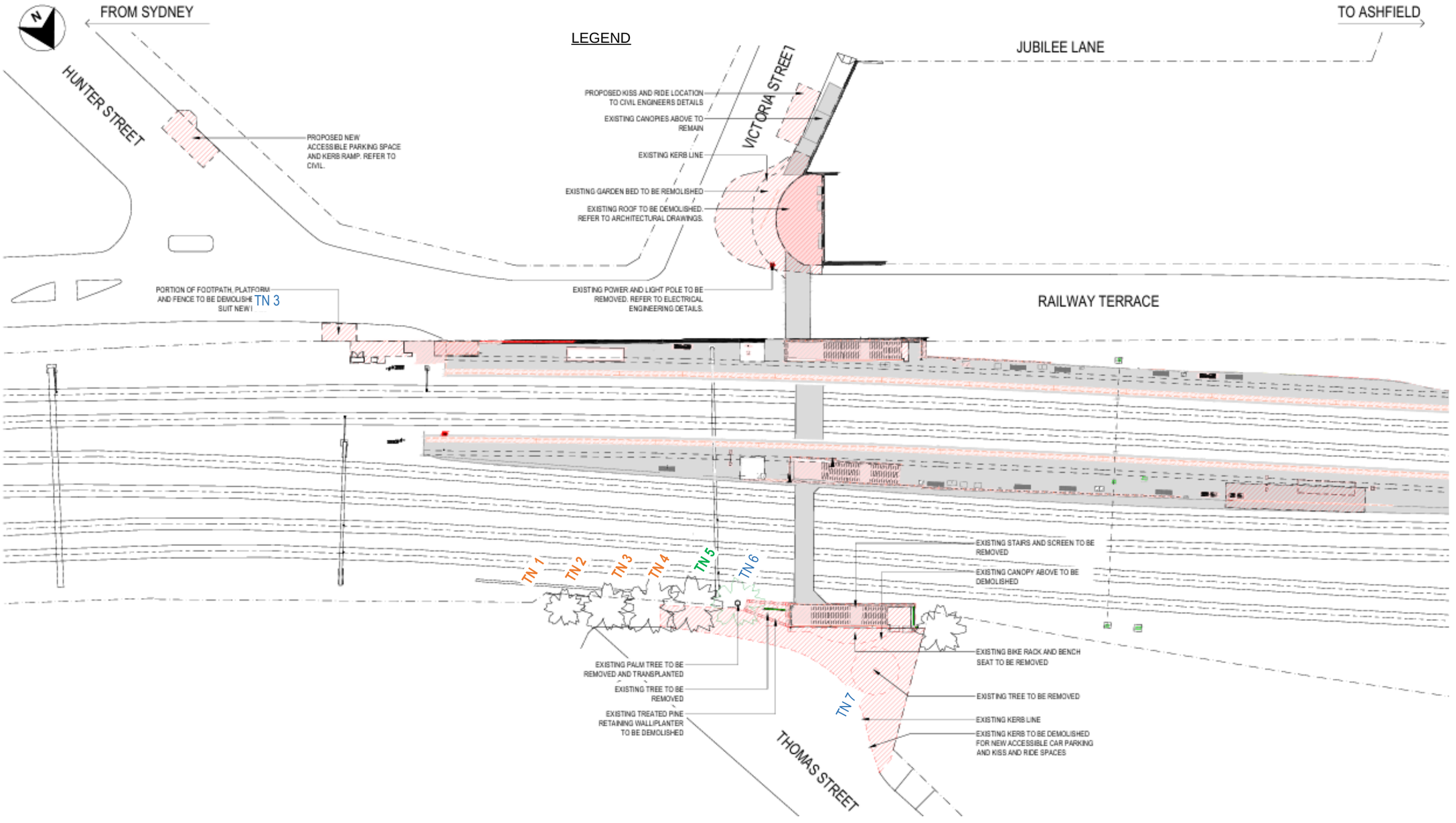
(trees numbered per Appendix E - Tree Assessment),
Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

From: Main Suburban Line - 6.426 Km, Safe Accessible Transport Program, Lewisham, Landscape, General Demolition Plan, Sheet 1 of 1, Status: 100% Concept Design, Drg No. SATP1-DIS-LEW-DRG-010010, Revision B, Approved 27/9/2024, Prepared for Transport for NSW by DesignInc Pty Ltd ACN 003008820 and AECOM, viewed 18/11/2024, file:///E:/UTMA/27000%20series/27010%20-%20AIA%20-%20Lewisham%20Railway%20Station%20-%20Aecom%20-%20Rachel%20O%20Hara/Lewisham%20-%20Landscape%20Drawings.pdf

URBAN TREE MANAGEMENT

LEGEND

- Existing trees to be retained, numbered in **orange and bold**
- Existing trees to be transplanted, numbered in **green and bold**
- Existing trees to be removed, numbered in blue
- REMOVED DEMOLISHED



PPENDIX G – **TREE PROTECTION PLAN**, Tree Protection Zones - Standard Procedure

The Protective fencing where required may delineate the ***TPZ*** and should be located as determined by the project arborist in accordance with AS4970 *Protection of trees on development sites*, Section 4, 4.3. *"Fencing should be erected before any machinery or materials are brought onto the site and before the commencement of works including demolition. Once erected, protective fencing must not be removed or altered without approval by the project arborist. The TPZ must be secured to restrict access. AS4687 Temporary fencing and hoardings specifies applicable fencing requirements. Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area. Fence posts and supports should have a diameter greater than 20 mm and be located clear of roots. Existing perimeter fencing and other structures may be suitable as part of the protective fencing."*

AS4970 Section 4, Tree protection measures, Figure 3 Protective fencing shows examples of such fencing.

"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. The 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. "

AS4970 Section 4, Tree protection measures, 4.2 Activities restricted within the TPZ
"Activities generally excluded from the TPZ included but are not limited to-
(a) Machine excavation including trenching;
(b) Excavation for silt fencing;
(c) cultivation;
(d) storage;
(e) preparation of chemicals, including preparation of cement products;
(f) parking of vehicles and plant;
(g) refuelling;
(h) dumping of waste;
(i) wash down and cleaning of equipment;
(j) placement of fill;
(k) lighting of fires;
(l) soil level changes;
(m) temporary or permanent installation of utilities and signs, and
(n) physical damage to the tree."

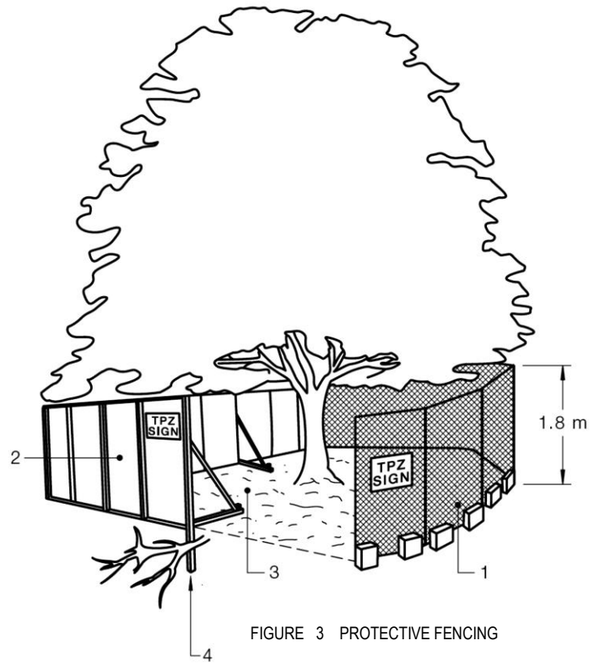


FIGURE 3 PROTECTIVE FENCING

FIGURE C1 TREE PROTECTION ZONE SIGN

Tree Protection signage is to be attached to each ***Tree Protection Zone*** and displayed from within the development site in accordance with AS4970 2009 *Protection of trees on development sites*, Section 4.4 and example Figure C1 (as shown) and lettering to comply with AS1319.

Where a tree is to be retained and a ***Tree Protection Zone*** cannot be adequately established due to restricted access e.g. tree located along side an access way, the trunk and branches in the lower crown will be protected by wrapping 2 layers of hessian or carpet underfelt around the trunk and branches for a minimum of 2 m or as lower branches permit, then wire or rope secures 75x50x2000 mm hardwood battens together around the trunk (do not nail or screw to the trunk or branches). The number of battens to be used is as required to encircle the trunk and the battens are to extend to the base of the tree (AS4970 2009 *Protection of trees on development sites*, Figure 4 Examples of Trunk, Branch and ground protection).

Trunk/Branch and root protection If a tree is growing down slope from an excavation, a silt fence located along the contours of the site in the area immediately above the ***Tree Protection Zone*** fencing may need to be installed and regularly maintained to prevent burial and asphyxiation of the roots of the tree. To allow for the maintenance of both fences, the silt fence must be constructed separately to the tree protection fence and the 2 fences must be constructed independently of each other and standalone. To reduce competition with the tree the area within the ***Tree Protection Zone*** is to be kept free of weeds. These are best removed by the application of foliar herbicide with Glyphosate as the active constituent. This is the preferred method rather than removal by cultivation of the soil within the dripline, to minimise root disturbance to the tree. The removal of woody weeds such as Privet should use the cut and paint method of herbicide application. Weeds to be controlled within the ***Tree Protection Zone***, for the duration of the project.

The area of the Tree Protection Zone to be mulched to a depth of 100 mm with organic material being 75% leaf litter and 25% wood, and this being composted material preferably from the same genus and species of tree as that to where the mulch is to be applied, i.e. species specific mulch. The depth of mulch and type as indicated, to be maintained for the duration of the project. Where deep excavation will expose the soil profile to drying out the root plate is to be protected by pegging jute matting across the ground surface 2 m back from the edge of the profile and 2 m down the face of the profile and is to be in one continuous sheet or layers up to 5 mm thick and overlapped 300 mm and pegged. Pegs are to be a minimum length of 200 mm and spaced at 500 mm increments in a grid pattern. Once installed mulch is to be placed on top of the jute matting previously described.

No services either temporary or permanent are to be located within the ***Tree Protection Zone***. If services are to be located within the ***Tree Protection Zone***, special details will need to be provided by the Project Arborist for the protection of the tree regarding the location of the service/s.

A tree will not be fertilised during its protection within the ***Tree Protection Zone***, as this may hasten its decline if it were to decline. If a tree is to be fertilised this should be in consultation with the Project Arborist as per AS4970 (2009).

In the event of prolonged dry periods, or where a tree has been transplanted, or where excavation nearby, especially up slope, leads to drying out of a soil profile, or modification to ground water flow, or flows across an existing ground surface to the tree and its growing environment; deep root watering thoroughly at least twice a week is to be undertaken to irrigate the tree. The need for such watering is determined readily by observing the dryness of the soil surface within the dripline of the tree by scraping back some mulch. Mulch is to be reinstated afterwards. In the event of disrupted ground or surface water flows to the tree due to excavation, filling or construction, a reticulated irrigation system may be required to be installed within the ***Tree Protection Zone***. If an irrigation system is to be installed, consideration must be given to volume, frequency, and drainage of water delivered, and this should be in consultation with the Project Arborist as per AS4970 (2009).

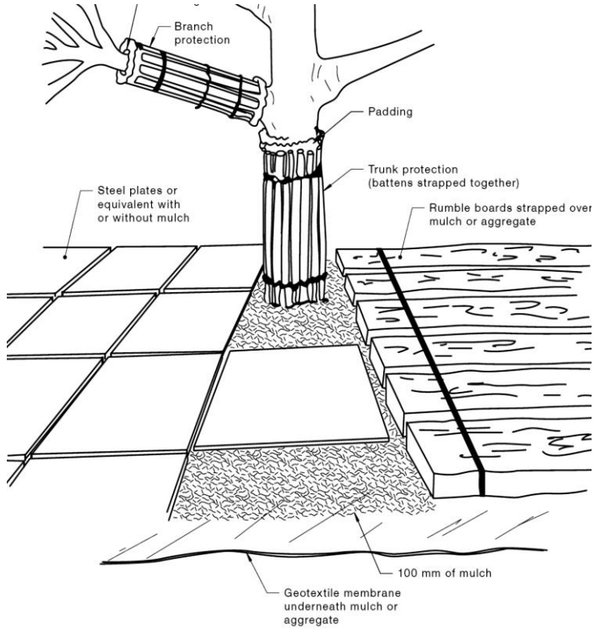
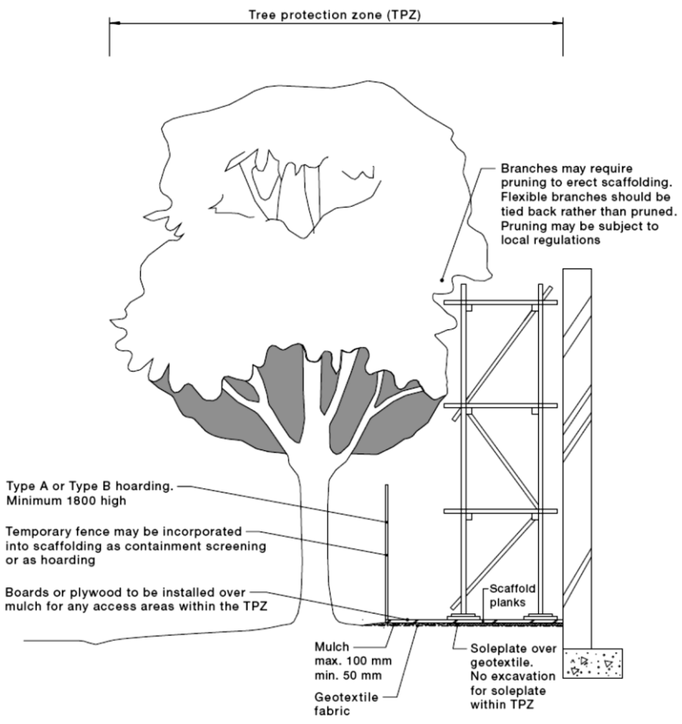


FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION



NOTE: Excavation required for the insertion of support posts for tree protection fencing should not involve the severance of any roots greater than 20 mm in diameter, without the prior approval of the project arborist.

FIGURE 5 INDICATIVE SCAFFOLDING WITHIN A TPZ

Scaffolding *"Where scaffolding is required it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimized. This can be achieved by designing scaffolding to avoid branches or tying back branches. Where pruning is unavoidable it must be specified by the project arborist in accordance with AS4373. Ground below the scaffolding should be protected by boarding (e.g. scaffolding board or plywood sheeting) as shown in Figure 5. Where access is required, a board walk or other surface material should be installed to minimise soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed."* (Standards Australia 2009, p. 18).

APPENDIX G – Tree Protection Plan

(trees numbered per Appendix E - Tree Assessment), **Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.**

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

URBAN TREE MANAGEMENT

Tree Protection Works - General

All retained tree/s Existing levels are to be preserved and no excavation except by hand to protect structural roots is to be undertaken within the Tree Protection Zone/s. No cutting or filling is to be undertaken within any TPZ unless specified by the Project Arborist.

Induction for Tree Protection All workers entering the site involved in construction must be advised of the tree protection measures and specifications outlined within this report during the site induction. This is to be verbally acknowledged and signed off before commencement of work.

Tree Protection Works - Specific

Prior to Demolition works

TPZ Fencing or works trees TN1 - 4 The tree Protection Zone fenced area is shown on Appendix G - Tree Protection Plan, showing Tree Protection Zones. TPZ fences and works are to be maintained and retained until the completion of all building works. This is to be installed as shown in Appendix G – Tree Protection Plan – Tree Protection Zones - Standard Procedure, Figure 3. Tree Protection Zone signage is to be applied to the fences per Tree Protection Plan, Tree Protection Zones - Standard Procedure Figure C1. Sections of the fence my require temporary removal to allow for access to remove material stored around the rear of the site. TPZ fence sections are to be maintained during demolition and construction.

Trunk and branch protection – tree TN1 - 4 Not required.as trees contained within fenced Tree Protection Zone area.

Mulching and soil enhancement for tree vigour – Trees TN1 - 4 Mulch with aged *Leaf Litter Mulch* (Leaf Litter | ANL) within the within the TPZ of these trees to a minimum depth of 50-100 mm and is to be maintained and kept weed free for the duration of works on the site.

Tree Removal – trees TN6 and 7 These trees are to be removed.

Tree Removal – if not to be transplanted – tree TN7 This tree is to be removed if not to be transplanted *ex situ* (off site).

Crown Protection TPZ – trees TN1 - 4 Plant equipment is to be kept away from the crown of each tree. No work is to be conducted within the TPZ except where TPZ works have been established per this report. Where required, work is to be conducted from outside of the TPZ, by reaching into the TPZ to minimise soil disturbance and compaction and branch and trunk damage.

Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise damage to overhanging branches and to protect roots.

Root Protection in areas >10% encroachment of the radial TPZ – trees TN1 - 4 No work is to be undertaken within this area of the TPZ. Where access is required within the areas >10% encroachment of the radial TPZ this is to be considered in consultation with the Project Arborist to determine the impact on the tree/s and remedial or alternative works. Where such encroachment is required, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, (see Appendix G, Tree Protection Plan, Tree Protection Zones - Standard Procedure, Figure 4). Plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise soil disturbance and compaction, this to include pavement and other structures.

Maintain Tree Protection Zones and their works during this period.

During Demolition works

Root Protection – trees TN1 - 4 Where access is required within the TPZ, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, see Appendix G, Tree Protection Plan, Tree Protection Zones - Standard Procedure, Figure 4).

Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise damage to overhanging branches and to protect roots by minimising soil disturbance and compaction, this to include using existing pavement and other structures as working platforms.

Root Pruning – trees TN1 - 4 No root pruning is required.

Maintain Tree Protection Zones and their works during this period. Plant equipment is to be kept away from the crown of each tree. No work is to be conducted within the TPZ. Where required, work is to be conducted from outside of the TPZ, by reaching into the TPZ to minimise soil disturbance and compaction and branch and trunk damage. Maintain Tree Protection Zones and their works during this period.

Post Demolition works

TPZ Fencing or works trees TN1 - 4 Maintain Tree Protection Zones and their works during this period. Plant equipment is to be kept away from the crown of each tree. No work is to be conducted within the TPZ. Where required, work is to be conducted from outside of the TPZ, by reaching into the TPZ to minimise soil disturbance and compaction and branch and trunk damage. Maintain Tree Protection Zones and their works during this period.

Transplanting Process Outline – Palms (Monocotyledons) tree TN5 Methodology to be undertaken as provided by Dave Dooley of Down Under Trees P/L, PO Box 1028 Mona Vale NSW 1660, M. 0418 275 810, E. dave@downundertrees.com.au , to be undertaken in consultation with the Project Arborist.

1.0 PREPARATION

1.1 Heavy watering and application of soil wetting agent, fungicide treatment and root growth stimulant to the root zone of the palm.
1.2 The canopy is treated with an anti-transpirant to reduce transpiration.

2.0 EXCAVATION AND ROOT BALLING

2.1 The root zone of the palm is cut out vertically with the use of a high pressure water laser and any services beneath the tree are exposed and identified.
2.2 Excavation around the root zone is now carried out with the use of the excavation machinery to gain access to cut out the root zone horizontally with the water laser and thus sever the tree from the sub-soil.

3.0 PREPARATION OF NEW POSITION

3.1 Excavation of the new position is carried out with the excavator and the back fill soil mix is prepared by mixing the transplanting soil mix with the soil from the original position.

APPENDIX G – Tree Protection Plan
(trees numbered per Appendix E - Tree Assessment)
(trees numbered per Appendix E - Tree Assessment), **Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.**

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

URBAN TREE MANAGEMENT

4.0 LIFTING AND RELOCATION

4.1 A mobile crane is set up on site, alongside the tree, rubber padding is used to protect the trunks from damage, and a webbed sling is used to connect the lifting chains to the palm.
4.2 The crane is used to lift the tree in a horizontal fashion, by the webbed sling onto the transporting vehicle.
4.3 The tree is supported on the deck of the transporter in a horizontal fashion and firmly secured, at such time it is now transported to its new location.

5.0 PLANTING IN NEW POSITION

5.1 The crane is reset at the new location and utilised to unload the palm in a horizontal fashion.
5.2 The palm is now inclined back into a vertical position and removed from the tilting frame.
6.3 The palm is tilted by the truck structure and positioned in its new location in ground.

6.0 BACKFILLING AND COMPLETION

6.1 The root zone of the tree is now backfilled with the prepared mix of original growing media and transplanting soil mix.
6.2 Heavy watering and application of soil wetting agent, fungicide treatment and root growth stimulant is carried out upon the root zone of the relocated tree.
6.3 Any padding around trunk is now removed with the aid of a cherry picker tower.

7.0 MAINTENANCE, FERTILISING AND MONITORING by Dave Dooley of Down Under Trees P/L

7.1 Maintenance, fertilising and monitoring on a 2 monthly basis for 3 years.

Excavation and Construction

Root Protection – trees TN1 - 4 Where access is required within the TPZ, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, see Appendix G, Tree Protection Plan, Tree Protection Zones - Standard Procedure, Figure 4).

Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise damage to overhanging branches and to protect roots by minimising soil disturbance and compaction, this to include using existing pavement and other structures as working platforms.

Root Pruning – trees TN1 - 4 No root pruning is required.

Maintain Tree Protection Zones and their works during this period. Plant equipment is to be kept away from the crown of each tree. No work is to be conducted within the TPZ. Where required, work is to be conducted from outside of the TPZ, by reaching into the TPZ to minimise soil disturbance and compaction and branch and trunk damage. Maintain Tree Protection Zones and their works during this period.

Scaffolding within the Tree Protection Zone – trees TN1 - 4 Where required, this is to be of minimum width to protect the roots from soil compaction and is to be installed as per AS9470 (2009) as indicated in Appendix G – Tree Protection Plan, Tree Protection Zones - Standard Procedure Figure 1. The scaffold should be approved by an engineer.

Location of underground utilities within a Tree Protection Zone – trees TN1 - 4 Not applicable. Where required utility services should not be located within the Tree Protection Zone. Any utility services are to be located underground within the TPZ are to be undertaken utilising excavation techniques that prevent or minimise damage to structural roots (roots greater than >40 mm diameter). Such works should be conducted with non-motorised hand tools of with an air knife or water knife and vacuum truck or with directional drilling with minimum depth to top of bore of 600 mm, to prevent soil compaction and root damage and works are to be monitored and certified by the Project Arborist.

Installation of boundary fences and external services near trees TN1 - 4 Boundary fences within the Tree Protection Zone of these trees are to be installed using hand excavated holes to a minimum depth of 600 mm for posts or piers where pier and beam construction is to be used. This is to minimise any impact on structural roots and any infill masonry sections are to be located on steel lintels suspended a minimum of 100 mm above ground to protect the roots within the TPZ. A fence must have the flexibility of design to move a post or pier to be 100 mm clear of any structural root (a root greater than >20 mm diameter) to protect such roots and provide sufficient space for future growth without conflict between the 2 structures. Any piers to be relocated must be approved and certified by a structural engineer or architect.

Precautions in respect to temporary work within Tree Protection Zone – trees TN1 - 4 Not applicable. If pedestrian or vehicular access is required within a Tree Protection Zone the roots of these trees are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) Figure 4, (see Appendix G, Tree Protection Plan, Tree Protection Zones - Standard Procedure Figure 4), where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates. Such works are to be monitored and certified by the Project Arborist. Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise soil disturbance and compaction.

The ground protection works are to remain in place until building works are completed.

Root Protection from Soil Profile Desiccation - utility trenches – all protected Trees Where an excavation profile is to be open for 1 day or more the exposed structural roots (roots >400 mm diameter) or adventitious roots within the soil profile are to be protected from drying out. The exposed structural roots are to be wrapped with a triple layer of hessian which is to be fastened to itself with hessian to prevent unraveling. The soil profile to 2 m deep (or to the base of the excavation if less than 2 m) is to be achieved by applying a double layer of hessian fabric to cover the exposed soil profile from grade within the Tree Protection Zone of these trees and fixed into place by metal pegs at the bottom, and the fabric is to overlap the ground at surface by 300 mm and be pegged into place with metal pegs. The soil profile protection is to remain in place and be maintained until backfilling is completed.

Root Protection – Trees TN1 - 4 No work is to be undertaken within the TPZ. Where access is required within the TPZ, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, see Appendix G, Tree Protection Plan, Tree Protection Zones - Standard Procedure, Figure 4).

Crown and trunk Protection – trees TN1 - 4 Maintain Tree Protection Zones and their works during this period. Plant equipment is to be kept away from the crown of each tree. No work is to be conducted within the TPZ. Where required, work is to be conducted from outside of the TPZ, by reaching into the TPZ to minimise soil disturbance and compaction and branch and trunk damage. Maintain Tree Protection Zones and their works during this period.

Maintain tree protection, and waste material is to be kept clear of the trunk and branches of each tree.

APPENDIX G – Tree Protection Plan
(trees numbered per Appendix E - Tree Assessment)
(trees numbered per Appendix E - Tree Assessment), **Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.**

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URBAN TREE MANAGEMENT

Post Construction - Landscaping

Remove all Tree Protection Zone fences or other temporary works.

New paths within the Tree Protection Zone – Trees TN1-4 The foot path past Tree 3 is outside of the Tree Protection Zone.

Excavation for landscape plantings within the Tree Protection Zone – trees TN1-4 Where required, this should be undertaken manually, to prevent damage to structural roots. Existing soil grades should be maintained with plant container size restricted to a maximum size of 5 Litres. No more than 2 plants per square metres for 5 Litres pots and 5 plants per square metres for 150 mm pot size.

Remedial pruning to crown of tree/s or palms as required to be conducted per AS4373 (2007), to be determined by the Project Arborist and in consultation with the consenting authority where consent is required.

APPENDIX G – Tree Protection Plan, showing Tree Protection Zones

(trees numbered per Appendix E - Tree Assessment),

Lewisham Railway Station, 2 Victoria Street, Lewisham NSW, Ref: 27010, 18/11/2024.

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160.

- From: TfNSW - Main Suburban Line - 6.426 Km, Safe Accessible Transport Program, Lewisham, Landscape, General, General Arrangement Plan - North, Sheet 1 of 1, Status: 100% Concept Design, Drg No. SATP1-DIS-LEW-DRG-010101, Revision B, Approved 27/9/2024, Prepared for Transport for NSW by DesignInc Pty Ltd ACN 003008820 and AECOM, viewed 18/11/2024, file:///E:/UTMA/27000%20series/27010%20-%20AIA%20-%20Lewisham%20Railway%20Station%20-%20Aecom%20-%20Rachel%20O%20Hara/Lewisham%20-%20Landscape%20Drawings.pdf

Legend

Tree Protection Zone (TPZ), alternate setbacks as indicated, or other protection measures or works as indicated.

Tree Protection Zone Fence.

Tree Protection Zone (TPZ).

Structural Root Zone (SRZ). N/A for trees with an asymmetrical root plate, e.g. street trees.

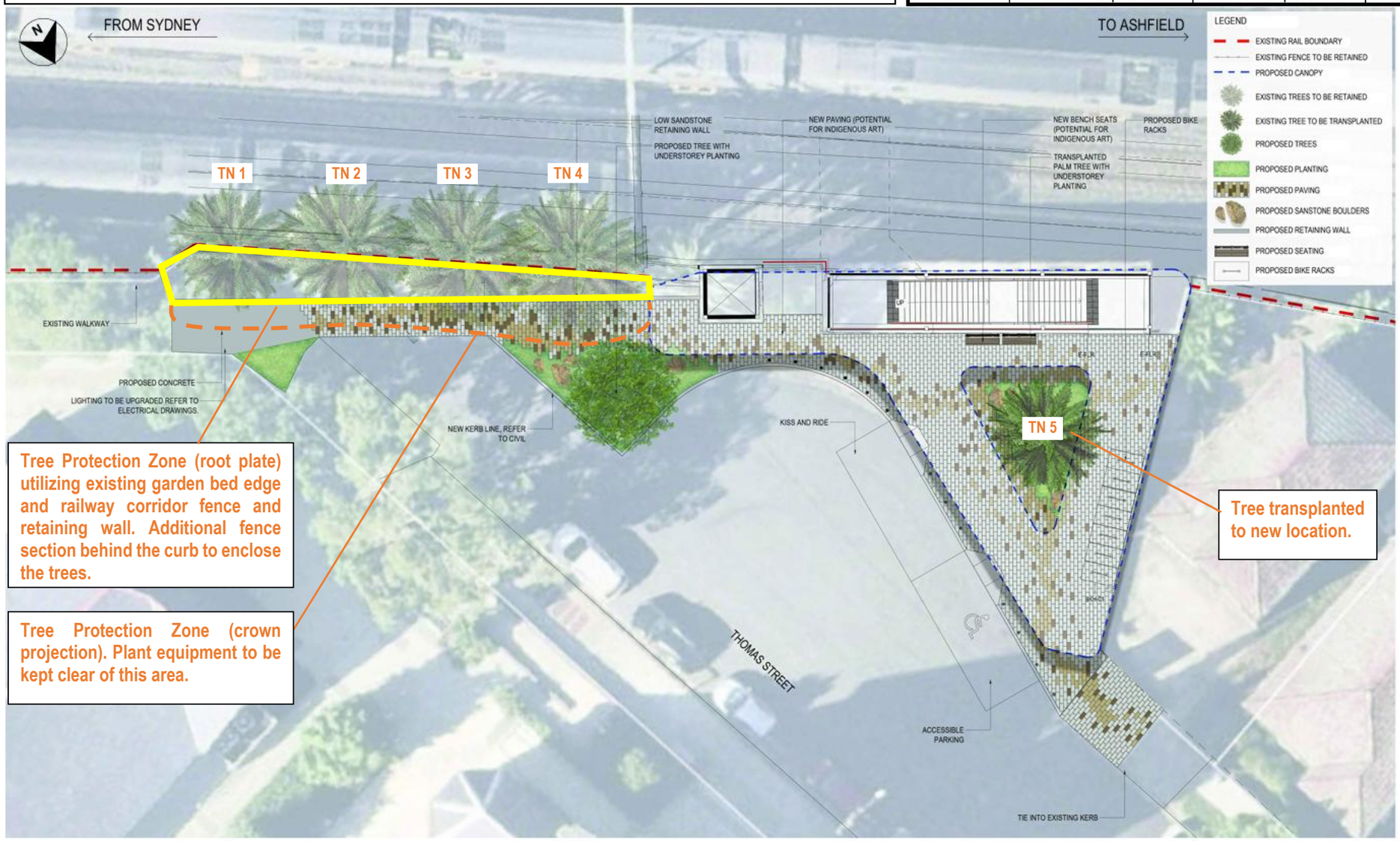
TPZ reduced by 10% of area.

Trunk protection per AS4970(2009) 4.5.2

TN 10 ***Tree/s or stands of trees numbered in orange and bold or surrounded by an unbroken line are recommended for retention.***

Table 1.0 - Tree Protection Zone setbacks

1. UTM Tree No. / UTM Stand No.	2. Tree Protection Zone (TPZ) = **12 x DBH** (m) From center of trunk (COT) in metres AS4970 (2009) Section 3 Palm TPZ [1] = 1m off crown projection	3. Structural Root Zone **SRZ** From center of trunk (COT), trunk diameter above root buttress (DARB) AS4970 (2009) Section 3, 3.3.5 where applicable (m) [1.] Not applied to asymmetrical root plates.	4. Distance of fence with TPZ setback **reduced by 10%** of area on one side of tree only, in metres equating to approx. 0.3 radius as per AS4970 (2009) Section 3, 3.3 (mm)	5. Proposed distance of works on the side closest to excavation / building construction in metres From center of trunk (COT), (m) [1.] Tree Protection Zone (root plate) utilizing existing garden bed edge and railway corridor fence and retaining wall. Additional fence section behind the curb to enclose the trees. [2.] Tree Protection Zone (crown projection). Plant equipment to be kept clear of this area.
TN1	3.8 [1]	N/A for palms	N/A	1[1] / 3.8 [2]
TN2	3.8 [1]	N/A for palms	N/A	1[1] / 3.8 [2]
TN3	3.8 [1]	N/A for palms	N/A	1[1] / 3.8 [2]
TN4	3.8 [1]	N/A for palms	N/A	1[1] / 3.8 [2]
TN5	N/A if transplanted	N/A for palms	N/A if transplanted	N/A if transplanted



URBAN TREE MANAGEMENT