Project No: MERI/COMB/19 Report No: MERI/COMB/AIA/C

ARBORICULTURAL IMPACT ASSESSMENT
TREE PROTECTION SPECIFICATION

Meriden School Strathfield

senior school campus – new centre for music and drama
lingwood prep school – new administration and student centre
junior school – new landscaped playground

Prepared for: ALLEN JACK + COTTIER

13th May 2019
Revision C

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1.0 INTRODUCTION

1.1 Background

1.1.1 This Arboricultural Impact Assessment Report and Tree Protection Specification was prepared for Allen Jack + Cottier, on behalf of Meriden School Strathfield, in relation to the proposed State Significant Development Application (SSDA) for each of the three (3) Meriden School campuses. The purpose of this Report is to undertake a Visual Tree Assessment[1] (VTA), determine the impact of the proposed works on the trees, and where appropriate, recommend the use of sensitive construction methods to minimise adverse impacts.

1.1.2 In preparing this Report, the author has considered the objectives of the *State Environmental Planning Policy Vegetation in Non-Rural Areas (2017)*, *Australian Standard 4970 Protection of Trees on Development Sites (2009), Australian Standard 4373 Pruning of Amenity Trees (2007), Australian Standard 2303 Tree Stock for Landscape Use (2015)* and *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016).*

Refer to Methodology **(Appendix 1)**

1.1.3 This impact assessment is based on an assessment of the following supplied documentation/plans only:

- Centre for Music & Drama – prepared by AJ+C
- Lingwood Stage 2 – prepared by AJ+C
- 4 Vernon Street – New Playground –– prepared by AJ+C
- Planting Plan – prepared by Oculus
- Construction Management Plan, prepared by Glenhill, not dated

Refer to Plans **(Appendix 2)**

1.2 The Proposal

1.2.1 The supplied plans show the SSDA will seek approval for:

1.2.2 Site 1: Senior School Campus – New Centre for Music & Drama

- Demolition of the existing music building located towards the south-western corner of the Senior School Campus
- Construction of a new 4-storey building
- Excavation to a depth of 6m below existing ground level to accommodate additional music, drama and staff facilities
- Landscaping and associated works

1.2.3 Site 2: Lingwood Prep School – New Administration & Student Centre

- Demolition of existing single storey Business Office building
- Construction of a new 2-storey general student services and administration building

1.2.4 Site 3: Junior School – New Landscaped Playground

- Demolition of the existing residential dwelling at 4 Vernon Street
- Installation of a new landscaped playground area
- Existing access and parking arrangements to be retained

[1] Mattheck & Breloer (2003)

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2.0 RESULTS

2.1 The Site

2.1.1 Meriden School is located in Strathfield, approximately 13km west of the Sydney CBD.

2.1.2 Site 1: Senior School Campus – New Centre for Music & Drama

Site 1 is located in the south-western section of the Campus and is bound by school buildings and grounds to the north and east, the footpath and carriageway of Margaret Street to the south, and a residential allotment to the west. The main site access is via a driveway entry off Margaret Street. The site is roughly rectangular in-shape with a gentle, even slope to the north and comprises of an existing music building, driveway and lawn area.

2.1.3 Site 2: Lingwood Prep School – New Administration & Student Centre

Site 2 is located in the north-eastern section of the Campus and is bound by the footpath and carriageway of Margaret Street to the north, school buildings and grounds to the south and west, and a residential allotment to the east. The site is rectangular in-shape, generally level and comprises of the existing business office, lawn and garden bed areas. A footpath running along the eastern boundary connects the business office to the street.

2.1.4 Site 3: Junior School – New Landscaped Playground

Site 3 is a residential allotment located on the eastern side of Vernon Street and is bound by a residential allotment to the north, the Meriden School to the east and south, and the footpath and carriageway of Vernon Street to the west. The site is generally level with a gentle slope towards Vernon Street. The site contains a single storey dwelling with a driveway running the length of the northern boundary accessing a single garage at the rear of the property on the eastern boundary.

2.2 The Trees

2.2.1 Twenty-four (24) trees (Trees 1-24) were assessed using the Visual Tree Assessment[2] (VTA) criteria and notes, and consist of a mix of Australian native and exotic species. An additional four (4) trees (Trees A-D) have also been addressed in this Report and are located outside of the site boundaries. A full VTA of these trees was not undertaken with species and trunk diameter measurement recorded for the purposes of determining Tree Protection Zone (TPZ) calculations only.

2.2.2 As required by Clause 2.3.2 of *Australian Standard 4970 (2009) Protection of Trees on Development Sites*, each tree assessed has been allocated a Retention Value. The Retention Value is based on the tree's Useful Life Expectancy and Landscape Significance with consideration to its health, structural condition and site suitability. The Retention Values do not take into account any proposed development works and are not a schedule for tree retention or removal. The trees have been allocated one of the following Retention Values:

- Priority for Retention
- Consider for Retention
- Consider for Removal
- Priority for Removal

Refer to Tree Assessment Schedule **(Appendix 3)**

2.2.3 The trees are not listed on the *Strathfield Council Significant Tree Register Index* (2013).[3]

[2] Mattheck & Breloer (2003)
[3] Strathfield Council (2013)

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2.2.4 A search of the BioNet Atlas of NSW Wildlife Database was undertaken in January 2019. No individual threatened tree species listed within this database for the area were identified during the current field investigations of the site.[4] The ecological significance and habitat value of the trees has not been assessed and is beyond the scope of this report.

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Site 1: Senior School Campus – New Centre for Music & Drama

3.1.1 Trees 13-23

Trees 13-23 were identified as *Fraxinus* spp. (Ash species) and are located within a lawn area to the south and west of the existing music building. The trees are of low Landscape Significance and have been allocated a Retention Value of *Consider for Removal.*

3.1.2 The supplied plans show that the demolition of the existing music building and construction of a new four-storey building and amphitheatre is proposed within the Tree Protection Zone (TPZ) areas of Trees 13-20 *Fraxinus americana* (American Ash) and Trees 21-23 *Fraxinus pennsylvanica* (Red Ash). The extent of works represent *Major Encroachments* as defined by *Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970)*. The following options are available to manage the trees during the development works:

3.1.3 Option 1

Lift and store the trees (either on or off site) and reinstall them after the completion of the development works. The trees would need to be lifted, potted-up, maintained throughout the storage period, reinstalled and maintained for a minimum of twelve (12) months post-installation by a qualified horticulturalist or arborist (AQF level 3).

3.1.4 *Fraxinus* are a deciduous species and would need to be lifted during the dormant (winter) period when the trees are devoid of foliage to ensure tree health is not significantly impacted. Furthermore, re-installation of the trees would also be best undertaken during the winter/early spring when soil temperatures are low. Alternatively, the lifted trees could be immediately transplanted to an appropriate, alternative location within the Campus and new trees installed at the site. Refer to Option 3.

3.1.5 Option 2

Retain Trees 13-17 and 20-23 in-situ and establish TPZ areas to protect the trees from construction impacts. Refer to Tree Protection Specification **(Appendix 5)**. The trees are healthy specimens which have been recently planted. The root spread of the trees should be relatively limited and allow the development works to be undertaken in closer proximity than that recommended by AS-4970. However, even where tree protection is installed, undertaking construction activities within very close proximity to small trees is likely to impede construction works and/or result in physical damage. Trees 18 and 19 would need to be relocated/replaced as they are directly impacted by the works.

3.1.6 Option 3

Replace the trees with new, advanced-size specimens. The costs associated with lifting, maintaining and reinstalling eleven (11) semi-mature trees will be relatively high and may be greater than the cost of purchasing new, similar-sized trees. Replacement trees should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use.*

3.1.7 Tree 24

Tree 24 was identified as *Callistemon viminalis* (Weeping Bottlebrush) and is located in the south-western corner of the site. The tree is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal.*

3.1.8 The supplied plans show Tree 24 is proposed for removal as part of the landscape treatment. Replacement planting using healthy, advanced-size specimens could replace the loss of amenity from tree removal within a short timeframe.

[4] NSW Office of Environment and Heritage (2011)

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3.2 Site 2: Lingwood Prep – New Administration & Student Centre

3.2.1 Tree 4

Tree 4 was identified as *Cinnamomum camphora* (Camphor Laurel) and is located within the north-eastern corner of the site. The tree is moderate Landscape Significance and has been allocated a Retention Value of *Consider for Retention*.

3.2.2 The supplied plans show the new building footprint is proposed within the TPZ of Tree 4. As the encroachment into the TPZ is less than 10%, the extent of work represents a *Minor Encroachment* as defined by AS-4970. A *Minor Encroachment* is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. The encroachment into the TPZ should be compensated for by extending the TPZ in areas not subject to encroachment.

3.2.3 The supplied plans also show that the existing footpath/ramp within the TPZ of Tree 4 is to be demolished and a new footpath is to be installed. The extent of work represents a *Major Encroachment* as defined by AS-4970. Clause 3.3.4 of AS-4970 notes that design factors and tree sensitive methods can be used to minimise the impact of the encroachment. These methods should be confirmed as feasible by the relevant project consultants (i.e. architect, landscape, engineer etc) and may require flexibility at the time of construction.

3.2.4 The existing footpath/ramp within the TPZ of Tree 4 should be demolished using tree sensitive methods. The new pavement surface (including sub-base materials) should be installed above existing grade and utilise existing sub-base layers where possible. Pavement sub-base layers should either be thinned, or finished pavement levels and kerbs modified as required to enable the retention of roots (>25mmø) as deemed necessary by the Project Arborist. Where minor excavation is required, these works should be undertaken using tree sensitive methods (hand/hydrovac/airspade etc) and root pruning undertaken by the Project Arborist only. Where significant roots are present, these roots should be retained and protected with a double layer of Abelflex (or similar compressible material approved by the Project Arborist).

3.2.5 In addition to the above, the proposed Construction Management Plan shows temporary construction access is proposed within the TPZ of Tree 4. Ground Protection (as outlined with Section 1.8 of the Tree Protection Specification – Appendix 5) should be installed in the section of the TPZ where access is required. The branches are of a sufficient height that no pruning for high-sided construction vehicles should be required.

3.2.6 Trees 5 & 6

Trees 5 and 6 were identified as *Cinnamomum camphora* (Camphor Laurel) and *Grevillea robusta* (Silky Oak) respectively and are located adjacent to the northern site boundary. The trees are of moderate Landscape Significance and have been allocated a Retention Value of *Consider for Retention*.

3.2.7 The supplied plans show no works are proposed within the TPZ areas of Trees 5 and 6.

3.2.8 Trees 7, 9, 11 & 12

Trees 7, 9, 11 and 12 are a mix of species including *Jacaranda mimosifolia* (Jacaranda), *Cinnamomum camphora* (Camphor Laurel), *Syncarpia glomulifera* (Turpentine) and *Harpullia pendula* (Tulipwood), and are located adjacent to the eastern site boundary. The trees are of moderate Landscape Significance and have been allocated a Retention Value of *Consider for Retention*.

3.2.9 The supplied plans show Trees 7, 9, 11 and 12 will need to be removed to accommodate the proposed building footprint. Replacement planting using healthy, advanced-size specimens could replace the loss of amenity from tree removal within a medium timeframe.

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3.2.10 Trees 8 and 10

Trees 8 and 10 were identified as *Jacaranda mimosifolia* (Jacaranda) and *Brachyciton acerifolius* (Illawarra Flame Tree) respectively and are located adjacent to the eastern site boundary. The trees are of low Landscape Significance and have been allocated a Retention Value of *Consider for Removal.*

3.2.11 The supplied plans show Trees 8 and 10 will need to be removed to accommodate the proposed building footprint. Replacement planting using healthy, advanced-size specimens could replace the loss of amenity from tree removal within a short timeframe.

3.2.12 Trees C & D

Trees C and D were identified as *Callitris columellaris* (White Cypress Pine) and are located in the adjacent property to the east.

3.2.13 The supplied plans show that the existing footpath/ramp within the TPZ areas of Trees C and D is to be demolished and a new footpath is to be installed. The extent of work represents *Major Encroachment*s as defined by AS-4970. The works within the TPZ areas of Trees C and D should be undertaken as outlined within Section 3.2.4.

3.3 Site 3: Junior School – New Landscaped playground

3.3.1 Trees 1-3

Trees 1-3 are a mix of species including *Callistemon viminalis* (Weeping Bottlebrush), *Murraya paniculata* (Murraya) and *Plumeria acutifolia* (Frangipani). Trees 1 and 2 are located adjacent to the northern site boundary and Tree 3 is located in the front garden, adjacent to the existing dwelling. The trees are of low Landscape Significance and have been allocated a Retention Value of *Consider for Removal.*

3.3.2 The supplied plans show Trees 1-3 are to be removed as part of the proposed landscape treatment. Replacement planting using healthy, advanced-size specimens could replace the loss of amenity from tree removal within a short timeframe.

3.3.3 Tree A

Tree A was identified as *Lophostemon confertus* (Brush Box) and is a street tree located within the Vernon Street road reserve.

3.3.4 The supplied plans show that a new wall is proposed within the TPZ of Tree A. The extent of works represents a *Major Encroachment* as defined by AS-4970. Clause 3.3.4 of AS-4970 notes that design factors and tree sensitive methods can be used to minimise the impact of the encroachment. These methods should be confirmed as feasible by the relevant project consultants (i.e. architect, landscape, engineer etc) and may require flexibility at the time of construction.

3.3.5 The walls (and other landscape structures as required) should be supported on piered footings (with all other part of the structures positioned above existing ground levels). Excavation for the pier holes should be undertaken using tree sensitive methods (hand/hydrovac/airspade etc). Pier hole locations should be flexible to enable the retention of roots (>25mmø) as deemed necessary by the Project Arborist. Drainage should be designed around roots (>25mmø) as determined by the Project Arborist.

3.3.6 Tree B

Tree B has been identified as *Lagerstroemia indica* (Crepe Myrtle) and is a street tree located within the Vernon Street road reserve.

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3.3.7 The supplied plans show that a new wall is proposed within the TPZ of Tree B. The extent of work represents a *Minor Encroachment* as defined by AS-4970. A *Minor Encroachment* is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. The encroachment into the TPZ should be compensated for by extending the TPZ in areas not subject to encroachment.

3.4 Other Works within TPZ Areas

3.4.1 Demolition Works

Demolition works within the TPZ areas should be supervised by the Project Arborist and utilise tree sensitive methods. Structures should be demolished in small sections ensuring demolition machinery/equipment does not contact with any part of the tree. Structures within a Structural Root Zone can contribute to tree stability by providing ballast to the rootplate or acting as a stop to the overturning of the rootplate. If possible, existing underground structures and sub-base materials should be left in situ and reused.

3.4.2 Underground Services

Underground services (and associated infrastructure) should be located outside of the TPZ areas. Where this is not possible, services should be installed using tree sensitive excavation (hand/hydrovac etc) methods with the services located around/below roots (>25mmø) as deemed necessary by the Project Arborist. Excavation using compact machinery fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

3.4.3 Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1000mm below existing grade. Excavations for starting and receiving pits for boring equipment should be located outside of the TPZ areas or located to avoid roots (>25mmø) as deemed necessary by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

3.4.4 Landscape Planting & Turfing

The installation of plants and turf within TPZ areas should be undertaken using hand tools and roots (>25mmø) should be protected. No mechanical cultivation/ripping of soils should be undertaken.

3.5 Replacement Planting

3.5.1 The proposed development includes the provision of extensive new tree planting across the site. This tree planting would help to off-set the loss of canopy cover and amenity resultant from the tree removal.

3.5.2 Replacement planting should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use.*

4.0 SUMMARY & CONCLUSIONS

4.1 Twenty-eight (28) trees were addressed within this Report and consist of and consist of a mix of Australian native and exotic species.

4.2 The proposed SSDA comprises development on each of the three (3) Meriden School campuses. The primary objective of the proposal is to improve the current school facilities to cater for the increased demand for high quality music teaching and learning spaces, additional administration and student facilities and increasing the playground area in the Junior School Campus.

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4.3 The supplied plans show that ten (10) trees (Trees 1-3, 7-12 & 24) are to be removed as part of the proposed development. Of these, six (6) trees have been allocated a low Landscape Significance and replacement planting using healthy, advanced-size specimens could replace the loss of amenity from tree removal within a short timeframe.

4.4 The supplied plans show that seven (7) trees (Trees 4-6 & A-D) are to be retained as part of the proposed development. Tree sensitive construction methods (as outlined in Section 3) should be used for works within the TPZ areas.

4.5 The supplied plans show that construction of the Centre for Music and Drama is proposed within the TPZ areas of Trees 13-23. Three (3) options are available to manage the trees during the development period including lifting and storing the trees and reinstalling them after the completion of the works, retaining the trees in-situ or replacing the trees with new, advanced-size specimens.

4.6 The trees to be retained should be protected in accordance with the Tree Protection Specification **(Appendix 5)**.

4.7 The proposed development includes the provision of extensive new tree planting across the site. Replacement planting should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use.*

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5.0 LIMITATIONS & DISCLAIMER

TreeiQ takes care to obtain information from reliable sources. However, TreeiQ can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Report are visual aids only and are not necessarily to scale. This Report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc issues.

This Report has been prepared for exclusive use by the client. This Report shall not be used by others or for any other reason outside its intended target or without the prior written consent of TreeiQ. Unauthorised alteration or separate use of any section of the Report invalidates the Report.

Many factors may contribute to tree failure and cannot always be predicted. TreeiQ takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators. There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the trees or site may not arise in the future. Information contained in this report covers only the trees assessed and reflects the condition of the trees at the time of inspection. Additional information regarding the methodology used in the preparation of this Report is attached as Appendix 1. A comprehensive tree risk assessment and management plan for the trees is beyond the scope of this Report.

Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this Report are subject to approval from the relevant Consent Authority.

6.0 BIBLIOGRAPHY & REFERENCES

Barrell (1995), 'Pre-development Tree Assessments', in *Trees & Building Sites, Proceedings of an International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings*, International Society of Arboriculture, Illinois, USA, pp. 132-142

Harris, Clark & Matheny (1999), *Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines*, Prentice Hall, New Jersey

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Standards Australia (2015) *Tree Stock for Landscape Use AS-2303*

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7.0 APPENDICES

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Appendix 1: Methodology

1.1 **Site Inspection**: This report was determined as a result of a comprehensive site during January 2019. The comments and recommendations in this report are based on findings from this site inspection.

1.2 **Visual Tree Assessment (VTA)**: The subject tree(s) was assessed using the Visual Tree Assessment criteria and notes as described in *The Body Language of Trees – A Handbook for Failure Analysis.*[5] The inspection was limited to a visual examination of the subject tree(s) from ground level only. No internal diagnostic testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.

1.3 **Tree Dimensions**: The dimensions of the subject tree(s) are approximate only.

1.4 **Tree Locations:** The location of the subject tree(s) was determined from the supplied plans. Trees not shown on the supplied plans have been plotted in their approximate location only.

1.5 **Trees & Development**: Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in *Australian Standard 4970-2009 Protection of Trees on Development Sites*.

The *Tree Protection Zone* (TPZ) is described in AS-4970 as 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 *Structural Root Zone* (SRZ) is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree.

In some cases it may be possible to encroach into or make variations to the theoretical TPZ. A *Minor Encroachment* is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A *Major Encroachment* is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods.

1.6 **Tree Health**: The health of the subject tree(s) was determined by assessing:

I. Foliage size and colour
II. Pest and disease infestation
III. Extension growth
IV. Crown density
V. Deadwood size and volume
VI. Presence of epicormic growth

1.7 **Tree Structural Condition**: The structural condition of the subject tree(s) was assessed by:

I. Assessment of branching structure
(i.e co-dominant/bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures)
II. Visible evidence of structural defects or instability
(i.e root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth)
III. Evidence of previous pruning or physical damage
(root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)

1.8 **Useful Life Expectancy (ULE)**: The ULE is an estimate of the longevity of the subject tree(s) in its growing environment. The ULE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (Modified from Barrell, 2001):

I. 40 years +
II. 15-40 years
III. 5-15 years
IV. Less than 5 years

[5] Mattheck & Breloer (2003)

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1.9 **Landscape Significance**: Landscape Significance was determined by assessing the combination of the cultural, environmental and aesthetic values of the subject tree(s). Whilst these values are subjective, a rating of high, moderate, low or insignificant has been allocated to the tree(s). This provides a relative value of the tree's Landscape Significance which may aid in determining its Retention Value. If the tree(s) can be categorized into more than one value, the higher value has been allocated.

Landscape Significance	Description
Very High	The subject tree is listed as a Heritage Item under the *Local Environmental Plan* with a local or state level of significance.
	The subject tree is listed on Council's Significant Tree Register or is considered to meet the criteria for significance assessment of trees and/or landscapes by a suitably qualified professional. The criteria are based on general principles outlines in the Burra Charter and on criteria from the Register of the National Estate.
High	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of local, cultural or historical importance or is widely known.
	The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species or forms part of an Endangered Ecological Community associated with the site, as defined under the provisions of the NSW *Biodiversity Conservation Act (2016)* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
	The subject tree is known to provide habitat to a threatened species.
	The subject tree is an excellent representative of the species in terms of aesthetic value.
	The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality.
	The subject tree forms part of the curtilage of a heritage item with a known or documented association with that item.
Moderate	The subject tree makes a positive contribution to the visual character or amenity of the area.
	The subject tree provides a specific function such as screening or minimising the scale of a building.
	The subject tree has a known habitat value.
	The subject tree is a good representative of the species in terms of aesthetic value.
Low	The subject tree is an environmental pest species or is exempt under the provisions of the local Council's Tree Management Controls
	The subject tree makes little or no contribution to the amenity of the locality.
	The subject tree is a poor representative of the species in terms of aesthetic value.
	The subject tree is a recognised environmental weed species for the area.

1.10 **Retention Value**: Retention Value was based on the subject tree's Useful Life Expectancy and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structural condition and site suitability. The subject tree(s) has been allocated one of the following Retention Values:

I. Priority for Retention
II. Consider for Retention
III. Consider for Removal
IV. Priority for Removal

ULE		Landscape Significance			
	Very High	High	Moderate	Low	Insignificant
40 years +	Priority for Retention	Priority for Retention		Consider for Removal	Priority for Removal
15-40 years		Priority for Retention	Consider for Retention		
5-15 years		Consider for Retention			
Less than 5 years	Consider for Removal	Priority for Removal			

The above table has been modified from the Footprint Green Tree Significance and Retention Value Matrix.

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Appendix 2: Plans

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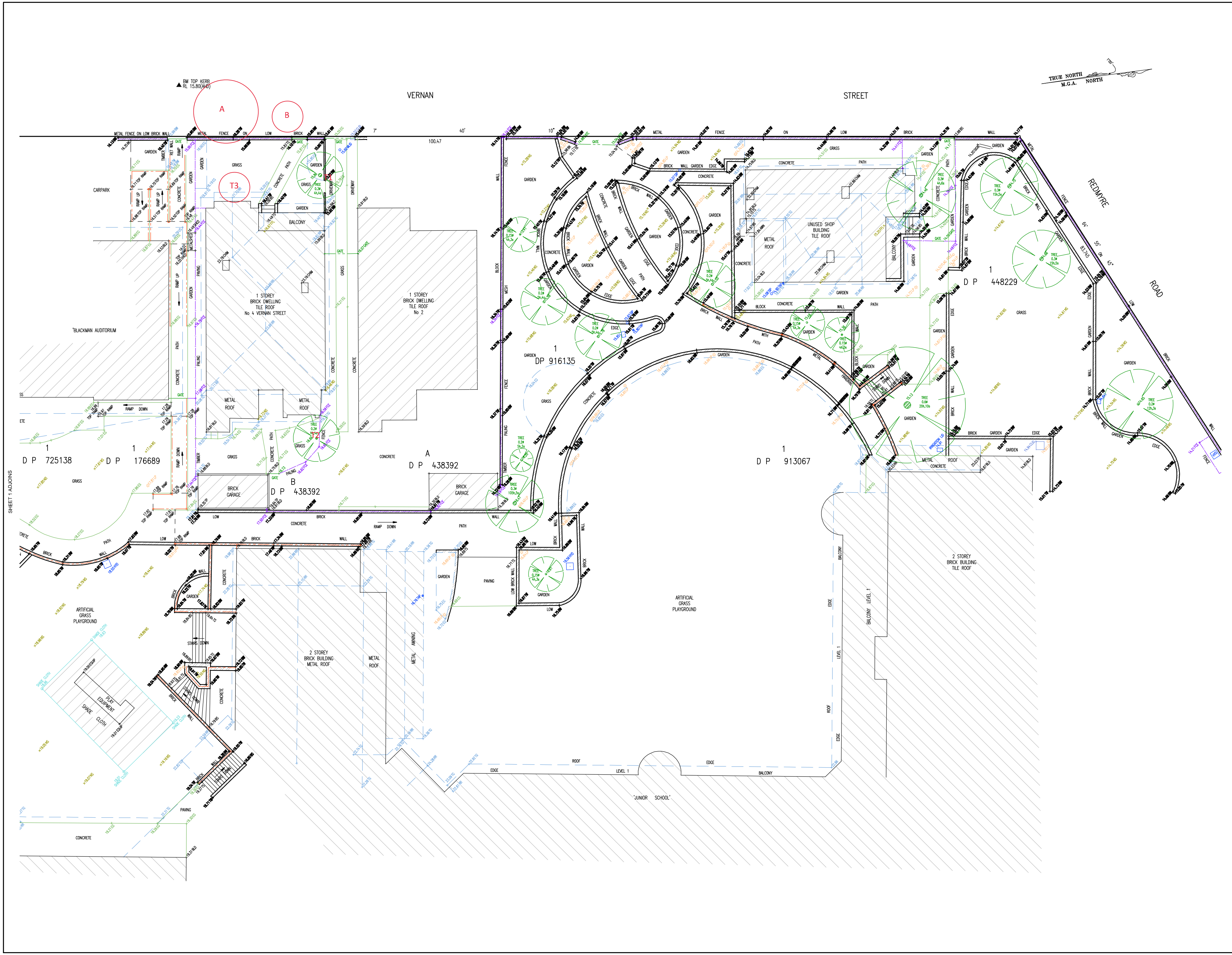


ISSUE	DATE	AMENDMENT	BY

TYPICAL NOTES:

1. ORIGIN OF LEVELS SSM 118036, R.L.13.652 (A.H.D.)
2. BEARINGS ARE ON MGA NORTH
3. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
4. BEARINGS & DISTANCES HAVE BEEN COMPILED FROM TITLE AND/OR DEED INFORMATION SUPPLIED BY DEPARTMENT OF LANDS NSW.
5. RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
6. SERVICES SHOWN ARE BASED ON VISIBLE SURFACE INDICATORS EVIDENT AT THE DATE OF SURVEY AND THE RELEVANT SERVICE DIAGRAMS OF THE VARIOUS AUTHORITIES. ALL SERVICE MUST BE VERIFIED ON SITE PRIOR TO ANY WORK BEING UNDERTAKEN. LINKER SURVEYING PTY LTD BEAR NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE SERVICES SHOWN HEREON.
7. RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE FOR PLANNING PURPOSES ONLY.
8. ADJOINING BUILDINGS AND DWELLINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
9. THE DIAMETER (ø), SPREAD (S) & HEIGHT (H) OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
10. CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN.
11. CONTOUR INTERVAL XXX METRE.

LEGEND OF TYPICAL CODES

AE	ARCHITECTURAL EMBELLISHMENT	MLID	METAL LID
AP	ALIGNMENT PIN	NS	NATURAL SURFACE
AWN	AWNING	OCC	STRUCTURE
BALC	BALCONY	OPT	OPTUS PIT
BAWN	BOTTOM OF AWNING	PC	PRAM CROSSING
BB	BOTTOM OF BANK	PED	PEDESTRIAN CROSSING
BCH	BOTTOM OF CHIMNEY	PERG	PERGOLA
BD	BOTTOM OF DOOR	PM	PERMANENT MARK
BDY	BOUNDARY	PP	POWER POLE
BF	BOTTOM OF FENCE	RCK	ROCK
BHR	BOTTOM OF HANDRAIL	RLWY	RAILWAY
BIT	BITUMEN	RM	REFERENCE MARK
BK	BOTTOM OF KERB	RR	ROOF RIDGE
BLD	BUILDING	RSN	CONCRETE NAIL
BM	BENCH MARK	SEW	SEWER
BOL	BOLLARD	SHR	SHRUB
BR	BOTTOM OF ROCK	SIP	SEWER INSPECTION PIT
BRK	BRICK	SLH	SEWER LAMP HOLE
BRW	BOTTOM OF RETAINING WALL	SMH	SEWER MANHOLE
BS	BOTTOM OF STEPS	SP	SIGN POST
BW	BOTTOM OF WALL	SSM	STATE SURVEY MARK
BWIN	BOTTOM OF WINDOW	SV	STOP VALVE
CHIM	CHIMNEY	SW	STORM WATER
CL	CENTRELINE	TARCH	TOP OF ARCH
CLID	CONCRETE LID	TAWN	TOP OF AWNING
COL	COLUMN	TB	TOP OF BANK
COM	COMMUNICATIONS PIT	TBX	TELSTRA BOX
CONC	CONCRETE	TCH	TOP OF CHIMNEY
CPT	CARPORT	TD	TOP OF DOOR
D	DOOR	TEL	TELSTRA PIT
DD	DISH DRAIN	TELP	TELSTRA PILLAR
DH	DRILL HOLE	TF	TOP OF FENCE
DHW	DRILL HOLE & WINGS	TG	TOP OF GUTTER
DWY	DRIVEWAY	THR	TOP OF HANDRAIL
EB	EDGE OF BITUMEN	TI	TRAFFIC ISLAND
EBOX	ELECTRICITY BOX	TK	TOP OF KERB
EC	EDGE OF CONCRETE	TL	TRAFFIC LIGHT
ED	EDGE OF DOOR	TP	TOP OF PARAPET
EG	EDGE OF GARDEN	TR	TREE
ELEC	ELECTRICITY PIT	TRF	TOP OF ROOF
EP	EDGE OF PATH	TRK	TOP OF ROCK
ER	EDGE OF ROAD	TRW	TOP OF RETAINING WALL
FCE	FENCE	TS	TOP OF STEPS
FL	FLOOR LEVEL	TW	TOP OF WALL
FFL	FINISHED FLOOR LEVEL	TWIN	TOP OF WINDOW
FP	FENCE POST	US	UNDERSIDE
GD	GLASS DOOR	UAWN	UNDERSIDE OF AWNING
GL	GROUND LEVEL	UKS	UNKNOWN SERVICE
GM	GAS METER	USB	UNDERSIDE OF BEAM
HPG	HIGH POWERED GAS	USC	UNDERSIDE OF CEILING
HR	HANDRAIL	USE	UNDERSIDE OF EAVE
HYD	HYDRANT	USG	UNDERSIDE OF GUTTER
IL	INVERT LEVEL	V	VENT
K	KERB	VER	VERANDAH
LIN	LINTEL	VC	VEHICLE CROSSING
LP	LAMP POST	W	WINDOW
MH	MANHOLE	WM	WATER METER

LEGEND OF TYPICAL SERVICES

C	COMMUNICATIONS CABLE	RW	RECYCLED WATER
CSWP	CERAMIC STORMWATER PIPE	RM	RISING MAIN
E	UNDERGROUND ELECTRICITY CABLES	RMS	ROADS & MARITIME SERVICES
AE AO	UNDERGROUND ELECTRICITY & OPTUS CABLES	S	SEWER
FS	FIRE SERVICE	SO	SEWER OUTFALL
G	GAS LINE	ST	SHARED TRENCH
GE	GAS LINE & ELECTRICITY CABLES	SW	STORM WATER
NBN	NATIONAL BROAD BAND CABLES	SW CK	STORMWATER CREEK
NG	NATURAL GAS LINE	T	TELSTRA CABLES
OH	OVERHEAD CABLES	TG	TELSTRA & GAS CABLES
OPT	OPTUS CABLE	U	UNKNOWN SERVICE
PE	PRIVATE ELECTRICITY	VO	VOCUS CABLES
PS	PRIVATE SEWER	VR	VERIZON CABLES
PW	PRIVATE WATER	W	WATER SUPPLY
		WM	WATER MAIN

1. ALL UNDERGROUND SERVICE INFORMATION INCLUSIVE OF GENERAL POSITION AND SURFACE COVER DEPTHS NOTED ON THE PLAN ARE APPROXIMATELY ONLY.
2. ALL UNDERGROUND SERVICE INFORMATION HAS BEEN COMPILED FROM SERVICE AUTHORITY PLANS PROVIDED BY THE AUTHORITIES.
3. THE LOCATION OF SERVICES BETWEEN SURVEYED POINTS (AS INDICATED) HAVE BEEN SHOWN DIAGRAMMATICALLY ONLY USING THE SERVICE DIAGRAMS AS PROVIDED. THE EXACT LOCATION OF THESE SERVICES BETWEEN THE SURVEYED POINTS MUST BE VERIFIED PRIOR TO ANY EXCAVATION OR PILING. NO WARRANTY IS GIVEN AGAINST THE POSSIBILITY OF THE EXISTENCE OF FURTHER UNCHARTED SERVICES.
4. ALL CONTRACTORS, TRADESMEN, BUILDING & PROJECT CONSULTANTS MUST CONTACT THE VARIOUS AUTHORITIES, IN ACCORDANCE WITH STANDARD "DIAL BEFORE YOU DIG" PROCEDURES PRIOR TO UNDERTAKING ANY WORKS WITHIN THE VICINITY OF THE SERVICE LINES TO VERIFY THE POSITION OF THE SERVICE LINES.

REDUCTION RATIO 1 : 100

0 1 2 3 4 5 6 7 8 9 10

LENGTHS ARE IN METRES

CLIENT: MERIDAN SCHOOL

TITLE No: 1&2/913067 1/725138 1/176689 A&B/438392 1/448299 1/913067
DATUM: A.H.D.
DATE OF SURVEY: 21.10.16
SURVEYOR: GM
DRAFTER: PH

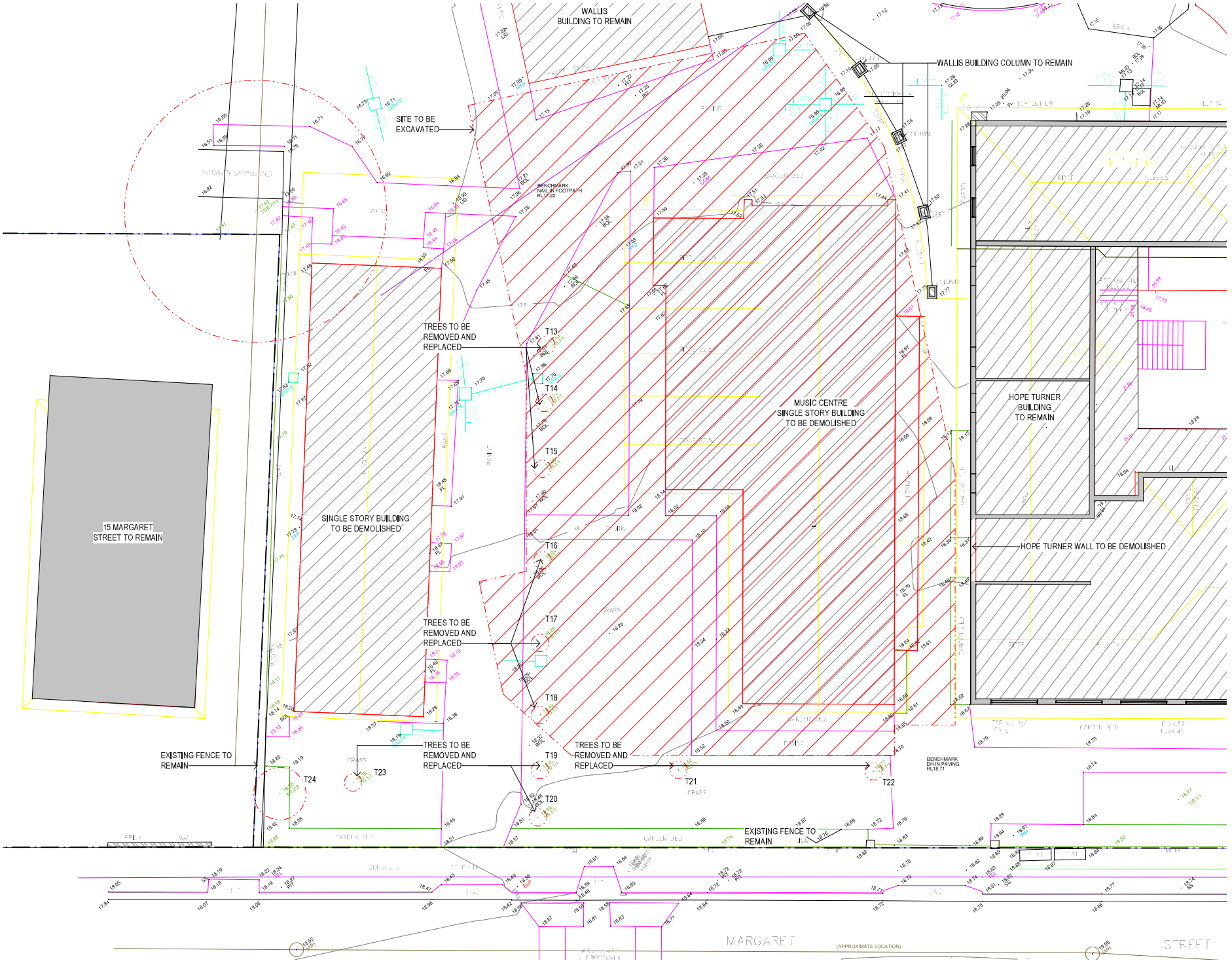
REF: 161014
ISSUE: 1
ISSUE DATE: 1.11.2016
SHEET SIZE: AO
SHEET 1 OF 2 SHEETS

PLAN OF DETAIL & LEVELS AT 'MERIDON SCHOOL' REDMYRE ROAD STRATHFIELD

LINKER
Suite 301, Level 3, 55 Holt Street
Surry Hills NSW 2012
PO Box 1807
Strawberry Hills NSW 2012
t: (02) 9212 4655
f: (02) 9212 5254
email: reception@linkersurveying.com.au
web site: www.linkersurveying.com.au

X:\16JOBS\161014 MERIDAN REDMYRE RD STRATHFIELD\161014_DETAIL.DWG


EXISTING HOUSE DEMOLISHED



Drawing Status

NOT FOR CONSTRUCTION

No	Date	Description	Ver	Aprv
1	18.02.19	ISSUE FOR COORDINATION	FA	AD

Revisions

Key

N

Client

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ACN 33 000 787 250

Project

MERIDEN CENTRE FOR MUSIC
13 MARGARET STREET,
STRATHFIELD NSW 2135

Proj No. 18019

Drawing Title

DEMOLITION PLAN

Scale	Drawing No.	Issue
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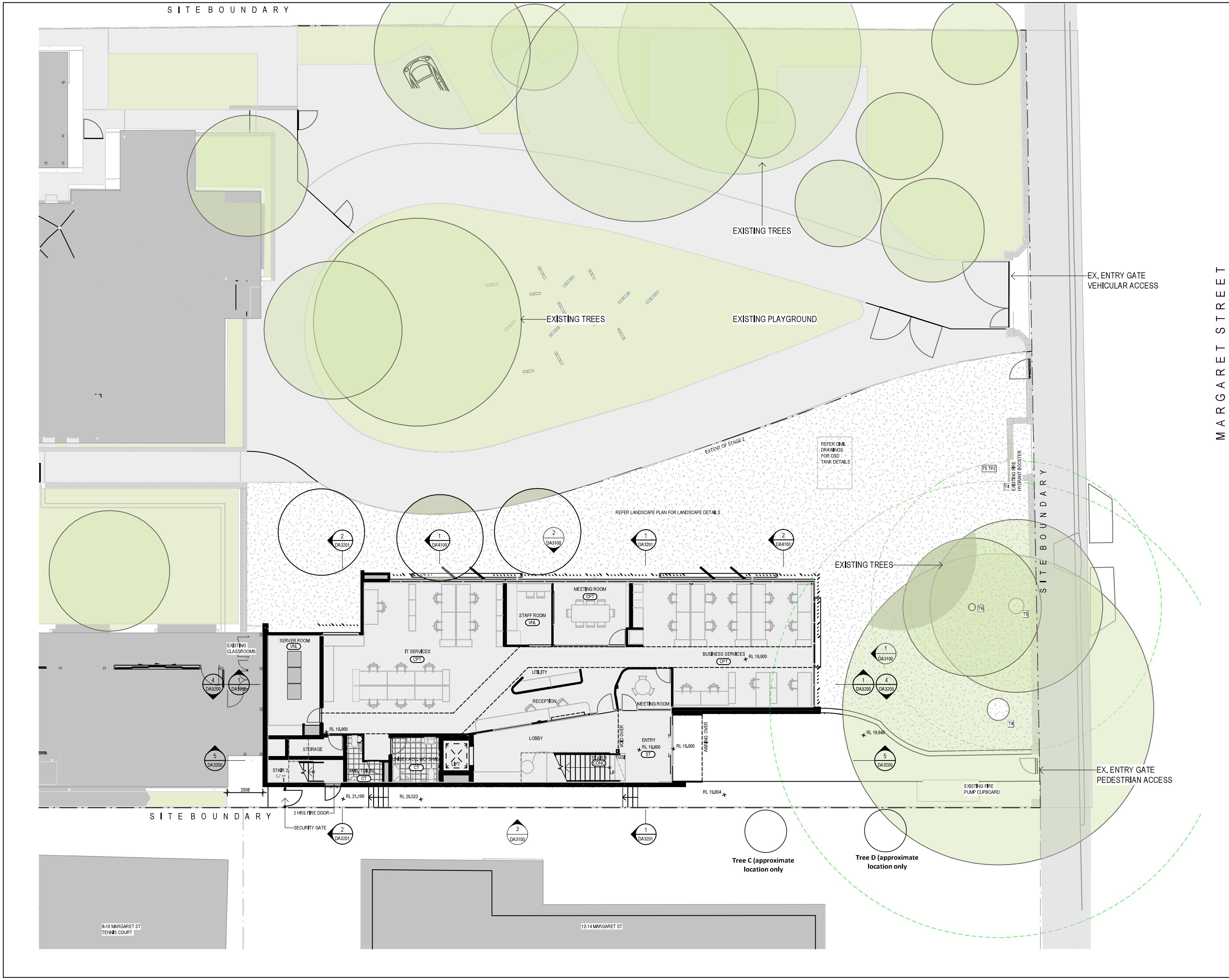
PLOT DATE & TIME: 19/02/2019 10:01:35 AM PLOTTED & CHECKED BY: Author



Drawing Status

NOT FOR CONSTRUCTION

GRAPHIC SYMBOLS LEGEND

EXISTING TREE (TO BE RETAINED)

EXISTING TREE (TO BE REMOVED)

PROPOSED NEW TREE

TREE PROTECTION ZONE (TPZ) FOR SIGNIFICANT TREE TO BE RETAINED

MATERIAL LEGEND

NAME	DESCRIPTION
AL1	ALUMINIUM FRAME 1
AL2	ALUMINIUM FRAME 2
CONC	CONCRETE
CPT	CARPET
CT	CERAMIC TILE
GL1	CLEAR GLASS
GL2	COLOURBACK GLASS
LV1	EXTERNAL ALUMINIUM LOUVRE - TYPE 1
LV2	EXTERNAL ALUMINIUM LOUVRE - TYPE 2
LV3	EXTERNAL ALUMINIUM LOUVRE - TYPE 3
LV4	EXTERNAL ALUMINIUM LOUVRE - TYPE 4
MR	METAL ROOF SHEET
PCC	PRECAST CONCRETE
PF1	PAINT FINISH 1
ST	STONE FINISH
TF	TIMBER DECKING
VNL	VINYL

No	Date	Description	Ver	Apprv
A	23.04.19	DEVELOPMENT APPLICATION	GM	ADCML

Revisions

Key

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Drawing Title

GROUND FLOOR PLAN

Scale	Drawing No.	Issue
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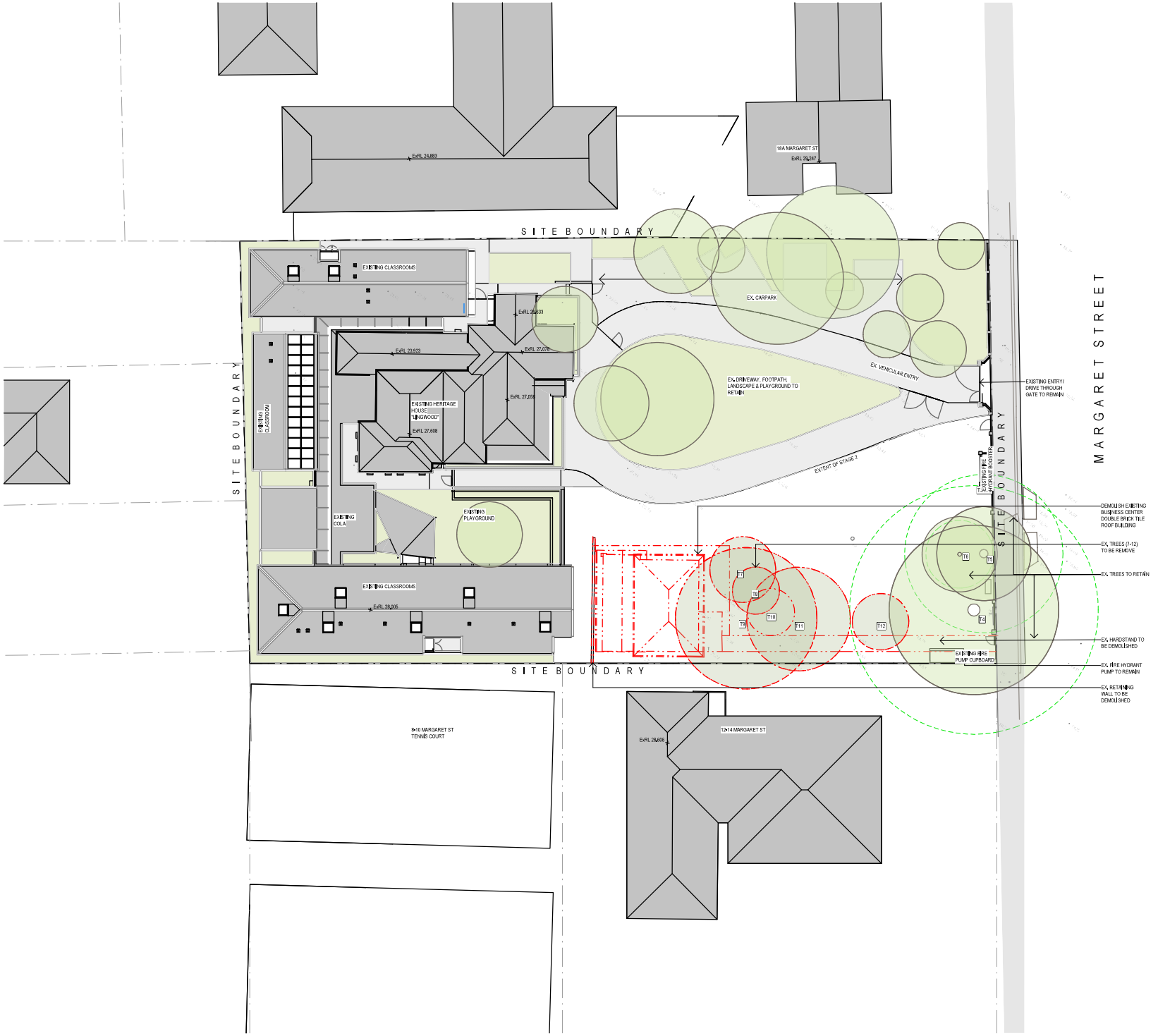

Drawing Status

NOT FOR CONSTRUCTION

GRAPHIC SYMBOLS LEGEND

EXISTING TREE (TO BE RETAINED)

EXISTING TREE (TO BE REMOVED)

PROPOSED NEW TREE

TREE PROTECTION ZONE (TPZ) FOR SIGNIFICANT TREE TO BE RETAINED

NOTE:

FOR DETAILED SITE INFORMATION REFER TO SURVEY

No	Date	Description	Ver	Apv
A	23.04.19	DEVELOPMENT APPLICATION	GM	ADCAM

Revisions

Key

N

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Drawing Title

DEMOLITION PLAN

Scale	Drawing No.	Issue
As indicated @A1	DA1100	A

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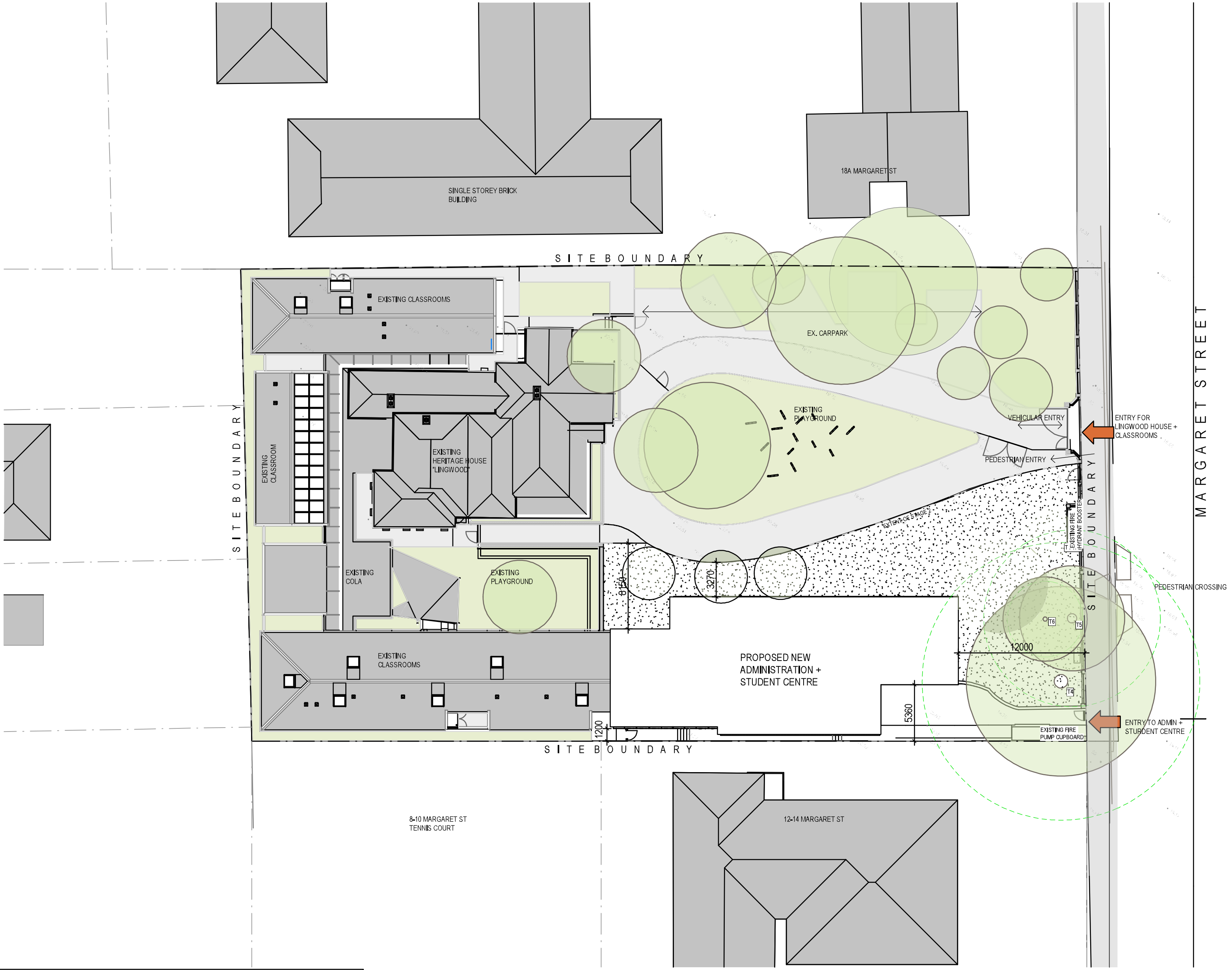
PLOT DATE & TIME: 26/04/2019 4:25:26 PM PLOTTED & CHECKED BY: Author



ADMIN + STUDENT CENTRE, LINGWOOD CAMPUS		
LINGWOOD CAMPUS TOTAL AREA	=	3582,023 m²
ADMIN + STUDENT CENTRE GROSS FLOOR AREA	=	561 m²
LINGWOOD CAMPUS EX,STAFF PARKING BAYS	=	7 (incl. 1 accessible)
TREES TO BE REMOVED	=	6 TREES

Drawing Status
NOT FOR CONSTRUCTION

GRAPHIC SYMBOLS LEGEND

- EXISTING TREE (TO BE RETAINED)
- EXISTING TREE (TO BE REMOVED)
- PROPOSED NEW TREE
- TREE PROTECTION ZONE (TPZ) FOR SIGNIFICANT TREE TO BE RETAINED

NOTE:
FOR DETAILED SITE INFORMATION REFER TO SURVEY

No	Date	Description	Ver	Apprv
A	23.04.19	DEVELOPMENT APPLICATION	GM	ADCML

Revisions

Key

N

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Project
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Drawing Title
SITE PLAN

Scale: 1:200
Drawing No.: DA1000
Issue: A

0 1 2 4 8 m

PLOT DATE & TIME: 25/04/2019 3:41:05 PM
PLOTTED & CHECKED BY: FATEMEH AZIZIAN

Appendix 3: Tree Assessment Schedule

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Significance	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication	Campus
1	*Callistemon viminalis* (Weeping Bottlebrush)	200 100	5	3	Good	Good	Crown density 75-100%. Small (<25mm) diameter deadwood in moderate volumes.	15-40	Low	Consider for Removal	2.4	1.7	Remove. Landscape treatment.	JSC
2	*Murraya paniculata* (Murraya)	50 x12	5	2	Good	Good	Crown contact with adjacent building.	15-40	Low	Consider for Removal	2.4	1.7	Remove. Landscape treatment.	JSC
3	*Plumeria acutifolia* (Frangipani)	100 100 100	4	2	Good	Good		15-40	Low	Consider for Removal	2.4	1.7	Remove. Landscape treatment.	JSC
4	*Cinnamomum camphora* (Camphor Laurel)	500 500 500 500 400 250	18	9	Good	Good	Crown density 75-100%. Small (<25mm) & medium (25-75mm) diameter deadwood in low volumes. Small (<25mm) epicormic growth in low volumes.	15-40	Moderate	Consider for Retention	13.2	3.5	Retain. Minor Encroachment, building. Major Encroachment, pavement. Use tree sensitive methods.	LP
5	*Cinnamomum camphora* (Camphor Laurel)	600 400	14	5	Good	Fair	Partially suppressed. Small (<25mm) epicormic growth in low volumes. Co-dominant inclusion.	15-40	Moderate	Consider for Retention	8.4	2.9	Retain. No works in TPZ.	LP
6	*Grevillea robusta* (Silky Oak)	300	14	4	Fair	Good	Crown density 50-75%. Partially suppressed. Adaptive growth on trunk. Small (<25mm) diameter deadwood in low volumes.	5-15	Moderate	Consider for Retention	3.6	2	Retain. No works in TPZ.	LP
7	*Jacaranda mimosifolia* (Jacaranda)	300 150	10	5	Good	Good	Partially suppressed. Co-dominant inclusion.	15-40	Moderate	Consider for Retention	4.2	2.2	Remove. Building footprint.	LP
8	*Jacaranda mimosifolia* (Jacaranda)	200	11	5	Good	Good	Heavily suppressed with etiolated form. Medium (25-75mm) diameter deadwood in low volumes.	5-15	Low	Consider for Removal	2.4	1.7	Remove. Building footprint.	LP

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Significance	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication	Campus
9	*Cinnamomum camphora* (Camphor Laurel)	1000	17	6	Good	Fair	Crown density 75-100%. Wound/s, advanced stages of decay. Small (<25mm) diameter deadwood. Medium (25-75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	12	3.4	Remove. Building footprint.	LP
10	*Brachyciton acerifolius* (Illawarra Flame Tree)	300	16	0	Good	Good	Heavily suppressed.	15-40	Low	Consider for Removal	3.6	2	Remove. Building footprint.	LP
11	*Syncarpia glomulifera* (Turpentine)	700	17	7	Good	Fair	Wound/s, advanced stages of decay. Trunk cavity, minor. Medium (25-75mm) & large (>75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	8.4	2.7	Remove. Building footprint.	LP
12	*Harpullia pendula* (Tulipwood)	250 250	9	3	Good	Good	Small (<25mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	4.2	2.2	Remove. Building footprint.	LP
13	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
14	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC CMC
15	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
16	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
17	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Significance	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication	Campus
18	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Pavement. Consider retention/transplanting/ replacement.	SCC
19	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Pavement. Consider retention/transplanting/ replacement.	SCC
20	*Fraxinus americana* (American Ash)	50	5	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Pavement. Consider retention/transplanting/ replacement.	SCC
21	*Fraxinus pennsylvanica* (Red Ash)	50	4	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
22	*Fraxinus pennsylvanica* (Red Ash)	50	4	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
23	*Fraxinus pennsylvanica* (Red Ash)	50	4	1	Good	Good	Recently planted specimen.	40+	Low	Consider for Removal	2	1.5	Major Encroachment. Building. Consider retention/transplanting/ replacement.	SCC
24	*Callistemon viminalis* (Weeping Bottlebrush)	250	4	2	Fair	Good	Crown density 50-75%.	5-15	Low	Consider for Removal	3	1.9	Remove. Landscape treatment.	SCC
A	*Lophostemon confertus* (Brush Box)	400									4.8	2.3	Retain. Major Encroachment, wall. Use tree sensitive methods.	JSC
B	*Lagestroemia indica* (Crepe Myrtle)	75 75 75 75									2	1.5	Retain. Minor Encroachment, wall.	JSC

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Significance	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication	Campus
C	*Callitris columellaris* (White Cypress Pine)	300 100									3.6	2	Retain. Major Encroachment, pavement. Use tree sensitive methods.	LP
D	*Callitris columellaris* (White Cypress Pine)	250 150 150									4.2	2.2	Retain. Major Encroachment, pavement. Use tree sensitive methods.	LP

Appendix 4: Plates

Plate 1: Showing Tree 1

Plate 2: Showing Tree 2

Plate 3: Showing Tree 3

Plate 4: Showing Trees A & B

Plate 5: Showing Tree 4

Plate 6: Showing Trees 5 & 6 (right to left)

Plate 7: Showing Tree 7

Plate 8: Showing Trees 8-11 (right to left)

Plate 9: Showing Tree 12

Plate 10: Showing Tree C

Plate 11: Showing Tree D

Plate 12: Showing Trees 13 to 18 (left to right)

Plate 13: Showing Trees 21 & 22 (right to left)

Plate 14: Showing Trees 23 and 24 (left to right)

Appendix 5: Tree Protection Specification

1.0 Appointment of Project Arborist

A Project Arborist shall be engaged prior the commencement of work on-site and monitor compliance with the protection measures. The Project Arborist shall inspect the tree protection measures and Compliance Certification shall be prepared by the Project Arborist for review by the Principal Certifying Authority prior to the release of the Compliance Certificate.

The Project Arborist shall have a minimum qualification equivalent (using the Australian Qualifications Framework) of NSW TAFE Certificate Level 5 or above in Arboriculture.

1.1 Compliance

Contractors and site workers shall receive a copy of these specifications a minimum of 3 working days prior to commencing work on-site. Contractors and site workers undertaking works within the Tree Protection Zone shall sign the site log confirming they have read and understand these specifications, prior to undertaking works on-site.

The Project Arborist shall undertake regular site inspections and certify that the works are being undertaken in accordance with this specification.

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

1.2 Tree & Vegetation Removal

The trees to be removed shall be removed prior to the establishment of the tree protection measures. Tree removal works shall be undertaken in accordance with the *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016).*

Tree and vegetation removal shall not damage the trees to be retained.

1.3 Tree Protection Zone

The trees to be retained shall be protected prior and during construction from activities that may result in an adverse effect on their health or structural condition. The area within the Tree Protection Zone (TPZ) shall exclude the following activities, unless otherwise stated:

- Modification of existing soil levels, excavations, trenching or movement or rock
- Mechanical removal of vegetation
- Storage of materials, plant or equipment or erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials, refueling or disposal of waste materials and chemicals
- Lighting fires
- Movement of pedestrian or vehicular traffic
- Temporary or permanent location of services, or the works required for their installation
- Any other activities that may cause damage to the tree

NOTE: If access, encroachment or incursion into the TPZ is deemed essential, prior authorisation is required by the Project Arborist.

1.4 Tree Protection Fencing

TPZ fencing shall be installed at the perimeter of the TPZ. Refer to Tree Assessment Schedule **(Appendix 3)**. Fencing set back distances may be reduced for demolition/construction access with approval from the Project Arborist and where ground protection is installed to the unfenced areas of the TPZ. The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works.

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po box 146 summer hill 2130
info@treeiQ.com.au
abn 62 139 088 832

treeiQ.com.au

As a minimum, the Tree Protection Fence shall consist of 1.8m high wire mesh panels supported by concrete feet. Panels shall be fastened together and supported to prevent sideways movement. The tree shall not be damaged during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (3) **(Appendix 6)**.

1.5 Site Management

Materials, waste storage, and temporary services shall not be located within the TPZ.

1.6 Scaffolding

Where possible, scaffolding shall not be located within the TPZ. Scaffolding shall not be in contact with the tree. As necessary, this shall be achieved by erecting scaffolding around branches. Branches shall be tied back and protected as deemed necessary by the Project Arborist. Refer to Typical Tree Protection Details (5) **(Appendix 6)**.

1.7 Works within the Tree Protection Zones

In some cases works within the TPZ may be authorised by the determining authority. **These works shall be supervised by the Project Arborist**. When undertaking works within the TPZ, care should be taken to avoid damage to the tree's root system, trunks and lower branches.

If roots (>25mmø) are encountered during the demolition, excavation and construction works, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Adjustment of final levels and design shall remain flexible to enable the retention of roots (>25mmø) where deemed necessary by the Project Arborist.

1.8 Ground Protection

Where deemed necessary by the Project Arborist, machinery movements shall be restricted to areas of existing pavement or from areas of temporary ground protection such as ground mats or steel road plates. Refer to Typical Tree Protection Details (3) **(Appendix 6).**

The temporary construction access within the TPZ of Tree 4 shall consist of steel road plates to be installed over a 100mm (minimum) compacted road base layer. Geotextile fabric shall be installed beneath road base to provide a separation layer between the road base and the existing ground surface. The geotextile shall extend 300mm beyond the edge of the road base to allow for easy removal at the completion of the project.

1.9 Trunk Protection

Trunk protection shall be installed as deemed necessary by the Project Arborist. Trunk protection shall be installed by wrapping padding (either carpet underlay or 10mm thick jute geotextile mat) around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (3) **(Appendix 6)**.

Branch protection shall be installed as deemed necessary by the Project Arborist.

1.10 Structure & Pavement Demolition

Demolition of existing structures/pavement within the TPZ shall be supervised by the Project Arborist. Machinery is to be excluded from the TPZ unless operating from the existing slabs, pavements or areas of ground protection (refer to Section 1.8). Machinery should not contact the tree's roots, trunk, branches and crown.

The existing pavement shall be carefully lifted to minimise damage to the existing sub-base and to prevent damage to tree roots. Wherever possible, the existing sub-base material shall remain in-situ. Machinery shall work backwards out of the TPZ to ensure machinery remains on un-demolished sections of pavement at all times.

Structures below grade shall be retained to minimise disturbance to the tree's roots. Where this is not possible structures shall be shattered prior to removal with a hand-operated pneumatic/electric breaker. Where the Project Arborist determines that the tree is using underground elements (i.e footings, pipes, rocks etc.) for support, these structures shall be left in-situ.

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If roots (>25mmø) are encountered during the demolition works, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute geotextile fabric. The geotextile fabric shall be kept in a damp condition at all times.

1.11 Footings within the TPZ

Footing installation within TPZ areas shall be supervised by the Project Arborist. Other than for the isolated piers/posts all other parts of the structure shall be installed above grade.

Drilling/piling machinery shall be excluded from the TPZ unless operating from an area where ground protection has been installed (refer to Section 1.8) or from the existing slabs or pavements. Drilling/piling machinery shall be of a suitable size to not damage the trees' roots, trunk, branches and crown. Machinery shall work in conjunction with an observer to ensure that adequate clearance from trees is maintained at all times.

1.12 Pavement Installation

New pavements (including sub-base materials) within TPZ areas shall be installed above or at existing grade. Pavement sub-base layers shall either be thinned or finished pavement levels modified as required to enable the retention of roots (>25mmø) as deemed necessary by the Project Arborist.

1.13 Underground Services

Underground service installation within the TPZ shall be supervised by the Project Arborist.

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using tree sensitive excavation methods (hand/hydrovac/airspade) with the services installed around/below roots (>25mmø, or as determined by the Project Arborist). Excavation using compact machinery (<3.5t) fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1000mm below existing grade. Excavations for starting and receiving pits for boring equipment should be located outside of the TPZ areas or located to avoid roots (>25mmø) as deemed necessary by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

1.14 Excavations, Root Protection & Root Pruning

All excavation works (including root investigations) within TPZ areas shall supervised by the Project Arborist and utilise tree sensitive methods (hand/hydrovac/airspade). Excavation using compact machinery (<3.5t) fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

Exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute mat, followed by a layer of plastic membrane. Coverings shall be weighted to secure them in place. The mat shall be kept in a damp condition at all times.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist. Tree sensitive excavation and root pruning shall be undertaken along the excavation line prior to the commencement of mechanical excavation to prevent tearing and shattering damage to the roots from excavation equipment.

Roots (>25mmø) shall be pruned by the Project Arborist only. Roots (<25mmø) may be pruned by the Principal Contractor. Root pruning shall be undertaken with clean, sharp secateurs or a pruning saw to ensure a smooth wound face, free from tears. Damaged roots shall be pruned behind the damaged tissues with the final cut made to an undamaged part of the root.

1.15 Plant Installation

Plant installation within the TPZ shall be undertaken using hand tools and roots (>25mmø) shall be protected. Mechanical augers shall not be used. No mechanical cultivation/ripping of soils shall be undertaken within the TPZ.

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Appendix 6: Typical Tree Protection Details

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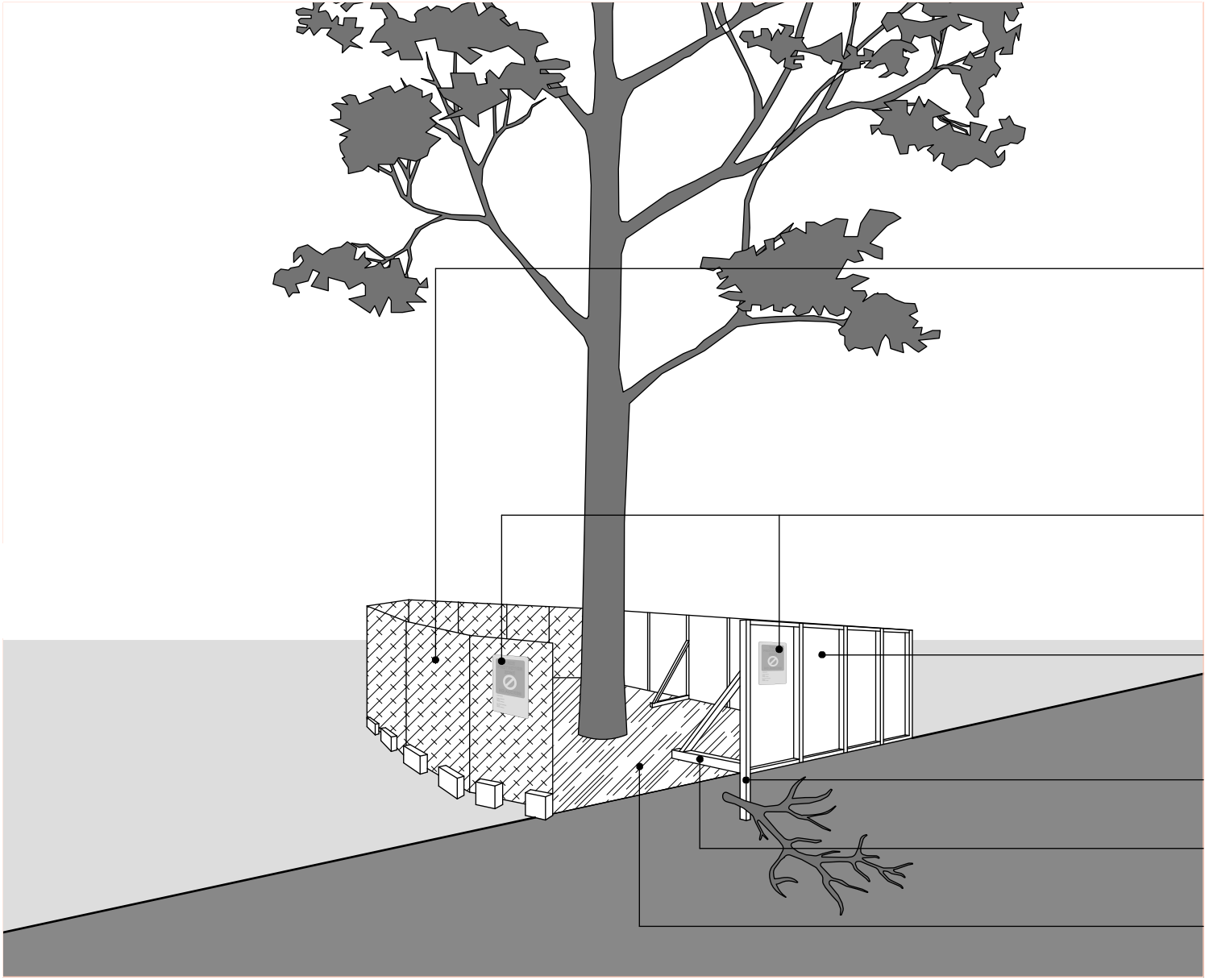


Note:
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

Option 1 - Fencing
1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

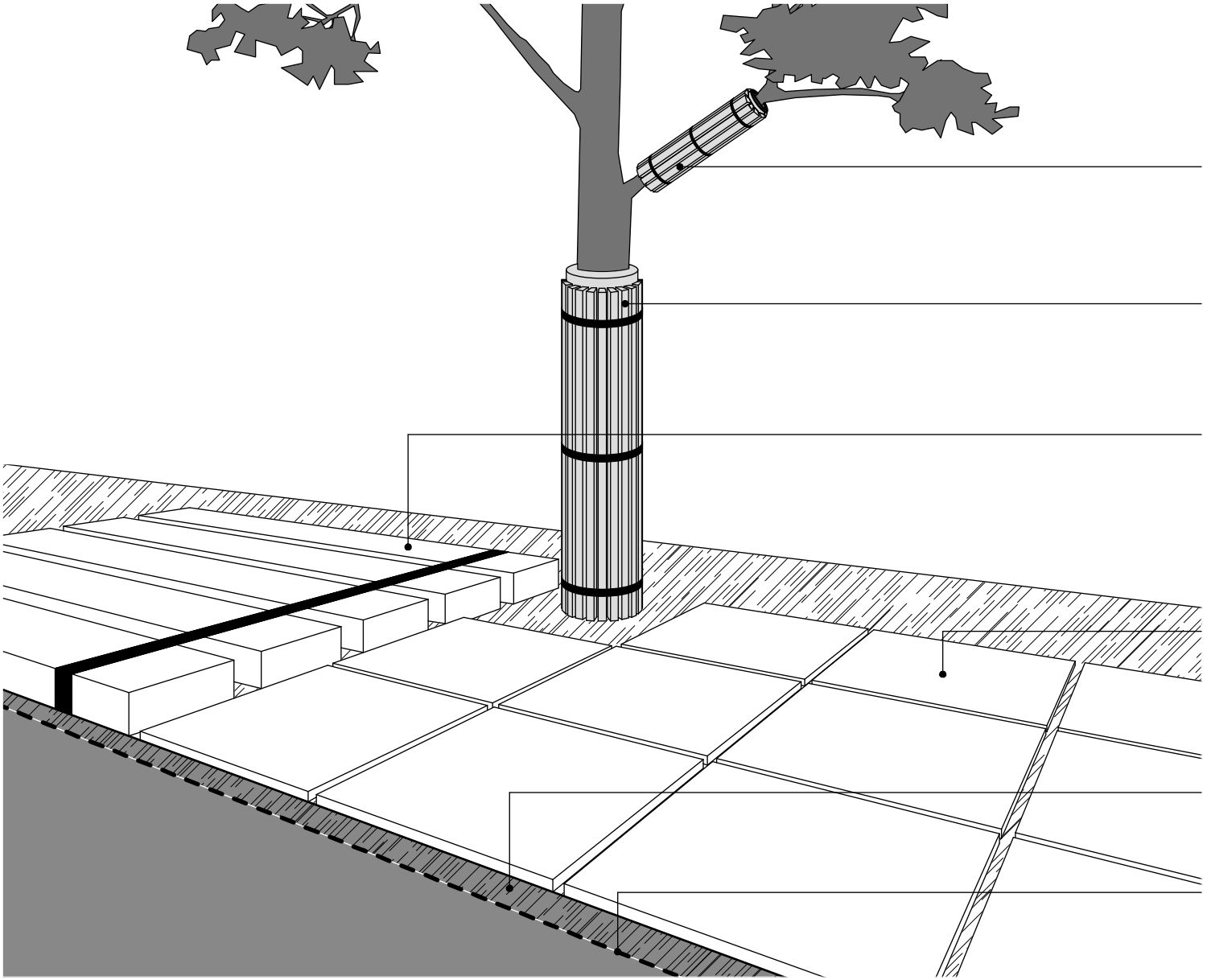
Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

03 Tree Protection Fencing

Not to Scale



Branch Protection - use boards and padding to prevent damage to bark on branch. Boards are to be strapped, not screwed or nailed to the branch.

Trunk Protection - use boards and padding to prevent damage to bark (minimum 2m). Boards are to be strapped, not screwed or nailed to the trunk.

Ground Protection - use device strapped over mulch or aggregate layer. Ground protection device should be of a suitable thickness to prevent soil compaction and root damage.

Steel plates (or approved equivalent) with or without mulch or aggregate layer below.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer.

Geotextile fabric underneath mulch or aggregate layer.

04 Examples of Branch, Trunk and Ground Protection

Not to Scale

Branches may require pruning to erect scaffolding. Pruning may be subject to local regulations. Flexible branches should be tied back in preference to pruning.

Minimum 1.8m high hoarding. Temporary fencing may be incorporated into scaffolding as either containment screening or as hoarding.

Note:
If excavation is required for installation of support post for fencing, the Project Arborist should assess any pruning of roots greater than 20mm diameter.

Scaffold planks

Boards or plywood to be installed over mulch or aggregate layer for any areas requiring access within the TPZ.

Soleplate over geotextile. No excavation for soleplate within TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer within TPZ.

Geotextile fabric

05 Indicative Scaffolding within a Tree Protection Zone (TPZ) Not to Scale