EARTHSCAPE HORTICULTURAL SERVICES
Arboricultural, Horticultural and Landscape Consultants

ABN 36 082 126 027

ARBORICULTURAL IMPACT ASSESSMENT REPORT

CONCEPT MASTER PLAN
DETAILED STAGE 1 WORKS
CAR PARKS AND THROUGH SITE LINK

LORETO NORMANHURST
91-93 PENNANT HILLS ROAD, NORMANHURST

January 2021

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1 INTRODUCTION

1.1.1 This report was commissioned by Allen Jack + Cottier on behalf of Loreto Normanhurst to assess the health and condition of four-hundred and sixty-eight (468) trees located within Loreto Normanhurst, 91-93 Pennant Hills Road, Normanhurst. The report has been prepared to aid in the preparation of a Concept Master Plan to guide the future development of the site and upgrade of existing facilities within the site. This report follows an Arboricultural Assessment Report prepared by Earthscape (version 2 dated 15th December 2018) submitted with together with a State Significant Development Application (SSDA) for the Concept Master Plan.

1.1.2 This report supports a SSDA submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This application is SSD by way of clause 8 and schedule 1 under *State Environmental Planning Policy (State and Regional Development) 2011* on the basis that the development is for the purpose of an existing school and has a Capital Investment Value of more than $20 million.

1.1.3 Specifically, this application relates to a staged SSDA within the meaning of Section 4.12 of the EP&A Act, with this application being the Concept Proposal for a new site wide Master Plan for the existing Loreto Normanhurst School. In addition, consent is also sought for the Stage 1 detailed design works for a new on campus student boarding facility, landscaping works, and some demolition works to the buildings between Mary Ward and existing dining room building and associated works to make good existing (refer separate Arboricultural Impact Assessment Report – Stage 1 Works). This report has been prepared having regard to the Secretary's Environmental Assessment Requirements issued for the project by DPE, ref no SEAR 8996 issued on 12 January 2018.

1.1.4 The purpose of this report is to assess the potential impact of proposed car parking areas (P1A, P3 and P4A), a through-site road link and associated accessible pathways and landscape works (as required by DPE) on the subject trees, together with recommendations for amendments to the design or construction methodology where necessary to minimise any adverse impact. The report also provides recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate.

1.1.5 This report has been prepared in accordance with Hornsby Council's *Arboricultural (Tree) Report Guidelines* (March 2016) and Sections 2.3.2-2.3.5 of the Australian Standard for *Protection of Trees on Development Sites* (AS 4970:2009).

2 THE SITE

2.1.1 The subject property is comprised of a number of allotments as outlined in the following table:-

Address	Lot	Plan
16 Mount Pleasant Avenue	Lot 5	DP 1218765
	Lot 16	DP 6612
30 – 62 Mount Pleasant Avenue	Lots 20 – 23 and 25 – 36	DP 6612
	Lot 1	DP 34834
91 – 93 Pennant Hills Road	Lot 1	DP 114580
	Lot 3	DP 1217496
	Lot 1 – Lot 3	DP 1218765
	Lot B	DP327538

Address	Lot	Plan
24 – 28 Mount Pleasant Avenue	Lot 1	DP 809066
6 Mount Pleasant Avenue	Lot C	DP 366271
14 Mount Pleasant Avenue	Lot 4	DP1218765
89 Pennant Hills Road	Lot 1	DP136156

2.1.2 For the purposes of this report, the subject allotments will be referred to as 'the site'. The total area of the site is approximately 13.02 hectares. The site is zoned Low Density Residential [R2] under the *Hornsby Local Environmental Plan 2013* (HLEP). The site contains a number of buildings and facilities, on-grade car parking areas, extensive lawns and gardens, hard courts and playing fields comprising the School, together with a large bushland area in the southern portion of the site (not included in this assessment). The site has a moderate south-westerly gradient with a number of terraced areas. The site contains a large number of mature and semi-mature trees. These include a variety of locally-indigenous, non-local native and exotic (introduced) species.

2.1.3 The soils of this area are typical of the Glenorie Soil Landscape Group (as classified in the *Soil Landscapes of the Sydney 1:100,000 Sheet*), consisting of "shallow to moderately deep (less than 1000mm) *Red Podzolic Soils* on crests, moderately deep (700 – 1500 mm) *Red & Brown Podzolic Soils* on upper slopes and deep (greater than 2000mm) *Yellow Podzolic Soils* on lower slopes*".* Soil materials are derived from Wianamatta shales. The landscape of the area generally consists of undulating to rolling low hills with slopes of 5-20%.[1]

2.1.4 The original vegetation of this area consisted of tall open forest (Blue Gum High Forest) which was progressively logged for timber-getting from early in the nineteenth century then cleared for agricultural use (mainly orchards and market gardens) and later for residential development.[2] The dominant locally-indigenous tree species found in this area include *Eucalyptus saligna* (Sydney Blue Gum) and *Eucalyptus pilularis* (Blackbutt). Other species occurring in this vegetation community may include *Syncarpia glomulifera* (Turpentine), *Eucalyptus paniculata* (Grey Ironbark), *Angophora floribunda* (Rough Barked Apple), *Eucalyptus acmenoides* (White Mahogany), *Angophora costata* (Sydney Red Gum), *Eucalyptus resinifera* (Red Mahogany) and *Allocasuarina torulosa* (Forest Oak).

3 SUBJECT TREES

3.1.1 The subject trees were inspected by Earthscape Horticultural Services (EHS) on the 10th July 2018. Each tree has been provided with an identification number for reference purposes denoted on the attached Tree Location Plan (**Appendix 5**), based on the survey prepared by Lockley Land Title Solutions, Dwg. Ref No. 44200DT [B] dated 18/06/2018. The numbers used on this plan correlate with the Tree Assessment Schedule (**Appendix 3**). Tree No.s T7a, T48a, T77, T79, T86a, T86b, T86c, T86d, T87a, T96a, T159, T160, T161, T162, T176a, T176b, T195a, T195b, T196a, T196b, T196c and T242a were not shown on the original survey and have been plotted on the drawing in their approximate positions.

4 HEALTH AND CONDITION ASSESSMENT

4.1 Methodology

4.1.1 An assessment of each tree was made using the Visual Tree Assessment (VTA) procedure.[3] All of the trees were assessed in view from the ground. No aerial inspection or diagnostic testing has been undertaken as part of this assessment.

4.1.2 The following information was collected for each tree:-

- Tree Species (Botanical & Common Name);
- Approximate height;
- Canopy spread; measured using a metric tape and an average taken.
- Trunk diameter (measured at 1.4 metres from ground level);
- Live Crown Size; (measured by subtracting the total height of the tree from the lowest point of the crown and multiplying by the average crown spread to give a value in square metres).
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators,
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators.
- Suitability of the tree to the site and its existing location; in consideration of damage or potential damage to services or structures, available space for future development and nuisance issues.

4.1.3 This information is presented in a tabulated form in **Appendix 3**.

4.2 Safe Useful Life Expectancy (SULE)

4.2.1 The remaining Safe Useful Life Expectancy[4] of the tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of the tree has been further modified where necessary in consideration of its current health and vigour, condition and suitability to the site. The estimated SULE of each tree is shown in **Appendix 3.**

4.2.2 The following ranges have been allocated to each tree:-

- Greater than 40 years (Long)
- Between 15 and 40 years (Medium)
- Between 5 and 15 years (Short)
- Less than 5 years (Transient)
- Dead or immediately hazardous (defective or unstable)

4.2.1 SULE ratings are intended to provide a general overview of the long term sustainability of the trees within the site in consideration of these factors. The allocated ranges are not intended to be absolute. This information is useful in guiding future planning by highlighting the probable lifespan of individual trees, for which a clear pattern may emerge. This information may be helpful in forecasting likely tree senescence and planning for replacement planting to ensure continuity in tree canopy across the site. It should be noted that SULEs *may* be extended or reduced depending on the way trees are managed. Intervention and remedial works may extend the SULE of some trees.

5 LANDSCAPE SIGNIFICANCE

5.1 Methodology for Determining Landscape Significance

5.1.1 The significance of a tree in the landscape is a combination of its environmental, heritage and amenity values. Whilst these values may be fairly subjective and difficult to assess consistently, some measure is necessary to assist in determining the retention value of each tree. To ensure a consistent approach, the assessment criteria shown in **Appendix 1** have been used in this assessment.

5.1.2 A rating has been applied to each tree to give an understanding of the relative significance of each tree in the landscape and to assist in determining priorities for retention, in accordance with the following categories:-

1. **Significant**
2. **Very High**
3. **High**
4. **Moderate**
5. **Low**
6. **Very Low**
7. **Insignificant**

5.2 Environmental Significance

5.2.1 Tree Management Controls

Prescribed Trees within the Hornsby Local Government Area (LGA) are protected under the provisions of Part 1, Section B.6 (Tree and Vegetation Preservation) of the *Hornsby Development Control Plan 2013* (HDCP) [revised March 2018] made pursuant to Clause 9 of the *State Environmental Planning Policy (Vegetation in Non-rural Areas) 2017* (SEPP VNRA). The HDCP generally protects all tree species with the potential to grow to a height of more than three (3) metres, all trees growing within a Heritage Conservation Area (regardless of their species) and all trees growing within land listed as a Heritage Item under the HLEP. Some exemptions apply. The following trees are exempt (not protected) under the provisions of the HDCP:-

Tree No.	Species	Exemption
T203, T204	*Cinnamomum camphora* (Camphor Laurel)	Noxious Weed, Environmental Weed Species
T189, T207	*Acer negundo* (Box Elder)	Environmental Weed Species
T236*, T237*, T238* & T239*	*Syagrus romanzoffianum* (Cocos Palm)	Undesirable Species
T26	*Mangifera indica* (Mango Tree)	Fruit tree
T100, T101	*Prunus sp.* (Plum tree)	Fruit tree
T205, T206	*Malus sp* (Apple)	Fruit tree
T5, T200	*Erythrina sp.* (Coral Tree)	Environmental Weed Species
T33	*Lagunaria patersonia* (Norfolk Island Hibiscus)	Undesirable Species
T20, T27 & T136	*Robinia pseudoacacia* 'Frisia' (Golden Robinia)	Undesirable Species
T76, T183, T250	*Gleditsia triacanthos* (Honey Locust)	Undesirable Species
T477*	*Eucalyptus saligna* (Sydney Blue Gum)	Dead tree

***** Note that these trees are located within the adjoining property.

The remainder of the trees are protected under the HDCP 2013.

5.2.2 Wildlife Habitat

Angophora costata (Sydney Red Gum) [T51, T52, T57, T59, T111, T242a, T321, T356, T368, T371, T396, T399, T440 & T446], *Angophora floribunda* (Rough-barked Apple) [T471, T472, T474, T479, T481 & T484] *Eucalyptus acmenioides* (White Mahogany) [T259, T260, T325, T326, T343 & T497], *Eucalyptus paniculata* (Grey Ironbark) [T43, T265, T349, T365, T381, T470, T485 & T486], *Eucalyptus pilularis* (Blackbutt) [T40, T41, T230, T252, T253, T254, T255, T256, T258, T264, T319, T333, T338, T348, T351, T360, T374, T393, T462, T465, T466 & T467], *Eucalyptus resinifera* (Red Mahogany) [T257], *Eucalyptus saligna* (Sydney Blue Gum) [T241, T246, T261, T262, T263, T324, T347, T357, T378, T382, T384, T392, T397, T400, T402, T403, T406, T416, T421, T431, T451, T452, T453, T454, T455, T456, T457, T458, T461, T468, T473, T475, T476, T477, T478, T480, T483, T487, T488, T489, T490, T491, T492 & T493] and *Syncarpia glomulifera* (Turpentine) [T248, T249, T251, T329, T334, T339, T344, T352, T358, T359, T366, T372, T379, T385, T387, T395, T412, T432, T442, T448, T493a, T494, T495 & T496] are all locally-indigenous species, characteristic of the original vegetation community formerly in this area. The majority of these trees appear to be self-sown progeny of the original forest with some planted trees. All of these trees would be of some benefit to native wildlife. Trees T40, T43, T246, T253, T254, T255, T256, T259, T265, T451, T452, T453, T454, T485, T489, T493 are likely to be remnant of the original forest.

A number of the trees contain cavities that may be suitable as nesting hollows for arboreal mammals or birds. These include Trees T88, T198 & T254. Several trees exhibited evidence of foraging by Brushtail or Ringtail Possums (including Trees T5, T26, T79, T203 & T204). There were no other visible signs of wildlife habitation.

5.2.3 Noxious Plants & Environmental Weeds

Cinnamomum camphora (Camphor Laurel) [T139, T141, T144, T203 & T204] is scheduled as a potential 'Biosecurity Risk' ('Priority Weed' – formerly 'Noxious Weed') within NSW under the provisions of the *Biosecurity Act 2015.* The growth of this plant species must be managed in a manner that continuously inhibits the ability of the plant to spread (so far as is reasonably practicable) and the plant must not be sold, propagated or knowingly distributed. Note that Trees T139, T141 and T144 are located within the Heritage Item and are therefore protected under Hornsby Council's Tree Management Controls.

Olea europaea var africana (African Olive) [T196] is scheduled as a potential 'Biosecurity Risk' ('Priority Weed' – formerly 'Noxious Weed') within the Greater Sydney Region under the provisions of the *Biosecurity Act 2015.* This species must be eradicated from the land.

Liquidambar styracflua (Liquidambar) [T36, T104, T106, T114, T115, T116, T121, T126, T185, T201, T202 & T242] is considered to be a nuisance species in some Local Government Areas (LGAs) within the Sydney Metropolitan Area. This species is protected under Hornsby Council's Tree Management Controls.

5.2.4 Threatened Species & Ecological Communities

Eucalyptus scoparia (Willow Gum) [T9, T10, T310, T390 & T424] is listed as Endangered Species in Schedule 2 of the *Threatened Species Conservation Act* 1995 (NSW) and listed as a Vulnerable Species under the *Environmental Protection and Biodiversity Conservation Act* 1999. Whilst this species is listed as endangered & vulnerable, it is a commonly planted ornamental tree in parks, gardens and streetscapes. The species is not endemic to this area and therefore does not have any ecological significance in this context of this site.

Syzygium paniculatum (Magenta Cherry or Lilly Pilly) [T151, T152, T153, T155, T156, T190a, T190b] is listed as a Vulnerable Species on Schedule 2 of the *Threatened Species Conservation Act* 1995 (NSW) and a Nationally Vulnerable species under the *Environmental Protection and*

Biodiversity Conservation Act 1999. Whilst this species is listed as vulnerable, it is a commonly planted ornamental tree and is not endemic to this area. As such, it does not have any ecological significance in the context of this site.

The National Parks and Wildlife Service (NPWS) 1:25000 Mapping Series (Native Vegetation of the Cumberland Plain)[5] indicates that remnants of Blue Gum High Forest (BGHF) may exist within the site. BGHF is listed as a Critically Endangered Ecological Community (EEC) under the *Threatened Species Conservation Act* 1995 (NSW) and the *Environment Protection and Biodiversity Conservation Act* 1999. The NSW Scientific Community has determined that highly modified relics of this vegetation community may persist as small clumps of trees without a native understorey. As such, small groups and individual remnants of locally-indigenous trees may form part of this vegetation community even if they are not contiguous with any bushland area or larger stand of trees.

are all locally-indigenous species, characteristic of the original vegetation community formerly in this area. The majority of these trees appear to be self-sown progeny of the original forest with some planted trees. All of these trees would be of some benefit to native wildlife. Trees T40, T43, T246, T253, T254, T255, T256, T259, T265, T451, T452, T453, T454, T485, T489, T493 are likely to be remnant of the original forest.

Angophora costata (Sydney Red Gum) [T51, T52, T57, T59, T111, T242a, T321, T356, T368, T371, T396, T399, T440 & T446], *Eucalyptus pilularis* (Blackbutt) [T40, T41, T230, T252, T253, T254, T255, T256, T258, T264, T319, T333, T338, T348, T351, T360, T374, T393, T462, T465, T466 & T467] and *Eucalyptus saligna* (Sydney Blue Gum) [T241, T246, T261, T262, T263, T324, T347, T357, T378, T382, T384, T392, T397, T400, T402, T403, T406, T416, T421, T431, T451, T452, T453, T454, T455, T456, T457, T458, T461, T468, T473, T475, T476, T477, T478, T480, T483, T487, T488, T489, T490, T491, T492 & T493] are all Positive Diagnostic Species of BGHF.[6] *Eucalyptus resinifera* (Red Mahogany) [T257], *Angophora floribunda* (Rough-barked Apple) [T471, T472, T474, T479, T481 & T484] *Eucalyptus acmenioides* (White Mahogany) [T259, T260, T325, T326, T343 & T497], *Eucalyptus paniculata* (Grey Ironbark) [T43, T265, T349, T365, T381, T470, T485 & T486], *Eucalyptus resinifera* (Red Mahogany) [T257], and *Syncarpia glomulifera* (Turpentine) [T248, T249, T251, T329, T334, T339, T344, T352, T358, T359, T366, T372, T379, T385, T387, T395, T412, T432, T442, T448, T493a, T494, T495 & T496] are all associated canopy species, occurring less frequently in this EEC. A number of these trees appear to have been planted within the site or are self-sown progeny of the original forest and a number of trees are remnant, existing prior to the residential development of this area (refer **Section 5.2.2**). All remnant trees are considered to form part of the BGHF EEC.

5.2.1 Biodiversity, Bushfire & Riparian Lands

The southern portion of the site in the vicinity of the 'bushland' area contains 'Terrestrial Biodiversity as indicated on Council's Natural Resources Biodiversity Map forming part of the HLEP 2013. This relates to the presence of the BGHF EEC.

5.3 Heritage Significance

5.3.1 Heritage Items

The subject property (including 91-93 Pennant Hills Road and 16-22 Mount Pleasant Avenue) is listed as an item of Environmental Heritage [Item 607] under Schedule 5, Part 1 of the *Hornsby Local Environmental Plan* (HLEP) 2013. This item is described as a school and former convent displaying characteristic elements from the late Victorian and Federation Era. This includes a sandstone and cast iron gate way and fence (Pennant Hills Road frontage) and notable trees typical of this era (including Brushbox [T17, T28 & T95], Canary Island Palms [T18, T21, T22 & T25], Hoop Pine [T39, T61, T62 & T64], Bunya Pine (now removed), Norfolk Island Pine [T13]) and

other plantings typical of the Inter-War Period (1919-1939) including Butia (Jelly) Palm [T75] and Camphor Laurels [T139, T141 & T144].[7]

Loreto Normanhurst was established as boarding school in 1897. The original convent building was designed by Sheerin and Hennessy and constructed by W. E. Graham.

The Loreto Convent Group, including the grounds, gates and cemetery area also listed as an item of Environmental Heritage (Archaeological Site) [Item A60] under Schedule 5, Part 3 of the *Hornsby Local Environmental Plan* (HLEP) 2013.

5.3.2 Heritage Conservation Area

The site is *not* located within a Heritage Conservation Area under Schedule 5, Part 2 of the HLEP 2013.

5.3.3 Significant Tree Register

Hornsby Council does not currently maintain a Register of Significant Trees

5.3.4 General

In addition to the trees noted to be of Heritage Significance in **Section 5.3.1**, T86a (Port Jackson Fig), T90 (Moreton Bay Fig), T97 (Cook Pine), T23 (Plum Pine) T186 & T188 (Queensland Lacebark) and T88 (Red Oak) were probably planted in the late Victorian Federation Era, being typical of this era and of a size and estimated aged consistent with this time frame. T147, a large English Oak, may also have been planted during this period.

5.4 Amenity Value

5.4.1 Criteria for the assessment of amenity values are incorporated into **Appendix 1**. The amenity value of a tree is a measure of its live crown size, visual appearance (form, habit, crown density), visibility and position in the landscape and contribution to the visual character of an area. Generally the larger and more prominently located the tree, and the better its form and habit, the higher its amenity value.

6 TREE RETENTION VALUES

6.1.1 The Retention Values shown in **Appendix 3** and **Appendix 5** have been determined on the basis of the estimated longevity of the trees and their landscape significance rating, in accordance with **Table One**. Together with guidelines contained in **Section 7** (Tree Protection Zones) this information should be used to determine the most appropriate position of building footprints and other infrastructure within the site, with due consideration to other site constraints, to minimise the impact on trees considered worthy of preservation.

TABLE 1 – TREE RETENTION VALUES – ASSESSMENT METHODOLOGY

	Landscape Significance Rating						
Estimated Life Expectancy	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Long - Greater than 40 Years	High Retention Value						
Medium- 15 to 40 Years			Moderate Retention Value				
Short - 5 to 15 years				Low Ret. Value			
Transient - Less than 5 Years				Very Low Retention Value			
Dead or Potentially Hazardous							

TABLE 2 – TREE RETENTION PRIORITES.

6.1.2 The following table describes the implications of the retention values on site layout and design.

RETENTION VALUE	RECOMMENDED ACTION
"High"	• These trees considered worthy of preservation; as such careful consideration should be given to their retention as a priority. • Proposed site design and placement of buildings and infrastructure should consider the recommended setbacks as discussed in the following section (refer also **Appendix 2**) to avoid any adverse impact on these trees. • In addition to Tree Protection Zones, the extent of the canopy (canopy drip-line) should also be considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
"Moderate"	• The retention of these trees is desirable, but not essential. • These trees should be retained as part of any proposed development if possible. However, these trees are considered less critical for retention. • If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replenishment Policy to compensate for loss of amenity (refer also **Section 9**).
"Low"	• These trees are not considered to worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. • These trees should not be considered as a constraint to the future development of the site.
"Very Low"	• These trees are considered potentially hazardous or very poor specimens, or may be environmental or noxious weeds. • The removal of these trees is therefore recommended regardless of the implications of any proposed development.

7 TREE PROTECTION ZONES

7.1.1 The Tree Protection Zone (TPZ) is a radial distance measured from the centre of the trunk of the tree as specified in **Appendix 4**. These have been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).[8]

7.1.2 The intention of the TPZ is to ensure protection of the root system and canopy from the potential damage from construction works and ensure the long-term health and stability of each tree to be retained. Incursions to the root zone may occur due to excavations, changes in ground levels, (either lowering or raising the grade), trenching or other forms or soil disturbance such as ripping, grading or inverting the soil profile. Such works may cause damage or loss of part of the root system, leading to an adverse impact on the tree.

7.2 Structural Root Zone (SRZ)

7.2.1 The Structural Root Zone (SRZ) provides the bulk of mechanical support and anchorage for a tree. This is also a radial distance measured from the centre of the trunk as specified in **Appendix 4**. The SRZ has been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).

7.2.2 Incursions within the SRZ are not recommended as they are likely to result in the severance of woody roots which may compromise the stability of the tree or lead to its decline and demise.

7.3 Acceptable Encroachments to the Tree Protection Zone.

7.3.1 Where encroachment to the TPZ is unavoidable, an incursion to the TPZ of not exceeding 10% of the area of the TPZ and outside the SRZ may be acceptable. Examples of acceptable incursions are shown in **Appendix 2**. Greater incursions to the TPZ may result in an adverse impact on the tree.

7.3.2 Where incursions greater than 10% of the TPZ are unavoidable, exploratory excavation using non-destructive methods may be required to evaluate the extent of the root system affected and determine whether or not the tree can remain viable

7.4 Acceptable Encroachments to the Canopy

7.4.1 The removal of a small portion of the crown (foliage and branches) is generally tolerable provided that the extent of pruning required is less than 10% of the total foliage volume of the tree and the removal of branches does not create large wounds or disfigure the natural form and habit of the tree. All pruning cuts must be undertaken in accordance with AS 4373:2007. This generally involves reduction of the affected branches back to the nearest branch collar at the junction with the parent branch, rather than at an intermediate point. The latter is referred to as “lopping” and is no longer an acceptable arboricultural practice. Generally speaking, the minimum pruning as required to accommodate any proposed works is desirable. Extensive pruning can result in a detrimental impact on tree health and may lead to exposure of remaining branches to wind forces that they were previously sheltered from, leading to a greater risk of branch failure.

7.4.2 Clearance to between the building line and canopy should take into account any projecting structures, such as balconies, awnings and the roofline and any requirement for temporary scaffolding to be erected during construction (typically 1-1.5 metres wide). High structures should preferably be located outside the canopy dripline (as shown indicatively on the attached plans) in order to avoid or minimise canopy pruning.

7.5 Legal Protection

7.5.1 Notwithstanding the above recommendations, Council may require a greater setback from certain types of structures to ensure the on-going legal protection of the tree (i.e. its legal status under Council’s Tree Management Controls). In Hornsby Shire, a tree located within three (3) metres of the foundation of an approved building (excluding detaches garages, carports and other ancillary buildings) is *not* protected under the HDCP. The measurement is taken from the trunk of the tree at ground level to the foundation of the building. As such, if a tree is considered worthy of

preservation, Council is unlikely to approve the construction of a dwelling or building within three (3) metres of the tree (regardless of whether this can be undertaken without having an adverse impact on its health or longevity).

8 PROPOSED DEVELOPMENT

8.1.1 The proposed development includes the construction of new car parking areas (P1A, P3 and P4A), a through-site road link and associated accessible pathways and landscape works forming part of the detailed Stage 1 works.

9 IMPACT ASSESSMENT

9.1.1 The intention of this assessment is to determine the incursions to the root zones and canopies created by the proposed development and evaluate the likely impact of the proposed works on the subject trees. Details shown on the following plans were used in this assessment:-

Title	Author	Dwg No.	Date
Demolition Plan_P1A	A J & C	18008 DA1100 [A]	08/12/2020
Lower Level Plan_P1A	A J & C	18008 DA2000 [A]	08/12/2020
Upper Level Plan_P1A	A J & C	18008 DA2001 [A]	08/12/2020
Elevations_P1A	A J & C	18008 DA3101 [A]	08/12/2020
Elevations_P1A	A J & C	18008 DA3102 [A]	08/12/2020
Sections_P1A	A J & C	18008 DA3200 [A]	08/12/2020
Sections_P1A	A J & C	18008 DA3201 [A]	08/12/2020
Demolition Plan_P4A	A J & C	18008 DA1100 [A]	08/12/2020
Lower Level Plan_P4A	A J & C	18008 DA2000 [A]	08/12/2020
Upper Level Plan_P4A	A J & C	18008 DA2001 [A]	08/12/2020
Elevations_P4A	A J & C	18008 DA3100 [A]	08/12/2020
Elevations_P4A	A J & C	18008 DA3101 [A]	08/12/2020
Sections_P4A	A J & C	18008 DA3200 [A]	08/12/2020
Sections_P4A	A J & C	18008 DA3201 [A]	08/12/2020
Siteworks Plan and Sections (Sheet 1)	TTW	201435 C310 [P2]	30/11/2020
Site Through Link (Sheet 2)	TTW	201435 C310 [P2]	30/11/2020
Typical Cross Sections and Longitudinal Sections	TTW	201435 C311 [P2]	30/11/2020
P3 Car Park Site Plan	TTW	201435 C410 [P2]	30/11/2020
Stage 3 (P4 Car Park) Site Plan	TTW	201435 C311 [P2]	30/11/2020
Landscape Plans	Oculus	S18-031 L200-L206 [A]	17/12/2020

9.1.2 A summary of the impact of the proposed development on each tree within the site is shown in **Appendix 5**. The following criteria have been examined as part of this assessment:-

- Existing Relative Levels (R.L.);
- Tree Protection Zone (TPZ);
- Structural Root Zone (SRZ);
- Footprint and envelope of the proposed development and temporary structures (scaffolding, hoardings etc);
- Incursions to the TPZ & SRZ, including estimated cut & fill beyond the building footprint;
- Incursions to the tree canopy from the building envelope and temporary structures; and
- Assessment of the likely impact of the works on existing trees.

9.1.3 The proposed development will necessitate the removal of nineteen (19) trees of low and very low retention value. These include Tree No.s T20 & T27 (Golden Robinia), T87 & T87a (Blueberry Ash), T88 (Red Oak), T107a (Native Frangipani), T112 & T113 (Coastal Myall), T413 (Flooded Gum), T415 (Eucalypt), T420 (Grey Gum), T472 (Rough-barked Apple), T502 (Lillypilly), T504 (Sasanqua Camellia), T505 (Chinese Hawthorn), T506 (Camellia), T507 (Weeping Bottlebrush), T507 (Weeping Bottlebrush), T508 (Kohuhu) & T509 (Sweet Pittosporum). None of these trees are considered significant or worthy of special measures to ensure their preservation. T88 is possibly an early planting but is in very poor condition with a transient SULE. The removal of these trees to accommodate the proposed development is therefore considered warranted in this instance. It should be noted that T20, T27, T504 & T506 are exempt from Council's Tree Management Controls.

9.1.4 The proposed development will also necessitate the removal of fourteen (14) trees of moderate retention value. These include Tree No.s T12 (Brushbox), T48a (Queensland Firewheel Tree), T85 (Oriental Plane), T86 & T107b (Blackbean), T92 (Pin Oak), T107 (Native Frangipani), T111 (Sydney Red Gum) , T117 (Jacaranda), T416 & T421 (Sydney Blue Gum), T417 & T419 (Grey Gum) and T503 (Sweet Viburnum). These trees are not considered significant, but are in good health and condition and make a fair contribution to the amenity of the site and surrounding properties. In order to compensate for loss of amenity resulting from the removal of these trees to accommodate the proposed development, consideration should be given to replacement planting within the site in accordance with **Section 11**.

9.1.5 The proposed development will also necessitate the removal of two (2) trees of high retention value. These include Tree No.s T414 (Flooded Gum) and T418 (Grey Gum). These trees do not have any special ecological or heritage significance, but are in good health and condition and make a positive contribution to the amenity of the site and surrounding properties. There are no feasible options that can be recommended in this instance that would permit the retention of these trees aside from eliminating some of the car parking spaces within the TPZs. A total of five of the immediate tandem spaces would need to be deleted within the TPZ of T418 and three within the TPZ of T414 to limit the encroachment to 15% of the TPZ, which still exceeds acceptable limits. The loss of these car parking spaces is not considered acceptable. In order to compensate for loss of amenity resulting from the removal of these trees to accommodate the proposed development, consideration should be given to replacement planting within the site in accordance with **Section 11**.

9.1.6 A new retaining wall is proposed to be constructed within the TPZ of T40 (Blackbutt). The new wall will be located at the toe of a steep embankment adjacent the tree, which may have formed part of the original excavation for the existing road platform. It is possible that the root plate of this tree is already limited on the north side due to the previous works. However, exploratory excavation and root investigation should be carried out prior to excavating the wall footings to verify the size, position and extent of any woody roots likely to be affected by the proposed works. If woody roots are present in the affected area, it may be feasible to construct the retaining wall as a post and caisson type wall (with isolated pier footings, rather than a continuous strip footing) to

avoid damage and severance to any woody roots, or an alternative retaining solution. In order to avoid any adverse impact on this tree, all excavations for the new retaining wall foundations within TPZ should be undertaken in accordance with **Section 10.9**.

9.1.7 A new accessible pedestrian ramp [PV06] is proposed to be constructed within the TPZs of T16 (Fiddlewood), T17 (Brushbox), T22 & T25 (Canary Island Palm), T23 (Plum Pine), T24 (Tulip Tree), T26 (Mango tree), T31 (Sasanqua Camellia) and T32 & T35 (Himalayan Cedar). The ramp is generally proposed to be constructed above existing grade using a Fibre Reinforced Plastic (FRP) decking with low profile integrated galvanised steel sub-frame supported on stirrup or post footings. This will require a minimum of 200mm clearance between the finished level of the deck and the ground surface level in order to avoid bulk excavation within the TPZs. In some instances, this finished level can be achieved and in other cases it cannot. In the case of trees T25 & T26, the extent of the encroachment to the root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. In all cases, the ramp has been designed with acceptable grades to achieve a satisfactory clearance from the ground plane to avoid bulk excavation within the TPZs. The proposed works will not result in any adverse impact on these trees, provided that all excavations for the support post/stirrup footings within the TPZs are undertaken in accordance with **Section 10.9.**

9.1.8 The level of the existing internal access roadway is proposed to be raised within the TPZs of Trees T17 & T28 (Brushbox) and T29 (Spotted Gum). For the most part, this will require placement of engineered fill over the existing pavement surface, which will not result in any increase to the present encroachment and will not result in any adverse impact on these trees. In the case of T28 & T29, a fill batter will be required at the edge of the roadway extending into the TPZs to create a level transition between the new road level and existing ground level. In the case of T28, this tree will tolerate the encroachment proposed. In the case of T29, the extent of encroachment created by the fill batter is approximately 16% of the TPZ, which may result in some adverse impact on this tree. In order to minimise any adverse impact, the new road pavement and batter should be installed in accordance with **Sections 10.12 & 10.13**.

9.1.9 The proposed P1A Car Park and associated tennis courts is located within the TPZs of Trees T18 & T21 (Canary Island Palm), T19 (Naylor's Blue Cypress), T13 (Norfolk Island Pine), T90 (Moreton Bay Fig) and T93 (Mugga Ironbark). In the case of Trees T18, T13, T86A, T90 & T93, the extent of the encroachment to the root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. As such, the proposed development will not result in any adverse impact on these trees. In the case of T19 & T21, the extent of the encroachment to the TPZs is 12% and 17% respectively which exceeds acceptable limits under AS 4970:2009. However, these trees will tolerate the extent of the encroachment proposed, provided that the basement retaining walls are constructed using contiguous piling as indicated with minimal over-excavation/temporary battering to facilitate construction of the basement level. In order to avoid any adverse impact on these trees, all excavations for the perimeter basement retaining wall within the TPZs should be carried out in accordance with **Section 10.9** and any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) should be limited to no greater than 300mm from the edge of the capping beam.

9.1.10 A proposed bus parking bay and associated paved areas are located within the TPZ of T17 (Brushbox). This has been placed outside the existing soft landscape areas surrounding the tree, within existing paved areas. This work will not result in any adverse impact on this tree, provided that the existing soft landscape area surrounding the tree is maintained and any new pavements are located outside the line of the kerb at a similar level and grade to the existing paved surfaces.

9.1.11 A proposed new concrete pathway and associated retaining wall is located within the TPZ of T97 (Cook Pine). The path has been elevated to avoid bulk excavation within the TPZ, but a retaining wall will be required on the northern side to make of the level differential. Excavations for the

retaining wall foundations have the potential to result in severance of woody roots, resulting in any adverse impact on this tree. In order to avoid any adverse impact, consideration should be given to substituting the path and wall for fully elevated ramp, fabricated using FRP and steel frame on post footings with void beneath (as per PV06) to avoid excavations for a continuous strip footing within the TPZ.

9.1.12 Proposed new stormwater pipelines are located within the TPZs of Trees T86b (Port Jackson Fig) and T13 (Norfolk Island Pine). Open trenching within the TPZs for these works has the potential to result in severance and damage to woody roots, resulting in any adverse impact on these trees. In order to avoid any adverse impact, the pipelines should be repositioned to minimise the encroachment to the TPZs, or alternatively installed by Horizontal Directional Drilling (HDD) with a minimum of 1.2 metres cover from existing ground levels in accordance with **Section 10.11**.

9.1.13 No other trees will be adversely affected by the proposed development.

10 RECOMMENDED TREE PROTECTION MEASURES

10.1 Tree Protection Plan

10.1.1 The following Tree Protection Measures should be read in accordance with the Tree Protection Plan (**Appendix 6**). The Tree Protection Plan (TPP) indicates the position of tree protection devices and other recommended measures to ensure the protection of trees within the site to be retained as part of the proposed development.

10.2 Prohibited Activities

10.2.1 The following activities should be avoided within specified Tree Protection Zones (refer **Appendix 4 & 6** for extent of the TPZ for each tree):-

- Excavations and trenching (with exception of the approved remediation works, underground services, building foundations or pavement sub-grade);
- Soil disturbance, surface grading, compaction, tyning, ripping or cultivation of soil;
- Mechanical removal of vegetation, including extraction of tree stumps;
- Soil level changes including the placement of fill material (excluding imported validated fill for remediation works or placement of fill for approved works)
- Movement and storage of plant, equipment & vehicles (except within defined temporary haul roads, where ground protection has been installed, or within the footprint of existing floor slabs or paved areas);
- Erection of site sheds (except where approved by the site arborist);
- Affixing of signage, barricades or hoardings to trees;
- Storage of building materials, waste and waste receptacles;
- Stockpiling of spoil or fill;
- Stockpiling of bulk materials, such as soil, sand, gravel, roadbase or the like;
- Stockpiling of demolition waste;
- Disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and other toxic liquids;
- Other physical damage to the trunk or root system; and
- Any other activity likely to cause damage to the tree.

10.3 Tree Damage

10.3.1 Care shall be taken when operating cranes, drilling rigs and similar equipment near trees to avoid damage to tree canopies (foliage and branches). Under no circumstances shall branches be torn-off

by construction equipment. Where there is potential conflict between tree canopy and construction activities, the advice of the Site Arborist must be sought.

10.3.2 In the event of any tree becoming damaged for any reason during the construction period a consulting arborist [Australian Qualification Framework Level 5] shall be engaged to inspect and provide advice on any remedial action to minimise any adverse impact. Such remedial action shall be implemented as soon as practicable and certified by the arborist.

10.4 Tree Removal

10.4.1 The removal of Trees [**T12, T20, T27, T48a, T85, T86, T87, T87a, T88, T92, T107, T107a, T107b, T111, T112, T113, T117, T413, T414, T415, T416, T417, T418, T419, T420, T421, T472, T502, T503, T504, T505, T506, T507, T508 & T509**] shall be carried out by an experienced tree surgeon in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). Care shall be taken to avoid damage to other trees during the felling operation.

10.4.2 Stumps located within the TPZs of trees to be retained shall be grubbed-out where required using a mechanical stump grinder (or by hand where less than 150mm in diameter) without damage to the root system of other trees. Where trees to be removed are within the SRZ of any trees to be retained, consideration should be given to cutting the stump close to ground level and retaining the root crown intact. Stumps within the Tree Protection Zone of other trees to be retained shall **not** be pulled out using excavation equipment or similar.

10.5 Tree Protection Fencing

10.5.1 Trees [**T13, T14, T17, T18-T19, T21, T22-T26, T28-T29, T31-T35, T51-T60, T50, T40-T42, T46,T77, T86A, T89, T90, T93, T94, T118, T143-T145**] shall be protected prior to and during construction from all activities that may result in detrimental impact by erecting a suitable protective fence in the positions as indicated on the Tree Protection Plan (**Appendix 6**). As a minimum, the fence shall consist of temporary chain wire panels of 1.8 metres in height, supported by steel stakes as required and fastened together and supported to prevent sideways movement using corner braces where required. The fence shall be erected prior to the commencement of any work on-site and shall be maintained in good condition for the duration of construction. Where tree protection zones merge together a single fence encompassing the area is deemed to be adequate. Existing site boundary fences may form part of the enclosure.

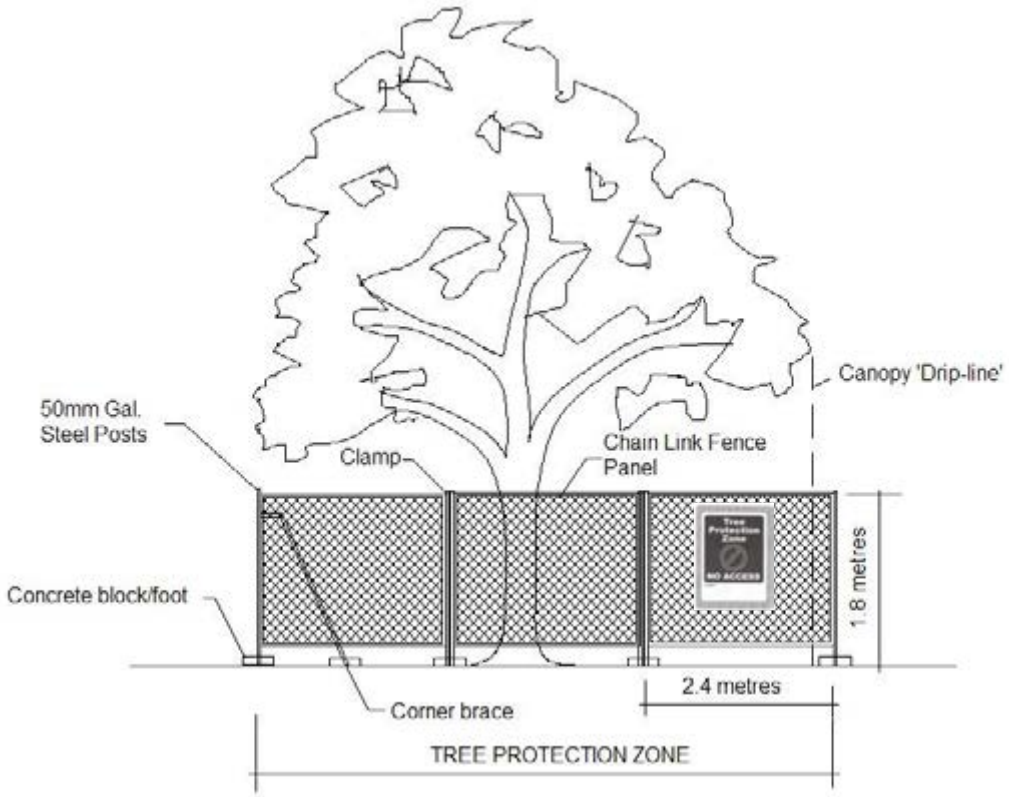


Figure 1 – Detail of Tree Protection Fence

10.5.2 Signs shall be installed on the Tree Protection Fence to prevent unauthorised movement of plant and equipment or entry to the Tree Protection Zone. The signs shall be securely attached to the fence using cable ties or equivalent. Signs shall be placed at minimum 10 metre intervals. The wording and layout of the sign shall comply with AS 4970-2009 as shown in **Figure 2**.

Figure 2 – Detail of Tree Protection Sign

10.6 Trunk Protection

10.6.1 Trunk protection boarding shall be erected around Trees [**T95, T96, T96a, T97, T116, T140, T141**] to avoid accidental damage, as indicated on the Tree Protection Plan (**Appendix 6**). The trunk protection shall consist of a layer of carpet underfelt (or similar) wrapped around the trunk, followed by 1.8 metre lengths of softwood timbers (90 x 45mm in section) aligned vertically and spaced evenly around the trunk at 150mm centres (i.e. with a 50mm gap) and secured together with 2mm galvanised wire or galvanised hoop strap as shown in **Figure 3**. Recycled timber (such as demolition waste) may be suitable for this purpose, subject to the approval of the Project Arborist. The timbers shall be wrapped around the trunk (over the carpet underfelt), but not fixed to the tree to avoid mechanical injury or damage to the trunk. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period. Carpet underfelt (alone) is sufficient for trees with a trunk diameter of less than 200mm. This shall be wrapped around the trunk in a double layer and held in place with heavy-duty fibre reinforced adhesive tape (e.g. Gaffer Tape).

Figure 3 – Detail of Trunk Protection

10.7 Ground Protection

10.7.1 Construction haul routes shall be confined to existing paved areas wherever possible. Where this is not feasible and construction haul routes or access for plant and equipment must traverse soft landscape areas within TPZs of [**any tree nominated for retention**], 20mm thick marine ply sheets or truck mats (such as Envirex Versadeck® access mats) (refer **Figure 4** shall be placed over the top of the ground surface to minimise compaction and disturbance of the underlying soil profile and root zone.

Figure 4 – Showing typical detail for truck mats.

10.7.2 Ground protection shall be installed prior to any site works and maintained in good condition for the duration of the construction period. On completion of the works, ground protection shall be removed without damage or disturbance to the underlying soil profile.

10.8 Demolition Works within Tree Protection Zones

10.8.1 Paved Areas

Demolition of paved areas within the Tree Protection Zones (TPZs) of trees [**any tree nominated for retention**] shall be undertaken under the supervision of a qualified Arborist [Australian Qualification Framework (AQF) Level 5].

Concrete pavements shall be demolished by breaking the slab into manageable sections (using a rock hammer or similar) and asphalt pavements shall be removed by breaking the topcoat into manageable pieces. The broken sections shall be carefully lifted and folded over the remaining paved surface to minimise disturbance and compaction of the underlying soil profile (refer to **Figure 2**). Special care shall be taken where underlying woody roots have lifted or displaced the pavement. Any plant or equipment used in demolition work shall operate within the footprint of existing paved areas and avoid traversing soft landscape areas. Where this is unavoidable, suitable ground protection shall first be installed in accordance with **Section 10.7**.

Figure 2 – Showing method for removal of concrete pavement, by carefully lifting sections and folding over the remaining paved surface.

The pavement sub-base within the TPZ shall be gradually removed (where required) in layers of no greater than 50mm thick using a small rubber tracked excavator or alternative approved method to avoid excessive disturbance and compaction of the underlying soil profile and damage to underlying roots and minimise. The machine shall work within the footprint of the existing path footprint to avoid compaction of the underlying soil. The final layer of sub-base material shall be removed using hand tools were required to avoid compaction of the underlying soil profile and avoid damage to any underlying woody roots.

10.8.2 Structures & Retaining Walls

Demolition of existing walls, kerbs and other structures within the TPZ of trees [**any tree nominated for retention**] shall be undertaken under the supervision of a qualified Arborist [AQF level 5]. The structures shall be demolished using equipment on stationed outside the TPZ where possible or within the footprint of existing hardstand areas.

Care shall be taken to avoid the root systems, trunks and lower branches of trees in the vicinity of the structures during demolition works, with special attention required during demolition of the footings and other sub-surface members to avoid damage to woody roots. An observer ('spotter') shall be employed to assist the plant operator in order to detect and avoid damage to underlying woody roots during demolition. Trunk and/or branch protection shall be installed where there is a potential risk of damage to trees in proximity or overhead of the work.

10.9 Excavations within Tree Protection Zones

10.9.1 Prior to any mechanical excavations for building foundations or pavement sub-grade within the TPZs of Trees [**T97, T16, T17, T19, T21, T22-T26, T31-T35, T40 & T50**] exploratory excavation using non-destructive techniques shall be taken along the perimeter of the structure or pavement within the TPZ. Non-destructive excavation techniques may include the use of hand-held implements, air pressure (using an Air-spade® device) or water pressure (hydro-excavation in combination with a vacuum extraction unit). The exploratory excavation shall be undertaken along the perimeter of the foundation or pavement (within the TPZ) to the depth of the foundation or to a maximum of 800mm from surface levels, to locate and expose any woody roots prior to any mechanical excavation.

10.9.2 All care shall be undertaken to preserve woody roots intact and undamaged during exploratory excavation. Any roots encountered of less than 40mm in diameter may be cleanly severed with clean sharp pruning implements at the face of the excavation. The root zone in the vicinity of the excavation shall be kept moist following excavation for the duration of construction to minimise moisture stress on the tree. Where large woody roots (greater than 40mm diameter) are encountered during exploratory excavations, further advice from a qualified arborist shall be sought prior to severance.

10.10 Alternative Construction Methods

10.10.1 Where necessary, (to avoid severing large woody roots) consideration should be given to the installation of an elevated structure (e.g. pier and beam footing, suspended slab or floor supported on piers, cantilevered slab, up-turned edge beam etc) in preference to structures requiring a deep edge beam or continuous perimeter strip footing. The beam section of any pier and beam footing should be placed **above** grade to avoid excavation within the SRZ. Pier footings intersecting large woody roots should be slightly offset where necessary to avoid root severance.

10.10.2 For masonry walls or fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (e.g. steel or timber pickets, lattice etc) fixed to pillars. For paved areas, consideration should be given to raising the proposed pavement level and using a porous fill material in preference to excavation where large woody roots are found within the sub-base.

10.11 Underground Services

10.11.1 All proposed stormwater lines and other underground services should be located outside TPZs of trees proposed to be retained wherever possible or installed by alternative measures. Alternative measures include suspending pipelines beneath the floor of a building or structure (to avoid excavation with the TPZ), non-destructive excavation methods or Horizontal Directional Drilling (HDD). Where the installation of service lines within TPZs is unavoidable, the pipelines or conduits should be installed as follows.

10.11.2 Trenching for underground services and stormwater pipes within the TPZs of Trees [**any tree nominated for retention**], shall be undertaken using non-destructive excavation in accordance with **Section 10.9.** Where large woody roots are encountered during excavation or trenching (root

diameter greater than 40mm), these shall be retained intact wherever possible (e.g. by tunnelling beneath roots and inserting the pipeline or conduit beneath or re-routing the service etc). Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by a qualified arborist [AQF 5] to evaluate the potential impact on the health and stability of the subject tree.

10.11.3 Installation of underground services and stormwater pipes within the SRZs of Trees [**any tree nominated for retention**], shall only be undertaken by Horizontal Directional Drilling (HDD) (also referred to as sub-surface boring or Micro-tunnelling for large diameter pipes). The Invert Level of the pipe, plus the pipe diameter, must be lower than the estimated root zone depth as specified. At this site a minimum depth of 1 metre to the invert level of the pipe is specified.

10.12 Pavements

10.12.1 Proposed paved areas within the TPZs of Trees [**T16, T17, T28, T29, T22-T26, T31-T35, T140 & T141**] shall be placed at or slightly above grade where possible to minimise excavations within the root zone and avoid severance and damage of woody roots. The pavement sub-base material should be supplied and installed in accordance with **Section 10.13.**

10.13 Pavement Sub-base

10.13.1 Pavement sub-base material within TPZs of trees [**T16, T17, T28, T29, T22-T26, T31-T35, T140 & T141**] shall be a coarse, gap-graded material such as 20 – 50mm crushed basalt (Blue Metal) or equivalent no-fines gravel material to provide some aeration and moisture permeation to the root zone. Note that road base or crushed sandstone or other similar material containing a high percentage of fines is unacceptable for this purpose. The fill material should be consolidated using a non-vibrating roller or similar to minimise compaction of the underlying soil. A permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade and provide greater load capacity.

10.14 Placement of Fill Material

10.14.1 Placement of fill material within the TPZs of Trees [**any tree nominated for retention**] to be retained should be avoided wherever possible. Where placement of fill is unavoidable, the material shall be a well-drained friable material, equivalent in texture to the existing site topsoil material. The fill should be free from rocks, vegetation and other extraneous material complying with AS 4419:2003 (*Soils for Landscaping and Garden Use*).

10.14.2 The fill may be lightly consolidated, but shall not be compacted to engineering standards. No fill material should be placed in direct contact with the trunk.

10.14.3 Plant and equipment used to place and spread fill material should be stationed outside the TPZ where possible. Where not possible, suitable ground protection should be installed in accordance with **Section 10.14** to avoid compaction of the underlying soil profile and root zone.

10.15 Canopy & Root Pruning

10.15.1 Canopy pruning of Trees [**T19**] (that essential to clear the piling operations) shall be carried out in accordance with Australian Standard 4373-2007 – *Pruning of Amenity Trees*. All pruning work shall be carried out by a qualified and experienced arborist or tree surgeon [Australian Qualification Framework Level 3] in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). No branches of greater than 100mm in diameter should be removed or pruned without further advice from a Consulting Arborist [Australian Qualification Framework Level 5].

10.15.2 Where root pruning of [**any tree nominated for retention**] is required to facilitate construction, roots shall be severed with clean, sharp pruning implements and retained in a moist condition during the construction phase using Hessian material or mulch where practical. Severed roots shall be treated with a suitable root growth hormone containing the active constituents Indol-3-yl-Butric Acid (IBA) and 1-Naphthylacetic Acid (NAA) to stimulate rapid regeneration of the root system.

10.15.3 Any required root pruning shall be carried out in accordance with Australian Standard 4373-2007 – *Pruning of Amenity Trees* by a qualified and experienced arborist or tree surgeon [Australian Qualification Framework Level 3] in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). No roots of greater than 40mm in diameter should be removed or pruned without further advice from a Consulting Arborist [Australian Qualification Framework Level 5].

11 REPLACEMENT PLANTING

11.1.1 In order to compensate for loss of amenity resulting from the removal of trees to accommodate the proposed development, an equivalent number of new trees capable of attaining a height of at least twelve (12) metres at maturity should be planted within the site.

11.1.2 Replacement trees should preferably include some locally indigenous species. These will be most appropriate to the site conditions and be most valuable in terms of preserving the landscape character and wildlife habitat of the area. The following species are appropriate to the site conditions and could be considered for replacement planting:-

Local native Species:-

- *Eucalyptus saligna* (Sydney Blue Gum) and
- *Eucalyptus pilularis* (Blackbutt).
- *Syncarpia glomulifera* (Turpentine)
- *Eucalyptus paniculata* (Grey Ironbark)
- *Angophora floribunda* (Rough Barked Apple)
- *Eucalyptus acmenoides* (White Mahogany)
- *Angophora costata* (Sydney Red Gum)
- *Eucalyptus resinifera* (Red Mahogany)
- *Allocasuarina torulosa* (Forest Oak)
- *Acmena smithii* (Lillypilly)
- *Elaeocarpus reticulatus* (Blueberry Ash)

Suitable Non-local Native Species:-

- *Backhousia citriodora* (Lemon-scented Myrtle)
- *Agathis robusta* (Queensland Kauri)#
- *Araucaria columnaris* (Cook Pine)#
- *Araucaria cunninghamii* (Hoop Pine)#
- *Brachychiton discolor* (Queensland Lacebark)#
- *Lophostemon confertus* (Brushbox)#
- *Stenocarpus sinuatus* (Queensland Firewheel Tree)
- *Scolopia braunii* (Flintwood)
- *Doryphora sassafras* (Sassafras)
- *Castanospermum australe* (Blackbean)
- *Flindersia australis* (Crows Foot Ash)#
- *Stenocarpus sinuatus* (Qld Firewheel Tree)
- *Syzygium paniculatum* (Magenta Cherry)#
- *Syzygium oleosum* (Blue Cherry)
- *Syzygium leuhmannii* (Small Leaf Lillypilly)

- *Waterhousea floribunda* (Weeping Lilly Pilly)#.
- *Elaeocarpus grandis*
- *Elaeocarpus kirtonii*
- *Elaeocarpus eumundii*
- *Toona ciliata* (Red Cedar)
- *Ceratopetalum apetalum* (Coachwood)
- *Corymbia maculata* (Spotted Gum)
- *Ficus rubiginosa f. glabrescens* (Port Jackson Fig)#

Suitable Exotic species:-

- *Nyssa sylvatica* (Tupelo)
- *Liriodendron tulipifera* (Tulip Tree)
- *Jacaranda mimosifolia* (Jacaranda)
- *Magnolia grandiflora* (Bullbay Magnolia)#
- Ginko biloba (Maidenhair Tree)
- *Butia capitata* (Jelly Palm)#
- *Cedrus deodara* (Himalayan Cedar)
- *Cryptomeria japonica* (Japanese Cedar)
- *Quercus rubra* (Red Oak)
- *Quercus palustris* (Pin Oak)
- *Ulmus parvifolia* (Chinese Elm)

# Denotes species characteristic of the Late Victorian and Federation Era.

Andrew Morton
EARTHSCAPE HORTICULTURAL SERVICES
21st January 2021

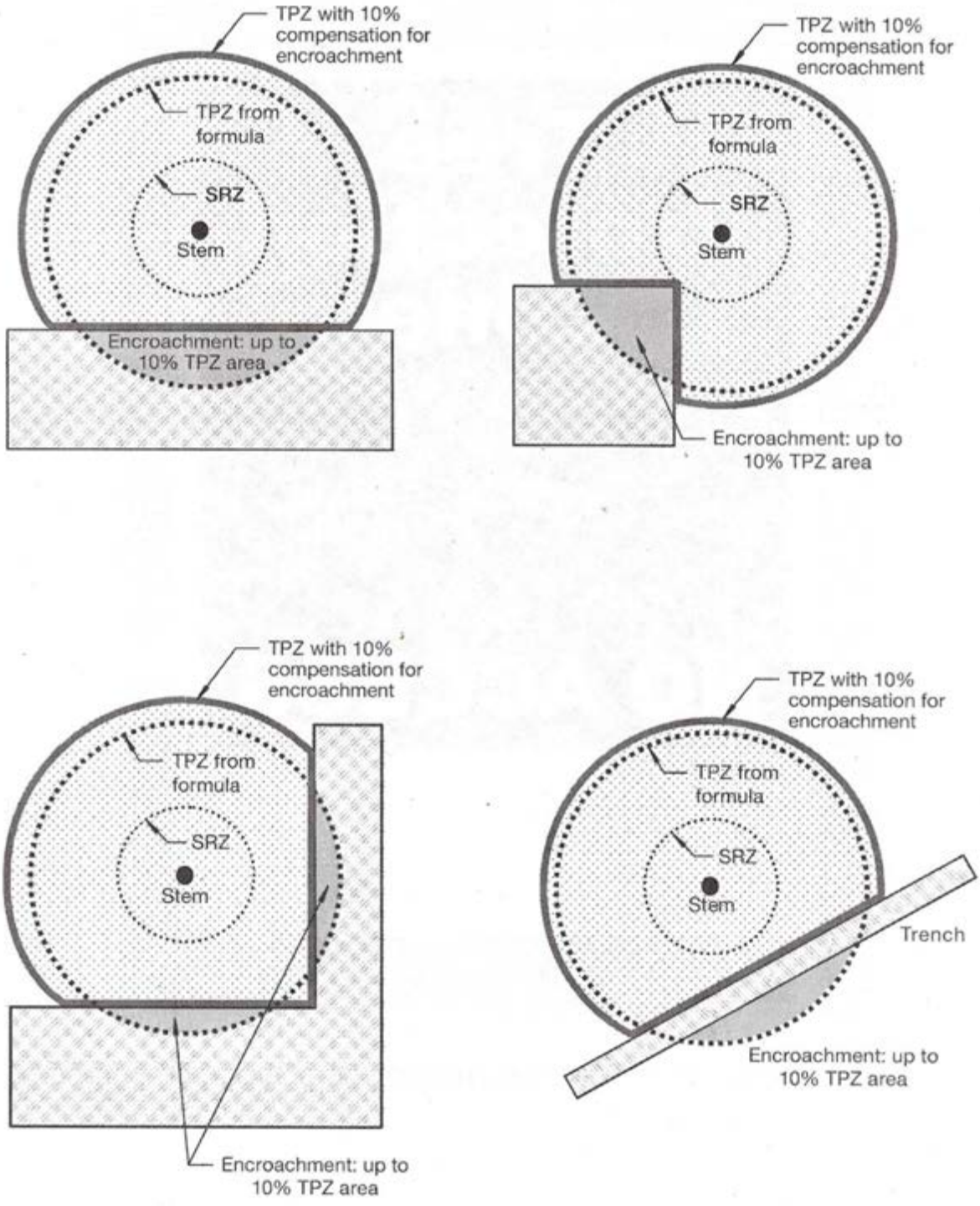
APPENDIX 1 - CRITERIA FOR ASSESSMENT OF LANDSCAPE SIGNIFICANCE

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m²; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m²; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m²;The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Ref:- Morton, A (2006) **Determining the Retention Value of Trees on Development Sites**

TreeNet - Proceedings of the 7th National Street Tree Symposium 2006 Government of South Australia Department for Transport, Energy and Infrastructure

APPENDIX 2 – ACCEPTABLE INCURSIONS TO THE TREE PROTECTION ZONE (TPZ)



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

REF:- Council of Standards Australia (August 2009)
AS 4970 – 2009 – Protection of Trees on Development Sites
Standards Australia, Sydney

REFERENCES:-

[1] Chapman GA & Murphy CL (1989)
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[4] Barrell, Jeremy (1996)
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Proceedings of the International Conference on Trees and Building Sites (Chicago)
International Society of arboriculture, Illinois, USA

[5] National Parks and Wildlife Service of NSW (October 2002)
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NPWS, Sydney NSW

[6] Tozer, Mark (2003)
The Native Vegetation of the Cumberland Plain, Western Sydney: Systematic Classification and Field Identification of Communities
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[7] Office of Environment and Heritage (
State Heritage Inventory – Heritage Database
Loreto Convent Group, grounds Gates and Cemetery
http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1780857

[8] Council of Standards Australia (August 2009)
AS 4970 – 2009 – Protection of Trees on Development Sites
Standards Australia, Sydney

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
12	***Lophostemon confertus*** (Brushbox)	15	5.5	347	71.5	SM	Appears stable with sound branching structure. Exhibits a moderate basal wound at due to mechanical injury.	Crown lifted to 3 metres.	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
13	***Araucaria heterophylla*** (Norfolk Island Pine)	32	9	904	270	M	Appears stable with sound branching structure.	Crown lifted to 3 metres.	Good	No Evidence	Long - more than 40 years	2	**High**	On-site
14	***Lophostemon confertus*** (Brushbox)	9	9	401	63	SM	Appears stable with sound branching structure. Exhibits 10% interior crown deadwood.	Crown lifted to 2 metres.	Fair with slightly thinning crown	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
16	***Citharexylum spinosum*** (Fiddlewood)	10	9	240x2	72	SM	Appears stable with sound branching structure. Multiple epicormic sprouts (15%) due previous pruning.	Crown lifted to 2 metres.	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
17	***Lophostemon confertus*** (Brushbox)	16	14	1200	196	M	Appears stable with sound branching structure.	Crown lifted to 3 metres. Deadwooded	Good	No Evidence	Long - more than 40 years	1	**High**	On-site
18	***Phoenix canariensis*** (Canary Island Palm)	11	6	580	30	M	Appears stable with sound branching structure.	Lower fronds removed	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
19	***Cupressus leylandii* 'Naylors Blue'** (Leyland Cypress)	16	9	551	130.5	M	Appears stable with sound branching structure.	Crown lifted to 2 metres.	Very Good	No Evidence	Long - more than 40 years	3	**High**	On-site
20	***Robinia pseudoacacia* 'Frisia'** (Golden Robinia)	8	9	318	54	M	Appears stable with poor branching structure. Exhibits a high bark inclusion at 2.5 metres.	Crown lifted to 2 metres.	Good	No Evidence	Medium 15-40 Years	6	**Low**	On-site
21	***Phoenix canariensis*** (Canary Island Palm)	13	7	573	42	M	Appears stable with sound branching structure.	Lower fronds removed	Good	No Evidence	Long - more than 40 years	2	**High**	On-site

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
22	***Phoenix canariensis*** (Canary Island Palm)	12	7	503	42	M	Appears stable with sound branching structure.	Lower fronds removed	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
23	***Podocarpus elatus*** (Brown or Plum Pine)	18	11	691	176	M	Appears stable with fair branching structure. Exhibits a moderate bark inclusion at 1.5-2 metres, with partly welded junction.	Crown lifted to 5 metres. Deadwooded	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
24	***Liriodendron tulipifera*** (Tulip Tree)	14	7	347	77	SM	Appears stable with sound branching structure.	Crown lifted to 3 metres. Deadwooded	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
25	***Phoenix canariensis*** (Canary Island Palm)	9	7	503	35	M	Appears stable with sound branching structure.	Lower fronds removed	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
26	***Mangifera indica*** (Mango Tree)	5	7	150x4	28	M	Appears stable with fair branching structure. Exhibits moderate dieback in upper crown due possum defoliation with 20% deadwood.	Crown lifted to 2 metres.	Fair with thinning crown	High Possum defoliation.	Short 5-15 Years	6	**Very Low**	On-site
27	***Robinia pseudoacacia* 'Frisia'** (Golden Robinia)	9	7	207	49	SM	Appears stable with fair branching structure. Exhibits a moderate bark inclusion at 2 metres, at junction of co-dominant PLs. Multiple epicormics emanating from old pruning wounds.	Crown lifted to 2 metres. Previously lopped at 3 metres.	Good	No Evidence	Short 5-15 Years	6	**Very Low**	On-site
28	***Lophostemon confertus*** (Brushbox)	17	16	1252	240	M	Appears stable with fair branching structure. Exhibits a high bark inclusion at GL, at junction of PL.	Selectively pruned & deadwooded. Crown lifted to 3 metres.	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	1	**High**	On-site
29	***Corymbia maculata*** (Spotted Gum)	22	10	510	190	M	Appears stable with sound branching structure. Crown supressed on south-west side due to crowding (former Camphor Laurel to SW)	No Evidence	Very Good	No Evidence	Long - more than 40 years	3	**High**	On-site

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
31	***Camellia sasanqua*** (Sasanqua)	6	7	150x4	28	M	Appears stable with poor branching structure. Exhibits multiple large wounds due dieback in vascular tissue in lower trunk due suspected root rot disease with decay evident.	Crown lifted to 2 metres.	Fair with slightly thinning crown	Suspected Root Rot disease.	Transient (less than 5 years)	4	Very Low	On-site
32	***Cedrus deodara*** (Himalayan Cedar)	17	14	662	182	M	Appears stable with sound branching structure. Leader possibly broken out previously at 15 metres.	Crown lifted to 5 metres. Deadwooded	Very Good	No Evidence	Long - more than 40 years	2	High	On-site
33	***Lagunaria patersonia*** (Norfolk Island Hibiscus)	15	7	389	98	M	Appears stable with sound branching structure. Exhibits a prominent lean to the north.	Crown lifted to 3 metres.	Very Good	No Evidence	Medium 15-40 Years	3	Moderate	On-site
34	***Podocarpus elatus*** (Brown or Plum Pine)	13	7	287	84	M	Appears stable with sound branching structure. Exhibits a prominent lean to the north-west (self-corrected).	Crown lifted to 2 metres. Deadwooded	Very Good	No Evidence	Long - more than 40 years	4	Moderate	On-site
35	***Cedrus deodara*** (Himalayan Cedar)	19	13	678	221	M	Appears stable with sound branching structure. Exhibits a very prominent lean to the north (self-corrected).	Crown lifted to 3 metres.	Fair with slightly thinning crown	No Evidence	Long - more than 40 years	3	High	On-site
36	***Liquidambar styraciflua*** (Liquidambar)	18	20	803	280	M	Appears stable with fair branching structure. Exhibits multiple small wounds due previous branch loss with decay in branch collars and stubs. Multiple extended lateral PLs.	Crown lifted to 4 metres. Selectively pruned & some PLs lopped to clear adjacent building.	Fair with slightly thinning crown	No Evidence	Short 5-15 Years	4	Low	On-site
37	***Bauhinia variegata*** (Orchid Tree)	9	5	169	35	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the south.	Crown lifted to 2 metres.	Good	No Evidence	Medium 15-40 Years	5	Low	On-site
38	***Acer palmatum*** (Japanese Maple)	5	8.5	150x4	25.5	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at GL.	Crown lifted to 2 metres.	Good	No Evidence	Long - more than 40 years	4	Moderate	On-site
39	***Araucaria cunninghamii*** (Hoop Pine)	35	9	898	297	M	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	1	High	On-site

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
40	***Eucalyptus pilularis*** (Blackbutt)	22	20	1076	300	M	Appears stable with sound branching structure.	Selectively crown thinned & deadwooded	Very Good	No Evidence	Medium 15-40 Years	1	**High**	On-site
41	***Eucalyptus pilularis*** (Blackbutt)	10	5	280	30	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the south-west. Crown suppressed east side due overshadowing. Main leader distorted with bend in trunk at 3 metres.	No Evidence	Fair	Moderate borer infestion in lower trunk	Short 5-15 Years	4	**Low**	On-site
42	***Araucaria cunninghamii*** (Hoop Pine)	10	6	401	48	SM	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
46	***Corymbia maculata*** (Spotted Gum)	22	9	510	144	M	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	3	**High**	On-site
48a	***Stenocarpus sinuatus*** (Queensland Firewheel Tree)	5	2.5	137	8.75	I	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
49	***Photinia x fraseri*** **'Robusta'** (Chinese Hawthorn)	6	11	200x4	55	M	Appears stable with fair branching structure. Exhibits 30% epicormic growth.	Deadwooded	Fair with thinning crown	No Evidence	Short 5-15 Years	4	**Low**	On-site
50	***Cedrus deodara*** (Himalayan Cedar)	15	10	535	130	M	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	3	**High**	On-site
51	***Angophora costata*** (Sydney Red Gum)	11	7	299	49	SM	Appears stable with sound branching structure. Crown suppressed on the south side due to crowding.	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
52	***Angophora costata*** (Sydney Red Gum)	12	8	312	72	SM	Appears stable with sound branching structure. Exhibits a low bark inclusion at 5 metres at junction of PL.	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
53	***Acacia binervia*** (Coastal Myall)	9	8	200 + 240	56	M	Appears stable with poor branching structure. Exhibits a severe bark inclusion at GL at junction of co-dominant leaders.	No Evidence	Fair with thinning crown	No Evidence	Short 5-15 Years	5	**Low**	On-site

PL = Primary Limb; SL = Secondary Limb;
TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
54	***Acacia binervia*** (Coastal Myall)	9	7	344	42	M	Appears stable with sound branching structure. Exhibits a prominent lean to the west.	Crown lifted to 3 metres.	Fair	No Evidence	Short 5-15 Years	4	**Low**	On-site
55	***Acacia binervia*** (Coastal Myall)	7	6	226	24	M	Appears stable with fair branching structure. Exhibits a high bark inclusion at junction of PL at 2 metres. 20% deadwood.	Crown lifted to 3 metres.	Fair with thinning crown	No Evidence	Short 5-15 Years	5	**Low**	On-site
56	***Acacia binervia*** (Coastal Myall)	7	6	306	24	M	Appears stable with fair branching structure. Exhibits a moderate bark inclusion at 1 metre at junction of co-dominant leaders. 70% deadwood.	Crown lifted to 3 metres.	Poor with sparse crown	No Evidence	Transient (less than 5 years)	5	**Very Low**	On-site
57	***Angophora costata*** (Sydney Red Gum)	12	5	223	25	SM	Appears stable with sound branching structure.	No Evidence	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
58	***Acacia binervia*** (Coastal Myall)	11	9	366	81	M	Appears stable with sound branching structure. Exhibits a prominent lean to the west.	Crown lifted to 3 metres.	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	On-site
59	***Angophora costata*** (Sydney Red Gum)	12	8	344	56	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the north (self corrected).	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
60	***Jacaranda mimosifolia*** (Jacaranda)	7	6	223	30	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the west.	Crown lifted to 3 metres.	Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
61	***Araucaria cunninghamii*** (Hoop Pine)	16	14	1035	196	M	Appears stable with fair branching structure. Main leader broken out at 14 metres due suspected previous storm damage.	No Evidence	Very Good	No Evidence	Long - more than 40 years	1	**High**	On-site
62	***Araucaria cunninghamii*** (Hoop Pine)	24	9	1070	207	M	Appears stable with sound branching structure.	No Evidence	Fair with slightly thinning crown	No Evidence	Long - more than 40 years	1	**High**	On-site
63	***Eucalyptus sideroxylon*** (Mugga Ironbark)	15	11	605	121	M	Stability suspect with sound branching structure. Crown suppressed on west side due crowding. Very prominent lean to the east. Located within very small traffic island surrounded by asphalt pavement.	Crown lifted to 6 metres. Deadwooded.	Very Good	Moderate borer infestation in TLs	Short 5-15 Years	3	**Moderate**	On-site

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
64	***Araucaria cunninghamii*** (Hoop Pine)	16	14	1025	210	M	Appears stable with fair branching structure. Main leader broken out at 14 metres due suspected previous storm damage.	No Evidence	Very Good	No Evidence	Long - more than 40 years	1	**High**	On-site
77	***Quercus robur*** (English Oak)	10	12	350	96	SM	Appears stable with sound branching structure.	Crown lifted to 2 metres	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
85	***Platanus orientalis*** (Oriental Plane)	11	7	255	63	SM	Appears stable with sound branching structure. Bend in trunk at 2 metres.	Crown lifted to 3 metres	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
86	***Castanospermum australe*** (Blackbean)	12	9	410 + 350	81	M	Appears stable with fair branching structure. Exhibits a large wound in lower trunk /former branch collar due previous pruning (large PL) with decay evident. Prominent lean to the north-west.	Crown lifted to 3 metres. Deadwooded.	Very Good	No Evidence	Medium 15-40 Years	3	**Moderate**	On-site
86a	***Ficus rubiginosa f. glabrescens*** (Port Jackson Fig)	25	18	800 + 850	414	M	Appears stable with fair branching structure. Exhibits multiple moderate wounds previous branch branch loss SLs at 10, 13 & 20 metres. Two trunks at GL.	Selectively pruned & deadwooded	Good	No Evidence	Medium 15-40 Years	2	**High**	On-site
86b	***Trachycarpus fortunei*** (Chinese Windmill Palm)	5	3	200	6	M	Appears stable with sound branching structure. Upper crown suppressed due to overshadowing.	No Evidence	Good	No Evidence	Short 5-15 Years	5	**Low**	On-site
86c	***Trachycarpus fortunei*** (Chinese Windmill Palm)	7	3	200x2	9	M	Appears stable with sound branching structure.	No Evidence	Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
86d	***Trachycarpus fortunei*** (Chinese Windmill Palm)	5	3	200	9	M	Appears stable with sound branching structure.	No Evidence	Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
87	***Elaeocarpus reticulatus*** (Blueberry Ash)	8	4	188	20	M	Appears stable with fair branching structure. Exhibits multiple occluded axial wounds from GL to 1 metre. Prominent lean to the west.	Crown lifted to 4 metres	Good	No Evidence	Short 5-15 Years	5	**Low**	On-site
87a	***Elaeocarpus reticulatus*** (Blueberry Ash)	8	4	169	20	M	Stability suspect with sound branching structure. Prominent lean to the north-west.	Crown lifted to 4 metres	Good	No Evidence	Short 5-15 Years	5	**Low**	On-site

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
88	***Quercus rubra*** (Red Oak)	13	16	755	160	M	Stability suspect with fair branching structure. Exhibits multiple moderate wounds and cavities in PLs due previous pruning at 4 + 6 metres. Very prominent lean to the SE. Upper crown suppressed/distorted due to overshadowing. Evidence decay in lower trunk root crown.	Selectively pruned & deadwooded	Good	Root rot and butt rot disease (Ganoderma sp.)	Transient (less than 5 years)	2	**Low**	On-site
89	***Lophostemon confertus*** (Brushbox)	17	9	408	135	SM	Appears stable with sound branching structure. Crown suppressed on the south side due crowding.	Crown lifted to 3 metres	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
89a	***Elaeocarpus reticulatus*** (Blueberry Ash)	8	4.5	197	27	M	Appears stable with sound branching structure. Crown suppressed on SW side due overshadowing.	Crown lifted to 2 metres	Good	No Evidence	Medium 15-40 Years	5	**Low**	On-site
90	***Ficus macrophylla*** (Moreton Bay Fig)	20	20	1200	360	M	Appears stable with sound branching structure. Exhibits a moderate bark inclusion at 1.5 metres at junction of co-dominant leaders.	No Evidence	Good	No Evidence	Long - more than 40 years	2	**High**	On-site
91	***Jacaranda mimosifolia*** (Jacaranda)	10	9	312	72	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the NE.	Deadwooded	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
92	***Quercus palustris*** (Pin Oak)	12	8	350	80	SM	Appears stable with sound branching structure.	Crown lifted to 3 metres	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
93	***Eucalyptus sideroxylon*** (Mugga Ironbark)	25	17	901	289	M	Appears stable with sound branching structure. Exhibits multiple large occluded axial wounds east and west side from GL to 6 metres due suspected previous lightning strike.	Deadwooded & Selectively Crown Thinned.	Good	No Evidence	Medium 15-40 Years	2	**High**	On-site
94	***Eucalyptus sideroxylon*** (Mugga Ironbark)	15	15	643	195	M	Appears stable with fair branching structure. Exhibits a very prominent lean to the west. Crown suppressed NE side due to overshadowing. Bend in trunk at 4 metres with co-dominant leaders.	Deadwooded & Selectively Crown Thinned.	Good	No Evidence	Medium 15-40 Years	3	**Moderate**	On-site

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
95	***Lophostemon confertus*** (Brushbox)	20	13	1124	234	M	Appears stable with sound branching structure. Exhibits a small wound on lower trunk at 0.5-1.0 metres.	Deadwooded	Good	No Evidence	Medium 15-40 Years	2	**High**	On-site
96	***Araucaria cunninghamii*** (Hoop Pine)	19	9	580	153	SM	Appears stable with sound branching structure. Located in small garden area surrounded by masonry reatining walls on north, south and east sides.	Lower PLs lopped to clear shade sails	Very Good	No Evidence	Long - more than 40 years	3	**High**	On-site
96a	***Araucaria cunninghamii*** (Hoop Pine)	10	7	248	63	I	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
97	***Araucaria columnaris*** (Cook Pine)	20	7	580	126	M	Appears stable with sound branching structure. Exhibits a prominent lean to the NE (self-corrected). Co-dominant leaders at 10 metres.	No Evidence	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
98	***Quercus palustris*** (Pin Oak)	11	10	401	90	SM	Appears stable with sound branching structure. Located on steep sandstone flag paved embankment.	Crown lifted to 3 metres	Good	No Evidence	Long - more than 40 years	3	**High**	On-site
100	***Prunus sp.*** (Plum tree)	8	8	300x2 + 400	48	OM	Stability suspect with poor branching structure. Exhibits multiple severe bark inclusions at GL	Selectively pruned.	Fair	No Evidence	Transient (less than 5 years)	4	**Very Low**	On-site
101	***Prunus sp.*** (Plum tree)	3	3	350	3	OM	Stability suspect with poor branching structure.	Cut to stump at 1.5 metres	Poor with sparse crown	No Evidence	Transient (less than 5 years)	4	**Very Low**	On-site
102	***Ficus macrophylla*** (Moreton Bay Fig)	9	9	400	63	SM	Appears stable with sound branching structure. Located close to existing dwelling (< 4 metres)	No Evidence	Very Good	Low Fig Psyllid infestation	Long - more than 40 years	4	**Moderate**	On-site
103	***Quercus robur*** (English Oak)	9	15	350x2 + 400	105	M	Appears stable with poor branching structure. Exhibits multiple moderate wounds to PLs and SLs due previous pruning with decay evident. Multiple extended lateral PLs.	Pollarded at 5-6 metres (crown restored)	Good	No Evidence	Short 5-15 Years	3	**Moderate**	On-site
104	***Liquidambar styraciflua*** (Liquidambar)	15	15	694	195	M	Appears stable with sound branching structure. Exhibits a moderate wound at 5 metres due branch loss (SL). Crown suppressed south side due crowding.	Selectively pruned & deadwooded.	Good	No Evidence	Long - more than 40 years	3	**High**	Nature strip

PL = Primary Limb; SL = Secondary Limb;
TL = Tertiary Limb. GL = Ground Level

APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
106	***Liquidambar styraciflua*** (Liquidambar)	16	13	497	169	M	Appears stable with sound branching structure. Crown suppressed north side due crowding.	Deadwooded	Good	No Evidence	Long - more than 40 years	3	**High**	Nature strip
107	***Hymenosporum flavum*** (Native Frangipani)	10	4.5	264	36	SM	Appears stable with sound branching structure.	Crown lifted to 2 metres	Very Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
107a	***Hymenosporum flavum*** (Native Frangipani)	8	4	111	28	I	Appears stable with sound branching structure.	Crown lifted to 2 metres	Good	No Evidence	Medium 15-40 Years	5	**Low**	On-site
107b	***Castanospermum australe*** (Blackbean)	6	4.5	191	18	I	Appears stable with fair branching structure.	Crown lifted to 2 metres	Very Good	No Evidence	Long - more than 40 years	5	**Moderate**	On-site
111	***Angophora costata*** (Sydney Red Gum)	14	12	398	120	M	Appears stable with sound branching structure. Fruiting bodies growing at GL near trunk.	No Evidence	Fair	Suspected butt rot disease (Gymnopilus sp.)	Short 5-15 Years	3	**Moderate**	On-site
112	***Acacia binervia*** (Coastal Myall)	13	8	439	88	M	Appears stable with sound branching structure. Exhibits 30% interior crown deadwood.	Crown lifted to 3 metres	Fair with thinning crown	No Evidence	Short 5-15 Years	4	**Low**	On-site
113	***Acacia binervia*** (Coastal Myall)	11	8	382	64	M	Appears stable with sound branching structure. Crown suppressed on north side due to crowding. Exhibits 20% interior crown deadwood.	Crown lifted to 3 metres	Fair with slightly thinning crown	No Evidence	Short 5-15 Years	4	**Low**	On-site
114	***Liquidambar styraciflua*** (Liquidambar)	13	16	634	176	M	Appears stable with fair branching structure. Exhibits multiple small lesions on trunk & PLs with dark exudate due suspected canker infection.	No Evidence	Fair	Suspected Canker infection	Short 5-15 Years	3	**Moderate**	Nature strip
115	***Liquidambar styraciflua*** (Liquidambar)	15	9	459	117	M	Appears stable with sound branching structure.	Crown lifted to 2 metres	Good	No Evidence	Long - more than 40 years	3	**High**	Nature strip
116	***Liquidambar styraciflua*** (Liquidambar)	17	13	611	195	M	Appears stable with sound branching structure. Crown suppressed north side due crowding.	Crown lifted to 2 metres	Good	No Evidence	Long - more than 40 years	3	**High**	Nature strip

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
117	***Jacaranda mimosifolia*** (Jacaranda)	8	8	334	40	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the south-west (self-corrected). Located close to existing driveway.	Crown lifted to 3 metres	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	On-site
118	***Cryptomeria japonica*** (Japanese Cedar)	16	10	557	140	M	Appears stable with sound branching structure.	Crown lifted to 3 metres	Very Good	No Evidence	Long - more than 40 years	2	**High**	On-site
140	***Ulmus parvifolia*** (Chinese Elm)	6	10	287	40	SM	Appears stable with sound branching structure. Crown suppressed on north side due to overshadowing.	Crown lifted to 2 metres	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	On-site
141	***Cinnamomum camphora*** (Camphor Laurel)	13	12	1100	138	M	Appears stable with fair branching structure. Exhibits multiple co-dominant PLs at 1 metre.	Deadwooded & Selectively Crown Thinned. Previously cut to stump at 1 metre	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	2	**High**	On-site
413	***Eucalyptus grandis*** (Flooded Gum)	13	7	315	70	SM	Appears stable with fair branching structure. Exhibits a large wound on lower trunk and multiple occluded wounds due borer damage.	No Evidence	Good	High borer infestation	Short 5-15 Years	4	**Low**	On-site
414	***Eucalyptus grandis*** (Flooded Gum)	15	12	427	120	SM	Appears stable with sound branching structure. Exhibits multiple extended lateral PLs.	No Evidence	Good	No Evidence	Long - more than 40 years	3	**High**	On-site
415	***Eucalyptus sp.*** (Eucalypt)	14	6	325	54	SM	Stability suspect with poor branching structure. Suspected fracture in trunk at 1.8 metres with adaptive growth. Exhibits some dieback with 10% deadwood.	No Evidence	Fair with thinning crown	No Evidence	Short 5-15 Years	4	**Low**	On-site
416	***Eucalyptus saligna*** (Sydney Blue Gum)	13	7	283	63	SM	Appears stable with sound branching structure. Exhibits co-dominant leaders at 2 metres.	No Evidence	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	On-site
417	***Eucalyptus punctata*** (Grey Gum)	16	7	395	77	SM	Appears stable with sound branching structure. Exhibits some dieback with 10% deadwood.	Deadwooded	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	**Moderate**	On-site

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
418	***Eucalyptus punctata*** (Grey Gum)	20	10	516	120	M	Appears stable with sound branching structure. Exhibits a small wound at 3 metres on west side. Prominent lean to the east (self-corrected). 5% deadwood.	Selectively pruned & deadwood	Good	Suspected Phellinus sp. (Bracket Fungus) infection at 3 metres.	Long - more than 40 years	3	**High**	On-site
419	***Eucalyptus punctata*** (Grey Gum)	17	8	328	88	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the east (self-corrected). Crown suppressed on the west side.	No Evidence	Good	No Evidence	Long - more than 40 years	4	**Moderate**	On-site
420	***Eucalyptus punctata*** (Grey Gum)	11	8	325	56	SM	Stability suspect with fair branching structure. Exhibits a very prominent lean to the east (self-corrected). Soil heave on the west side (root plate lifted).	Selectively pruned & deadwood	Very Good	No Evidence	Short 5-15 Years	4	**Low**	On-site
421	***Eucalyptus saligna*** (Sydney Blue Gum)	14	8	357	80	SM	Appears stable with sound branching structure. Exhibits a moderate wound at 1.8 metres due borer damage.	No Evidence	Good	Moderate borer infestation	Long - more than 40 years	4	**Moderate**	On-site
466	***Eucalyptus pilularis*** (Blackbutt)	9	5	194	25	I	Appears stable with fair branching structure. Exhibits a prominent lean to the north. Co-dominant leaders at 2.5 metres.	No Evidence	Very Good	No Evidence	Long - more than 40 years	4	**Moderate**	Nature strip
467	***Eucalyptus pilularis*** (Blackbutt)	6	3	137	15	I	Appears stable with fair branching structure. Main leader distorted.	No Evidence	Good	No Evidence	Short 5-15 Years	5	**Low**	Nature strip
468	***Eucalyptus saligna*** (Sydney Blue Gum)	10	5	264	35	SM	Appears stable with fair branching structure. Exhibits a prominent lean to the east with distorted leader.	No Evidence	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	Nature strip
469	***Pittosporum undulatum*** (Sweet Pittosporum)	4.5	4	120	18	I	Appears stable with fair branching structure.	No Evidence	Good	No Evidence	Short 5-15 Years	5	**Low**	Nature strip
470	***Eucalyptus paniculata*** (Grey Ironbark)	12	5	200	25	SM	Appears stable with fair branching structure.	Crown lifted to 6 metres. Deadwooded	Fair	No Evidence	Medium 15-40 Years	4	**Moderate**	Nature strip

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
471	***Angophora floribunda*** (Rough-barked Apple)	6	2	100	8	I	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	5	**Moderate**	Nature strip
472	***Angophora floribunda*** (Rough-barked Apple)	8	4	120	16	I	Appears stable with fair branching structure. Crown suppressed on the west side due to crowding.	No Evidence	Good	No Evidence	Medium 15-40 Years	5	**Low**	Nature strip
473	***Eucalyptus saligna*** (Sydney Blue Gum)	14	5	350	40	SM	Appears stable with sound branching structure. Exhibits a prominent lean to the east (self-corrected).	No Evidence	Good	No Evidence	Long - more than 40 years	4	**Moderate**	Nature strip
474	***Angophora floribunda*** (Rough-barked Apple)	11	5	293	30	SM	Appears stable with fair branching structure. Exhibits multiple small wounds due to branch loss. Crown suppressed on south side due to overshadowing.	No Evidence	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	**Moderate**	Nature strip
475	***Eucalyptus saligna*** (Sydney Blue Gum)	14	8	287	72	SM	Appears stable with fair branching structure. Crown suppressed on east side due to overshadowing with poor form and habit.	No Evidence	Fair	No Evidence	Short 5-15 Years	4	**Low**	Nature strip
476	***Eucalyptus saligna*** (Sydney Blue Gum)	7	3	159	12	I	Appears stable with poor branching structure. Crown suppressed and distorted due to overshadowing with poor form and habit.	No Evidence	Fair	No Evidence	Short 5-15 Years	5	**Low**	Nature strip
477	***Eucalyptus saligna*** (Sydney Blue Gum)	11	2	540	0	OM	Stability suspect with poor branching structure.	No Evidence	Dead	Severe borer infestation	Nil	7	**Very Low**	Nature strip
478	***Eucalyptus saligna*** (Sydney Blue Gum)	14	14	570	112	M	Appears stable with sound branching structure. Exhibits a prominent lean to the north-east.	No Evidence	Good	No Evidence	Medium 15-40 Years	4	**Moderate**	Nature strip
479	***Angophora floribunda*** (Rough-barked Apple)	7	5	188	20	I	Appears stable with fair branching structure. Exhibits a very prominent lean to the east (self-corrected). Heavily suppressed on west side due to overshadowing.	No Evidence	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	5	**Low**	Nature strip
480	***Eucalyptus saligna*** (Sydney Blue Gum)	20	10	500	100	M	Appears stable with sound branching structure.	No Evidence	Good	No Evidence	Long - more than 40 years	3	**High**	Nature strip

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
481	***Angophora floribunda*** (Rough-barked Apple)	9	6	296	24	M	Appears stable with sound branching structure. Exhibits multiple small wounds due branch loss. Some dieback with 10% deadwood.	No Evidence	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	Moderate	Nature strip
482	***Pittosporum undulatum*** (Sweet Pittosporum)	4	3	150	12	M	Appears stable with poor branching structure.	No Evidence	Poor with sparse crown	High Pittosporum Borer infestation	Short 5-15 Years	5	Low	Nature strip
483	***Eucalyptus saligna*** (Sydney Blue Gum)	15	4	382	28	SM	Appears stable with fair branching structure. Exhibits a moderate wound due borer damage at 1.2 metres. Poor form and habit.	No Evidence	Fair with thinning crown	Moderate borer infestation	Short 5-15 Years	4	Low	Nature strip
484	***Angophora floribunda*** (Rough-barked Apple)	7	5	287	15	M	Appears stable with poor branching structure. Exhibits a large dead section (secondary leader) due to borer damage with decay evident. Poor form and habit.	No Evidence	Fair with thinning crown	Moderate borer infestation	Short 5-15 Years	5	Low	Nature strip
485	***Eucalyptus paniculata*** (Grey Ironbark)	20	15	621	270	M	Appears stable with sound branching structure.	No Evidence	Very Good	No Evidence	Long - more than 40 years	2	High	Nature strip
486	***Eucalyptus paniculata*** (Grey Ironbark)	11	7	500	56	M	Appears stable with fair branching structure. Crown suppressed on west side due to overshadowing with poor form and habit.	No Evidence	Good	No Evidence	Medium 15-40 Years	4	Moderate	Nature strip
487	***Eucalyptus saligna*** (Sydney Blue Gum)	20	8	424	120	M	Appears stable with fair branching structure. Exhibits a prominent lean to the west (self-corrected).	No Evidence	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	Moderate	Nature strip
488	***Eucalyptus saligna*** (Sydney Blue Gum)	8	4	166	20	I	Appears stable with sound branching structure.	No Evidence	Fair	No Evidence	Medium 15-40 Years	5	Low	Nature strip
489	***Eucalyptus saligna*** (Sydney Blue Gum)	22	15	713	270	M	Appears stable with sound branching structure. Exhibits a basal stub with an Internal Pipe Cavity due previous termite infestation. 20% epicormic growth.	Deadwooded	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	2	High	Nature strip

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
490	***Eucalyptus saligna*** (Sydney Blue Gum)	10	10	382	60	SM	Appears stable with fair branching structure. Exhibits multiple co-dominant PLs at 2 metres. Poor form and habit.	Deadwooded	Fair	No Evidence	Medium 15-40 Years	4	**Moderate**	Nature strip
491	***Eucalyptus saligna*** (Sydney Blue Gum)	12	6	194	54	I	Appears stable with fair branching structure. Crown suppressed on north side due to overshadowing. Poor form and habit.Twin trunked at base.	No Evidence	Good	No Evidence	Short 5-15 Years	4	**Low**	Nature strip
492	***Eucalyptus saligna*** (Sydney Blue Gum)	14	3	160x2	27	I	Appears stable with fair branching structure. Poor form and habit.Twin trunked at base.	No Evidence	Good	No Evidence	Short 5-15 Years	4	**Low**	Nature strip
501	***Syagrus romanzoffianum*** (Cocos Palm)	11	4.5	248	18	M	Appears stable with sound branching structure.	No Evidence	Good	No Evidence	Medium 15-40 Years	6	**Low**	4 Mt Pleasant Street
502	***Syzygium australe*** (Lillypilly)	6	5	232	22.5	SM	Appears stable with poor branching structure. Exhibits a prominent lean to the north-west.	Previously lopped at 3 + 4 metres (crown restored)	Good	Low vine infestation (Morning Glory)	Short 5-15 Years	5	**Low**	4 Mt Pleasant Street
503	***Viburnum odoratissimum*** (Sweet Viburnum)	4	5	120 + 70	20	SM	Appears stable with fair branching structure.	Previously lopped at 2 + 4 metres (crown restored)	Good	No Evidence	Long - more than 40 years	5	**Moderate**	4 Mt Pleasant Street
504	***Camellia sasanqua*** (Sasanqua)	4.5	4	100	18	SM	Appears stable with sound branching structure. Located close to existing dwelling (< 3 metres). Exhibits a prominent lean to the east (self-corrected).	No Evidence	Very Good	No Evidence	Long - more than 40 years	6	**Low**	4 Mt Pleasant Street
505	***Photinia x fraseri* 'Robusta'** (Chinese Hawthorn)	4.5	6	120x6	21	M	Appears stable with poor branching structure. Exhibits some dieback with 15% deadwood.	Previously lopped at 2 + 4 metres (crown restored)	Fair with thinning crown	No Evidence	Short 5-15 Years	5	**Low**	4 Mt Pleasant Street
506	***Camellia japonica*** (Camellia)	4	3	100	9	SM	Appears stable with sound branching structure. Located close to existing dwelling (< 3 metres).	Crown lifted to 2 metres	Very Good	No Evidence	Long - more than 40 years	6	**Low**	4 Mt Pleasant Street
507	***Callistemon viminalis*** (Weeping Bottlebrush)	4	3	160	9	SM	Appears stable with fair branching structure. Exhibits a very prominent lean to the north-east.	No Evidence	.Fair	Severe vine infestation (Climbing Fig)	Short 5-15 Years	5	**Low**	4 Mt Pleasant Street

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APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m^2)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
508	***Pittosporum tenuifolium*** (Kohuhu)	5	5	100 + 150	20	M	Appears stable with fair branching structure. Exhibits a very prominent lean to the north-east.	No Evidence	.Fair	Severe vine infestation (Climbing Fig)	Short 5-15 Years	5	**Low**	4 Mt Pleasant Street
509	***Pittosporum undulatum*** (Sweet Pittosporum)	4	6	200	18	SM	Unstable with poor branching structure. Exhibits a very prominent lean to the north-east & corresponding uplifting of rootplate to the south-west.	No Evidence	Poor with sparse crown	Severe vine infestation (Climbing Fig)	Transient (less than 5 years)	5	**Very Low**	4 Mt Pleasant Street
510	***Pittosporum undulatum*** (Sweet Pittosporum)	6	6	334	24	M	Appears stable with fair branching structure. Exhibits a prominent lean to the south-east (self-corrected). Crown suppressed north side due to previous pruning.	Crown lifted to 2 metres	.Fair	Moderate vine infestation	Short 5-15 Years	4	**Low**	4 Mt Pleasant Street

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
12	***Lophostemon confertus*** (Brushbox)	M	4.2	2.1	54.5	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
13	***Araucaria heterophylla*** (Norfolk Island Pine)	M	10.9	3.2	369.9	Existing timber shed offset 4.8 meres south-west to be demolished within TPZ. Proposed new car park offset 7.7 metres south-west at RL191.50 (300-500mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 3% (assuming no over-excavation to facilitate construction). Proposed Through Site Link roadway offset 3.4 metres north at RL 191-19.5 (close to existing grade, partly within footprint of existing roadway. Placement of engineered fill for pavement sub-grade within TPZ. Cumulative encroachment to TPZ = 7% (excluding existing paved areas). Proposed new stormwater pipelines offset 3.2 and 7.1 metres north at IL? (assumed 500-800mm below grade). Open trenching for stormwater works within TPZ.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact. Open trenching for the stormwater works has the potential result in severance of woody roots, leading to a significant adverse impact on this tree.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing shed within TPZ in accordance with Section 10.8. Undertake all excavations for proposed building foundations within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the floor slab. Install road pavement within TPZ slightly above grade in accordance with Section 10.12. Undertake all excavations for the proposed stormwater pipes within the TPZ in accordance with Section 10.11.
14	***Lophostemon confertus*** (Brushbox)	M	4.8	2.3	72.8	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
16	***Citharexylum spinosum*** (Fiddlewood)	M	5.0	2.1	78.5	Proposed elevated pedestrian ramps / pathway (PV06) offset 1.9 metres south and 2.2 metres north at RL192.20 (existing grade) to 192.60 (200mm above grade). Excavation for pier footings within TPZ. No encroachment to TPZ.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed pedestrian ramps within TPZ in accordance with Section 10.9. Install pavement in accordance with Sections 10.12 & 10.13.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
17	***Lophostemon confertus*** (Brushbox)	M	14.4	3.6	651.1	Surrounding kerb and gutter to be demolished within TPZ. Proposed new parking bay offset 7.7 metres east at RL 192.900 (close to existing grade, beyond existing kerb line). Excavations for new road pavement sub-grade and kerb foundations within TPZ (within footprint of existing paved area.. Existing roadway to west to be regraded to 100-200 above existing grade). Placement of engineered fill for pavement sub-grade within TPZ (within footprint of existing road pavement). No increase in present encroachment. Proposed pedestrian ramps / concrete pathway (PV03) offset 3.5 metres north RL192.20 (existing grade) to 192.60 (200mm above grade). Excavation and placement of engineered fill within TPZ. Proposed new car park and associated contiguous pile wall offset 6.6 metres south-east at RL191.50 (2.2 metres below grade). Bulk excavation for building and retaining wall foundations within TPZ. Encroachment to TPZ = 10% (assuming no over-excavation to facilitate construction). Cumulative encroachment to TPZ = 15%	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed. No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and associated retaining wall within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam. Undertake all excavations for proposed pedestrian ramps within TPZ in accordance with Section 10.9. Install pavement in accordance with Sections 10.12 & 10.13. Retain existing soft landscape are surrounding tree (located within confines of existing kerb).

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
18	***Phoenix canariensis*** (Canary Island Palm)	G	4.0	2.6	50.2	Proposed new car park and associated contiguous pile wall offset 4.4 metres east at RL191.50 (2.2 metres below grade). No encroachment to TPZ (assuming no over-excavation to facilitate construction). Proposed new retaining wall offset 2.3 metres west and 3.5 metres north. Excavations for wall foundations within TPZ. Encroachment to TPZ = 20%	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed. No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and associated retaining wall within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 300mm from the edge of the capping beam. Undertake all excavations for retaining wall foundations within TPZ in accordance with Section 10.9.
19	***Cupressus leylandii* 'Naylors Blue'** (Leyland Cypress)	M	6.6	2.6	137.3	Proposed new car park and associated contiguous pile wall offset 4.2 metres east at RL191.50 (2.1 metres below grade). Bulk excavation for building and retaining wall foundations within TPZ. Encroachment to TPZ = 12% (assuming no over-excavation to facilitate construction). Some canopy pruning may be required to clear piling rig, resulting in 10% crown loss.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed. Extent of canopy loss is considered within acceptable limits under AS 4373:2007. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and associated retaining wall within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 300mm from the edge of the capping beam. Undertake any required canopy pruning (that essential to clear the piling rig) in accordance with Section 10.12.

PL = Primary Limb; SL = Secondary Limb;
TL = Tertiary Limb. GL = Ground Level

APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
20	***Robinia pseudoacacia* 'Frisia'** (Golden Robinia)	M	5.0	2.0	78.5	Proposed new car park and associated contiguous pile wall offset 1.1 metres east at RL191.50 (2.5 metres below grade). Bulk excavation for building and retaining wall foundations within TPZ. Encroachment to TPZ = 36% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to clear piling rig, resulting in 40% crown loss.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed work will necessitate removal.	Remove tree.
21	***Phoenix canariensis*** (Canary Island Palm)	G	4.5	2.6	63.6	Proposed new car park and associated contiguous pile wall offset 2.4 metres east at RL191.50 (2.8 metres below grade). Bulk excavation for building and retaining wall foundations within TPZ. Encroachment to TPZ = 17% (assuming no over-excavation to facilitate construction).	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and associated retaining wall within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 300mm from the edge of the capping beam.
22	***Phoenix canariensis*** (Canary Island Palm)	G	4.5	2.5	63.6	Proposed pedestrian ramp/pathway (PV06) offset 2.2 metres west at RL196.00 (existing grade) to 195.60 (100mm above grade). Excavation for ramp foundations within TPZ/SRZ. Encroachment to TPZ = 18%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. . Excavations for proposed pavement sub-grade (footpath) are likely to result in an adverse impact.	Consider raising level of ramp to minimum FFL of 200mm above existing surface levels to minimise encroachment to TPZ. Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
23	***Podocarpus elatus*** (Brown or Plum Pine)	M	8.3	2.8	215.9	Proposed pedestrian ramp/pathway (PV06) offset 2.4 metres west at RL196 (existing grade) to 195.60 (100mm above grade) and stairs/paved area (PV01) offset 3.2 metres north-west at RL 194.82 (200-700 mm below grade. Excavation for ramp foundations and pavement/stair foundations within TPZ/SRZ. Encroachment to TPZ = 22%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Excavations for proposed pavement sub-grade (footpath & paved area) are likely to result in an adverse impact.	Consider raising level of ramp to minimum FFL of 200mm above existing surface levels to minimise encroachment to TPZ. Eliminate pavement and stairs within TPZ. Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
24	***Liriodendron tulipifera*** (Tulip Tree)	M	4.2	2.1	54.5	Proposed pedestrian ramp/pathway (PV06) offset 2.9 metres west at RL194.80 (200mm above existing grade) and paved area (PV01) offset 3.3 metres south-west at RL195.00 (close to existing grade. Excavation for ramp foundations and pavement foundations within TPZ/SRZ. Encroachment to TPZ = 5%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
25	***Phoenix canariensis*** (Canary Island Palm)	G	4.5	2.5	63.6	Existing low retaining wall offset 4.0 metres north to be demolished. Proposed pedestrian ramp/pathway (PV06) offset 3.5 metres north at RL 193.75 (250mm below grade). Excavation for ramp foundations within TPZ. Encroachment to TPZ = 7%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
26	***Mangifera indica*** (Mango Tree)	M	3.6	2.0	40.7	Existing low retaining wall offset 3.5 metres north to be demolished. Proposed pedestrian ramp/pathway (PV06) offset 3.1 metres north at RL 193.75 (250mm below grade) to 194.35 (250mm above grade). Excavation for ramp foundations within TPZ. Encroachment to TPZ = 4%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
27	***Robinia pseudoacacia* 'Frisia'** (Golden Robinia)	M	4.0	1.7	50.2	Existing road pavement offset 2.6 metres north-west to be demolished. Proposed pedestrian ramp/pathway (PV06) offset 1-3 metres north, west and SW at RL194.35 to 194.60 (250 to 100mm above grade). Excavation for ramp foundations within TPZ. Encroachment to TPZ = 42%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in a significant adverse impact on this tree.	Remove tree.
28	***Lophostemon confertus*** (Brushbox)	M	15.0	3.6	708.3	Existing roadway to east to be regraded to 100-200 above existing grade. Placement of engineered fill for pavement sub-grade within TPZ (within footprint of existing road pavement). No increase in present encroachment. Existing roadway to south to be regraded to 100-300mm above existing grade. Toe of fill batter offset 3.1 metres south. Placement of engineered fill for pavement sub-grade within TPZ.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed. No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9. Install pavement within TPZ in accordance with Sections 10.12 & 10.13
29	***Corymbia maculata*** (Spotted Gum)	P	6.1	2.5	117.4	Existing roadway to south to be regraded to 100-300mm above existing grade. Toe of fill batter offset 3.1 metres south-east. Placement of engineered fill for pavement sub-grade within TPZ. Encroachment to TPZ = 16%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in some adverse impact on this tree.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9. Install pavement within TPZ in accordance with Sections 10.12 & 10.13
31	***Camellia sasanqua*** (Sasanqua)	M	4.0	2.0	50.2	Proposed pedestrian ramp/pathway (PV06) offset 2.1 metres north-east at RL194.53 to 194.80 (250 to 100mm above grade). Excavation for ramp post footings within TPZ. Encroachment to TPZ = 17%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed given that the ramp is permeable and slightly elevated above grade. No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for ramp footings within TPZ in accordance with Section 10.9.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
32	***Cedrus deodara*** (Himalayan Cedar)	M	7.9	2.8	198.4	Proposed pedestrian ramp/pathway (PV06) offset 2.7 metres east at RL194.95 to 195.32 (100 to 200mm above grade). Excavation for ramp post footings within TPZ. Encroachment to TPZ = 17%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed given that the ramp is permeable and slightly elevated above grade. No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for ramp footings within TPZ in accordance with Section 10.9.
33	***Lagunaria patersonia*** (Norfolk Island Hibiscus)	M	4.7	2.2	68.3	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
34	***Podocarpus elatus*** (Brown or Plum Pine)	M	4.5	2.0	63.6	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
35	***Cedrus deodara*** (Himalayan Cedar)	M	8.1	2.8	208.1	Proposed pedestrian ramp/pathway (PV06) offset 2.8 metres east at RL195.57 (70mm above grade|) to RL196.00 (existing grade) and 3.2 metres north-east at RL 195.32 (200mm above grade) to RL195.60 (100mm above grade). Excavation for ramp post footings within TPZ. Proposed paved area (PV01) offset 5.6 metres north-east at RL 195.00. Encroachment to TPZ (excluding elevated section of ramp) = 10%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for ramp footings within TPZ in accordance with Section 10.9.
36	***Liquidambar styraciflua*** (Liquidambar)	M	9.6	3.0	291.2	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
37	***Bauhinia variegata*** (Orchid Tree)	M	3.0	1.6	28.3	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
38	***Acer palmatum*** (Japanese Maple)	M	5.0	2.0	78.5	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
39	***Araucaria cunninghamii*** (Hoop Pine)	M	10.8	3.2	364.7	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
40	***Eucalyptus pilularis*** (Blackbutt)	P	12.9	3.4	523.9	Proposed new access ramp/roadway offset 5.7 metres north west at RL 194.73 (at grade) to 194.93 (400-500mm above grade). Placement of engineered fill for pavement sub-grade within TPZ (beyond existing steep bank, within footprint of existing roadway). No increase in present encroachment. Proposed new sandstone retaining wall offset 2.3 metres north at toe of steep embankment. Excavations for retaining wall foundations within TPZ/SRZ.	Excavations for the new retaining wall foundations have the potential to result in severance and damage to woody roots, resulting in a significant impact on this tree. The root system may be limited on this side due to the existing steep bank and road cutting.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for new retaining wall foundations within TPZ in accordance with Section 10.9. Exploratory excavations and root investigation should be carried out prior to excavating the wall footings to verify the size, position and extent of any woody roots likely to be affected by the proposed works. If woody roots are present in the affected area, it may be feasible to construct the retaining wall as a post and caisson type wall (with isolated pier footings, rather than a continuous strip footing) in accordance with Section 10.10.
41	***Eucalyptus pilularis*** (Blackbutt)	P	3.4	1.9	35.5	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
42	***Araucaria cunninghamii*** (Hoop Pine)	M	4.8	2.3	72.8	Part retaining wall offset 3.5 metres north-west to be demolished within TPZ. Proposed new access ramp/roadway offset 5.7 metres north west at RL 194.73 (at grade) to 194.93 (400-500mm above grade). Placement of engineered fill for pavement sub-grade within TPZ (beyond existing steep bank, within footprint of existing roadway). No increase in present encroachment.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing retaining wall within TPZ in accordance with Section 10.8.
46	***Corymbia maculata*** (Spotted Gum)	P	6.1	2.5	117.4	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
48a	***Stenocarpus sinuatus*** (Queensland Firewheel Tree)	M	2.5	1.4	19.6	Located within footprint of proposed fill batter associated with new ramp/roadway.	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
49	***Photinia x fraseri*** **'Robusta'** (Chinese Hawthorn)	M	4.8	2.3	72.3	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
50	***Cedrus deodara*** (Himalayan Cedar)	M	6.4	2.5	129.4	Portion of existing car park offset 5.9 metres south-east and retaining wall 2.5 metres north to be demolished within TPZ. Proposed new car parking area & associated kerb offset 3.8 metres south at RL195.22 (close to existing grade). Excavations and placement of engineered fill for pavement sub-grade within TPZ. Encroachment to TPZ = 6%. Proposed stormwater pipeline offset 2.7 metres north. Open trenching for stormwater line within TPZ (beyond existing retaining wall). No actual incursion to root zone.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing retaining wall within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9. Undertake all open trenching for stormwater pipeline within TPZ in accordance with Section 10.11.
51	***Angophora costata*** (Sydney Red Gum)	P	5.0	2.0	78.5	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
52	***Angophora costata*** (Sydney Red Gum)	P	4.0	2.0	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
53	***Acacia binervia*** (Coastal Myall)	M	4.0	2.1	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
54	***Acacia binervia*** (Coastal Myall)	M	4.2	2.1	55.4	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
55	***Acacia binervia*** (Coastal Myall)	M	4.0	1.8	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
56	***Acacia binervia*** (Coastal Myall)	M	4.0	2.0	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
57	***Angophora costata*** (Sydney Red Gum)	P	4.0	1.8	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
58	***Acacia binervia*** (Coastal Myall)	M	6.0	2.2	113.0	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
59	***Angophora costata*** (Sydney Red Gum)	P	5.0	2.1	78.5	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
60	***Jacaranda mimosifolia*** (Jacaranda)	M	4.0	1.8	50.2	Existing roadway to east to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
61	***Araucaria cunninghamii*** (Hoop Pine)	M	12.4	3.4	484.4	Existing roadway to west to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
62	***Araucaria cunninghamii*** (Hoop Pine)	M	12.8	3.4	517.7	Existing roadway to west to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
63	***Eucalyptus sideroxylon*** (Mugga Ironbark)	P	7.3	2.7	165.6	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
64	***Araucaria cunninghamii*** (Hoop Pine)	M	12.3	3.3	475.5	Existing roadway to west to be demolished within TPZ and replaced with new concrete footpath in similar footprint and grade.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Demolish existing roadway within TPZ in accordance with Section 10.8. Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
77	***Quercus robur*** (English Oak)	M	6.0	2.1	113.0	Proposed new car park and associated contiguous pile wall offset 7.0 metres north-east at RL191.50 (2.0 metres below grade). No encroachment to TPZ (assuming no over-excavation to facilitate construction).	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and associated retaining wall within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.
85	***Platanus orientalis*** (Oriental Plane)	M	4.5	1.9	63.6	Located within footprint of proposed car park	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
86	***Castanospermum australe*** (Blackbean)	M	6.6	2.6	136.8	Proposed new car park offset 2.8 metres west at RL191.50 (500mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 25% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to building envelope, resulting in 20-30% crown loss.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in a significant adverse impact.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
86a	***Ficus rubiginosa f. glabrescens*** (Port Jackson Fig)	M	14.4	3.6	651.1	Proposed Through Site Link roadway offset 3.8 metres north at RL 190.82 (close to existing grade at Ch0.0) to RL 188.96 (200mm above grade at Ch 15.0), partly within footprint of existing roadway. Placement of engineered fill for pavement sub-grade within TPZ. Encroachment to TPZ = 16% (excluding existing paved areas. Proposed new stormwater pipelines offset 3.8 and 5.8 metres north at IL? (assumed 500-800mm below grade). Open trenching for stormwater works within TPZ.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tee will tolerate the extent of the encroachment to the TPZ given that the new roadway is predominantly above grade. Open trenching for the stormwater works has the potential result in severance of woody roots, leading to a significant adverse impact on this tree.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Install road pavement within TPZ slightly above grade in accordance with Section 10.12. Undertake all excavations for the proposed stormwater pipes within the TPZ in accordance with Section 10.11.
86b	***Trachycarpus fortunei*** (Chinese Windmill Palm)	G	2.4	1.7	18.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
86c	***Trachycarpus fortunei*** (Chinese Windmill Palm)	G	3.0	1.8	28.3	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
86d	***Trachycarpus fortunei*** (Chinese Windmill Palm)	G	2.4	1.7	18.1	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018
87	***Elaeocarpus reticulatus*** (Blueberry Ash)	M	3.5	1.6	38.5	Proposed new car park offset 2.5 metres west at RL191.50 (500mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 9% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to building envelope & temp. scaffolding, resulting in 30% crown loss.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. Extent of canopy loss exceeds acceptable limits under AS 4373:2007. Proposed works are likely to result in an adverse impact, necessitating removal.	Remove tree.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
87a	***Elaeocarpus reticulatus*** (Blueberry Ash)	M	3.5	1.6	38.5	Proposed new car park offset 2.7 metres west at RL191.50 (500mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 9% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to building envelope & temp. scaffolding, resulting in 20% crown loss.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. Extent of canopy loss exceeds acceptable limits under AS 4373:2007. Proposed works are likely to result in an adverse impact, necessitating removal.	Remove tree.
88	***Quercus rubra*** (Red Oak)	M	9.1	2.9	257.6	Proposed new car park offset 3.2 metres west at RL191.50 (300-400mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 29% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to building envelope & temp. scaffolding, resulting in 30% crown loss.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in a significant adverse impact. Extent of canopy loss exceeds acceptable limits under AS 4373:2007. Proposed works are likely to result in an adverse impact, necessitating removal.	Remove tree.
89	***Lophostemon confertus*** (Brushbox)	M	4.9	2.3	75.1	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
89a	***Elaeocarpus reticulatus*** (Blueberry Ash)	M	2.4	1.7	17.6	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
90	***Ficus macrophylla*** (Moreton Bay Fig)	M	14.4	3.6	651.1	Proposed new car park offset 11.8 metres west at RL191.50 (200-400mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 4% (assuming no over-excavation to facilitate construction).	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.
91	***Jacaranda mimosifolia*** (Jacaranda)	M	5.0	2.0	78.5	No proposed works within TPZ.	No adverse impact.	NB: Approved for removal under DA/1227/2018

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
92	***Quercus palustris*** (Pin Oak)	M	4.2	2.1	55.5	Proposed new car park offset 2.1 metres west at RL191.50 (300-400mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 14% (assuming no over-excavation to facilitate construction). Substantial canopy pruning will be required to building envelope & temp. scaffolding, resulting in 30% crown loss.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in some adverse impact. Extent of canopy loss exceeds acceptable limits under AS 4373:2007. Proposed works are likely to result in an adverse impact, necessitating removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
93	***Eucalyptus sideroxylon*** (Mugga Ironbark)	P	10.8	3.2	367.3	Proposed new car park offset 7.7 metres north-west at RL191.50 (300-400mm below grade). Excavation for building foundations within TPZ. Encroachment to TPZ = 3% (assuming no over-excavation to facilitate construction). Proposed pedestrian pathway offset 7 to 9 metres west at RL? (assumed close to existing grade). Excavations for pavement sub-grade within TPZ. Cumulative encroachment to TPZ = 6%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed car park and new pedestrian pathway sub-grade within TPZ in accordance with Section 10.9.
94	***Eucalyptus sideroxylon*** (Mugga Ironbark)	P	9.0	2.7	254.3	No proposed works within TPZ.	No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
95	***Lophostemon confertus*** (Brushbox)	M	13.5	3.5	571.5	Existing netball court offset 7.4 metres east to be demolished within TPZ. Proposed new car park & associated contiguous pile wall offset 10.8 metres east at RL187.00 (3 metres below grade). Excavation for building foundations within TPZ (within footprint of existing netball courts). Encroachment to TPZ = 5% (assuming no over-excavation to facilitate construction). Proposed new netball courts offset 6.4 metres east at RL 190.170 (200mm above existing grade, within footprint of existing netball court). No increase in encroachment from present situation. Proposed pathway and stairs (& associated retaining wall) offset 6.5 metres north at at RL191.13 (existing grade) to 190.83 (700mm above grade). Excavations for wall foundations within TPZ/SRZ. Potential encroachment to TPZ = 12%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tree will tolerate the extent of the encroachment proposed, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ in accordance with Section 10.8. Undertake all excavations for proposed car park and new pedestrian ramp and stairs within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.
96	***Araucaria cunninghamii*** (Hoop Pine)	M	7.0	2.6	151.9	Existing netball court offset 2.7 metres east to be demolished within TPZ. Proposed new netball courts offset 2.7 metres east at RL 190.170 (200mm above existing grade, within footprint of existing netball court). No increase in encroachment from present situation.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ in accordance with Section 10.8. Undertake all excavations for proposed car park and netball court slab within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
96a	***Araucaria cunninghamii*** (Hoop Pine)	M	4.0	1.8	50.2	Existing netball court offset 2.6 metres east to be demolished within TPZ. Proposed new netball courts offset 2.6 metres east at RL 190.170 (200mm above existing grade, within footprint of existing netball court). No increase in encroachment from present situation.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ in accordance with Section 10.8. Undertake all excavations for proposed car park and netball court slab within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.
97	***Araucaria columnaris*** (Cook Pine)	M	7.0	2.6	151.9	Existing concrete path offset 2-2.2 metres west, south and east to be demolished within TPZ. Proposed new concrete pathway (PV03) and associated concrete edge retaining wall (WA03) offset 2.0 metres south at RL191.13 (existing grade) to 190.83 (700mm above grade). Excavations for wall foundations within TPZ/SRZ. Potential encroachment to TPZ = 33%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Excavations for any continuous strip footing associated with the retaining wall to the north side of the opathway has the potential to result in severance and damage to woody roots of this tree, leading to a significant adverse impact. However, any adverse impact can be mitigated by either eliminating the wall and installing the path as a suspended concrete structure or elevated walkway (as per PV06) supported by post/pier footings.	Consider substituting path and wall for fully elevated ramp fabricated using FRP and steel frame on post footings with void beneath (as per pavement type PV06 or similar. Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ in accordance with Section 10.8. Undertake all excavations for proposed car park and netball court slab within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.
98	***Quercus palustris*** (Pin Oak)	M	5.8	2.3	105.6	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
100	***Prunus sp.*** (Plum tree)	M	5.0	2.7	78.5	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018
101	***Prunus sp.*** (Plum tree)	M	4.2	2.1	55.4	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018
102	***Ficus macrophylla*** (Moreton Bay Fig)	M	4.8	2.3	72.3	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018
103	***Quercus robur*** (English Oak)	M	9.6	3.0	289.4	Located within footprint of approved Early Learning Centre building & associated works.	Proposed works will necessitate removal.	Approved for removal under DA/1227/2018
104	***Liquidambar styraciflua*** (Liquidambar)	M	8.3	2.8	217.9	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
106	***Liquidambar styraciflua*** (Liquidambar)	M	7.0	2.5	153.9	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
107	***Hymenosporum flavum*** (Native Frangipani)	M	3.2	1.9	31.6	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
107a	***Hymenosporum flavum*** (Native Frangipani)	M	2.0	1.3	12.6	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Remove tree.
107b	***Castanospermum australe*** (Blackbean)	M	2.3	1.7	16.5	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
111	***Angophora costata*** (Sydney Red Gum)	P	6.0	2.2	113.0	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
112	***Acacia binervia*** (Coastal Myall)	M	5.3	2.3	87.3	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Remove tree.
113	***Acacia binervia*** (Coastal Myall)	M	4.6	2.2	66.0	Located within footprint of proposed car park (P4A)	Proposed works will necessitate removal.	Remove tree.
114	***Liquidambar styraciflua*** (Liquidambar)	M	8.0	2.7	201.0	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
115	***Liquidambar styraciflua*** (Liquidambar)	M	5.5	2.4	95.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
116	***Liquidambar styraciflua*** (Liquidambar)	M	7.3	2.7	169.1	Proposed driveway crossover offset 6.1 metres south at RL? (assumed close to existing grade). Excavations for pavement sub-grade within TPZ. Encroachment to TPZ = 4%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed driveway crossover sub-grade within TPZ in accordance with Section 10.9.
117	***Jacaranda mimosifolia*** (Jacaranda)	M	5.0	2.1	78.5	Located within footprint of proposed car park driveway ramp (P4A)	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
118	***Cryptomeria japonica*** (Japanese Cedar)	M	6.7	2.6	140.4	Proposed driveway ramp offset 6.4 metres north-east at RL? (assumed close to existing grade). Excavations for pavement sub-grade within TPZ. Encroachment to TPZ = 2%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Tree Protection Fencing in accordance with Section 10.5. Undertake all excavations for proposed driveway crossover sub-grade within TPZ in accordance with Section 10.9.
140	***Ulmus parvifolia*** (Chinese Elm)	M	5.0	2.0	78.5	Existing concrete pathway to north and east to be demolished within TPZ and proposed new pathway constructed in same position at slightly higher level. No increase in encroachment to TPZ.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ (where required) in accordance with Section 10.8. Undertake all excavations for new pavement sub-grade within TPZ in accordance with Section 10.9.
141	***Cinnamomum camphora*** (Camphor Laurel)	M	13.2	3.4	547.1	Existing netball court offset 6.1 metres east to be demolished within TPZ. Proposed new car park & associated contiguous pile wall offset 10.4 metres east at RL187.00 (3 metres below grade). Excavation for building foundations within TPZ (within footprint of existing netball courts). Encroachment to TPZ = 5% (assuming no over-excavation to facilitate construction). Proposed new netball courts offset 6.1 metres east at RL 190.170 (close to existing grade, within footprint of existing netball court). No increase in encroachment from present situation.	No adverse impact, provided that all proposed works within the TPZ are undertaken as recommended.	Retain in accordance with recommended Tree Protection Measures (Section 10). Install temporary Trunk Protection Boarding in accordance with Section 10.6. Demolish existing pavements and structures within TPZ in accordance with Section 10.8. Undertake all excavations for proposed car park and netball court slab within TPZ in accordance with Section 10.9. Limit any required over-excavation / temporary batter (to facilitate construction, drainage and waterproofing) to no greater than 500mm from the edge of the capping beam.
413	***Eucalyptus grandis*** (Flooded Gum)	P	3.8	2.0	44.9	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Remove tree.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
414	***Eucalyptus grandis*** (Flooded Gum)	P	5.1	2.3	82.3	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal (High Retention Value). There are no feasible options that can be recommended in this instance aside from eliminating some of the car parking spaces within the TPZ. A total of three of the immediate spaces would need to be deleted to limit the encroachment to 15% of the TPZ, which still exceeds acceptable limits.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
415	***Eucalyptus sp.*** (Eucalypt)	P	3.9	2.1	47.7	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Remove tree.
416	***Eucalyptus saligna*** (Sydney Blue Gum)	P	3.4	1.9	36.3	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
417	***Eucalyptus punctata*** (Grey Gum)	P	4.7	2.2	70.5	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
418	***Eucalyptus punctata*** (Grey Gum)	P	6.2	2.5	120.4	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal (High Retention Value). There are no feasible options that can be recommended in this instance aside from eliminating some of the car parking spaces within the TPZ. A total of five of the immediate tandem spaces would need to be deleted to limit the encroachment to 15% of the TPZ, which still exceeds acceptable limits.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
419	***Eucalyptus punctata*** (Grey Gum)	P	3.9	2.1	48.7	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
420	***Eucalyptus punctata*** (Grey Gum)	P	3.9	2.1	47.7	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Remove tree.
421	***Eucalyptus saligna*** (Sydney Blue Gum)	P	4.3	2.1	57.5	Located within footprint of proposed new on-grade car parking area (P3).	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.
466	***Eucalyptus pilularis*** (Blackbutt)	P	2.3	1.7	17.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
467	***Eucalyptus pilularis*** (Blackbutt)	P	1.6	1.4	8.5	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
468	***Eucalyptus saligna*** (Sydney Blue Gum)	P	3.2	1.9	31.6	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
469	***Pittosporum undulatum*** (Sweet Pittosporum)	M	1.4	1.4	6.5	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
470	***Eucalyptus paniculata*** (Grey Ironbark)	P	2.4	1.7	18.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
471	***Angophora floribunda*** (Rough-barked Apple)	P	2.0	1.3	12.6	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
472	***Angophora floribunda*** (Rough-barked Apple)	P	2.5	1.4	19.6	Proposed on-grade car parking area and associated retaining wall offset 0.5 metres east at RL 181.30 (700mm below grade). Excavations for carpark and wall foundations within TPZ/SRZ. Encroachment to TPZ = 38%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Proposed works are likely to result in a significant adverse impact.	Remove tree.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
473	***Eucalyptus saligna*** (Sydney Blue Gum)	P	4.2	2.1	55.5	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
474	***Angophora floribunda*** (Rough-barked Apple)	P	3.5	2.0	38.8	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
475	***Eucalyptus saligna*** (Sydney Blue Gum)	P	3.4	2.0	37.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
476	***Eucalyptus saligna*** (Sydney Blue Gum)	P	1.9	1.5	11.5	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
477	***Eucalyptus saligna*** (Sydney Blue Gum)	P	6.5	2.6	131.8	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
478	***Eucalyptus saligna*** (Sydney Blue Gum)	P	6.8	2.6	146.9	Proposed on-grade car parking area and associated kerb offset 4.7 metres east at RL 181.00 (200mm below grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 10%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
479	***Angophora floribunda*** (Rough-barked Apple)	P	2.3	1.6	16.0	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
480	***Eucalyptus saligna*** (Sydney Blue Gum)	P	6.0	2.5	113.0	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
481	***Angophora floribunda*** (Rough-barked Apple)	P	3.6	2.0	39.7	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.

PL = Primary Limb; SL = Secondary Limb; TL = Tertiary Limb. GL = Ground Level

APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
482	***Pittosporum undulatum*** (Sweet Pittosporum)	M	1.8	1.5	10.2	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
483	***Eucalyptus saligna*** (Sydney Blue Gum)	P	4.6	2.2	66.0	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
484	***Angophora floribunda*** (Rough-barked Apple)	P	3.4	2.0	37.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
485	***Eucalyptus paniculata*** (Grey Ironbark)	P	7.5	2.7	174.4	Proposed on-grade car parking area and associated kerb offset 4.8 metres east at RL 180.90 (close to existing grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 12%.	Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this tee will tolerate the extent of the encroachment to the TPZ. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
486	***Eucalyptus paniculata*** (Grey Ironbark)	P	6.0	2.5	113.0	Proposed on-grade car parking area and associated kerb offset 4.6 metres east at RL 180.90 (close to existing grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 6%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
487	***Eucalyptus saligna*** (Sydney Blue Gum)	P	5.1	2.3	81.1	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
488	***Eucalyptus saligna*** (Sydney Blue Gum)	P	2.0	1.6	12.4	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
489	***Eucalyptus saligna*** (Sydney Blue Gum)	P	8.6	2.9	230.1	Proposed on-grade car parking area and associated kerb offset 5.8 metres east at RL 180.70 (close to existing grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 11%.	Extent of encroachment to TPZ marginally exceeds acceptable limits under AS 4970:2009. However, this tee will tolerate the extent of the encroachment to the TPZ. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
490	***Eucalyptus saligna*** (Sydney Blue Gum)	P	6.0	2.2	113.0	Proposed on-grade car parking area and associated kerb offset 4.5 metres east at RL 180.50 (close to existing grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 8%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
491	***Eucalyptus saligna*** (Sydney Blue Gum)	P	4.0	1.7	50.2	Proposed on-grade car parking area and associated kerb offset 3.2 metres east at RL 180.50 (close to existing grade). Excavations for carpark and kerb foundations within TPZ. Encroachment to TPZ = 4%.	Extent of encroachment to root zone is less than 10% of the TPZ, which is considered within acceptable limits under AS 4970:2009. No adverse impact.	Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for pavement sub-grade within TPZ in accordance with Section 10.9.
492	***Eucalyptus saligna*** (Sydney Blue Gum)	P	3.0	1.8	28.3	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
501	***Syagrus romanzoffianum*** (Cocos Palm)	G	3.0	1.8	27.9	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.
502	***Syzygium australe*** (Lillypilly)	M	2.8	1.8	24.4	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
503	***Viburnum odoratissimum*** (Sweet Viburnum)	M	2.8	1.5	24.6	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Undertake replacement planting with a new tree elsewhere within the site to compensate for loss of amenity in accordance with Section 11.

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APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m^2)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
504	***Camellia sasanqua*** (Sasanqua)	M	2.5	1.3	19.6	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
505	***Photinia x fraseri* 'Robusta'** (Chinese Hawthorn)	M	2.9	1.8	26.0	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
506	***Camellia japonica*** (Camellia)	M	2.0	1.3	12.6	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
507	***Callistemon viminalis*** (Weeping Bottlebrush)	M	1.9	1.5	11.6	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
508	***Pittosporum tenuifolium*** (Kohuhu)	M	3.0	1.7	28.3	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
509	***Pittosporum undulatum*** (Sweet Pittosporum)	M	3.0	1.7	28.3	Located within footprint of proposed Through Site Link roadway and associated batter.	Proposed works will necessitate removal.	Remove tree.
510	***Pittosporum undulatum*** (Sweet Pittosporum)	M	4.2	2.1	55.4	No proposed works within TPZ.	No adverse impact.	To be retained - no special tree protection measures required.

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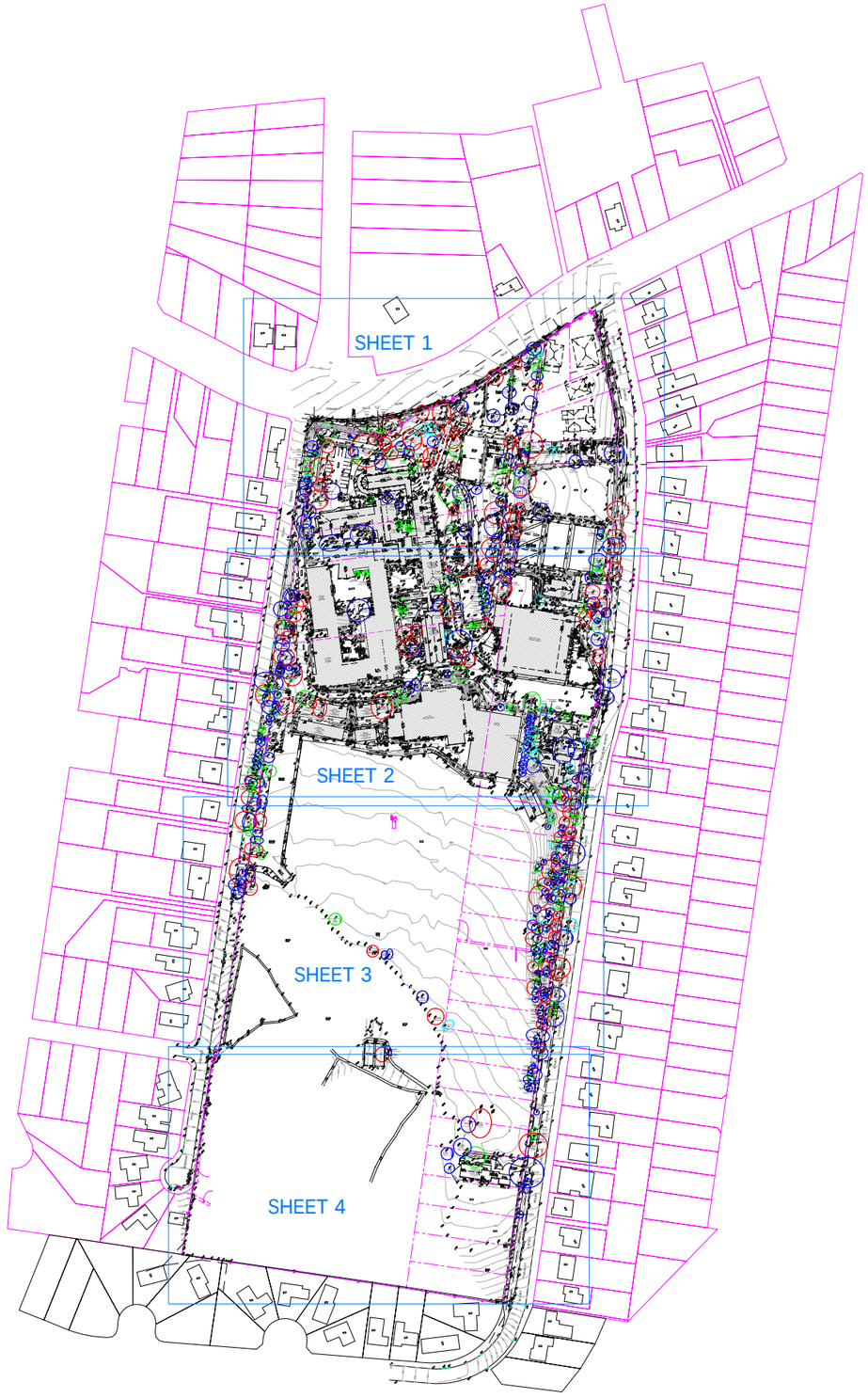
APPROX.



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APPROX.

LEGEND
TREE RETENTION VALUES

- HIGH
- MODERATE
- LOW
- VERY LOW

APPENDIX 5
TREE LOCATION PLAN SHOWING
TREE RETENTION VALUES
LORETO COLLEGE
91-93 PENNANT HILLS ROAD, NORMANHURST

Earthscape Horticultural Services
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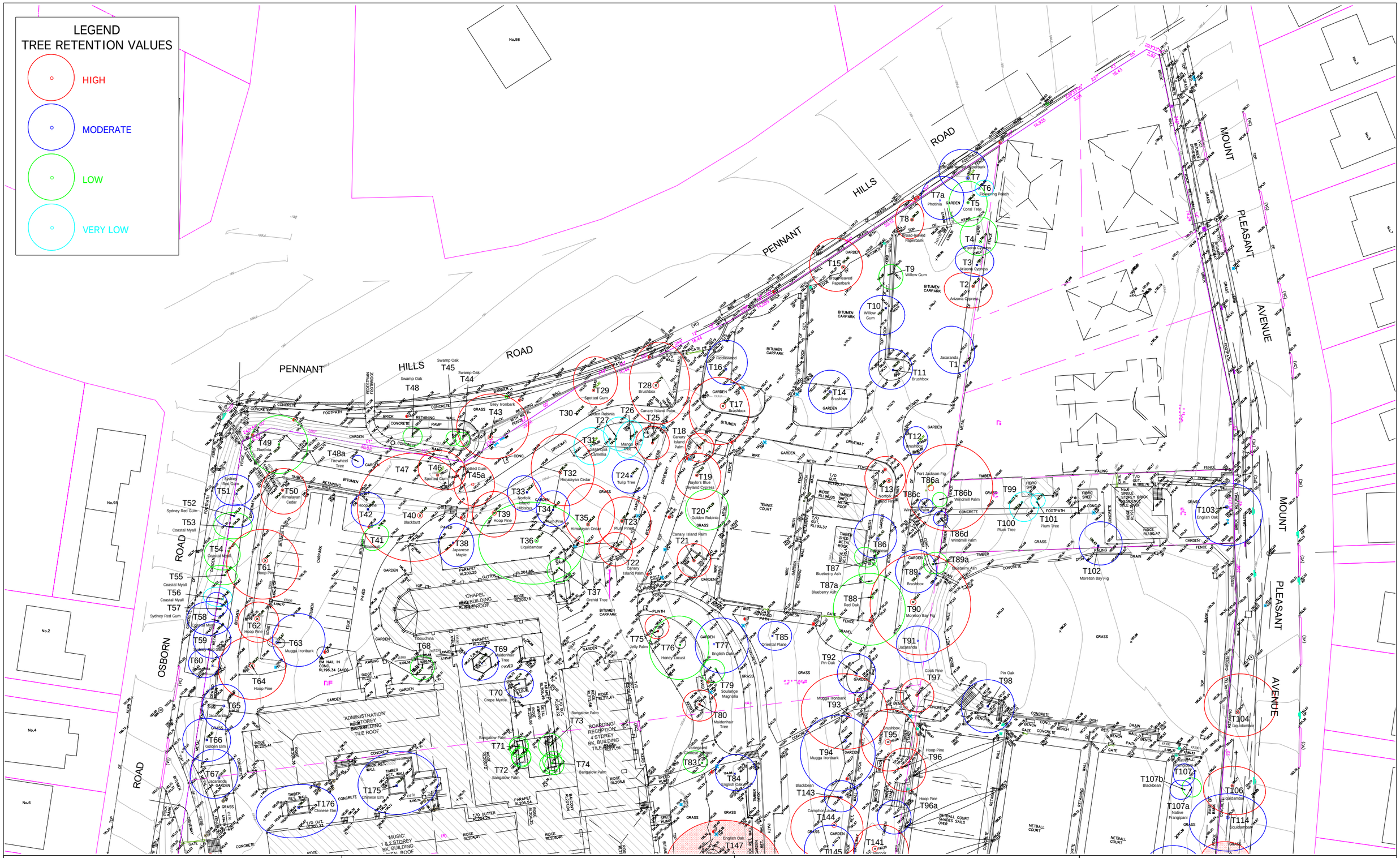
Based on the Survey Drawing
prepared by Lockley Land Title Solutions
Dwg Ref No. 44200DT [B]
Dated 18/06/2018

DWG No. T18-071901 [E]

KEY PLAN

DATE: 17/12/2018



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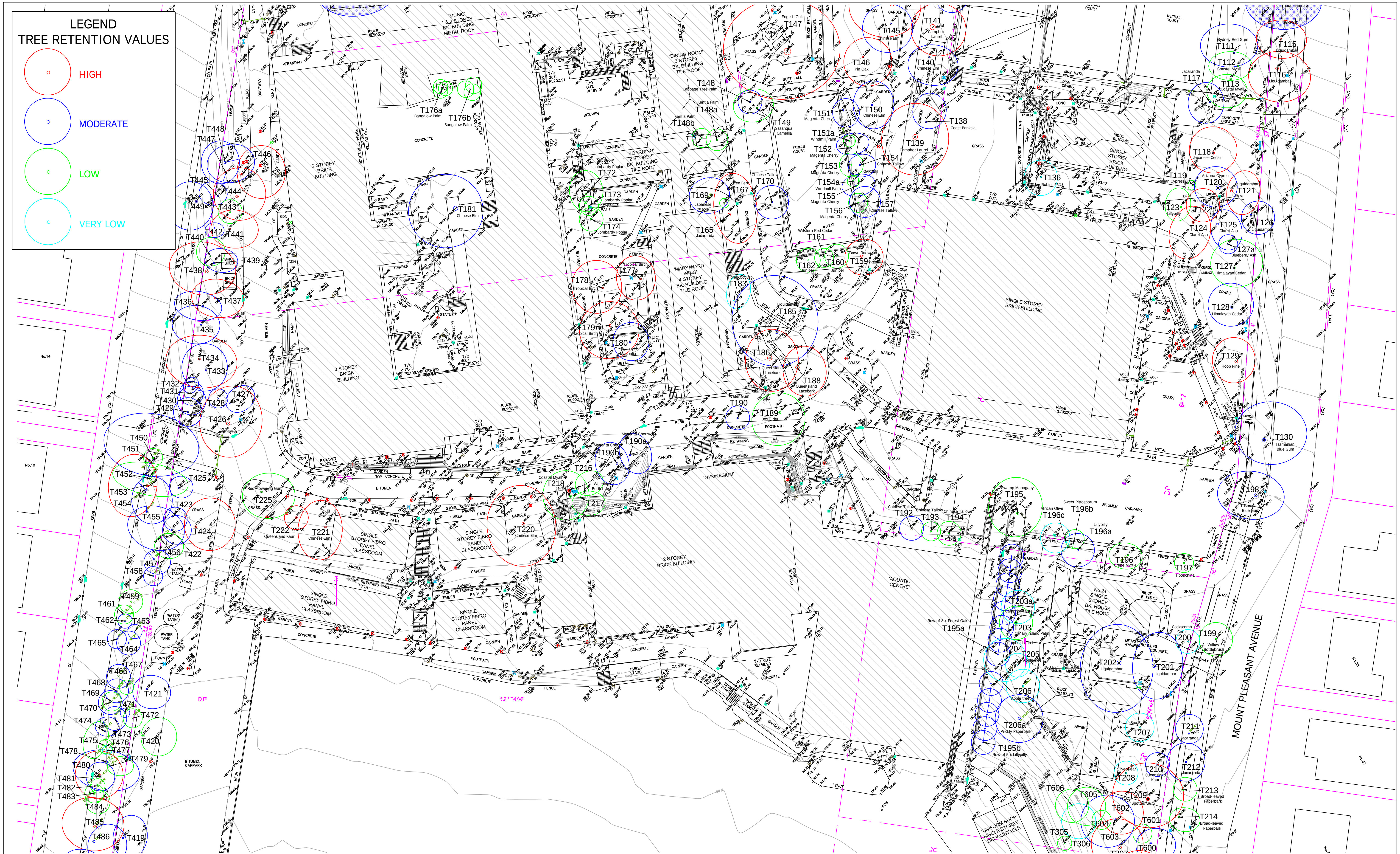

APPENDIX 5
TREE LOCATION PLAN SHOWING TREE RETENTION VALUES

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TN
1°00' APPROX.

DWG No. T18-071901 [E]

SHEET 2

DATE: 17/12/2018

LEGEND
TREE RETENTION VALUES

- HIGH
- MODERATE
- LOW
- VERY LOW

OSBORN ROAD

PLEASANT AVENUE

MOUNT PLEASANT AVENUE

BITUMEN CARPARK

GRASS

DENSE TREES

GARDEN

No.34

No.44

T264 Blackbutt

T263 Sydney Blue Gum

T262 Sydney Blue Gum

T261 Sydney Blue Gum

T260 White Mahogany

T259 White Mahogany

T258 Blackbutt

T257 Red Mahogany

T266 Flooded Gum

T265 Grey Ironbark

T226 Bangalay

T227 Broad-leaved Paperbark

T228 Broad-leaved Paperbark

T229 Grey Gum

T230 Blackbutt

T231 Grey Gum

T232 Grey Gum

T233 Grey Gum

T234 Forest Red Gum

T235 Grey Gum

T236 Cocos Palm

T237 Cocos Palm

T238 Cocos Palm

T239 Cocos Palm

T240 Grey Gum

T241 Sydney Blue Gum

T242

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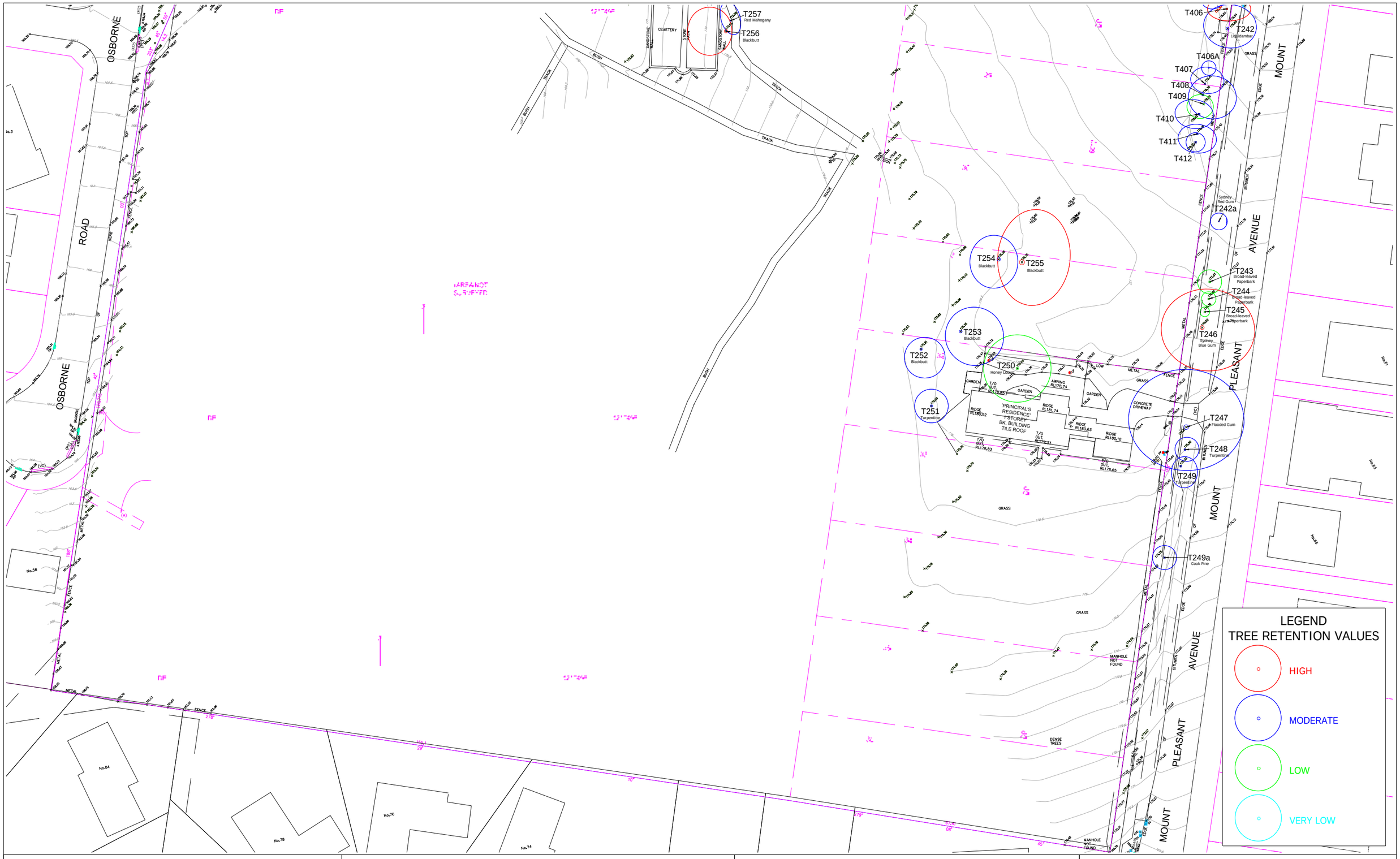

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GRID APPROX.

DWG No. T18-071901 [E]

SHEET 4

DATE: 17/12/2018

APPENDIX 6

TREE PROTECTION PLAN

LORETO NORMANHURST
91-93 PENNANT HILLS ROAD, NORMANHURST

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Dated 18/06/2018

DWG No. T18-071902 [J]

KEY PLAN

DATE: 17/12/2020

LEGEND

- Tree to be retained and protected in accordance with Tree Protection Measures (Section 10)
- Tree to be removed in accordance with Section 10.4
- Tree to be pruned in accordance with Section 10.15
- Tree Protection Zone (TPZ) [refer Section 7]
  - Canopy "Drip-line"
  - Structural Root Zone (SRZ)
- Existing buildings & structures to be demolished. Demolition works within TPZ's to be undertaken in accordance with Section 10.8
- New development. All excavations for building foundations within TPZ's to be undertaken in accordance with Section 10.9
- Excavations in these areas for footings and pavement sub-grade to be undertaken in accordance with Section 10.9
- Proposed stormwater infrastructure to be installed in accordance with Section 10.11
- Tree Protection Fence to be erected in accordance with Section 10.5
- Install trunk protection in accordance with Section 10.6
- Tree approved for removal under DA/1227/2018
- Basement footprint

T48 Swamp Oak
T45 Swamp Oak
T44 Swamp Oak
T43 Grey Ironbark
T49 Photinia
T48a Firewheel Tree
T46 Spotted Gum
T45a Spotted Gum
T29 Spotted Gum
T28 Brushbox
T26 Canary Island Palm
T25
T27 Golden Robinia
T30
T31 Sasanqua Camellia
T32 Himalayan Cedar
T24 Tulip Tree
T16 Fiddlewood
T17 Brushbox
T18 Canary Island Palm
T19 Naylors Blue Leyland Cypress
T20 Golden Robinia
T21 Canary Island Palm
T22 Canary Island Palm
T23 Plum Pine
T51 Sydney Red Gum
T50 Himalayan Cedar
T52 Sydney Red Gum
T53 Coastal Myall
T54 Coastal Myall
T55 Coastal Myall
T56 Coastal Myall
T57 Sydney Red Gum
T58 Coastal Myall
T59 Sydney Red Gum
T60 Jacaranda
T61 Hoop Pine
T62 Hoop Pine
T63 Mugga Ironbark
T42 Hoop Pine
T40 Blackbutt
T41 Blackbutt
T39 Hoop Pine
T38 Japanese Maple
T33 Norfolk Island Hibiscus
T34 Plum Pine
T35 Himalayan Cedar
T36 Liquidambar
T37 Orchid Tree
T68 Tibouchina
T69 Maidenhair Tree
T75 Jelly Palm
T76 Honey Locust
T77 English Oak

'CHAPEL' BK BUILDING TILE ROOF

BM NAIL IN CONC. RL196.34 (AHD)

APPENDIX 6
TREE PROTECTION PLAN

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DWG No. T18-071902 [J]

SHEET 1

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LEGEND

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- Tree to be removed in accordance with Section 10.4
- Tree to be pruned in accordance with Section 10.15
- Tree Protection Zone (TPZ) [refer Section 7]
- Canopy "Drip-line"
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- Basement footprint

1 DP 962642

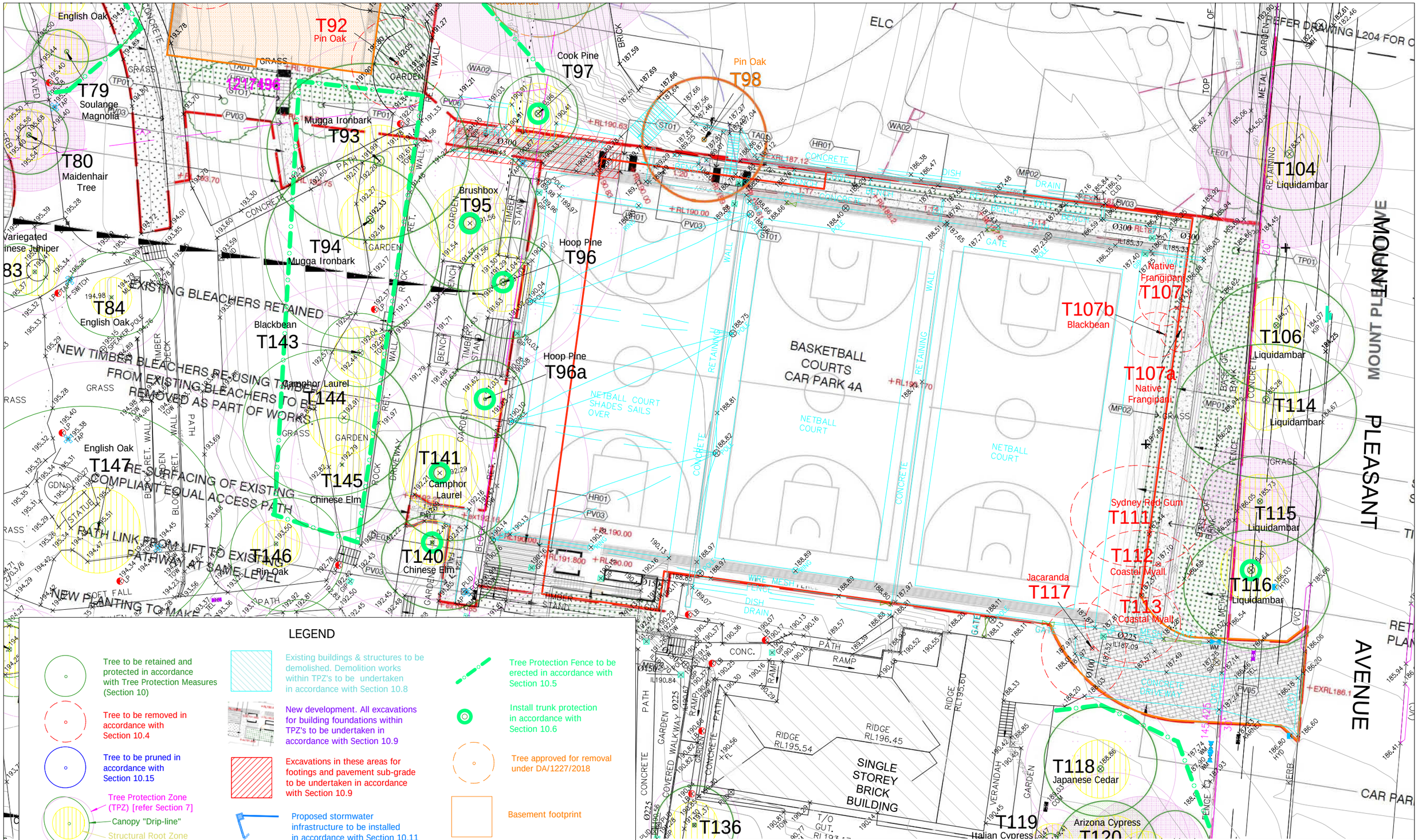
T16 Fiddlewood
T17 Brushbox
T14 Brushbox
T11 Brushbox
Jacaranda T1
T510 Sweet Pittosporum
T12 Brushbox
T509 Sweet Pittosporum
T508
T507 Weeping Bottlebrush
T506 Camellia
T504 Sasanqua Camellia
T505
T503 Viburnum
T502 Ligustrum
T501 Cocos Palm
T13 Norfolk Island Pine
T86a Port Jackson Fig
T86c
T86b Windmill Palm
T99
T100 Plum Tree
T101 Plum Tree
T103 English Oak
T102 Moreton Bay Fig
T86d Windmill Palm
T86 Blackbean
T87 Blueberry Ash
T87a Blueberry Ash
T88 Red Oak
T89 Brushbox
T89a Blueberry Ash
T90 Moreton Bay Fig
T91 Jacaranda
T85 Oriental Plane
T77 English Oak
T92 Pin Oak
Cook Pine
Pin Oak

D
C
B
1

MOUNT PLEASANT AVENUE

REFER DRAWING L204 FOR C

APPENDIX 6 TREE PROTECTION PLAN LORETO NORMANHURST 91-93 PENNANT HILLS ROAD, NORMANHURST	Earthscape Horticultural Services Arboricultural and Horticultural Consultants PO Box 364 BEROWRA NSW 2081 Ph: 02 9456 4787 Fax: 02 9456 5757 e: earthscape@iinet.net.au	Based on the Survey Drawing prepared by Lockley Land Title Solutions Dwg Ref No. 44200DT [B] Dated 18/06/2018	DWG No. T18-071902 [J] SHEET 2 DATE: 17/12/2020



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TREE PROTECTION PLAN

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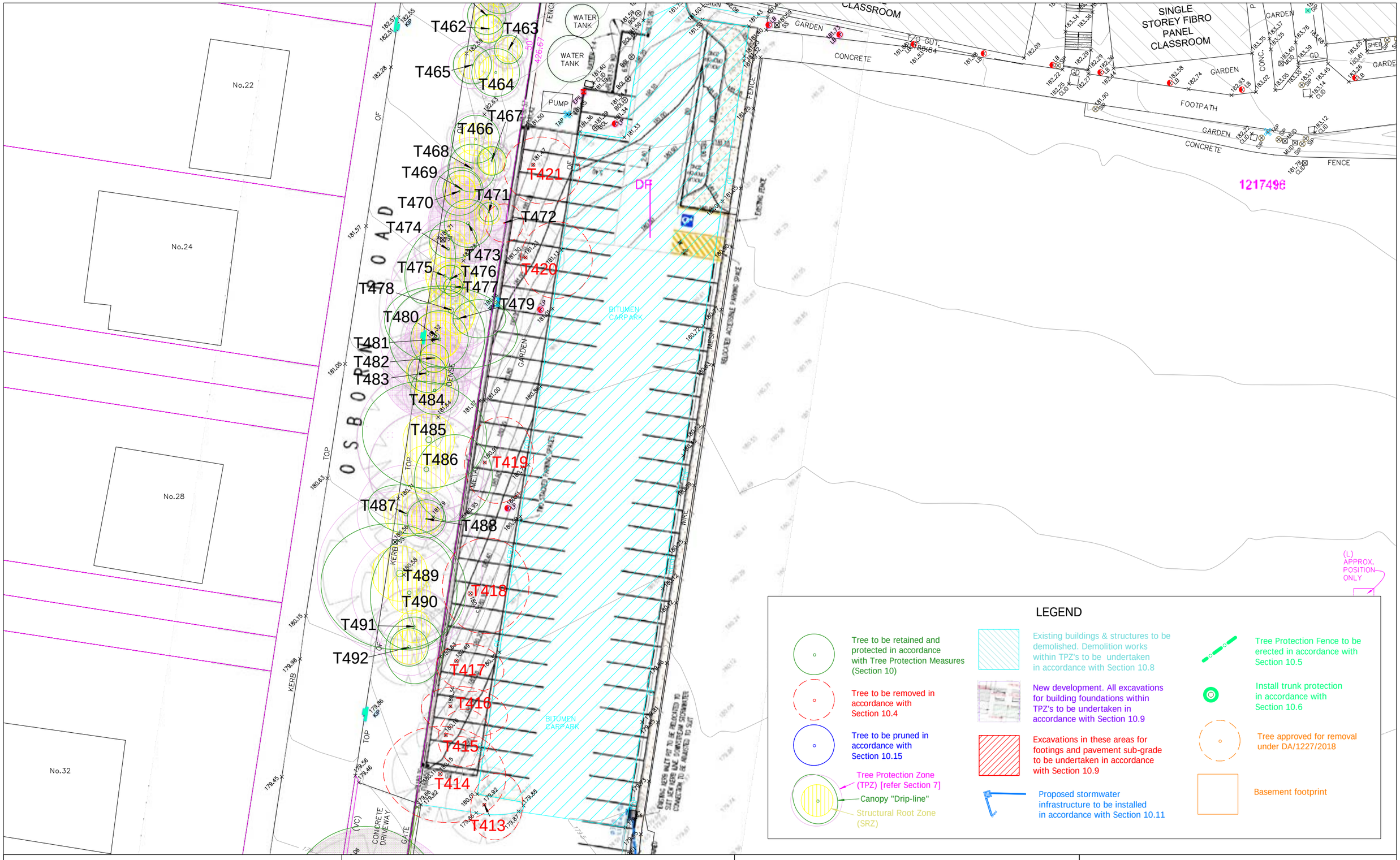

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TREE PROTECTION PLAN

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