Attachment B19

Urban Forest Study – Waterloo Estate (South) – Land and Housing Corporation

waterloo estate - south urban forest study

24 March 2020

PROJECT

Waterloo South Renewal

Waterloo, NSW 2017

CLIENT / PRINCIPAL

NSW Land and Housing Corporation

Level 1, 223 Liverpool Road
Ashfield NSW 2131

arterra
CONSULTING ARBORICULTURE

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Report prepared by

ARTERRA DESIGN PTY LTD ABN 40 069 552 610
SUITE 602, 51 RAWSON STREET, EPPING NSW 2121
P 02 9957 2466 F 02 9957 3977 W ARTERRA.COM.AU

Acknowledgements

This document has been prepared by Arterra Design Pty Ltd, using the expertise of our in-house consulting arborist (AQF Level 5), Robert Smart. Robert Smart is a member of the International Society of Arboriculture - Australian Chapter and also a Registered Consulting Arborist with Arboriculture Australia and a licenced Quantified Tree Risk Assessment practitioner. Robert Smart has 25 years experience in managing trees in complex development sites.

Disclaimer

This document is only to be used in relation to the Waterloo Estate and Waterloo South precinct and is only to be used for the purpose for which it was commissioned and in accordance with the specific brief and contract between Arterra Design and NSW Land and Housing Corporation.

Arterra Design accepts no liability or responsibility whatsoever for or in respect of any use of, or reliance upon, this report and its supporting material by any third party.

The following limitations apply to this report: -

1. It is a strategy document: and is to provide guidance to the project urban designers and planners. The guidance is based on relatively brief site inspection of all trees, in some limited cases undertaken at some distance from the trees due to restrictions in access to parts of the site. It will be necessary to undertake further detailed site investigations once the exact nature and extent of the proposed site works are known for each construction project.
2. Plans: All plans are based on provided information and are illustrative for planning purposes only. They should only be used relating to tree issues and are not suitable for any other purpose.
3. Further consultation on tree related issues: We advise against any detailed designs based on this information being submitted for construction approval without the relevant tree related issues being reviewed by Arterra or another qualified arborist.
4. Trees outside the precinct are not specifically addressed as part of this report.
5. Timing : Written at a point in time with no consideration for changes to other projects outside the study boundary.

CONTENTS

i EXECUTIVE SUMMARY

This study has been prepared primarily to address the **Waterloo South Planning Proposal** requirements, analyse the existing tree population and identify the tree related opportunities and constraints associated with the proposed redevelopment of the wider Waterloo Estate. It is intended to provide NSW Land and Housing Corporation (LAHC) and its design consultants with information that clearly identifies and ranks the trees that are most appropriate to retain and protect, and outlines the broad methodology on how to potentially retain and protect them successfully. It also provides an outline and broad strategy to expand and enhance the urban forest with new tree planting, creating a diverse, sustainable, attractive and robust urban forest into the future.

Urban forests and urban trees are complex **natural** and **living** assets, often growing in close proximity to people, traffic and structures. Urban trees are often growing in harsh and unnatural environments and may be subject to damage or other influences that could lead to reduced vitality, shorter life expectancies and increased risk of tree failure. It is important that issues regarding the urban forest are stated and well understood early in the planning process and continue to be considered at the start of each detailed development stage.

The following table summaries how the City of Sydney's (CoS) study requirements have been addressed in this study.

Table i – CoS Study Requirements

CoS Planning Proposal – Summary of Study Requirements	Where Addressed in This Report
Study to be prepared by experienced AQF5 Arborist.	Acknowledgement and Author Qualification (page ii)
Preliminary arboricultural assessment and report to be prepared to guide urban design to minimise impacts to trees.	Section 2.0 and 6.0 Appendices of this report
Arboricultural impact assessment for the proposal to be undertaken.	Section 5.2 and 6.0 Appendices - 6.1 and 6.3
Retention of existing and provision of new trees is to consider relevant factors such as soil, space, species, wind and services.	Section 4.0 and 5.0 and the Public Domain Plan prepared by Turners/Turf
Demonstrate how the project addresses the CoS targets for Urban Forest such as size, age and species diversity and canopy coverage.	Section 5.0 and 6.0 Appendices.
Provide indicative tree and landscape planting strategy.	Over arching guidelines provided in Section 5.0 with specifics addressed within Public Domain Plan prepared by Turners/Turf
Demonstrate compliance with Council policies, strategies, and master plans.	Whole of report

Figure i.1 – Trees are one of the hardest working, multi-tasking assets within the city's green infrastructure. (Photo: Arterra)

The Existing Tree Population

Significant trees line many of the streets within the Estate. Trees located in the adjoining parks, together with those within the setback of the existing residential developments, currently make significant contributions to the overall urban forest of the precinct and the general Waterloo area.

- There are currently **939** trees within the Waterloo Estate (**551** trees are within the Waterloo South precinct).
- **239** (25%) of all trees are street trees.
- A further **173** trees are in close proximity to the streets. Therefore a total of **412** trees or **44%**, of all trees within the wider Waterloo Estate are on, or very close to, the streets and therefore may be affected by work that may happen in the streets.
- In particular, the majority of the 'High Value' trees are directly related to the streets, either street trees themselves or very close to the street edges.
- The 'overall' existing canopy coverage currently for the whole of the Waterloo Estate stands at **31%**. The existing canopy cover for the Waterloo South precinct is **28.9%.** The City of Sydney (CoS) canopy target is **27%**.
- Currently street trees provide **38%** canopy coverage to 'street areas'. The CoS target is **50%**.
- Although the Waterloo Estate now has very good canopy coverage, no historically significant trees were evident in the aerial images from 1943.
- The only significant trees evident in the 1943 aerial are located outside the precinct in the adjacent historical parks of Waterloo Park (Mt Carmel), and nearby Redfern Oval and Alexandria Park. This highlights that all the large and prominent Figs and Eucalyptus trees that are currently scattered throughout the study area are typically less than **45** years old.
- The current tree population is dominated by 4-5 main 'Families'. As expected, and as commonly found throughout many Australian cities, **Myrtaceae** dominates, at over 47% of the total population. The 'best practice' target is to have no more than 40% in any one 'Family'.
- **Tree Retention Values**. The individual number and the percentage of the total population of trees across the wider Waterloo Estate in the different retention value ratings are:-
    - High **141** (15%) (**87** in South Precinct)
    - Moderate **299** (32%) (**164** in South Precinct)
    - Low **477** (51%) (**285** in South Precinct)
    - Very Low / Remove **22** (2%) (**15** in South Precinct)
- With regard to the 141 **High Value** trees, the majority are represented by the following species:-
    - *Eucalyptus microcorys* (Tallowood) (31%),
    - *Ficus microcarpa var. hillii* (Hills Weeping Fig) (22%),
    - *Corymbia maculata* (Spotted Gum) (8%)
    - *Eucalyptus botryoides* (Bangalay) (5%)
    - *Eucalyptus saligna* (Sydney Blue Gum) (5%) and
    - *Corymbia citriodora* (Lemon Scented Gum) (5%).

The Urban Forest Opportunities & Requirements

There are significant opportunities to protect and enhance the existing urban forest. Some key opportunities of the Urban Forest Study for the Waterloo South Planning Proposal are outlined below:

- Aim to achieve a minimum **40**% overall **canopy coverage** within the Precinct. The redevelopment aims to exceed the CoS targets of 50% canopy cover to streets and exceed the 25% cover to Parks.
- **Retain and protect** the most significant existing trees around the site. Incorporate them as mature elements within the proposed public domain landscape.
- Recognise that **mature trees require space** around them, to protect their roots, so it will be necessary to minimise buildings, level changes, water quality ponds or service trenching though any areas retaining trees.
- Take an holistic view to new **street profile design,** to work trees in as a core design element, not as an afterthought. Provide appropriate space both above and below ground for trees to flourish. Consider the final sizes of root plates, trunks and canopy, services alignments and setback from the road edges.
- Incorporate new and existing trees into **appropriately sized verge gardens and lawn areas**. Provide adequate space for the trees trunks and structural roots to expand and allow better infiltration of air and water into the root zones.
- Design new pavements to direct surface water and runoff towards the existing and new trees to **passively irrigate** the trees in an ever-warming climate with unpredictable precipitation patterns.
- Utilise trees for **wind amelioration and shading**, understanding the most desirable forms, sizes and densities of tree canopy in given locations. Larger trees with dense canopies will typically be more important than smaller trees or trees with very open canopies.
- Incorporate a **range of species** into the final designs to increase resilience and population diversity. Consider species that currently prosper in slightly warmer climates to cater for climate change. Some deciduous trees will be required for better solar access during cooler months, particularly in the northern facing public spaces. Trees that transpire during hot conditions will help mitigate urban heat island effects through increased evaporative cooling. Good access to soil moisture and passive irrigation is critical for these trees.
- Specify a **diversity of tree sizes** with a balanced provision of small, medium, large and 'civic-scaled' trees.
- Incorporate trees and other plantings into **upper levels of built forms**, such as podiums and on roof tops to improve canopy coverage and increase connections to nature. This will be an important part of achieving a minimum of 20% canopy coverage to all semi-public and privately owned site areas.
- Explore opportunities for **community gardens and orchard-style** planting in semi-public open spaces such as roof terraces and podiums to provide urban food production and community engagement with trees.
- Consider **expanded verge widths and in-road planting** opportunities (blisters and medians) to move new trees away from services and building facades, allowing them to fully develop their canopies and ultimate sizes. This also better shades street pavements and helps achieve canopy coverage targets. This type of planting also calms traffic and improves the perception of the street.
- Utilise structurally supportive soil systems and vaulted tree pit designs to provide appropriate **soil volumes** for vigorous and healthy tree growth in the long term under pavements.
- Utilise appropriate **kerbside setbacks** to any new trees to allow the planting of trees further away from street kerbs and reduce the potential of future vehicle related tree damage.
- **Don't over plant** for instant or short term visual impacts – allow time and space for trees to mature with full and symmetrical canopies where possible, considering the ultimate size of the species. Give trees space to access adequate resources rather than over-compete with each other. Trees will be easier to manage with better long-term health, and when the time comes for tree replacement, it will be easier and less likely to damage surrounding trees or leave excessively misshapen trees.
- Consider trees as valuable **multi-tasking assets** that provide shade, traffic calming, wind amelioration, environmental services, fauna connectivity, social, health, economic and aesthetic benefits. They make the streets more inviting and contribute to people wanting to use them for activities like socialising, walking and cycling.
- Utilise **best practices** for plant stock procurement, planting and handling techniques and tree establishment maintenance to ensure the full potentials of the urban forest are achieved and within acceptable resource limitations.

The following tables summarise the key elements of the proposal and how the various urban forest outcomes are largely being achieved within the **Waterloo South Precinct** proposal, particularly canopy cover.

Table ii – Tree Disposition

Tree Disposition	**Totals**	High Retention	Moderate Retention	Low Retention	Very Low Retention
Trees to be retained	**130**	45 **(52%)**	85 **(52%)**	0	0
Trees to be removed	**421**	42 (48%)	79 (48%)	285 (100%)	15 (100%)
Totals	**551**	**87**	**164**	**285**	**15**

Table iii – Urban Forest Targets

Urban Forest Consideration	Baseline Condition	CoS or Other Target	**Proposed Waterloo South**	Compliance/ Trend /Comment
Canopy Coverage Overall	29%	27%	**42.4%**	Targets all well exceeded except for private.
Street	38%	50%	**59.8%**	
Parks	0%	25%	**59.0%**	
Private	25%	25%	**20.0%**	
Species Diversity				
Family	47%	40%	**40-45%**	Close to target likely
Genus	19%	30%	**20-30%**	Target likely to be achieved
Species	8%	10%	**<10%**	Target likely to be achieved
Size Class				
Civic	10%	10%	**6-8%**	Likely slightly less than target
Large	27%	35%	**30-35%**	Target likely to be achieved
Medium	44%	45%	**40-45%**	Target likely to be achieved
Small	19%	10%	**10-15%**	Likely slightly more than target
Ecological Diversity				
Endemic to Region	18%	-	**20-25%**	Acceptable Balance
Australian Native	56%	-	**50-55%**	Acceptable Balance
Exotic	23%	-	**20-25%**	Acceptable Balance
Weed / Non-desirable	3%	-	**-**	Desired

In terms of urban trees, the most important thing to consider as part of the development planning is that all trees to be retained, and any new trees to be planted within the development, must be given the appropriate space to grow and thrive both below ground and above ground, in order to continue to develop and prosper for many years to come. **We must design our cities for the trees, not expect the trees to conform to the city.**

Figure i.3 – Existing trees are important assets. We must design to retain and utilise them and not expect them to conform to the cities needs. They are living and natural organisms and need to be supplied with the basics of life in order to prosper and provide the myriad of benefits we demand, need and desire. (Photo: Arterra)

1. INTRODUCTION

1.0 Introduction

The Greater Sydney Region Plan and Eastern City District Plan seek to align growth with infrastructure, including transport, social and green infrastructure. With the catalyst of Waterloo Metro Station, there is an opportunity to deliver urban renewal to Waterloo Estate that will create great spaces and places for people to live, work and visit.

The proposed rezoning of Waterloo Estate is to be staged over the next 20 years to enable a coordinated renewal approach that minimises disruption for existing tenants and allows for the up-front delivery of key public domain elements such as public open space. Aligned to this staged approach, Waterloo Estate comprises three separate, but adjoining and inter-related stages:

- Waterloo South;
- Waterloo Central; and
- Waterloo North.

Waterloo South has been identified as the first stage for renewal. The lower number and density social housing dwellings spread over a relatively large area, makes Waterloo South ideal as a first sub-precinct, as new housing can be provided with the least disruption for existing tenants and early delivery of key public domain elements, such as public open space.

A planning proposal for Waterloo South is being led by NSW Land and Housing Corporation (LAHC). This will set out the strategic justification for the proposal and provide an assessment of the relevant strategic plans, state environmental planning policies, ministerial directions and the environmental, social and economic impacts of the proposed amendment. The outcome of this planning proposal will be a revised planning framework that will enable future development applications for the redevelopment of Waterloo South. The proposed planning framework that is subject of this planning proposal, includes:

- **Amendments to the Sydney Local Environmental Plan 2012** – This will include amendments to the zoning and development standards (i.e. maximum building heights and floor space ratio) applied to Waterloo South. Precinct-specific local provisions may also be included.
- **A Development Control Plan (DCP)** – This will be a new part inserted into 'Section 5: Specific Areas' of the Sydney DCP 2012 and include detailed controls to inform future development of Waterloo South.
- **An infrastructure framework** – in depth needs analysis of the infrastructure required to service the needs of the future community including open space, community facilities and servicing infrastructure.

1.1 Waterloo Estate

Waterloo Estate is located approximately 3.3km south-south-west of the Sydney CBD in the suburb of Waterloo (refer to **Figure 1.1**). It is located entirely within the City of Sydney local government area (LGA). Waterloo Estate is situated approximately 0.6km from Redfern train station and 0.5km from Australia Technology Park. The precinct adjoins the new Waterloo Metro Station, scheduled to open in 2024. The Waterloo Metro Quarter adjoins Waterloo Estate and includes the station and over station development, and was rezoned in 2019. Waterloo Estate comprises land bounded by Cope, Phillip, Pitt and McEvoy Street, including an additional area bounded by Wellington, Gibson, Kellick and Pitt Streets. It has an approximate gross site area of 18.98 hectares (14.4 hectares excluding roads). Waterloo Estate currently comprises 2,012 social housing dwellings owned by LAHC, 125 private dwellings, a small group of shops and community uses on the corner of Wellington and George Streets, and commercial properties on the south-east corner of Cope and Wellington Streets.

A map of Waterloo Estate and relevant boundaries is illustrated in **Figure 1.2**.

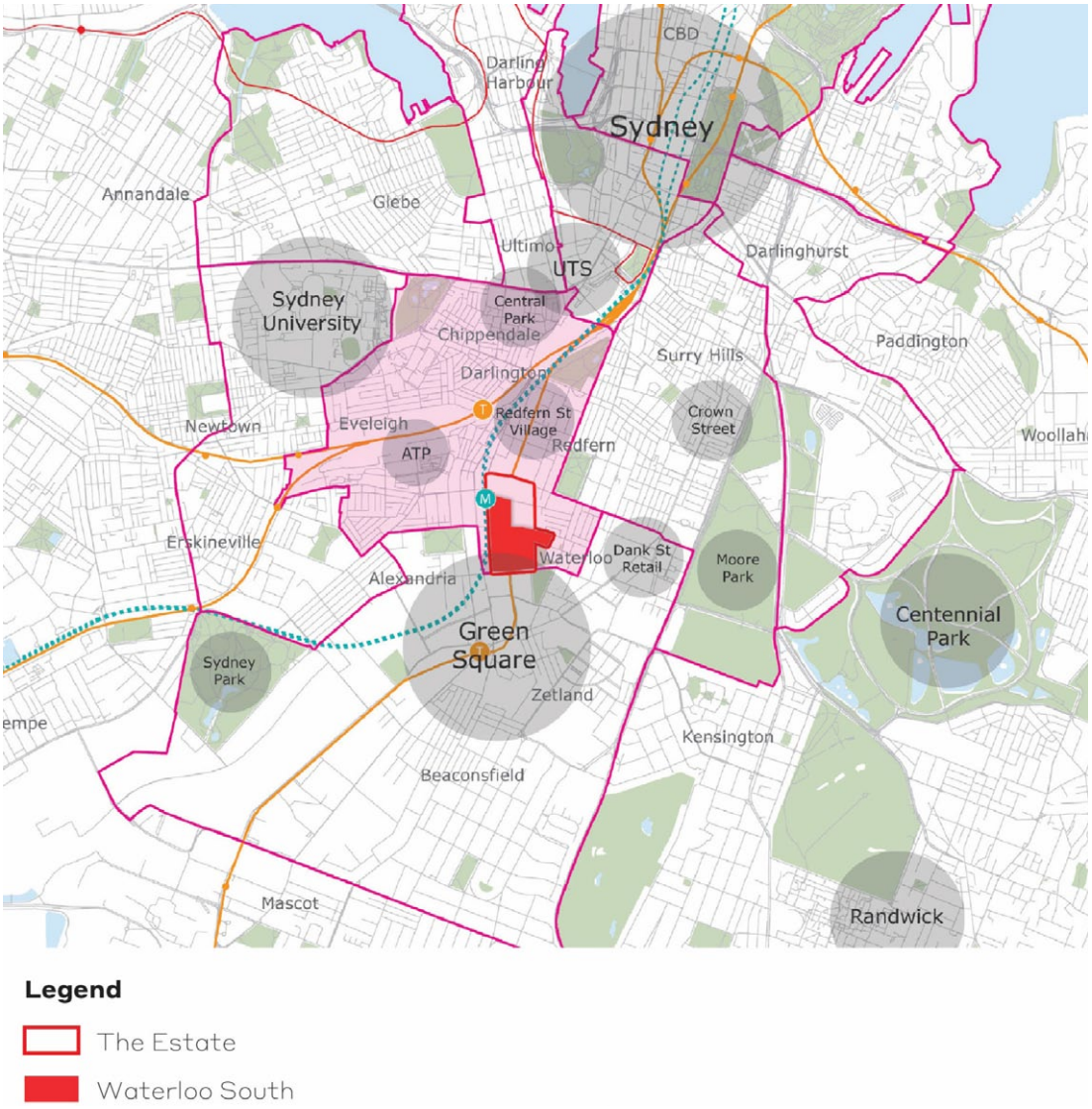


Figure 1.1 - Location plan of Waterloo Estate and Waterloo South [Source: Turner Studio]

1.2 Waterloo South

Waterloo South includes land bounded by Cope, Raglan, George, Wellington, Gibson, Kellick, Pitt and McEvoy Streets, and has an approximate gross site area of 12.32 hectares (approximately 65% of the total Estate).

Waterloo South currently comprises 749 social housing dwellings owned by LAHC, 125 private dwellings, and commercial properties on the south-east corner of Cope and Wellington Streets. Existing social housing within Waterloo South is predominantly walk up flat buildings constructed in the 1950s and '60s, and mid-rise residential

flat buildings (Drysdale, Dobell & 76 Wellington Street) constructed in the 1980s. Listed Heritage Items within Waterloo South include the Duke of Wellington Hotel, Electricity Substation 174 on the corner of George and McEvoy Streets, the terrace houses at 229-231 Cope Street and the Former Waterloo Pre-School at 225-227 Cope Street. The State Heritage listed 'Potts Hill to Waterloo Pressure Tunnel and Shafts' passes underneath the precinct.

A map of Waterloo South and relevant boundaries is illustrated in **Figure 1.2**.

Figure 1.2 - Waterloo Precinct [Source: Ethos Urban]

1.3 Renewal Vision

The transition of Waterloo Estate will occur over a 20-year timeframe, replacing and providing fit for purpose social (affordable rental) housing as well as private housing to create a new integrated and inclusive mixed-tenure community. This aligns with Future Directions for Social Housing in NSW – the NSW Government's vision for social housing. It also aligns with LAHC's Communities Plus program, which is tasked with achieving three key objectives:

1. Provide more social housing
2. Provide a better social housing experience
3. Provide more opportunities and support for social housing tenants

The following is LAHC's Redevelopment Vision for Waterloo Estate, which was derived from extensive consultation and technical studies:

[Source: Let's Talk Waterloo: Waterloo Redevelopment (Elton Consulting, 2019)]

Culture and Heritage

- Recognise and celebrate the significance of Waterloo's Aboriginal history and heritage across the built and natural environments.
- Make Waterloo an affordable place for more Aboriginal people to live and work.
- Foster connection to culture by supporting authentic storytelling and recognition of artistic, cultural and sporting achievements.

Communal and Open Space

- Create high quality, accessible and safe open spaces that connect people to nature and cater to different needs, purposes and age groups.
- Create open spaces that bring people together and contribute to community cohesion and wellbeing.

Movement and Connectivity

- Make public transport, walking and cycling the preferred choices with accessible, reliable and safe connections and amenities.
- Make Waterloo a desired destination with the new Waterloo Station at the heart of the Precinct's transport network - serving as the gateway to a welcoming, safe and active community.

Character of Waterloo

- Strengthen the diversity, inclusiveness and community spirit of Waterloo.
- Reflect the current character of Waterloo in the new built environment by mixing old and new.

Local Employment Opportunities

- Encourage a broad mix of businesses and social enterprise in the area that provides choice for residents and creates local job opportunities.

Community Services, Including Support For Those Who Are Vulnerable

- Ensure that social and human services support an increased population and meet the diverse needs of the community, including the most vulnerable residents.
- Provide flexible communal spaces to support cultural events, festivals and activities that strengthen community spirit.

Accessible Services

- Deliver improved and affordable services that support the everyday needs of the community, such as health and wellbeing, grocery and retail options.

Design Excellence

- Ensure architectural design excellence so that buildings and surrounds reflect community diversity, are environmentally sustainable and people friendly - contributing to lively, attractive and safe neighbourhoods.
- Recognise and celebrate Waterloo's history and culture in the built environment through artistic and creative expression.
- Create an integrated, inclusive community where existing residents and newcomers feel welcome, through a thoughtfully designed mix of private, social (affordable rental) housing.

1.4 Purpose and Structure

This report relates to the Waterloo South planning proposal. While it provides comprehensive baseline investigations for Waterloo Estate, it only assesses the proposed planning framework amendments and Indicative Concept Proposal for Waterloo South. The purpose of this report is to address the relevant Study Requirements outlined by the CoS and detailed in Section 2 (Table 1). In summary it is to:

- Provide an urban forest study and guiding strategy consistent with the overall objectives sought for the Precinct and that supports the Waterloo South Precinct Proposals.
- Provide a robust, defensible evidence base to inform the Precinct proposals.
- Promote solutions to protect and enhance the urban forest that can be readily implemented and supported by key stakeholders.

1.5 Why Are Trees So Important?

There is a considerable and rapidly expanding body of research that exists on the benefits that urban trees bring. The 'urban forest' consists of all trees and vegetation located within a defined urban area, irrespective of the tree species, origin (native, exotic), location (street, park, garden, school) or ownership (public, private, institutional).

The urban forest, often most easily measured as a canopy cover percentage of the total land area, is recognized as a primary component of the urban ecosystem (LGA NSW 2003). It is one component of a complex built environment that includes roads, car parks, footpaths, underground services, buildings and other urban structures (North Sydney 2011).

In practice, the 'urban forest' incorporates and encompasses all vegetation within streets, parks, wetlands, balconies, facades and roofs. This document, however, primarily addresses the existing and proposed tree stratum. The vegetation that would not be considered 'trees', such as roof gardens, shrubs and groundcovers, and 'rain garden' planting is more specifically dealt with in numerous other technical studies being prepared for the precinct such as the urban and landscape designs, the ecological studies and the sustainability reports.

Trees in cities are a major and visible component of the natural resources upon which the City relies. They provide a substantial contribution to the "sense of place", and character of an area. They can have historical significance and provide numerous environmental and psychological benefits to visitors and residents. They can also provide important way-finding and 'landmark' statements. Trees of civic scale or with distinctive forms can be important markers in the landscape and help to demarcate the entry or gateways to an area or help to define important areas, improving way-finding and urban legibility.

Examples of these benefits, both direct and indirect include:

- reducing the urban heat island effect and moderation of other weather extremes and winds
- providing cooling and shading to pedestrians and buildings
- lowering energy use (due to the above)
- increasing longevity of pavements and road surfaces due to shading
- shading of parked cars and reduction in hydrocarbon emissions
- storage of carbon dioxide ($CO^{2)}$
- interception and storage of rainwater and stormwater via leaves and roots
- filtering of particulate matter and polluting gases
- ameliorating wind
- production of atmospheric oxygen and uptake of carbon dioxide
- provision of habitat for native fauna, birds and insects
- general human health, calming and wellbeing.

Few things can compare with the visual impact and seasonal interest a tree provides. They foster community cohesion, creating a sense of place and local landmarks. Very importantly, trees can have surprising and profound effects on the psychological wellbeing of nearby residents, particularly in urban areas (Ferrini et al, 2017).

Trees remain one of the most cost effective measures of drawing excess CO^2 from the atmosphere. They also improve air quality by removing and storing a surprising amount of harmful pollutants such as sulfur dioxide, nitrogen oxides, particulate matter, and heavy metals such as cadmium, nickel and lead.

Figure 1.3 – Trees are good. Trees provide the most significant and tangible contribution to an urban area's ecosystem services and the comfort and enjoyment of the public realm. A well planned street with excellent tree cover promotes walking and social interaction and contributes to many psychological and social benefits. (Photo-Arterra)

They have also been shown to help reduce incidences of asthma and stress-related hypertension. Studies have shown that trees and other green spaces can have a therapeutic effect for children suffering ADHD, improving both attention levels and social function. Current studies in Ontario, Canada suggest that people who live in neighbourhoods with a higher density of trees on their streets report significantly higher health perception and considerably fewer cardio-metabolic conditions, even when allowing for socio-economic factors and demographic factors (Carpani, 2016).

Trees have also been shown to provide direct economic benefits to a region. The attractiveness of an environment is an important factor in attracting inward investment. Values of properties in tree-lined areas may be up to 6% greater than in similar areas without trees (Wolf, 1998). Rental rates are up to 7% higher for commercial office properties having a quality landscape. Furthermore, consumers report being willing to spend up to 12% more in central business districts having large trees (Wolf 2009).

Trees also have costs associated with planting and maintaining them and many challenges involved in growing healthy trees in otherwise complex and often unnatural, urban environments. Although the urban forest can most definitely be considered an asset, if not properly planned, cared for and managed, it can also become a liability.

The Waterloo South Precinct Urban Forest Strategy (UFS) provides a strategic and long-term vision for the development and management of the Waterloo urban forest. Through careful planning and implementation of the UFS it is hoped the urban forest will mature gracefully and provide a long lasting legacy for future generations and make Waterloo a memorable and beautiful place in which to live, work and play.

Figure 1.4 - Trees bring many important benefits, as well as beauty and delight. They can also play an important part of place making and community engagement, being the focus or framework for art installations and lighting displays. (Photo: Arterra)

1.6 Urban Forest Objectives

Urban forest management focuses on the 'forest' or the broader population of trees and can be described as "the science and art of managing trees, forests and natural ecosystems in and around urban communities to maximise the physiological, sociological, economic and aesthetic benefits that trees provide society" (Schwab 2008).

The purpose of the Waterloo South Precinct Urban Forest Study (UFS) is to provide **strategic directions and guidelines** for the retention, enhancement, development and management of a resilient, healthy and diverse urban forest. The urban forest should be seen as an important asset that provides environmental, social, aesthetic and economic benefits and contributes to the health and well being of Waterloo, its residents and the broader community of Sydney.

The focus of the UFS is to protect the existing tree and canopy cover, and through additional tree planting, ultimately meet or exceed the City of Sydney targets for canopy cover, species diversity, age diversity and size diversity. Trees and the wider urban forest make a significant contribution to the overarching objectives of creating a sustainable and liveable community. Trees will also contribute to the achievement of many other critical outcomes such as biodiversity, wind amelioration, shading and urban heat island reduction, stormwater and pollution uptake and

Figure 1.5 – The existing trees that were planted some 30-40 years ago have served the precinct well and often create a perception of a extensively planted, green area. They represent a large mix of species, sizes and ages and provide a good framework for a sustainable urban forest going forward.

amelioration, reduced energy consumption, improved pavement life expectancy, and improved social cohesion and resident well-being.

This plan begins with the detailed assessment of the existing urban forest of the wider Waterloo Estate. The assessment provides insights as to the current composition, conditions, opportunities and constraints posed by the existing urban forest and the current urban landscape, both of which have evolved primarily since the construction of the Estate during the 1960s, 70s and 80s.

Having quantified the current status of the urban forest, the UFS further seeks to answer two key questions:

- What do we want from the future Urban Forest – What is the future vision?
- What needs to be done in the planning and construction stages to make this vision a reality?

The **key objectives** for the urban forest of the Waterloo Estate is therefore to:

- Provide a resilient, healthy and diverse urban forest that is recognised and valued for its environmental, social, aesthetic and economic benefits and for its contribution to the health and well-being of the Waterloo community.
- Provide an integrated and systematic long-term strategy that values trees as critical infrastructure, with equal priority to other infrastructure such as roads and services, while minimising the potential negative and longer term costs associated with trees in a dense urban environment.
- Retain and protect the extensive existing tree canopy, that currently characterises much of the Waterloo Estate.
- Educate the community and promote the benefits of the urban forest.
- Make appropriate and targeted provisions for future tree planting via thoughtful and best-practice design of the streetscapes, open spaces and buildings and provide significant natural landscape elements at both the human and civic scales.

Figure 1.6 – Trees are valuable additions to high density urban areas for many reasons. Research has consistently shown that people will be attracted towards, linger longer and spend more money in attractive, tree lined streets compared to barren or poorly planted areas. (Photo: Arterra)

2. STUDY REQUIREMENTS AND THE EXISTING URBAN FOREST ASSESSMENT

2.0 Study Requirements

This report addresses the Urban Forest Study requirements identified as part of the CoS planning requirements for the Precinct; that is, to identify the existing tree species, their location, size, condition, retention value and life expectancy. It provides guidance on the composition and history of the trees and the potential constraints and opportunities afforded by the existing trees within the study area. Refer to Table 1 on the following page.

This report discusses the trees that should, or could, be considered for retention as part of the new development and provides guidelines for the required Tree Protection Zones and other measures to enable the trees to continue to grow and thrive, where they are retained. The schedule of existing trees at Appendix 6.1 of this report provides the numerical Tree Protection radius for each tree. This should be consulted as more detailed development footprints and building envelopes and landscaping details crystallise beyond the current rezoning phase of the process.

The urban forest is a complex natural asset and a major component of the green infrastructure and the natural resources upon which the City relies. As such, detailed planning and collaboration are required by all professionals in key allied fields (such as arboriculture, architecture, landscape architecture, planning, engineering and heritage) to deliver an urban forest that will provide the community with the required environmental, social and economic benefits.

2.1 Existing Tree Assessment Methodology

An assessment of all the existing trees was carried out via a brief visual inspection from the ground only in May 2017. The trees were photographed and all were given a unique identification number. This was aligned with the CoS tree asset ID number, where one had already been allocated. (This included most of the street and public park trees). Other private property trees were allocated a unique sequential number by Arterra. The tree locations were based on the issued topographical survey plans. Most of these surveys dated from circa 2011, so Arterra verified the existence of the trees (some trees had been removed or added since the survey) and plotted them onto the accompanying drawings for referencing, co-ordination and identification.

Tree trunk diameters, tree heights and canopy spreads were estimated in the field and cross-referenced to survey information and current aerial photography. Canopy position and extents have been adjusted, where necessary, on the plans to more accurately portray the canopy extent and positions.

Due to difficulty in gaining access to certain private areas, some trees were only assessed from a distance, or from one side only. Arterra can, therefore, not guarantee that all significant defects or major issues were assessed and identified within all trees.

Table 1 – CoS Study Requirements

Reference No.	CoS Planning Proposal – Study Requirement	Where Addressed in This Report
1	This study requires a Project Arborist qualified in arboriculture to Australian Qualifications Framework (AQF) level 5 or above and have at least 5 years demonstrated experience in managing trees within complex development sites.	Acknowledgement and Author Qualification (page ii)
2	Provide a preliminary arboricultural report that identifies tree location, condition, quality, life expectancy and indicative Tree Protection Zones to enable the urban design to minimise impacts to trees.	Section 2.0 and 6.0 Appendices of this report
3	Undertake an arboricultural impact assessment for the proposal outlining the trees to be removed or retained and the possible impacts on the trees to be retained including allowing for future construction methodology.	Section 5.2 and 6.0 Appendices - 6.1 and 6.3
4	The plan for the retention of existing and provision of new trees is to consider: a) the capacity of the public domain and urban design approach to protect existing trees and allow for the growth of new trees; b) species selection that maximises solar access during winter; c) the provision of sufficient soil volumes and quality (including within the private domain) provide for long term tree health; d) canopy design concepts that consider expanded verges and central verges (through setbacks, reduced carriageway or widened reservation) to increase planting, incorporation of landmark large scale trees in key locations and street gardens and low plantings to improve streetscape amenity; and e) coordinate outcomes of the Public Domain Design, Urban Design, Utilities (ensure overground utilities are undergrounded), Wind (ensuring that trees are not expected to be the wind mitigation device) and transport parts of this study.	Section 4.0 and 5.0 and the Public Domain Plan prepared by Turners/Turf
5	Demonstrate how the project addresses the CoS Urban Forest Strategy, in particular the following site specific targets: a) minimum canopy cover of 50% to streets, 25% to parks and 25% to private property; b) minimum species diversity targets of 40% family, 30% genus, and 10% species; and c) minimum distribution of tree heights of 10% small trees (3-5m), 45% medium trees (5-10m), 35% large trees (10-20m) and 10% extra-large trees (20m+). d) Consult closely with CoS	Section 5.0 and 6.0 Appendices. Note: Consultation has also occurred with the CoS Urban Forest Manager throughout the report preparation.
6	Provide an indicative tree and landscape planting strategy across the site, accounting for biodiversity and habitat considerations that includes: a) a tree sensitive public domain and that protects existing trees, and allows for the growth of new trees; b) species selection that maximises solar access during winter; and c) sufficient soil volumes and quality are provided for long term tree health.	Overarching guidelines provided in Section 5.0 with specifics addressed within Public Domain Plan prepared by Turners/Turf
7	Demonstrate that Council policies, strategies, and master plans are complied with, including, Greening Sydney, Tree Management Controls: SLEP; SDCP; Urban Forest Strategy; Tree Management Policy; Street Tree Master Plan; Urban Ecology Strategic Action Plan and Landscape Code and NSW OEH - Urban Green Cover in NSW.	Whole of report

2.2 Relevant Guiding Policies and Strategies

The Waterloo UFS has been considered in relation to many other existing and draft Council and other authority policies that will influence the future pattern and development of our streets and tree planting. This has included documents such as:

- NSW OEH - Urban Green Cover in NSW 2012 - Technical guidelines
- NSW Government Architects Office -The Green Grid-creating Sydney's open space network
- Transport NSW - Cycling Future 2013, Walking Future 2013
- CoS -Streets Code
- CoS -DCP 2012
- CoS -Public Domain Manual
- CoS -Landscape Code 2016
- CoS -Greening Sydney Plan 2012
- CoS -Urban Forest Strategy 2013
- CoS -Tree Management Policy 2013
- CoS -Street Tree Master Plan 2015
- CoS -Environmental Action 2016-2021 Strategy and Action Plan (Draft endorsed March 2017)

Some other documents considered include:

- Low Carbon Living CRC – Guide to Urban Cooling Strategies (July 2017)
- NSW Government Architects Office –(Draft) Greener Places (Oct 2017)
- National Green Infrastructure Network-Urban Ecology : Theory Policy and Practice in NSW (May 2017)
- City of Melbourne/Victorian Dept. Environment, Land, Water and Planning – How to grow an urban forest
- The Nature Conservancy Washington – Outside our Doors (2016)
- Trees and Design Action Group – No trees, no future : trees in the urban realm (Nov 2008)

2.3 Tree Retention Values of Existing Trees

The retention value of existing trees throughout the study area was assessed using a combination of techniques commonly used and recognised in the arboricultural industry. All the trees have been given one of the following retention values:

- High
- Moderate
- Low
- Very Low / Remove

The location of the trees and their relative retention values was plotted on to survey drawings. Refer to Figure 2.18 for a graphical representation of the trees and their retention value for the wider Waterloo Estate. Explanation of the criteria used to determine the 'Tree Retention Values' are summarised in the following pages.

"High" Retention Value – these are trees that are typically large and visually prominent, historically or environmentally important, in good or very good condition. They may also be part of an important group of trees. They should represent a serious physical constraint to the development and their removal avoided where possible and feasible. The following figures illustrate some examples of 'high' value trees.

Figure 2.1 – Example of a significant 'High' value tree (Ficus microcarpa var. hillii a Hills Weeping Fig (T297) planted adjacent to Wellington St) (Photo: Arterra)

Figure 2.2 – Example of a significant 'High' value tree (Eucalyptus microcorys a Tallowood (T15097) planted on Wellington St) (Photo: Arterra)

"Moderate" Retention Value – these are trees that are in good to reasonable condition and should be retained where possible and feasible to do so. They may also be lesser trees, but part of a relatively good grouping of trees and therefore warrant retention based on the overall group's value.

The trees ranked as moderate as part of this assessment covered a broad range of trees and tree forms. Most were mature trees with average forms and vigour or some minor defects. Many were also smaller trees or semi-mature trees with very good forms, vigour and future potential to actively contribute to the urban forest, as shown in the examples below.

Figure 2.3 – Example of a 'Moderate' value tree (Cupaniopsis anacardioides – Tuckeroo (T8524) on George St) (Photo: Arterra)

Figure 2.4 – Example of a 'Moderate' value tree (a semi-mature Corymbia eximia – Yellow Bloodwood growing well and recently planted on Cope St (T6846)). This tree is in keeping with the desired species as set out in the CoS Street Tree Master Plan. (Photo: Arterra)

"Low" Retention Value – these are trees that are of poor condition or have structural defects, are particularly small growing or commonplace trees, are not historically, environmentally or socially significant and should not be considered as a constraint to the future development. They could be retained, but only if they are not likely to be impacted by, or constrain potentially desirable, development outcomes.

The trees ranked as low as part of this assessment were either considered young and replaceable, or were suppressed due to their close proximity of other trees or were in poor or declining condition, as shown in the examples below.

Figure 2.5 – Example of a 'Low' value tree (Eucalyptus bicostata – Southern Blue Gum (T963)) (Photo: Arterra)

Figure 2.6 – Example of a 'Low' value tree (a small and recently planted Jacaranda mimosifolia- (T32577) that could be easily replaced if needed) (Photo: Arterra)

Figure 2.7 – Example of a 'Low' value tree (a very suppressed Tristaniopsis laurina – Water Gum (T15088) on Wellington St growing under the much larger and more significant fig trees) (Photo: Arterra)

Very Low / No Retention Value – these are trees that are in very poor health, or poor form, or have serious structural defects, are considered weeds or a combination of these, and therefore should be considered for removal regardless of any future development.

Figure 2.8 – Example of a 'Very Low' value tree (a very poorly formed Robinia pseudoacacia 'Frisia' – Black Locust (T12446) on Pitt St growing beneath power lines. (Photo: Arterra)

Figure 2.9 – Example of a 'Very Low' value tree - one of the many self-sown Celtis sinensis – Chinese Hackberry (T461) growing within the private yards and car parking areas of the existing units, many are in very inappropriate locations and should be removed. (Photo: Arterra)

2.4 Site Context

The Estate is currently a highly urbanised, primarily social housing estate, developed between the 1950s and 1980s. It is characterised by a variety of medium to high density residential developments interspersed with tree-lined streets, parks and public open spaces.

Significant trees line many of the streets within the Estate. Trees located in the adjoining parks together with those within the setbacks of the residential developments, currently make significant contributions to the overall urban forest of the precinct and the wider urban area.

The Estate is surrounded by several important open spaces within a 200m radius. Redfern Oval is located to the north-east, Mt Carmel/Waterloo Park is located directly to the east/ south-east, and Alexandria Park is located two blocks to the west. Tobruk Memorial Reserve is a small park located near the Waterloo Estate at the eastern side, fronting Elizabeth Street.

Figure 2.10 - Today Waterloo is a variety of medium to high density residential developments interspersed with tree-lined streets, parks and semi-public open spaces. (Photo: UrbanGrowth NSW).

2.5 History and Age of Existing Tree Population

By the 1820s this suburb located about 4km south of Sydney CBD supported a number of industrial operations, including a paper mill and the Waterloo Flour Mills, from which the suburb took its name. The area remained Crown Land until 1823 when 1400 acres were granted to William Hutchinson, as Waterloo Farm. In the 1850s Waterloo became an industrialised suburb. (Pollon, F. 1996)

The Estate, as it stands today, was developed over approximately three decades from the late 1950s to the 1980s. Only some small trees can be seen in the 1975 aerial on the corner of Pitt and Philip Street and along Wellington and George Street (Figure 2.14).

This highlights that all the large and very prominent Figs and Eucalyptus trees now scattered throughout the study area are typically all **less than 45 years old**.

Figure 2.11 – Aerial oblique of the development circa 1970. (Photo: Dept. of Housing/ LAHC).

It should be noted that although the site now has a very good canopy coverage (Figure 2.15 and 2.16), no significant trees were present in the aerial images from 1943 (Figure 2.13). The housing was mostly small, in tight rows of terraces. The only trees evident are outside the site in the adjacent historical parks of Waterloo Park (Mt Carmel), and nearby Redfern Oval and Alexandria Park.

The aerial images from 1943 through to 1975 provide a clear visual representation of the stark difference between that earlier period with virtually no trees and that of today with many tree-lined streets and numerous trees within the public and semi-public spaces.

Figure 2.12 – Extensive and significant trees of Mt Carmel. Although not specifically within the Waterloo Estate precinct, they represent an important part of the urban forest due to the visual and historical significance they provide. (Photo: Arterra)

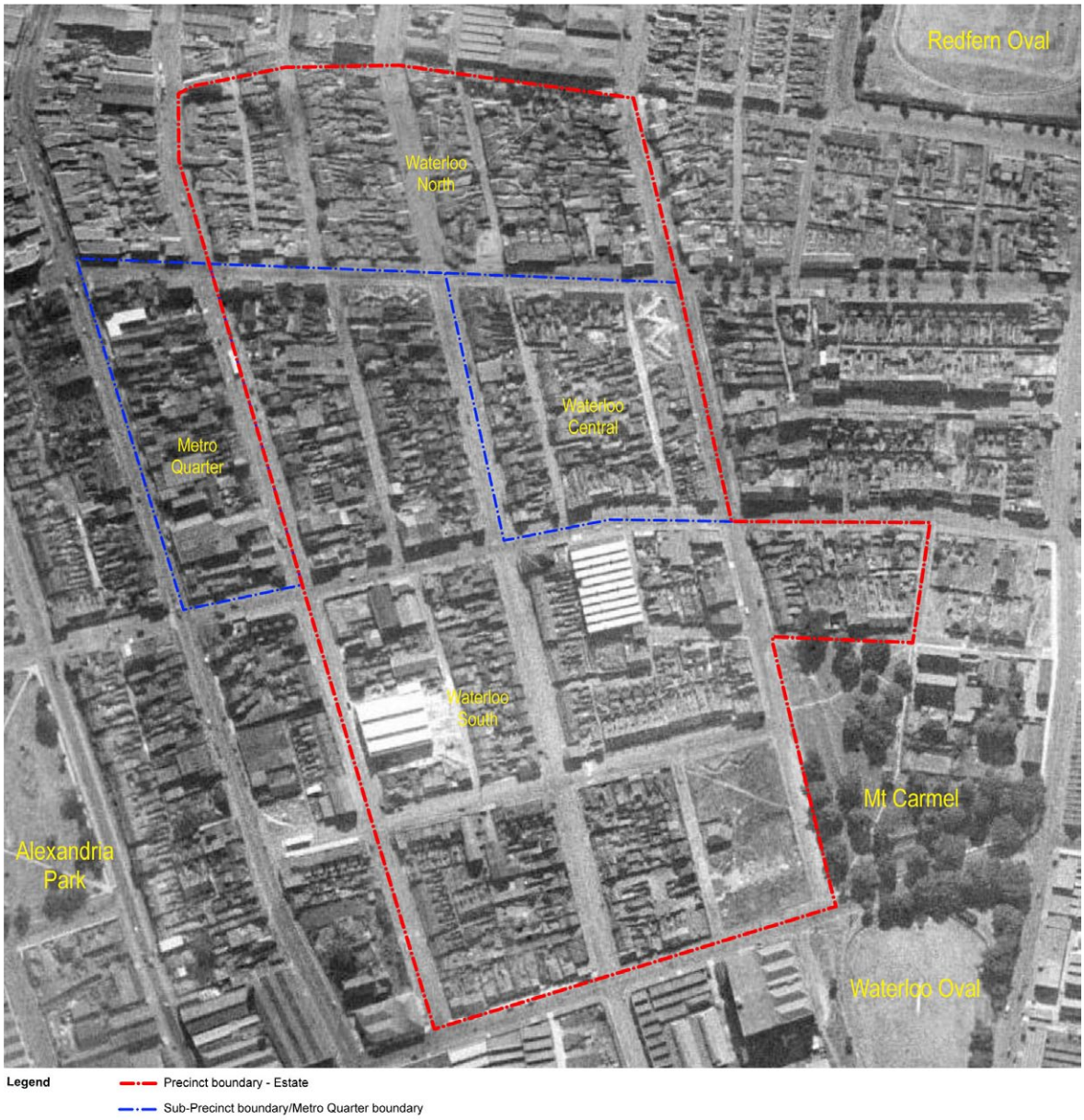


Figure 2.13 – 1943 aerial clearly showing the trees in the nearby parks, however there appears to be no significant trees within the Precinct. (Source: NSW Lands Dept. - Six Maps)

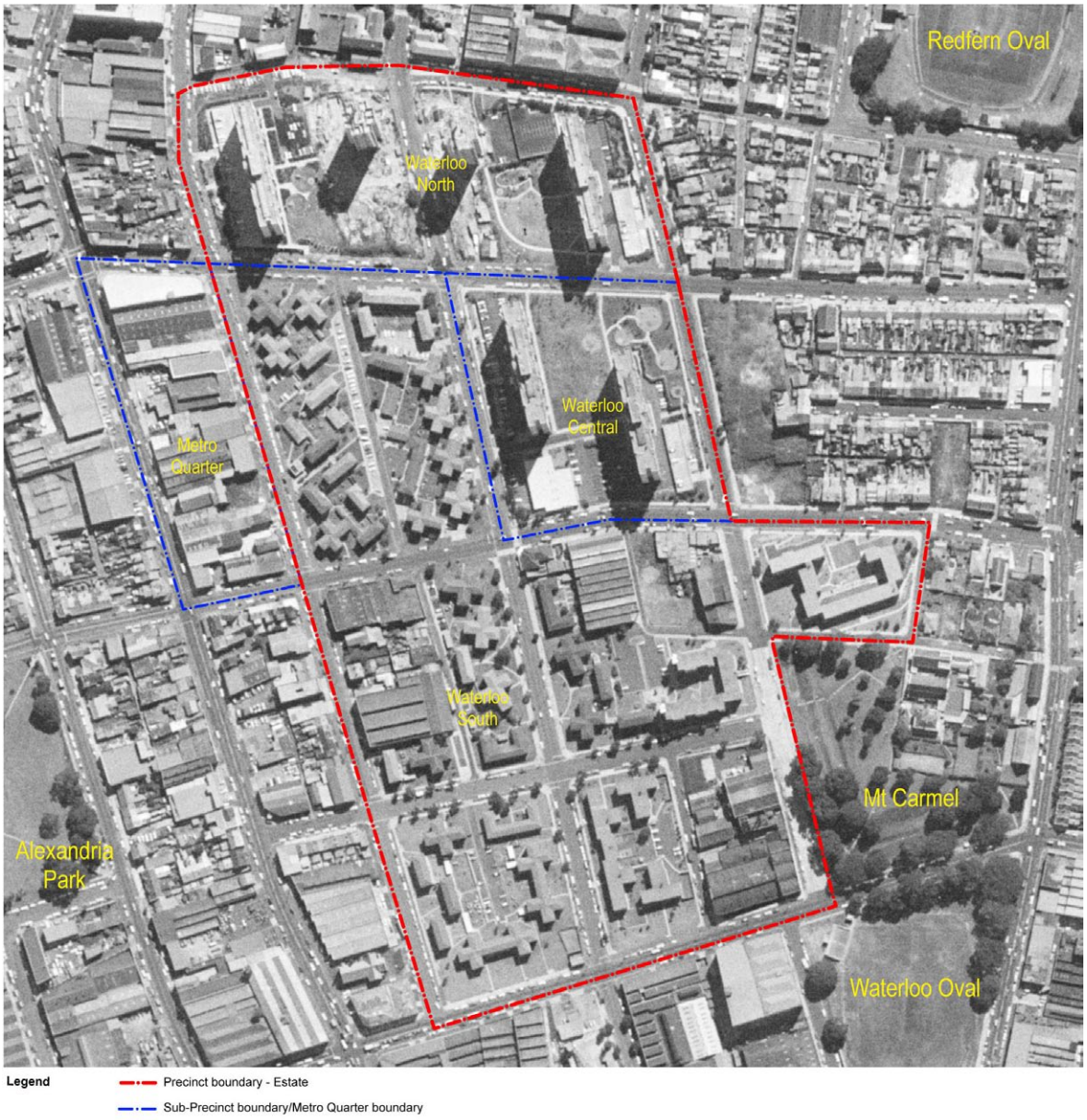


Figure 2.14 – 1975 aerial showing the trees in the nearby parks. Note there still appears to be very few trees within the Precinct. Some young trees are noted along George Street, John Street and in the corner of Pitt and Philip Street. (Source: CoS)

Figure 2.15 – 2017 aerial of the Precinct illustrating its relatively dense tree canopy, dominated primarily by Hill's Weeping Figs, Tallowoods and some other large, but scattered, Eucalypts. (Nearmap 11.02.2017)

Figure 2.16 – A great many trees have been planted over the last 30-40 years, in the streets (George St pictured) and the setback areas between the road reserve and the existing apartment buildings. The trees greatly contribute to the overall amenity and environmental performance of the area. Where possible and feasible the existing trees should be retained and protected. (Photo: Arterra)

2.6 Soils and Landform

Soil mapping describes the area as being part of the Tuggerah Soil Landscape association, a geologically recent deposit of wind blown, fine to medium grained, well-sorted marine quartz sand. The topsoil is expected to be naturally a loose speckled grey-brown loamy sand, with little organic matter. The topsoil usually overlies a much deeper, bleached sand layer. Stones are usually absent. The soils are therefore expected to be apedal, non-cohesive with low fertility and low water holding capacity with extremely high permeability. (Chapman 1989).

The soil profile is therefore typically very deep (greater than 2m) sandy soils. This soil is generally non-cohesive, with a very low nutrient status and low available water holding capacity. The soil tends to be moderately to strongly acidic. Most importantly the top layers of soil can become water repellent. The area can be subject to extreme wind erosion and some localised flooding with permanently high water tables (typically within 2m of the surface), particularly in lower lying areas.

The soil conditions of Waterloo present one of the greatest challenges to successful street and other tree planting due to:

- Low water holding capacity
- Potential water repellency
- Very low fertility and inability to hold nutrients
- Acidic pH
- Shallow water tables

This can produce frequent drought-like conditions for trees, unless they are in an area where they can seek out and access more reliable groundwater reserves. Plants that are subject to prolonged or frequent water stress can be more susceptible to pests and diseases unless they are well adapted to these conditions.

On a positive note, the soil is deep and sandy which generally means less dramatic impacts between roots and infrastructure, as roots can travel deeper and more easily beneath roadways, pathways and footings. This is mainly due to the soil still containing enough pore spaces and oxygen to sustain root development, even at depth. In contrast, in more typical soils, particularly clay-based soil conditions, roots will often be confined to the top 300-400mm of the profile and cause greater impacts with pavements, kerbs and footings resulting in more pronounced damage.

This does not mean that surface roots will not still cause some issues. Experience has shown that many trees will

still develop shallow roots systems in an attempt to access any rains that fall and provide structural stability in the non-cohesive soils. Similarly, all trees will develop a 'root flare' that will displace the soil immediately around the trunk regardless of the soil conditions. The larger the tree the larger this 'root flare' area will be. Figs produce significant root flares due their buttressing roots.

The site has a slightly undulating landform, highly disturbed over the past 100 years to now create levelled areas for development. Slopes across the site are typically moderate with grades around 1 in 50 to 1 in 70 (1-3% slopes). There is, however, a sharp and notable increase in slope and elevation towards the eastern portion of the study area, primarily associated with the local rise in the topography around the Our Lady of Mt Carmel School and Waterloo Park (Figure 2.17 and 2.12).

Figure 2.17 – The notable rise in landform around Mt Carmel. The photo also illustrates the assemblage of historic figs that date from circa 1900 within Mt Carmel/Waterloo Park adjacent to the site. There is a mixture of Port Jackson and Morton Bay Figs, all of significant proportions and greatly contributing to the visual character of this portion of the study area and McEvoy Street. (Photo: Arterra)

2.7 Climate and Microclimate

The Waterloo area experiences moderate temperatures, good rainfall and minimal climatic and weather extremes. It is typically described as a 'temperate' climate with hot to warm summers and cool winters, with relatively uniform rainfalls across the seasons. There is no distinctly dry season. It is located very close to the moderating affects of the coast. The average annual rainfall is 1085mm, and is fairly evenly spread across the year but with a slightly drier period from July - October. The highest rainfall usually occurs in June with an average of 123mm and the driest month is September with an average of just 60mm (figures according to the Sydney Airport AMO weather recording station).

Maximum average daily temperatures, recorded range from 26.5ºC in January to 17ºC in July. The minimum average daily temperatures range from a low of 19ºC in February down to lows of 7.2ºC in July. Frosts are extremely rare.

The primary wind direction is from the north-east to south-east in the afternoons while it is predominantly from the west and north-west in the mornings. This is common of coastal areas dominated by 'sea breeze' affects. The strongest winds (>30km/h) are normally experienced from the south-east and southerly directions and later in the day. (Source: Australian Bureau of Meteorology).

In comparison with other areas of the greater western Sydney region, that experience much higher maximum and lower minimum temperatures and substantially lower annual rainfall, the Waterloo area enjoys a very comfortable climate which in turn lends itself to a very diverse range of tree species that will happily grow in the area. There are

no noticeable microclimatic influences in the area apart from the overshadowing of existing and potential tower blocks and the associated wind funnelling and down drafts that may be experienced from adjoining tall towers.

The potential impacts of climate change should be considered which is likely to result in higher average temperatures, longer drought periods and increased extreme storm events. Planting selection, therefore, should consider these factors. This has been further highlighted within the Climate Change Adaptation Report prepared by Aecom, with the various climatic scenarios, risks and mitigation strategies considered and discussed.

2.8 Existing Tree Population and Statistics

The following statistics and commentary relate specifically to the area defined as the Waterloo Estate. This information is intended to provide a background to the existing urban forest and provide an analysis and understanding of existing tree population within the boundary of the Estate. The information is provided to support the overall recommendations made for the Estate. Although trees adjoining the Estate boundary (eg. within Mt Carmel/Waterloo Park and on opposites side of adjoining streets) were also reviewed and assessed, for clarity, they are not included within the following statistics.

Within the precinct area of the Estate, a total of **939 trees** were identified, inspected and assessed. The trees are predominantly located in the public domain, the streets and the semi-public areas surrounding the residential towers. Although there are numerous trees in the private property areas, most of these are close to the existing street frontages or within the building setbacks from the streets. The trees that are within the more 'private' yards and rear spaces around the low rise apartment blocks tend to be relatively smaller trees and often self-sown 'invasive' or other less desirable species.

The following analysis has broken up the existing tree population into the different families, genus, species and retention values. These have been used to assess the existing tree population against the CoS targets. Corresponding plans in Appendix 6 visually display how the existing trees are distributed across the site, which was used for information and to help identify key trees and groups to be included and protected within the Indicative Concept Plan.

2.8.1 Existing Tree Family Distribution.

The tree population is dominated by 4-5 main 'Families'. The percentage of the population they represent is illustrated in the following table. The preferred CoS target is to have no more than 40% of one family. As expected, and is very common through most Australian cities, Myrtaceae dominates at over 47% of the total population.

Table 2 – Existing Trees By Botanic Family

Botanical Families	No.	% total pop.
MYRTACEAE (eg. Eucalypts, Corymbia, Tristaniopsis, Melaleuca, Lophostemon, Waterhousea)	446	47%
CASUARINACEAE (eg. Casuarina)	89	9%
MORACEAE (eg. Figs)	78	8%
FABACEAE (eg. Robinia)	46	5%
ARECACEAE (eg. Palm Trees)	43	5%
PLATANACEAE (eg. Planes)	42	4%
SAPINDACEAE (eg. Cupaniopsis)	39	4%
ULMACAEAE	20	2%
MALVACEAE	17	2%
BIGNONIACEAE (eg. Jacaranda)	15	2%
PROTEACEAE	14	1%
PODOCARPACEAE	13	1%
OLEACEAE	10	1%
HAMAMELIDACEAE	10	1%
LAURACEAE	9	<1%
RUTACEAE	8	<1%
ROSACEAE	7	<1%
ARAUCARIACEAE	7	<1%
ANACARDIACEAE	4	<1%
MELIACEAE	4	<1%
PITTOSPORACEAE	3	<1%
SALICACEAE	3	<1%
ELAEOCARPACEAE	2	<1%
CUPRESSACEAE	2	<1%
EUPHORBIACEAE	2	<1%
LYTHRACEAE	2	<1%
MAGNOLIACEAE	2	<1%
ARALIACEAE	1	<1%
APOCYNACEAE	1	<1%
ASPARAGACEAE	1	<1%
FAGACEAE	1	<1%
Total	**939**	**100%**

2.8.2 Existing Genus Distribution.

There are currently 68 different genera within the study area. The CoS target is to have no more than 30% of the population in any one genus. The top 15 genera are represented in the following table. As expected, and is common in many Australian cities, the Eucalyptus/Corymbia and Ficus genera currently dominate at approximately 27% of the total tree population (19% / 5% and 8% respectively).

Table 3 – Existing Trees By Botanic Genus

Most Prevalent Genus (in order of prevalence)	No.	% total pop.
Eucalyptus	182	19%
Casuarina	89	9%
Ficus	77	8%
Melaleuca	73	8%
Corymbia	51	5%
Lophostemon	44	5%
Platanus	42	4%
Robinia	38	4%
Cupaniopsis	31	3%
Agonis	29	3%
Callistemon	26	3%
Archontophoenix	25	3%
Tristaniopsis	22	2%
Celtis	17	2%
Jacaranda	14	1%

2.8.3 Existing Species Composition.

There are currently **103** different species within the study area. The CoS target is to have no more than 10% in any one species. The top 15 species are illustrated in the following table.

Table 4 – Existing Trees By Species

Most Prevalent Species (in order of prevalence)	No.	% total pop.
Eucalyptus microcorys (Tallowood)	71	8%
Melaleuca quinquenervia (Broad-leaved Paperbark)	68	7%
Casuarina cunninghamiana (River She-Oak)	68	7%
Ficus microcarpa var. hillii (Hill's Weeping Fig)	63	7%
Lophostemon confertus (Brush Box)	44	5%
Platanus x acerifolia (London Plane Tree)	42	5%
Eucalyptus botryoides (Bangalay)	40	4%
Robinia pseudoacacia 'Frisia' (Black Locust)	37	4%
Corymbia maculata (Spotted Gum)	35	4%
Cupaniopsis anacardioides (Tuckeroo)	31	3%
Agonis flexuosa (Willow Myrtle)	29	3%
Archontophoenix cunninghamiana	25	3%
Callistemon viminalis cv. (Bottlebrush)	25	3%
Tristaniopsis laurina (Water Gum)	22	2%
Casuarina glauca (Swamp Oak)	21	2%

2.8.4 Existing Tree Retention Values.

The number and the percentage of the total population of trees in the different retention values are shown in the following table.

Table 5 – Existing Trees By Retention Value

Retention Value	No.	% total pop.
High	141	15%
Moderate	299	32%
Low	477	51%
Very Low / Remove	22	2%

With regard to the High Value trees, the majority are represented by the following species:

- *Eucalyptus microcorys* (Tallowood) (31%),
- *Ficus microcarpa var. hillii* (Hills Weeping Fig) (22%),
- *Corymbia maculata* (Spotted Gum) (8%) ,
- *Eucalyptus botyoides* (Bangalay) (5%)
- *Eucalyptus saligna* (Sydney Blue Gum) (5%) and
- *Corymbia citriodora* (Lemon Scented Gum) (5%).

The remaining High Value trees are typically represented by only a few individual specimens within any given species. Refer to accompanying Tree Retention Values Plan (Figure 2.18 on following page) for a graphical representation of the tree retention values and their distribution around the site.

2.8.5 Existing Tree Age Class, Type, Size and Origin.

The tree population represents what would be considered a relatively normal breakup of age class, size and origin. None of these statistically represent a great cause for concern and the existing population provides a good basis upon which to create a sustainable urban forest strategy moving forward.

With regard to age of the population, the vast majority of trees fall into the mature age class. A good representation of semi-mature trees, however, is also present. Most importantly, there is very little evidence of an over-mature or senescent tree population that needs to be specifically addressed as part of the ultimate strategy. The new development is likely to introduce another wave of young tree planting that will help further balance the age class of the urban forest population.

Figure 2.18 – Map of the Estate illustrating the existing trees and their relative positions and existing retention values . (Source: Arterra)

Table 6 – Existing Trees By Age Class

Existing Tree Age Class	No.	% total pop.
Young	46	5%
Semi-mature	183	19%
Mature	709	75%
Over-mature	1	<1%

Table 7 – Existing Trees By Type of Tree

Existing Tree – Tree Type	No.	% total pop.
Evergreen	719	77%
Deciduous	155	16%
Palm-Single Stem	43	5%
Conifer	22	2%

Table 8 – Existing Trees By Vigour and Condition

Existing Tree – Vigour and Condition	No.	% total pop.
Excellent	29	3%
Good	494	53%
Fair	374	40%
Poor	37	4%
Moribund	4	<1%
Dead	1	<1%

Table 9 – Existing Trees By Its Ultimate Potential Size

Existing Tree – Ultimate Sizes	No.	% total pop.	CoS target.
Small	181	19%	10%
Medium	415	44%	45%
Large	251	27%	35%
Civic	92	10%	10%

Table 10 – Existing Trees By Origin

Existing Tree – Tree Origin	No.	% total pop.
Endemic to local area	165	18%
Native to wider Sydney region or Australia generally	526	56%
Exotic	220	23%
Invasive / Weeds	28	3%

2.8.6 Existing Canopy Cover

Current analysis of tree canopy coverage** in the Southern Precinct is broken down in the following table. Refer to Tree Canopy Cover Plan (Figure 5.5 in Section 5.0) for a graphical representation.

Table 11 – Existing Canopy Cover - South Precinct Only

Study Area	Total Area	Canopy m2	% total canopy	CoS target.
Parks / Reserves	0m2	0m2	0%	25%
Private	88,528m2	22,372m2	25.3%	25%
Streets	34,823m2	13,293m2	38.2%	50%
Total	**123,351m2**	**35,665m2**	**28.9%**	**27%**

** Note - Area calculations include all areas within the Waterloo South Precinct and exclude the Metro Quarter, the Central or Northern Precincts and any other areas and portions of road reserves outside of the Estate boundary. There are currently no 'public' park areas within the existing Waterloo Estate precinct.

2.9 Arrangement and Relationship to Existing Structures

The trees are situated widely throughout the Estate, within the roadside verges, in the gardens surrounding the buildings and the semi-public open spaces. Most of the significant and important trees are often located either in the existing road verges or within the setback between the road reserve and the existing buildings.

2.9.1 The Fig Trees

- **Scale**. The numerous *Ficus microcarpa var. hillii* (Hill's Weeping Fig) and occasional *Ficus macrophylla* (Morton Bay Fig) are very large, civic-scaled trees that dominate much of the surrounding open spaces and streets. They require ample space both above and below ground.
- **Density**. The Figs have often been planted in close proximity to each other with very little consideration for their ultimate size and shape (Figure 2.19). Their canopies are often inter-grown and asymmetric and their roots intertwined throughout the adjacent built infrastructure and with other trees.
- **Infrastructure**. They are often planted very close to buildings and other infrastructure (Figure 2.20 and 2.21). This has often created issues with the form of individual trees and presents conflicts with the surrounding infrastructure such as footpaths, walls and car parking and below ground drainage lines.
- **Shade**. The Figs now present a real challenge for creating inviting and usable spaces beneath, and around them, due to the heavy shade, near constant fruit and leaf fall and extensive surface roots and buttressing. They do provide very useful shading in summer and substantially help to alleviate 'urban heat island' effects.
- **Root Systems**. The extensive buttress root system of the Figs will create challenges for developing new pathways and other new infrastructure (Figure 2.21). Adequate space must be allowed for the trunks and roots to allow for future expansion. The roots of figs often spread many 10s of metres away from the tree. Significant figs roots could easily be found 30-50m away from an individual tree.

Figure 2.19 – Ficus microcarpa var. hillii (Hill's Weeping Fig) on Wellington St with extensive dense canopies growing within close proximity of each other. (Photo: Arterra)

Figure 2.20 – Ficus macrophylla (Morton Bay Fig) growing around and together with the existing buildings. Retention of this tree would likely require keeping parts of the many nearby structures and extremely sensitive and site specific demolition of others. (Photo: Arterra)

Figure 2.21 – Fig trees with extensive roots in very close proximity to each other and surrounding buildings. (Photo: Arterra)

2.9.2 Large Eucalypt (Gum) Trees

- The larger Eucalypts (eg. *E. bicostata* (Southern Blue Gum), *E. saligna* (Sydney Blue Gum) and *E. microcorys* (Tallowood)) across the study area provide **excellent scale and landscape amenity**. Their retention would add value and assist with the delivery of mature landscapes to the future buildings, streets and open spaces. This may prove challenging as Eucalypts generally have a relatively low tolerance of construction related disturbances.
- **Protection Zones**- Many of the Eucalypts have large trunk diameters and will therefore require extensive setbacks and tree protection zones in order to adequately protect them.
- **Demolition** - Like the Figs, many of the larger Eucalypts are very close to existing buildings and therefore demolition and excavation would have to be dealt with very sensitively if the trees are to be successfully retained.

Figure 2.22 – A large Eucalyptus saligna (Sydney Blue Gum) T435 near Reeve St. (Photo: Arterra)

2.10 Assessment of the Overall Existing Tree Population and its Composition

The following summarises the key findings from the analysis of the field assessments and statistics.

- **Composition by family, genus and species**. The composition of the tree population by species is already approaching or exceeding some set targets. Care will be needed when selecting species from the Myrtaceae family to prevent further skewing of the representation of this family. Current targets advocated by the CoS, and others, state that a single family should make up no more than 40% of the population and no individual species should represent more than 10%.
- **Size Distribution**. The current population is relatively balanced, however there is a slight over reliance on small trees. The planting of more 'civic' scaled trees (extra large) in prominent and appropriate positions will help to balance the sizes of trees towards the larger spectrum. Notably, many of the smaller trees are very close to the existing apartments (eg. palms) and are likely to be removed as part of any redevelopment programs. This too will assist in re-balancing this statistic, provided medium and larger trees are planted around the new development and within new parks.
- **Age Distribution**. The current population is relatively balanced. The likelihood of new tree planting as a result of the redevelopment will maintain the age distribution of the urban forest at acceptable levels. Maintaining an appropriate distribution within age classes of the population allows a balanced approach to maintaining and improving canopy cover over time. Mature trees typically provide the greatest benefits in terms of canopy, however it is also important to remember that trees take many years to grow and provide the benefits of the mature tree. Trees will also grow old and eventually require removal, meaning that ongoing and relatively continuous planting is always required to maintain and improve the canopy and age class distribution of any urban forest into the future.
- **Canopy Cover**. The current canopy cover is very good and actually just exceeds the advocated target for the overall suburb. Retaining large, high value trees retains the canopy and immediately provides all the benefits (environmental, canopy, amenity, scale and aesthetics) of big trees to a new development. Removal of large canopy trees will have a corresponding negative effect and will take many years to ameliorate and offset the losses. To achieve the stated aims of the precinct redevelopment, meeting and exceeding the canopy coverage targets will be crucial.

3. PLANNING FRAMEWORK AND INDICATIVE CONCEPT PROPOSAL

3.0 Waterloo South Planning Proposal

The planning proposal will establish new land use planning controls for Waterloo South, including zoning and development standards to be included in Sydney LEP 2012, a new section in Part 5 of DCP 2012, and an infrastructure framework. Turner Studio and Turf has prepared an Urban Design and Public Domain Study which establishes an Indicative Concept Proposal presenting an indicative renewal outcome for Waterloo South. The Urban Design and Public Domain Study provides a comprehensive urban design vision and strategy to guide future development of Waterloo South and has informed the proposed planning framework. The Indicative Concept Proposal has also been used as the basis for testing, understanding and communicating the potential development outcomes of the proposed planning framework.

The Indicative Concept Proposal comprises:

- Approximately 2.57 hectares of public open space representing 17.8% of the total Estate (Gross Estate area – existing roads) proposed to be dedicated to the City of Sydney Council, comprising:
    - Village Green – a 2.25 hectare park located next to the Waterloo Metro Station; and
    - Waterloo Common and adjacent – 0.32 hectares located in the heart of the Waterloo South precinct.
    - The 2.57 hectares all fall within the Waterloo South Planning Proposal representing 32.3% of public open space (Gross Waterloo South Area - proposed roads).

- Retention of 52% of existing high and moderate value trees (including existing fig trees) and the planting of three trees to replace each high and moderate value tree removed.
- Coverage of 30% of Waterloo South by tree canopy.
- Approximately 257,000 sqm of GFA on the LAHC land, comprising:
    - Approximately 239,100 sqm GFA of residential accommodation, providing for approximately 3,048 dwellings (comprising a mix of market and social (affordable) housing dwellings);
    - Approximately 11,200 sqm of GFA for commercial premises, including, but not limited to, supermarkets, shops, food & drink premises and health facilities; and
    - Approximately 6,700 sqm of community facilities and early education and child care facilities.

The key features of the Indicative Concept Proposal are:

- It is a design and open space led approach.
- Creation of two large parks of high amenity by ensuring good sunlight access.
- Creation of a pedestrian priority precinct with new open spaces and a network of roads, lanes and pedestrian links.
- Conversion of George Street into a landscaped pedestrian and cycle friendly boulevard and creation of a walkable loop designed to cater to the needs of all ages.
- A new local retail hub located centrally within Waterloo South to serve the needs of the local community.
- A target of 80% of dwellings to have local retail services and open space within 200m of their building entry.
- Achievement of a 6 Star Green Star Communities rating, with minimum 5-star Green Star – Design & As-Built (Design Review certified).
- A range of Water Sensitive Urban Design (WSUD) features.

The proposed land allocation for the Waterloo South precinct is described in Table 12 below.

Table 12 – Breakdown of Allocation of Land Within Waterloo South

Land Allocation	Existing	Proposed
Roads	3.12ha / 25.3%	4.38ha / 35.5%
Developed area (Private sites)	0.86ha / 6.98%	0.86ha / 7%
Developed area (LAHC property)	8.28ha / 67.2%	4.26ha / 34.6%
Public open space (dedicated to the City of Sydney)	Nil / 0%	2.57ha / 20.9% (32.3% excluding roads)
Other publicly accessible open space (Including former roads and private/LAHC land)	0.06ha / 0.5%	0.25ha / 2%
TOTAL	**12.32ha**	**12.32ha**

A plan of the Indicative Concept Proposal is included at Figure 3.1 and computer generated images (CGIs) are included at Figures 3.2, 3.3 & 3.4.

Figure 3.1 – Indicative Concept Proposal [Source: Turner Studio]

Figure 3.2 – Computer generated image of the proposal, looking into the Village Green from the corner of Raglan and Cope Streets (Source: Turner Studio)

Figure 3.3 – Computer generated image of the proposal, looking north along Cope Street towards Raglan Street (Source: Turner Studio)

Figure 3.4 – Computer generated image of the proposal, looking north towards Waterloo Common from the corner of George and McEvoy Street (Source: Turner Studio)

3.1 Green Star Community Rating and Initiatives

The Estate is attempting to achieve Green Star ratings, as developed by the Green Building Council of Australia. 'Green Star – Communities' assesses the planning, design and construction of large scale development projects at a precinct, neighbourhood and community scale. It provides a rigorous and holistic rating across five primary impact categories. These categories are:

1. Governance
2. Liveability
3. Economic prosperity
4. Environment
5. Innovation

The urban forest study aligns with many of these rating criteria. The Liveability category encourages the development of healthy and active lifestyles, and rewards communities that have a high level of amenity, activity, and inclusiveness. The Environment category aims to reduce the impact of urban development on ecosystems. It encourages resource management and efficiency by promoting infrastructure, transport, and buildings, with reduced ecological footprints. The Environment category therefore seeks to reduce the impacts of projects on land, water, and the atmosphere.

Although urban forestry and trees are not specifically outlined or assessed in the current rating system, the urban forest initiatives outlined within this study aim to support the requirements of the Green Star rating system. The way that this will be achieved includes most importantly:

- Increasing canopy coverage wherever possible to reduce greenhouse gas emissions by shading buildings, cars and pavements.
- Mitigating urban heat island effects by reducing ambient temperatures at ground level and improved cooling during extreme heatwave through evapotranspiration.
- Creating more comfortable and walkable streetscapes, thereby promoting liveability and activity.
- Utilising trees to capture and reduce gaseous and particulate pollutants and intercept and ameliorate stormwater flows.
- Improving biodiversity by advocating an appropriate and diverse mix of tree species throughout the wider estate and utilising, where sensible, endemic tree species that provide beneficial habitat and linkages.
- Adapting to climate change by recognising that a gradual change and adoption of potential species that may be better suited to warmer climates and increased heatwave extremes is needed. Also by promoting the use of water sensitive design strategies that may passively irrigate trees wherever possible to allow them to better deal with extremes and future drought conditions.

Figure 3.5 – In our ever warming climate, urban greening and shading will be a critical aspect to achieving the wider environmental, social and health benefits for our communities.

3.2 Place Making Initiatives

At the heart of the Indicative Concept Plan is the desire to create a resilient and connected community. As the Estate grows, 'place making' initiatives must amplify the community voice and support networks between people. During the consideration of the urban forest strategy several key place making principles have been woven into the strategies and objectives.

Particularly relevant to the Urban Forest Study, these place making initiatives include:

- Supporting the Metro station as a destination and as a gateway to the surrounding neighbourhood.
- Embedding educational, recreational and productive programs into the public domain.
- Providing a rich tapestry of inclusive and informal gathering spaces.
- Delivering a fine grain urban grid, which supports a highly walkable place.
- Making nature a central theme, leveraging off Waterloo's existing trees to intensify the feeling and perception of greenery.
- Creating an engaging ground floor interface for pedestrian delight.

The ways the urban forest strategy will contribute to the above initiatives include:

- Retaining and protecting a significant number of the existing high and moderate value trees.
- Prioritising new tree planting within all public areas and streets.
- Integrating the tree planting together with the urban grid and the retail needs.
- Using trees to help create comfort and shade, in a safe and beautiful way.
- Using granular, broken and eroded street edges to create special and diverse spaces for diverse and signature tree planting to promote social gathering.
- Advocating signature and relatively unique trees to highlight key activity nodes.
- Promoting the use of the podium levels of new buildings for tree planting and potential productive gardens and community orchards.
- Utilising trees and the urban forest as a support and focus for temporary or permanent artistic and sculptural displays (in a non-injurious way) and promoting understanding and appreciation for the urban forest via community tours and community events.

Figure 3.6 – Trees have a great deal of influence over the environmental performance of an urban area. Good canopy cover, particularly over streets and fronting buildings can help mitigate urban heat island affects, lower ambient temperatures by several degrees during heat waves and reduce the demands for air conditioning. The sensible use of deciduous species in key locations also allows solar access for sunlight and warmth during cooler months. (Photo: Arterra)

3.3 Canopy Cover - Benchmarking

The CoS has committed in its Urban Forest Strategy 2013 to increase its average total canopy coverage from 15.5% to 23.25% by 2030, and then to **27.13% by 2050**. This aligns with most other international cities that have all recognised the benefits of urban greening. The currently measured canopy coverage of the surrounding Waterloo and Alexandria area stands at 16%. This means the Estate, with an existing canopy cover of 31%, is providing a very substantial contribution to the canopy coverage of the area as a whole. Any reduction in canopy cover within the Estate will likely have a commensurate flow on effect to the wider area and the city as a whole. The development within the Precinct should therefore maintain or increase the potential canopy cover.

Direct comparison between individual cities and areas is often difficult due to different methods and accuracy of calculating canopy coverage and the variations between different cities and their climates and land use mixes. There are also variations in the overall extent and areas that are being measured within the cities. However, as an example, and for comparison, the following information is provided:

- **Melbourne** – the city is aiming to increase the public realm canopy cover from 22% (2012) to 40% by 2040.
- **Chicago** - at August 2012 the canopy cover was estimated at 15.5% using i-Tree software. They have a target of 20% by 2020.
- **Seattle** – established a target in 2007 to reach 30% by 2037. In 2016 a canopy study measured the coverage at 28%.
- **Vancouver** - mapped their coverage by LiDAR in 2013 at 18%. Their target is 22% by 2050.
- **Christchurch** - the current canopy cover from aerial imagery and LiDAR data collected during the summer of 2015/2016 was 15.59%.

Researchers at the Massachusetts Institute of Technology (MIT), in collaboration with the World Economic Forum, launched TREEPEDIA in 2016, which is a new platform that uses Google Street View data to measure and compare the green canopy in cities around the world. They have developed an innovative metric utilizing Google Street View (GSV) panoramas, called the '**Green View Index**' by which cities can evaluate and compare green canopy coverage as viewed from street level perception. (Project by the MIT Senseable City Lab - http://senseable.mit.edu/treepedia accessed May 2018).

The following graph displays where Sydney lies in terms of the Green View Index, as measured under the above system. It is important to note this measure is based on a street level assessment rather than actual plan view canopy coverage, so direct comparison to other measurements is not possible.

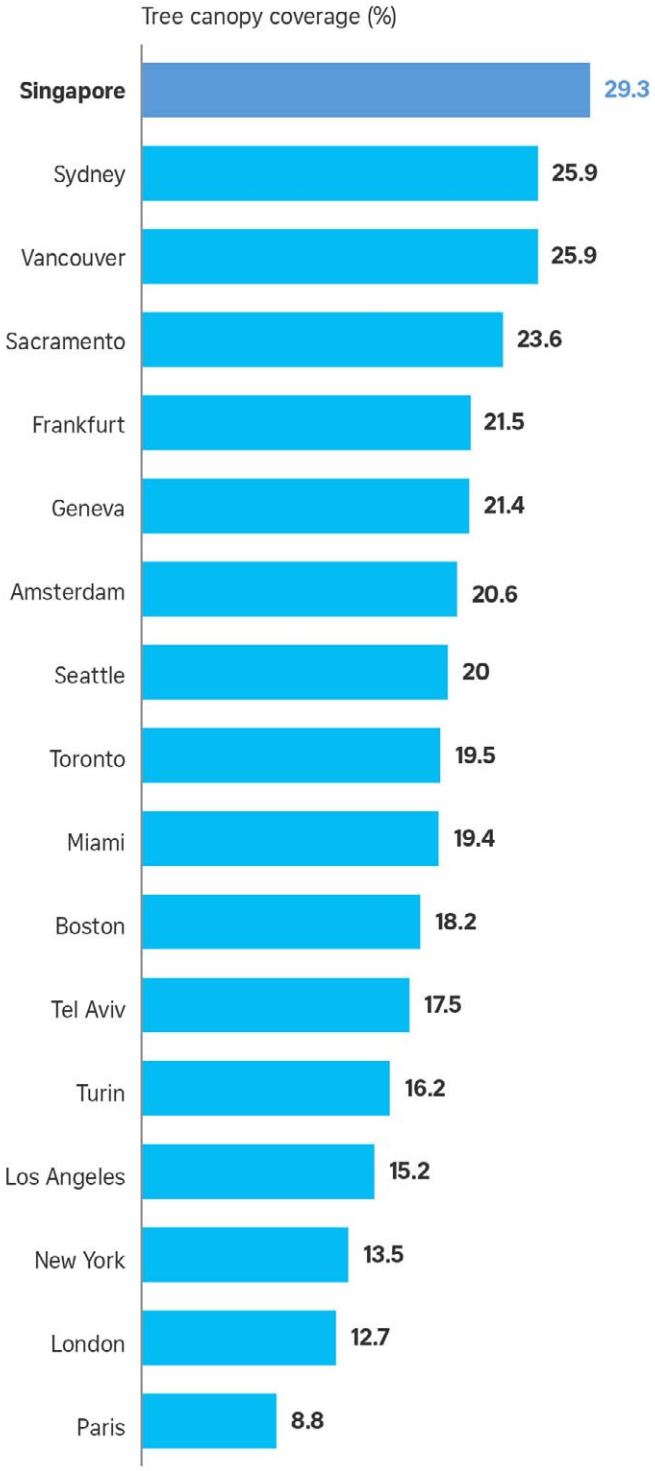


Figure 3.7 – A graph of the Green View Index canopy coverage score as presented in Singapore's Straits Times in 2017. Sydney is well placed in comparison to other global cities.
(Source: Treepedia and Straits Times Graphics. https://www.straitstimes.com/singapore/environment/singapore-tops-list-of-17-cities-with-highest-greenery-density -published 22 February 2017).

4. IMPLEMENTATION PLAN AND URBAN FOREST STRATEGIES

4.0 Overview

Research has consistently shown that medium to large trees provide the greatest ecological and community benefits, in comparison to small trees. They create more canopy spread and shading benefits, absorption of more gaseous pollutants, stormwater interception, lower levels of tree vandalism, and achieve higher canopy clearances. Medium and larger growing trees are also commonly longer lived than small trees. Large trees, however, do require larger soil volumes and more physical space above and below ground than small trees, which needs to be designed and factored into any new plantings. However, the ultimate benefits to the community are often exponentially increased over their lifetime.

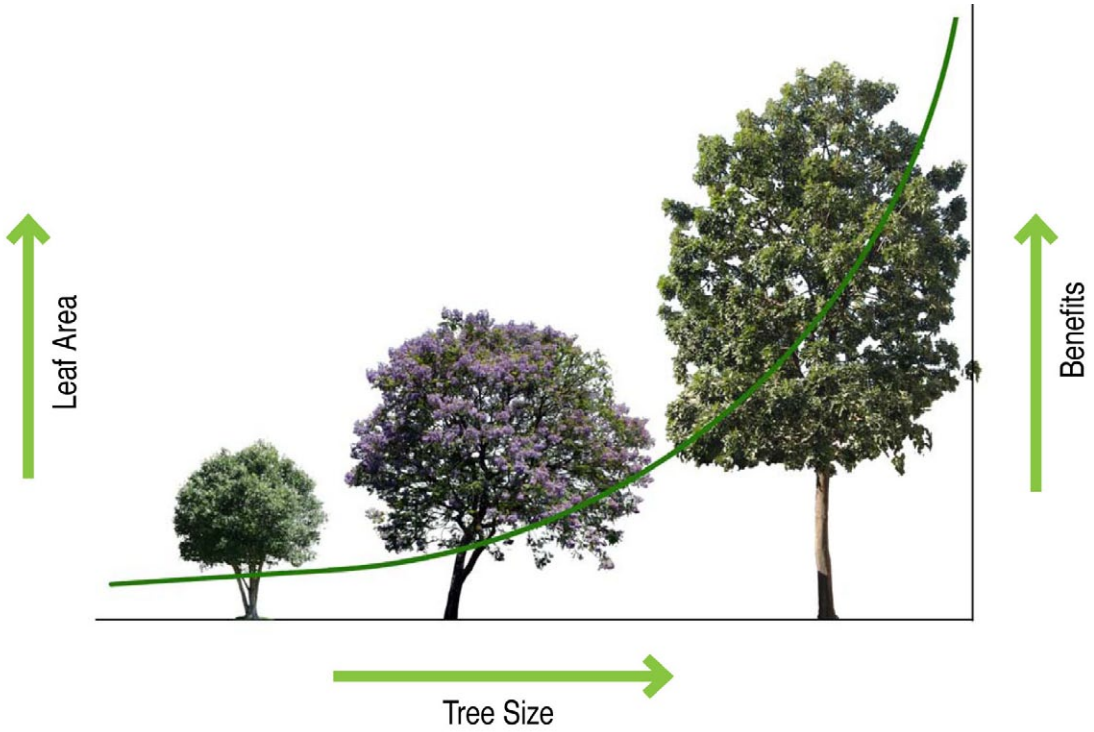


Figure 4.1 - Tree size does matter - the benefits of trees increase exponentially with size and increases in leaf area. (Adapted from Urban Tree Alliance http://www.urbantreealliance.org/why-trees/ accessed 12/7/2012)

Using the paradigm of 'right tree for the right location', a medium to large tree will only be specified and planted for an area where there is obviously sufficient space, and the growing conditions are suitable for the foreseeable life span of the tree. Smaller trees will also have a place in the urban forest for areas where physical space, overhead wires, parking and traffic restrictions or exposure present overriding factors.

The holistic planning of the Estate provides some real opportunities and benefits for the creation of a sustainable and valuable urban forest. As part of this project there is a rare opportunity within an inner urban area to design for trees and implement urban forest initiatives on a large scale.

This document outlines the strategies and targets for the Waterloo South precinct required to:

- Retain important existing trees.
- Create opportunities for new and replacement trees.
- Maximise tree planting throughout the precinct.
- Implement successful new tree planting.
- Achieve objectives of the precinct and other planning documents eg. canopy coverage, species diversity.
- Plan for, and plant trees with the end point in mind. Ensure the 'Right Tree for the Right Place'. This will minimise the pruning and future interventions required, maximise natural root development, and provide trees with improved resilience. This will minimise resource inputs and maximize the benefits.

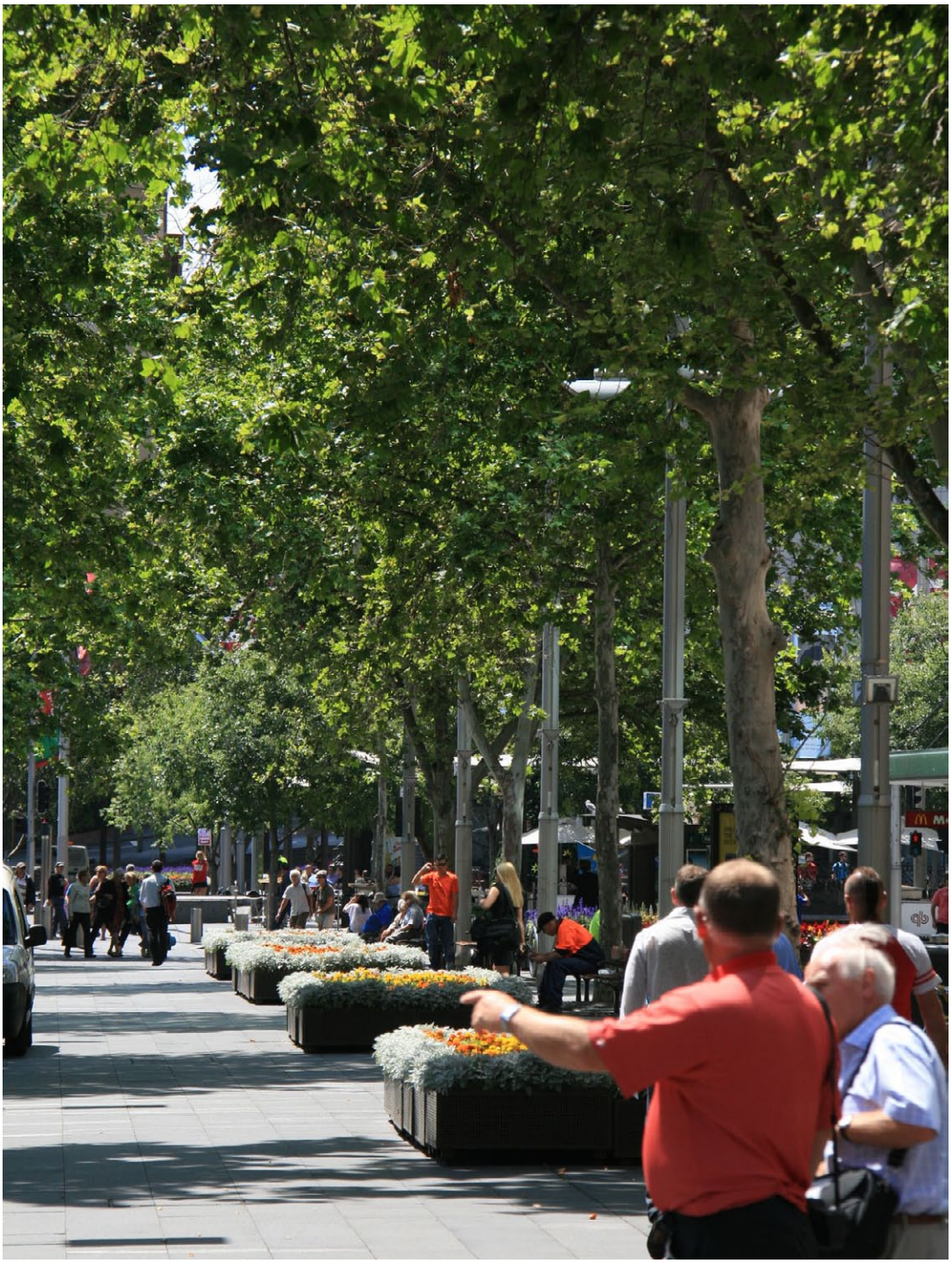


Figure 4.2 – When properly considered, trees can be valuable contributors to urban ecosystem services with minimal ongoing resource inputs and minimal impacts to other hard infrastructure and human wellbeing. (Photo: Arterra)

4.1 Canopy Coverage Targets

The following summarises the key opportunities and initiatives to achieve and increase the canopy coverage within Waterloo South.

- Maintain, or ideally exceed, the current 28% **overall canopy coverage** within the precinct and achieve the CoS targets of 50% canopy to streets. Varying slightly to the CoS targets, it is recommended to achieve at least 40% to parks, and at least 20% to private property.
- **Retain and protect the most significant trees** in the precinct where feasible, and incorporate them as mature elements within the proposed landscape. They can provide an excellent framework for future parks and other green spaces.
- Recognise that **mature trees require space** around them to protect their root plates and therefore it will be necessary to minimise buildings, level changes or service trenching through any areas retaining large trees. The urban design team could look at suspended structures or walkways around existing trees if they are sensitively designed. Provision of open surface area around the tree is typically more important than soil depths.
- Take an holistic view to **new street profile design** to work new and existing trees in as one of the core elements of the design, not an after-thought. Space above and below ground is the key. Consider final sizes of the root plate, trunks, trunk flares and canopy, particularly around any existing or new Figs or other civic scale trees.
- **Incorporate new and existing trees into verge gardens and lawn areas**, wherever possible, to allow the maximum space for the trees trunks and structural roots to expand and allow infiltration of air and water into the root zones. Direct surface water and runoff towards the existing and new trees to passively irrigate the trees in an ever-warming climate.
- **Utilise trees for supplementing wind amelioration**, by understanding the most desirable forms, sizes and densities of tree canopy in any given location. From experience and wind modelling, medium to large trees with a dense canopy are probably more important than small trees for wind amelioration.

4.2 Green Links, Ecology and Open Space

Trees provide shelter, roosting, food and other habitat resources for a range of fauna species. As outlined in Urban Ecology: Theory Policy and Practice in NSW, trees can benefit biodiversity in urban areas by making the matrix between surrounding core habitat patches or bushland more permeable and accessible to a range of species (Catterall et al., 1991). Trees are often described as keystone structures in highly modified urban landscapes because their ecological benefit, as defined by the value and ecosystem services they provide, is much greater than the land area they occupy. (Manning et al., 2009. Stragnoll et al., 2012)

Consideration has been given to recommending trees, which expand on, and provide a connection between, open spaces or other vegetated areas, particularly those identified as priority habitat areas. Although native trees are preferable in this regard, it is important to note that exotic species also have habitat value. A mix of species is to be targeted throughout the entire precinct to achieve species diversity and other ecological and community outcomes.

4.3 Urban Forest Resilience and Diversity

A key principle of a sustainable urban forest is an appropriately diverse mix of species – both native and exotic. This reduces the risk of loss should one species be susceptible to a new pest or disease. Diversity of tree species also provides benefits for biodiversity, aesthetic reasons, improves resilience and the provision of summer shade and winter sun. As we move into more uncertain times with regard to climate it is vital that any new tree planting considers proven past performances and potential resilience to the rigours of urban existence, climate change and a changing landscape of pests and diseases.

4.3.1 Climate Change Adaption

It is expected that potential water use restrictions and lower than average rainfalls that Sydney has previously periodically experienced will continue and potentially worsen into the longer term. Street and other trees that are selected will need to be capable of surviving an average drought period, in reasonable condition, without reliance on potable water supplies. Passive irrigation through the use of Water Sensitive Urban Design will be designed into many of the new tree planting areas and will assist with additional water being available to trees in times of drought and during normal times. The use of some species of trees that thrive in slightly warmer climates and provide good shading such as Leopardwood (*Caesalpinina ferrea*), Tulipwood (*Harpullia pendula*) and Agathis and *Araucaria sp.* would be very wise.

Figure 4.3 – The existing and proposed urban trees within the Estate will also provide some benefits to common urban wildlife. Where appropriate native or endemic species will be utilised, but even exotic species play an important part in providing roosting, nesting and feeding opportunities for a range of fauna. (Photo: Arterra)

4.3.2 Pest and Disease Resilience

Overseas experience shows that widespread infestations of harmful pests and diseases can have devastating consequences on parts of our urban tree populations. The impact of pest and disease on our urban forests is only likely to increase. This is due to a range of factors, such as increased temperatures (particularly over winter), storm events, greater or lower levels of rainfall events and the increase in international travel and trade, with the risks of a pest 'hitching a ride' to Sydney.

The recommended tree species for the Estate shall be chosen to be resistant to currently known pests and disease. A diversity of species will be important in reducing any potential impact of future widespread or devastating diseases on specific tree species. Where reasonable and practical to do so, a designed mixture of 2 or more species from different botanic families should be chosen for many of the major streets to prevent the likelihood of any catastrophic canopy loss due to climate change, droughts or pests.

4.3.3 Biodiversity

There is often much debate about the use of locally indigenous species, that is, species that originally grew within the area. Whilst locally indigenous species may be the most appropriate for local environmental conditions, the growing conditions within our urban environments are often now very different, particularly in a street situation. We must also consider the natural vegetation assemblage in this part of Sydney would have been low woodlands and heath. Many of the species that grew in the Waterloo area naturally would not contribute to the wider urban forest goals or relate well to the built forms. Disturbed soil profiles, soil compaction, higher nutrient status, altered drainage patterns and paved surfaces are just a few of the other problems with which urban trees must contend.

When addressing this issue, a more useful division may be to view this point three ways:-

- Locally indigenous natives;
- Natives from other parts of Sydney or Australia;
- Exotic species from other areas of the world.

Local natives have the advantage of being climatically suited and live in some degree of equilibrium with pest natural organisms such as insects and fungi. Use of local natives promotes biodiversity and the creation of wildlife

corridors, reinforces an 'Australian' sense of place, and can be very drought resistant. Natives from other regions are less likely to be climatically adapted and they may enjoy freedom from local pest organisms but if they become infested may succumb faster. Exotics may be almost completely free of native pests and diseases but run the risk of being devastated if others are accidentally introduced from overseas.

Regarding local, or at least NSW east coast native species, and their suitability as inner urban street trees, the species that are best adapted are usually from the drier rainforest and rainforest margins, particularly littoral rainforests where most trees are long lived, shade tolerant and shade producing. They also often continue to transpire during prolonged heat-waves, which provide important cooling effects through evapotranspiration. Some other species like many of our Eucalypt species tend to shut down their metabolic processes during the heat of the day and therefore make only modest contributions to mitigating the urban heat island affects. They are also often not as successful as other species at providing good levels of shade to pavements and parks.

The other highly successful species come from freshwater swamps and other areas that are poorly drained and aerated. Species from these environments are often highly resistant to root rot organisms and their root systems are well adapted to adverse soil conditions.

Many of our familiar natives such as Eucalypt trees are from the more open and drier vegetation communities. These species seem to perform poorly as street trees in inner urban areas due to their highly adapted and more specialised physiology. They are often adapted to soils of very low nutrient status with perfect drainage where rot organisms are at a disadvantage. Consequently these species are less tolerant to interference with their root systems, including compaction, waterlogging and construction damage. Depending on the design principles sought, natives can also display a variable habit or form which makes it difficult to establish and maintain a consistently planted avenue.

They are also highly adapted to natural fire regimes and a consequence is they often 'bolt' in growth for brief periods when post-fire soil nutrients are temporarily higher. As this increased growth continues in a high nutrient, fire free environment the tree may become elongated, structurally weak and the foliage and bark becomes susceptible to attack by insects and other pests.

An important advantage of many exotics in the inner urban context is that they include numerous useful deciduous trees, which provide greater sun access to the streets and residential apartments through the winter months. Some natives are deciduous but generally in spring or early summer (an inheritance of their monsoonal origins). The red and white cedars (*Toona ciliata, Melia azedarach*) are the closest native trees we have to winter deciduous but both suffer from severe pest problems under urban conditions and are often unreliable performers.

Many exotic deciduous species have the advantage of hundreds of years of selective breeding, which ensures quality stock. They are normally pollution tolerant, are more resilient to cope with interference with roots or damage during construction works. The canopy shape and architecture of many exotics are able to tolerate the pruning and shaping required for urban infrastructure and street clearances.

In summary, both natives and exotics have their strengths and weaknesses for use as trees within the Estate. The urban forest strategy aims to advocate the right tree for the right location, for the right reasons and to continually strike an appropriate balance between the many competing objectives each tee must deal with.

4.3.4 Wind and Overshadowing Impacts on Trees

It is important to note that this report is addressing a broad scale planning proposal and detailed design and consideration about the exact trees species and their positioning is yet to be resolved. This would be considered at the detailed design and development application stages, selecting 'the right tree for the right locations'. This would involve further considerations about wind impacts, overshadowing and general solar access once surrounding built form is fully known.

The following broad comments and observations, however, are made about wind impacts and overshadowing to address concerns raised by the CoS and assist future designers to consider the relevant factors when assessing and choosing appropriate trees. Obviously extreme wind tunnelling and downdrafts, particularly when it is relatively constant, can have a great affect on the ability to install and establish good trees. The smaller and the more fragile the tree species the more it may struggle. The following points are to be considered during detailed designs.

- Focus on appropriate tower and building designs and use of higher level awnings and other deflection devices that will help deflect and mitigate the impacts of wind on trees, particularly of downdrafts.
- Give preference to use of hardy evergreen trees that naturally grow in littoral rainforest and/or frontline coastal environments that are more tolerant of exposure to winds and overshadowing by other plants (for example *Glochidion ferdinandi, Cupaniopsis anacardioides, Harpullia pendula, Waterhousea floribunda 'Green Avenue', Elaeocarpus eumundi, Syzygium paniculatum* are tolerant of such environmental conditions).
- Give preference to use of other trees that have proven to survive in CBD wind tunnelled streets in Sydney (e.g. *Livistona australis, Celtis australis, Magnolia grandiflora 'Exmouth'*, and *Pyrus calleryana*)
- Install trees at very advanced sizes (ie. minimum 400-800L) so that they have some inherent strength, age and rigidity to mitigate and deal with more adverse environmental conditions.
- Where wind or overshadowing is expected, avoid trees with very fine or very broad foliage or long brittle branching structures or that are not good at tolerating deep shade or excessive winds (e.g. *Eucalyptus sp., Corymbia sp. Caesalpinia sp.* and *Gleditsia sp.*)
- Provide excellent soil and subsurface growing conditions so that the trees that are planted are provided with optimum conditions and therefore are more resilient and not as susceptible to being stressed by other factors, other than the wind impacts and/or lower than average light levels.
- Provide a diversity of species in very tough locations, so that if one species struggles, others may still prevail and then provide greater protection for the ones not performing. These may then improve with the increased shelter.

Most studies regarding trees and wind have been on wind as a damaging agent during storms, windthow of trees, and branch breakage. Some studies have observed that wind or other mechanical perturbations typically increase stem radial growth and retard stem, branch and leaf elongation (Jacobs 1954, Neel & Harris 1971, Jaffe 1973, Telewski & Jaffe 1986a,b - see Stokes 1994). In wind-stressed gymnosperms extra wood and reaction wood form on the lee side of the tree (Larson 1965, see Boyd 1977 - see Stokes 1994), which corrects the deflection of the stem. The plant is therefore more likely to stand upright. Telewski (1993) has found that plants do not respond to continuous wind in the same way as when the wind is applied and stopped periodically; far greater responses occur when plants are stressed over several intervals rather than continuously.

It is important to note that most trees develop in environments that are exposed variously to winds. All trees will generally respond to various environmental factors, including wind. Wind is an important aspect for all trees and they are usually well placed to deal with even strong winds. Typically wind action induces developmental changes in a trees' physiology - generally resulting in a more compact form, with increased stem taper, shorter branches and smaller leaves. It also induces changes in root morphology, as often root mass and root branching are increased on the windward sides to improve anchorage. There is no significant physiological change in plants with wind speeds less than 1-2m/s. Affects from wind on trees, however, will increase in magnitude and severity the greater the wind velocity that is regularly experienced by the tree. How a trees growth and health are affected by winds will be heavily influenced by:

- The frequency, period and length of time of the wind actions.
- The time of year the winds are experienced (deciduous trees have much lower wind resistance and are dormant in winter).
- Gusts/ wind speed / direction (is the wind constant from one direction, or is it multi-directional, or is it a downdraft?).
- Turbulence that is created by surrounding structures and existing trees.

The response of any individual trees will therefore be greatly dictated by:

- whether the wind is from a primary direction or from a variety of sides. (uni-lateral or multi-lateral)
- the species of tree - conifer vs angiosperm - wood is applied on the opposite sides of the stems due to force depending on whether it is an gymnosperm or an angiosperm. This is presumably why conifers are better at staying upright in constantly windy environments as they apply wood on the leeward side which forces the tree to be upright. (eg *Araucaria sp., Pinus sp.*)
- Age or maturity of the tree.
- Size of tree, both at installation and then at maturity.
- Size of leaves.
- Strength and physical mechanical properties of the wood. (all trees are different in this respect)
- Its intrinsic and genetic predisposition to growing in windy environments.

In practice there is no precise wind speed limits or targets that can be realistically and definitively applied to the tree planting. The following points, however, outline some guiding principles.

- Trees are naturally adapted to wind prone environments.
- Some exposure to wind can actually be good for trees, changing their morphology to create more stability and greater root development.
- In particularly wind prone areas, designers should avoid choosing trees with large or easily-damaged leaves or those are known to have brittle branch structures.
- Trees should be planed in appropriately considered and spaced groupings, with a variety of ages and sizes to maximise dispersion of wind and creation of multi-directional turbulence.
- Good soils and root environments often greatly help trees survive better if they are placed under artificially windy conditions.
- Attempts should be made to protect smaller and younger trees from excessive winds using existing larger trees or other architectural devices or deflectors.

Trees that often respond well to windy conditions typically have:

- Naturally stronger and dense wood production.
- Strong, and well attached, but flexible branches.
- Good spreading root systems or a 'tap root' oriented system with lateral and sinker roots. (eg. *Araucaria*)

Some of the species specifically mentioned in current literature that are good at dealing with windy environments, and that are relevant to this project include:

- *Araucaria sp.* (Cook Pine, Norfolk Island Pine, Hoop Pine)
- *Acacia binervia* (Coastal Myall)
- *Lagerstroemia sp.* (Crepe Myrtle)
- *Magnolia grandiflora* (Bull-bay Magnolia)
- *Ficus rubiginosa* (Port Jackson Fig)
- *Banksia integrifolia* (Coastal Banksia)
- *Cupaniopsis anacardioides* (Tuckeroo)
- *Tristaniopsis laurina* (Water Gum) (the straight species, not the 'Luscious' cultivar)

A list of the preferred proposed tree species is provide in Appendix 6.2. It is considered that enough scope exists within that listing to choose suitable trees that will tolerate the variety conditions likely to be faced in Waterloo Estate. The above favoured species are all listed in the recommended tree species for Waterloo South.

4.4 Proposed Tree Species and Forest Composition

To address many of the key policy documents and the design outcome and 'place making' directions for the precinct, it is proposed to incorporate a relatively large range of species into the final designs. This will increase resilience and diversity and work towards the CoS targets of no more than 40% in any one family, 30% in any one genus, and 10% in any one species. It will also help achieve a diversity of sizes with a target of 10% small trees, 45% medium, 35% large trees and 10% civic scale (extra large). Consideration should be given to incorporating species that currently prosper in slightly warmer climates to cater for climate change. (eg. *Caesalpinia ferrea, Harpullia pendula, Araucaria cunninghamii, A. heterophylla and A. columnaris*) (refer Figure 4.6).

It is recommended that some exotic deciduous trees be utilised for better solar access during cooler months, particularly to lower apartments and key retail areas (refer Figure 4.5). It will be necessary to carefully consider any further large-scale introduction of species from the Myrtaceae family as the current population is already above the target of 40% for this family. Given the general dominance of this family throughout Australia, this may always be difficult to fully achieve and some compromises of this target may inevitably be required.

Although detailed species selection can not be done at this high level phase, a proposed species palette is included as an appendix to this report. The selection of proposed new tree species being used throughout the Waterloo precincts must consider many factors and must aim to be a balanced approach that considers:

- Basic suitability for a dense urban area – fruiting, forms, failure risk, bark and leaf shedding, hardiness, proven performance and reliability in an urban context.
- Intrinsic contribution to canopy coverage - overall size and canopy spread and shade density.
- Known pest and disease tolerance and susceptibility.

- Tree management and maintenance requirements of both the CoS and LAHC.
- Spread of different sizes - preference for medium to large trees wherever they are possible and suitable to the positions able to be provided.
- Overall forest composition and species diversity.
- Tree architecture and aesthetics.
- Solar access – a mixture of deciduous and evergreen species will always be required.
- Allergy and irritation considerations.
- Tolerance to wind and overshadowing from surrounding tall buildings.
- Commercial availability and nursery sizing and production practicality.

Figure 4.4 – Leopard Tree (Caesalpinia ferrea) is a common and successful tree in the warmer parts of NSW and Qld. It has been successfully used as a street tree and grows well in Sydney in frost free areas. As part of our climate change adaptation it will be very sensible to look to species such as this to grace the streets and parks within the Waterloo Estate (Photo: Arterra)

4.5 Proposed New Tree Planting Strategies

The following points outline the broad strategies that are currently recommended for adoption throughout the Waterloo South Precinct.

- Utilise **large civic-scale trees** such as Figs, Araucarias, Eucalypts and Agathis to provide signature and landmark trees at key visual points and to allow trees to be seen out of windows even many storeys above the ground level. This will also assist in achieving the CoS targets for extra large tree sizes (refer Figure 4.6).
- Incorporate trees into the upper levels of the future built forms and podiums and on roof tops to improve canopy coverage and increase peoples' connection to nature and greenery. The urban design teams should explore opportunities for **community orchard style planting** in semi-public open spaces/ roof terraces and podiums to provide urban food and community engagement with trees. This is not recommended in very public or major street contexts where maintenance, access and ownership issues often prove difficult to manage and should not detract from more important factors such as shade provision. (Refer Figure 4.7)
- Consider the much increased use of **in-road planting (blisters and medians)** that provide opportunities to move trees away from existing or future below ground services and future building facades and allow them to fully develop their canopies and ultimate sizes. This is also the best way to fully shade street pavements and parked cars and achieve the stated canopy coverage targets. The urban design teams and engineers should consider utilising structural soil systems and vaulted tree pit designs to allow soil volumes for vigorous and healthy tree growth in the long term, and under the required pavements. This also serves to calm traffic and improves the general perceptions and use of the street environment. (Refer Figure 4.5)

Figure 4.5 – Japanese Zelkova (Zelkova serrata 'Green Vase') is a common and successful tree in numerous and varied urban centres around the world including Sydney and Melbourne. It has been successfully used as a street tree and grows well in Sydney. This tree will provide many benefits with a similar form and character to the now much over-used London Plane tree. (Photo: Arterra)

Figure 4.6 Species such as Araucaria cunninghamii (Hoop Pine) and Araucaria columnaris (New Caledonia Pine) grow well in Sydney and are particularly well suited to the sandy soil conditions present at Waterloo. They will also be very tolerant of issues associated with climate change. They also provide trees that will be in keeping with the scale of the proposed tower developments. They will offer important screening and way-finding benefits. Their foliage will also be visible many storeys above the street. (Photo: Arterra)

- Utilise generous **kerbside setbacks of trees** to allow planting of larger trees suitably away from street kerbs and associated infrastructure. Designers should always consider the ultimate tree sizes.
- Utilise some generous **building setback zones** near the streets to allow planting and retention of larger trees away from street kerbs and footpaths. Building setbacks from some street frontages will help ensure the retention of existing street and other trees. Consideration has also been given to the building placement and provision of setback zones when in close proximity to the existing large Figs such as on the corner of Pitt and Phillip Street and Pitt and Cope Street and along Wellington Street.

Figure 4.7 – Good opportunity exists to provide productive landscapes and tree planting on the semi-public and controlled access areas of the raised tower podiums. These on-structure environments with good solar access provide the perfect arena for small scale and mixed orchard style tree planting that will offer not only amenity but facilitate locally sourced food and community based activity (Photo: Arterra)

4.6 Designing For Trees

Trees are **long term assets** and investments that may live for between 50 to 150 years, so species selection is vitally important. In contrast, most residents will only occupy their houses, on average, for a 5-15 year period.

Trees must be given the necessary requirements to sustain life - that is, space, air, water, nutrients, light and soil. To survive all trees must grow, and in doing so will inevitably shed leaves, bark, fruit, flowers and even branches. Their roots will grow and their trunks will expand. The challenge is to select the right tree for the right location within the urban context that maximises the benefits and minimises the negative impacts to residents, infrastructure and road users. Careful planning, innovative design solutions and compromise are always needed when considering trees in a busy and densely populated, urban environment.

Don't over plant for only short term or instant effects. A measured approach to planting should always be adopted to allow future trees to mature with full and symmetrical canopies wherever possible. This generally makes the trees easier to manage in the long term, with better health and the ability to replace them more easily when the time comes. Such forethought often gives the trees more ability to seek adequate resources rather than unnecessarily completing with each other, above and below ground.

One of the key roles of streets is to convey vehicles, pedestrians and utility services throughout the community. While there is often opportunity for tree planting as well, this is not so in all cases. It must be remembered that poor and or inappropriate tree planting may actually detract from a street's function and residents' enjoyment, and potentially create a serious burden on tree management resources both now, and well into the future.

Tree species must be selected so that the ultimate mature size of the tree canopy is appropriate to the particular street or space available and gives appropriate consideration to the site constraints, such as verge width, building and awning alignments and vehicle clearances.

Some of the key considerations will be:

- Street profile designs that accommodate and focus on trees as a key component of the infrastructure.
- Street orientations with care to allow solar access to nearby residents and parks using exotic deciduous trees where appropriate.
- Street hierarchy that utilises species selections and signature trees to define key nodes and help define street hierarchy and way-finding.
- Verge and reduced carriage way widths to help reduce the perceived width of road carriage ways to slow and calm traffic through appropriate and measured use of median and blister positioned tree planting.
- Integration of trees within parking lanes.
- Integration of tree planting areas and tree pit design within the bio-retention (rain-garden) and other water quality treatment strategies.
- Undergrounding of power lines to avoid the need for any future clearance pruning.
- Building, basement and street setbacks and provision of deep soil areas. Provide the space for large trees particularly between tall buildings and within the public areas. This will help alleviate the visual impact and de-humanising influence of very tall towers.
- Street level gardens to provide interest and delight at street level but also accommodating the provision of wider and longer trees pits and spaces for tree trunks to grow and expand without damage to surrounding infrastructure.

Blister planting can allow tree planting to occur where verges are otherwise too narrow and where there would otherwise be no trees at all in a street. In such instances, they may not have to be regularly or closely spaced, as even a few trees can make a huge difference to how a narrow street or laneway looks and feels, reducing the apparent width of the road carriageway, calming traffic and providing a more aesthetically pleasing and 'liveable' street. This also allows trees to be planted further away from nearby urban developments and residential apartments.

4.6.1 Soil Volumes for Sustainable Tree Growth

Tree growth and fertility are strongly influenced by soil structure, as it affects the movement of air, water and nutrients for trees to flourish. Well-constructed soil functions like a reservoir, enabling trees to accept store and transmit water, nutrients and energy and provide room for roots to propagate. (Carpani, 2016, Lindsey and Bassuk, 1991)

Tree roots typically grow in a shallow and wide plate-like arrangement (Refer Figure 4.8). They do this to maintain appropriate access to water, nutrients and most importantly oxygen. It is therefore more appropriate to provide wide and shallow rooting areas for all new trees. Tree pits with depths greater than 1.2m will typically be wasted as the tree will rarely access soil at these lower depths. This is particularly relevant for the soils associated with the Estate as the water table is quite shallow and trees will not develop roots within saturated soil. Tree pit design shall typically be required to achieve the minimum soil volumes specifies below and have available minimum soil depths of 0.7m. The typical maximum depth of soil that should be calculated is 1.2m.

The typical methods to achieve required tree soil volumes include such systems as:

- Providing large open soil areas such as grass or garden areas surrounding the tree.
- Vaulted soil pits where pavements surrounding the trees are suspended above the tree pit soils via suspended and reinforced concrete sub-pavements and piers and/or beams.
- Structurally supportive systems such as Strata vault and Strata Cells.
- Structurally supportive soils (specifically designed and manufactured aggregate and soil mixes).

The opportunity exists for these systems to be utilised, where necessary, within the Estate during detailed design.

Any new trees should ideally be located within designated gardens or planting areas with sufficient space around the base of the trunk to allow for proper ultimate expansion of the trunk, root flare and structural root zones. Trees should typically be planted at least 1.5 – 2.0m away from any walls, buildings or pavement edges, and even further for larger trees.

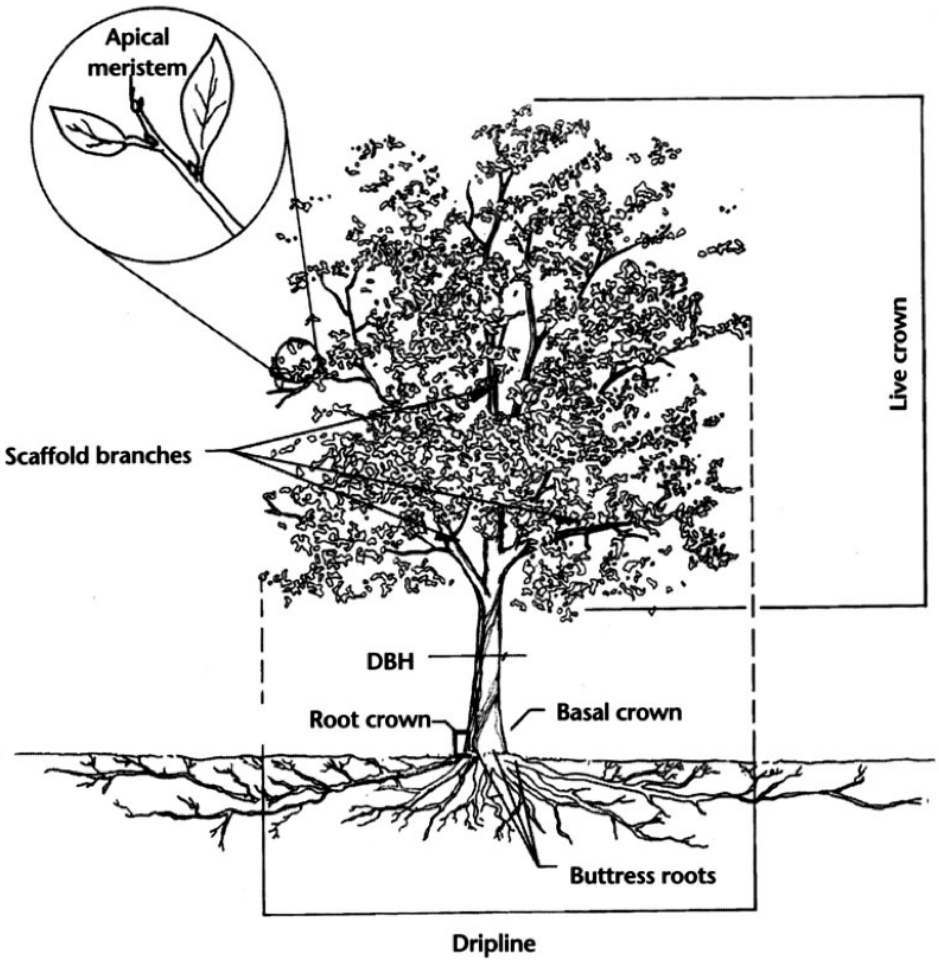


Figure 4.8 – Typical form and structure of a tree illustrating the typical form, location and extent of root growth (Source: Matheny and Clark, 1998)

If planted within a paved area, the tree should be planted within a well-designed and designated tree pit with sufficient soil volumes and drainage to prevent excessive infrastructure damage or premature tree failure and poor conditions in the future. When planting new trees within pavement areas or restricted areas the soil volume should be to sufficient to enable the tree to reach its mature size in a healthy full state. To survive indefinitely a mature tree requires a minimum of 0.6m3 of soil for every m2 of projected canopy area. As a guide, for trees that are likely to achieve the following canopy spreads, they should be provided with the following soil volumes:-

- 4m spread needs approx. 8-10m3 of soil
- 6m spread needs approx. 20-25m3 of soil
- 8m spread needs approx. 30-40m3 of soil
- 10m spread needs approx. 50-70m3 of soil

The above guidance is in a normal street / landscape setting. The needs per tree can be marginally reduced if the trees can share soil volume with other adjoining trees or if the soil is subject to regular irrigation. In order to provide these volumes it may be necessary to consider the following strategies:-

- Use of expanded sized tree pits / planting areas
- Use of structural soil systems (structural soils or plastic support mechanisms)
- Use of 'vaulted' soil pits with pavement bridging over the root zones

An important consideration for the Estate, however, is the **naturally sandy soil** conditions that exist throughout the area. This means, that in terms of soil volumes, most trees that will be planted will have ready access to sufficient soil volumes for longer term growth. Unlike more constrained environments where rock or heavy or compacted sub-soils can radically inhibit tree root development, tree root growth below the roads and shallow pavements will not be as constrained in Waterloo. The above guidance with regard to soil volumes becomes much more pertinent to areas where the trees are over artificial structures or on raised podiums or where other major infrastructure or building basements may inhibit the available rooting volumes.

Figure 4.9 –Numerous methods are now available of integrating trees and the necessary soil volumes within urban environments while still allowing pavements and roads to continue successfully above. The above illustrates the proprietary system Strata Vault by Citygreen being used at Barangaroo Sydney.

It is critical that all new trees are planted at the correct depth with any new soil and mulch carefully placed and allowing the top of the pre-existing root flare to just remain visible.

For trees planted within grassed areas, the base of the trunks should be surrounded with a minimum 3m diameter of recycled hardwood coarsely chipped mulch. This prevents the otherwise avoidable impacts to the trunk and root flare from mower and line trimmer damage. It is important the mulch is not too deep and is of a free draining nature. Excessively thick mulches or very organic mulches can become hydrophobic and actually prevent water from reaching the soil zone or introduce unwanted pathogens to the soil or tree.

4.7 Community Engagement and Education

An equally important component of the Urban Forest Strategy for Waterloo is to also ensure that the proponents of the development educate the community and promote the benefits of the urban forest. It will be important that as part of the ongoing implementation of this long term development that the following are achieved:

- Promotion of the value of urban forestry.
- Key stakeholder awareness of the importance of the urban forest initiatives.
- Encouragement of community stewardship of the urban forest.

Some of the suggested ways this community outcome could be achieved include:

- Investigate and support grants for community engagement and stakeholder collaborative projects such as community gardens, bush tucker gardens and orchards (for research and tree planting).
- Organise awareness strategies such as "Great Tree Hunts" to look for significant trees or commemorative trees.
- Provide brochures and information within public information centres.
- Collaborate with universities and local schools on research and involvement in urban forest studies. Particularly health and wellbeing indicators to benchmark the role of urban forests in contributing to human health over long term studies.
- Ensure proper records are maintained for all private area tree planting (what species, numbers and sizes when installed). Insist on a Work as Executed drawing and schedule for all installed trees as the project progresses and maintain a centralised repository of information.

Figure 4.10 – Examples of some of the methods for encouraging community interaction and support for the urban forest including sculptural installations that celebrate trees, utilising material from former trees, and highlighting their morphology and spiritual connections. (Photo: Arterra)

Figure 4.11 – Trees themselves can be the frame for temporary artworks and lighting displays that can highlight the beauty, size and majesty of trees in the urban context. (Photo: Arterra)

- Undertake annual resident workshops to educate community about the local trees and conduct precinct tours.
- Utilise community tree planting days and celebrations.
- Organise 'Urban Forest' exhibitions that focus on ideas and artistic reflections of the trees and the urban forest (eg. non-destructive/injurious sculptural installations within trees, feature lighting of trees, and photographic exhibitions of trees within the precinct).
- Celebrity presentations and demonstration of gardens and urban forest planting (eg. ABC Gardening Australia hosts and specials)
- Create outreach and education strategies such as:
    - Flyers / Brochure
    - Educational field trips for local schools
- Provide a mulch delivery service to relevant local community groups of pruned or removed tree material to promote urban forestry and educate community on the benefits and lifecycle of trees.
- Investigate a community "Adopt a Tree" program
- Investigate opportunity for citizen training programs (pruning and maintenance) eg. in NYC an exam qualifies residents to legally look after street trees (with some excluded areas). Volunteer groups receive work assignments and suggest further projects. 'Citizen Pruners' meet with Council to review tasks and receive training.

5. ASSESSMENT OF EXISTING TREE IMPACTS AND URBAN FOREST OUTCOMES

5.0 Overview

Why wait 30-40 years for shade and other benefits to develop when a mature tree already exists in the landscape. If there are existing trees that are healthy, stable and well placed, the primary objective shall be to preserve them.

The assessment of the tree related impacts and proposed protection measures within this document is 'high level' and put forward to assist with the appropriate assessment and approval of the Waterloo South Indicative Concept Proposal. It also provides over arching guidance to future consultants and developers who may be responsible for the more detailed and site specific designs.

The realisation of the Indicative Concept Proposal is considered to take at least 15-20 years to complete. It is, therefore, anticipated and expected that a more detailed and very site specific assessment of the existing trees identified to be retained as part of this overall assessment will be carried out and lodged with all detailed and site specific development applications. It is important to note that trees are dynamic and living organisms and changes in their condition over time or relatively small changes to the proposed layouts or methods of construction may have significantly lesser or greater impacts on individual trees.

It is also important to note that the removal of the trees will occur over an extended time frame. Not all the proposed removals will occur at one time. Trees listed for removal in later stages may remain in place for many years. Likewise, new planting will be undertaken progressively, so new trees should be starting to mature and provide replacement canopy, aesthetic and other ecosystem services by the time the later stage trees are being removed. Currently, all trees that were identified with low or very low retention values as part of the baseline studies have been calculated as being removed, so that desirable development outcomes are not unnecessarily restricted by trees that are poor quality, very small or otherwise insignificant.

5.1 Existing Trees – Retention and Removal

The proposed construction of the Waterloo South buildings and infrastructure will result in a major site disturbance. It is therefore necessary to remove many of the trees that currently exist. The design team have worked very hard to focus on the retention of the more important trees including:

- The identified high and moderate retention value trees;
- The significant Fig trees within Mt Carmel/ Waterloo Park adjoining Pitt Street and Reeve Street;
- The larger and prominent Fig trees on Wellington Street and
- The mixed Eucalypt street trees along the eastern side of Cope Street and much of southern George Street.

There are **939** trees which have been assessed in the wider Estate or which **551** are located within the Waterloo South Precinct. The following information specifically addresses the trees and relevant statistics as they relate to the Waterloo South Precinct only. The trees in the Waterloo Central or North Precinct are not addressed as part of this commentary. The existing **551** trees in Waterloo South comprise **251** High and Moderate retention value trees, and **130** are currently being retained. There are **421** trees that are proposed to be removed, the majority of which are Low or Very Low retention value trees. Trees that are removed will be replaced with new, appropriately scaled and positioned trees as part of the staged development.

The following table summarises the trees to be removed and retained compared with their relative retention values. Refer also to the detailed schedules in Appendix 6.1 and plans in 6.3 for the location and graphical representation of these trees.

Table 13 Tree Disposition Versus Their Retention Value

Tree Disposition	**Totals**	High Retention Value	Moderate Retention Value	Low Retention Value	Very Low Retention Value
Trees anticipated to be retained and protected	**130**	45 (52%)	85 (52%)	0	0
Trees to be removed as they are within the footprint of the proposed buildings or other major streetscape or landscape works, or they were assessed as Low or Very Low retention value	**421**	42 (48%)	79 (48%)	285 (100%)	15 (100%)
Trees proposed to be transplanted	**-**	-	-	-	-
Totals	**551**	**87**	**164**	**285**	**15**

5.2 Managing Tree Impacts and Proposed Tree Protection Measures

Any future tree protection measures to be imposed as part of the development of the Estate cannot be fully explored in detail until the exact nature and extent of the building and infrastructure development is fully known. The following broad guidelines, however, are given as an indication of the likely measures that would be required to protect the tree assets, as the designs are progressed.

The proposed construction of the roads, buildings and high-rise developments would result in major site disturbances. This would potentially have a significant impact on the trees within and adjacent to these buildings, roads and other civil works. Specifically the proposed development will involve:

- Major demolition works;
- Use of large scale civil work, piling rigs and earth moving equipment;
- Access to and from the construction sites with large trucks and construction plant;
- Excavations for the upgrading and placement of new road profiles;
- Excavations for the creation of improved tree planting soil profiles;
- Large stockpiles/ storage of construction materials;
- Re-grading and filling of the surface levels;
- Major services upgrades and associated infrastructure works;
- Use of large cranes;
- Parking for site personnel and deliveries;
- New roads, paving and retaining walls and
- Landscaping and new tree planting.

Given the high level nature of the Concept proposals all that has been able to be calculated and assumed at present is that:

- All Low and Very Low retention value trees will be **removed;**
- All trees that **fall within currently anticipated buildings** or new street footprints or in known areas likely to be re-graded or affected by major services installation have been shown removed;
- Attempts have been made to **focus on retaining and protecting high** retention value trees;
- Due to the scale of developments, the 130 trees identified for retention are **all likely to be impacted** to various degrees by surrounding construction or infrastructure works. Specific efforts and measures must be put in place to minimise root loss and other impacts as the future developments proceed;
- **Detailed arboricultural impact assessments** will be required for each site specific site development application. All reasonable attempts must be made to retain and protect the trees that are currently identified for retention. Minor incursions (<10%) will be accepted. For any major encroachments (above or

below ground, as per AS4970) it will normally be expected that much more site specific investigations will be carried out by a qualified Consulting Arborist (AQF5) and submitted as part of any detailed Development Application, to verify and hopefully support the retention of the tree(s); and

- As part of the above, professional and thorough **tree protection measures must be applied** and rigorously enforced for all trees proposed to be retained, throughout the demolition and construction process.

5.2.1 Design and Realistic Expectations

The best tree protection measure is to consider the retention and physical requirements of the trees to be retained during the detailed design stages. Most importantly a tree to be retained should be given the appropriate space to continue to grow below ground, and above ground, and continue to develop new growth and prosper for many years to come. As much as possible, all work, including trenching, building construction and landscaping should be avoided within the identified TPZ limits. The TPZ radius of all trees are identified in Appendix 6.1.

The site planning, as part of the current Indicative Concept proposal, attempts to protect important and larger trees through the use of appropriate deep soil setback zones which are identified in the Indicative Concept plans. Where an incursion is required to an existing tree and the design cannot be modified or amended, the amount of disturbance and incursion must be limited and appropriate compensatory areas applied and protected elsewhere and contiguous to the remaining TPZ around the tree(s).

Where adequate protection is not possible, or is unlikely or unable to be rigorously defended, then serious thought should be given to removing the tree and ultimately replacing it with new and advanced size tree planting at the completion of the development. This is preferable to wasting a lot of time, resources and development energy on retaining a tree that will almost inevitably decline and die.

5.2.2 Services Upgrades and Installations

Apart from physical road and building construction, services installation and upgrades are likely to have the next greatest impact on the trees and tree retention. There will be a need to very carefully consider the location and extent of all trenching, particularly for major service upgrades.

There may need to be **consideration given to service re-alignments or under-boring** techniques to manage impacts to important existing trees currently identified to be retained.

Most existing electrical power is currently provided by overhead cabling. The redevelopment of the Waterloo South precinct will typically involve the **undergrounding of all electrical power lines and communication cables.** This should only be done with due consideration to existing trees that are planned to be retained. Trenching past large and very well established trees, with traditional methods, could have very significant impacts on tree health. This is particularly relevant to the retention of the existing large Fig and Eucalypt trees on George Street and Wellington Street.

Typically new services that are likely to impact the trees are to be under-bored, where practicable, thereby minimising incursion to any retained trees' root zones (wherever a new service is to be run through a nominated TPZ). Alternatively new services are to be located within the central portion of the existing road reserve to maximise the distance away from any existing street trees.

5.2.3 Soils, Excavation and Demolition

In naturally sandy soils, such as those found within the Waterloo South precinct, trees often develop extensive root systems, spreading wide and potentially growing deeply, to provide structural stability and maintain adequate nutrient and water uptake. Normal assumptions about structures and pavements inhibiting or deflecting roots can not be automatically applied.

- **Sandy soils** and tree roots. The sandy soil typically allows deeper aeration, and therefore root development at greater depths. Therefore it is possible, and very likely, that roots have travelled large distances away from the trees and under existing pavements and structures.
- The **extensive root systems** can be clearly seen, particularly in the vicinity of the many large Figs, Plane Trees and Melaleucas. Very large roots are clearly visible on the ground surface, often wrapped around exposed building infrastructure and then disappearing under nearby footpaths and driveways.
- **Demolition**. The normal premise that roots may have been inhibited by retaining walls and road pavements

does not apply in this area and it is highly likely that roots will be found in relatively radial patterns around the trees and even under adjoining structures and roadways. This will make demolition of existing structures particularly difficult when close to existing trees. In some instances, existing infrastructure may need to be partially retained close to the trees to ensure trees are not disturbed and they remain structurally stable.

- **Exploratory, non-destructive root Investigations** – Where necessary it will be expected that during detailed designs, developers will undertake exploratory and non-destructive root mapping and investigations (ie: using air spades, water jets or hand excavation) for all large or significant trees to verify location of any major roots and to guide final pavement levels and subgrade preparations. This will be particularly required where major incursions are proposed into any nominated TPZ areas or structures are proposed to be installed anywhere within Structural Root Zone areas (SRZ).
- **Construction period management**. The non-cohesive soil structure also has implications for construction work in the vicinity of trees. Stable batters will be difficult to construct and shoring or piling will be required to retain any excavations and maintain the structural integrity of the soil surrounding the trees' root systems, if the existing trees are to be successfully retained. All excavations undertaken near mature trees are to be undertaken and retained using suitable sheet, soldier or contiguous piling techniques to prevent excessive battering into tree root zones. On the positive side, soil compaction or waterlogging caused by construction activities will be less of a concern.

5.2.4 Tree Protection Fencing and Definition of TPZs

Prior to any works, including demolition, a clearly defined tree protection zone must be established. At a broad level, these have been defined in Figure 5.4 "Tree Protection Zone Plan". Demarcation of this shall typically be via a 1.8m high temporary fence with either plywood hoarding or temporary steel mesh or chain wire fencing with adequate lateral bracing. Fencing shall comply with the requirements of AS 4687-2007 Temporary fencing and hoardings. These areas around the trees shall be clearly delineated as a "Tree Protection Zone" during the remaining construction process, via appropriate weatherproof signage. Access shall typically be excluded from these zones and the ground levels will be left largely at the existing levels with the exception of the installation of new topsoils (where approved) and 75mm of mulch. No stockpiling, excavation, trenching, re-fuelling or material storage shall be allowed in these areas.

If any construction work is required with in a TPZ, this work should be done with small tracked equipment or by hand, with care to limit damage and disturbance of the root zone. All works within TPZ zones must be witnessed and directly overseen by a qualified (AQF5) consulting arborist.

5.2.5 Ground Protection within TPZs

Vehicular movement and access shall typically not be required or approved through the TPZ areas. If it is absolutely necessary and it is proposed to create any access or haul road, or similar, within the TPZ of a retained tree, the Contractors shall install rumble strips / boards over the TPZ ground surface. No excavation shall be allowed. The Contractor shall first place a suitable permeable geotextile to the extent required and then a 100mm thick layer of wood chip mulch or coarse no-fines gravel over the extent to be covered with the rumble strip / boards. They shall then place hardwood boards (minimum 3600 x 200 x 75mm) on their flat edge, side by side, with a 30 - 50mm gap to form a rumble strip. These boards are to be held together with galvanised metal bracing straps nailed to each board. The two outer straps are to be approximately 200mm in from the ends of the boards. A third strap is to be along the centre line of the boards.

5.2.6 Trunk and Lower Branch Protection

A trunk protection barrier is to be erected around the circumference of any tree trunk, trunk flare and root buttress where indicated on relevant consulting arborist plans, especially when equipment or vehicles have to pass close to the tree. This barrier shall consist of a double layer of suitable 'used' artificial grass matting, carpet or carpet underfelt placed around the trunk. A layer of battens is to be placed over the underfelt. The battens are to have a maximum spacing of 50-100mm. The height of the battens is to be 2.4 metres or to the height of the first branches. Lower large branches may require the same protection if they are likely to be damaged by passing vehicles or equipment. Secure in place with galvanised steel bracing straps. Do not nail into or otherwise injure the underlying trunk or bark. Battens may be made from any suitable waste timber of similar sizes and depths. All sharp or protruding edges are to be properly covered with tape or similar padding.

Figure 5.1 – Example of appropriate TPZ mulching, tree protection and construction fencing (Photo: Arterra)

Figure 5.2 – Example of a temporary trunk protection (L) and ground protection (R) to be installed during construction periods. This can be a very valuable way of ensuring tree health and preventing accidental trunk damage and compaction of ground or disturbance of roots when work is undertaken close to trees. (Photo: Arterra)

5.2.7 Temporary Irrigation Systems During Construction for Key Trees

The provision of supplementary irrigation is very beneficial to sustain good tree health while construction activities are undertaken, particularly given the permeability of the soil and its naturally poor water-holding capacity. A temporary and automated (battery powered timer is sufficient) watering system is to be typically placed within TPZs to maintain adequate water to the retained trees and help maintain and even improve their health and condition. This shall be a simple surface mounted hose and/or surface sprinkler system. It is to be visible and spray delivered so that its operation can be easily visible and verified. It should be on a designated supply line, separate from all other construction related water supplies to minimise its likelihood of being disconnected. Typically, during

spring and summer months it should be set to run for a minimum of 30 minutes every day, in the early morning. During, autumn and winter months it should be set to run for 1 hour once every week. The operation can be suspended temporarily in periods of extensive and prolonged rain. The system is to remain in place for the duration of civil and major construction, or until a suitable Consulting Arborist approves its removal. It may be removed to allow final landscape treatments to proceed. If accidentally disturbed or damaged by construction activities, it is to be reinstated as soon as practicable.

Figure 5.3 – Example of a temporary irrigation system provided to trees during construction periods. This can be a very valuable way of ensuring tree health and vitality is maintained and also promote new fibrous root growth closer to the trees. (Photo: Arterra)

5.2.8 Controlled Construction Access and Parking

Construction access points, stockpiling and storage areas must be clearly identified and fenced where appropriate. Uncontrolled access points and parking of vehicles outside of designated areas is to be avoided. If temporary access is required through a tree protection zone, ground protection shall be employed to limit soil compaction and root damage and disturbance as per 5.2.5.

5.2.9 Clearing and Removal of Existing Trees to be Removed

Removal and clearing of existing trees within 15m of existing trees to be retained shall only be done by qualified arboricultural personnel with care not to impact or damage other surrounding trees throughout the process. Existing stumps should be ground out in a controlled fashion to remove wood that may decay and promote unwanted pathogens.

5.2.10 Communication - Tool Box Meetings and Construction Inductions

All contractors and subcontractors should be inducted prior to working on the site. All inductions should include description and identification of the Tree Protection Zones and the restriction on work and activities with regard to trees. The site foreman shall ensure that all new staff and contractors are appropriately inducted and that brief "tool box" meetings are conducted daily to ensure Tree Protection is maintained at the forefront of all construction workers' minds.

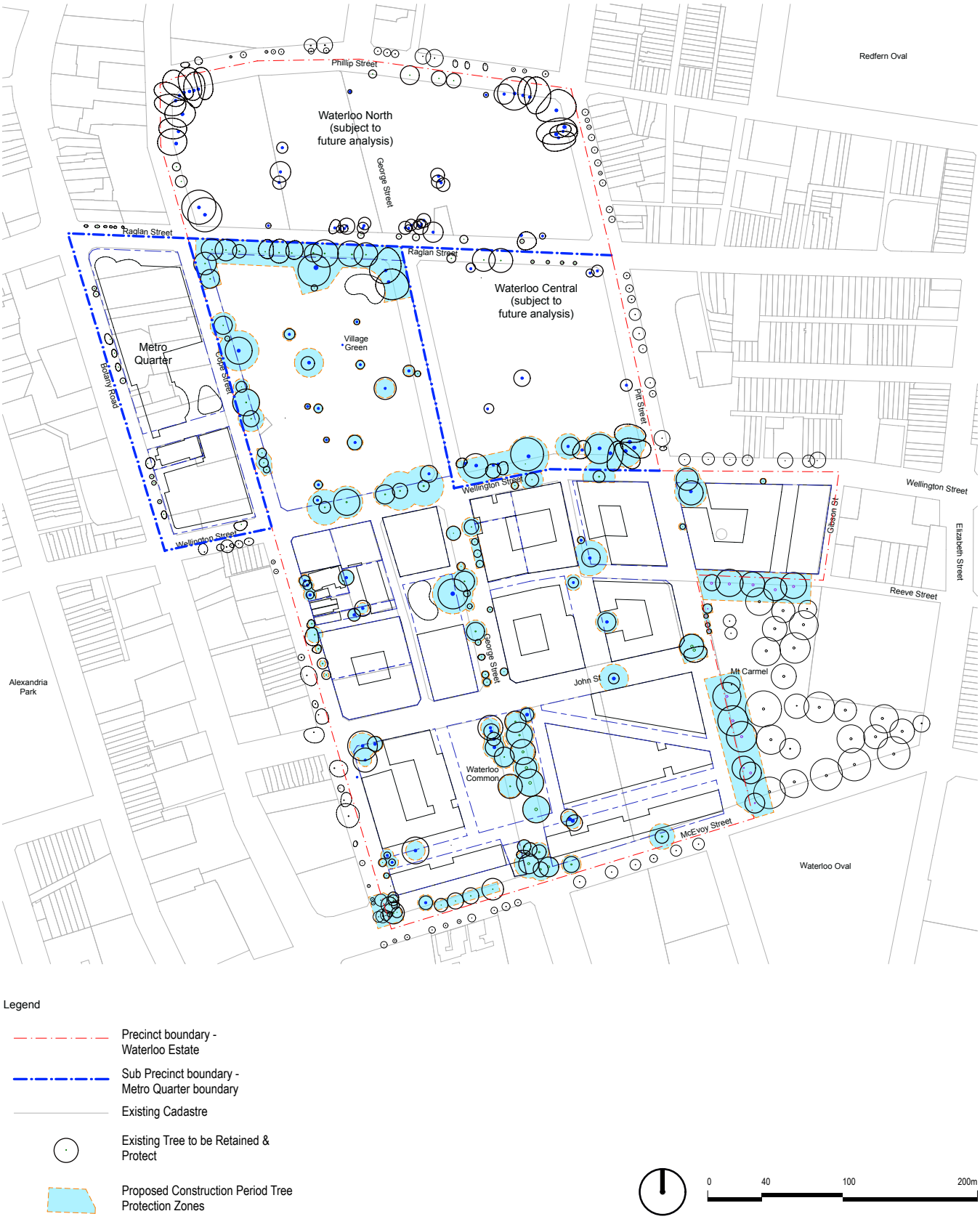


Figure 5.4 – Map of the Estate illustrating the retained existing trees and the proposed Construction period "Tree Protection Zone Plan" . (Source: Arterra)

5.3 Analysis of Key Urban Forest Performance Measures and Targets

The principle objectives for the Waterloo Estate, that relate to the urban forest initiatives, are to create a safe welcoming and healthy place to live, high quality public spaces, and a sustainable and adaptable urban environment. The objectives for the urban forest, therefore, are to:

- Maximise tree canopy coverage.
- Provide a resilient, healthy and diverse urban forest.
- Provide an integrated and systematic long-term strategy that promotes trees as critical infrastructure and assets.
- Retain and protect existing trees.
- Educate the community and promote the benefits of the urban forest.
- Undertake appropriate and targeted additional tree planting to meet CoS and industry best practice targets.

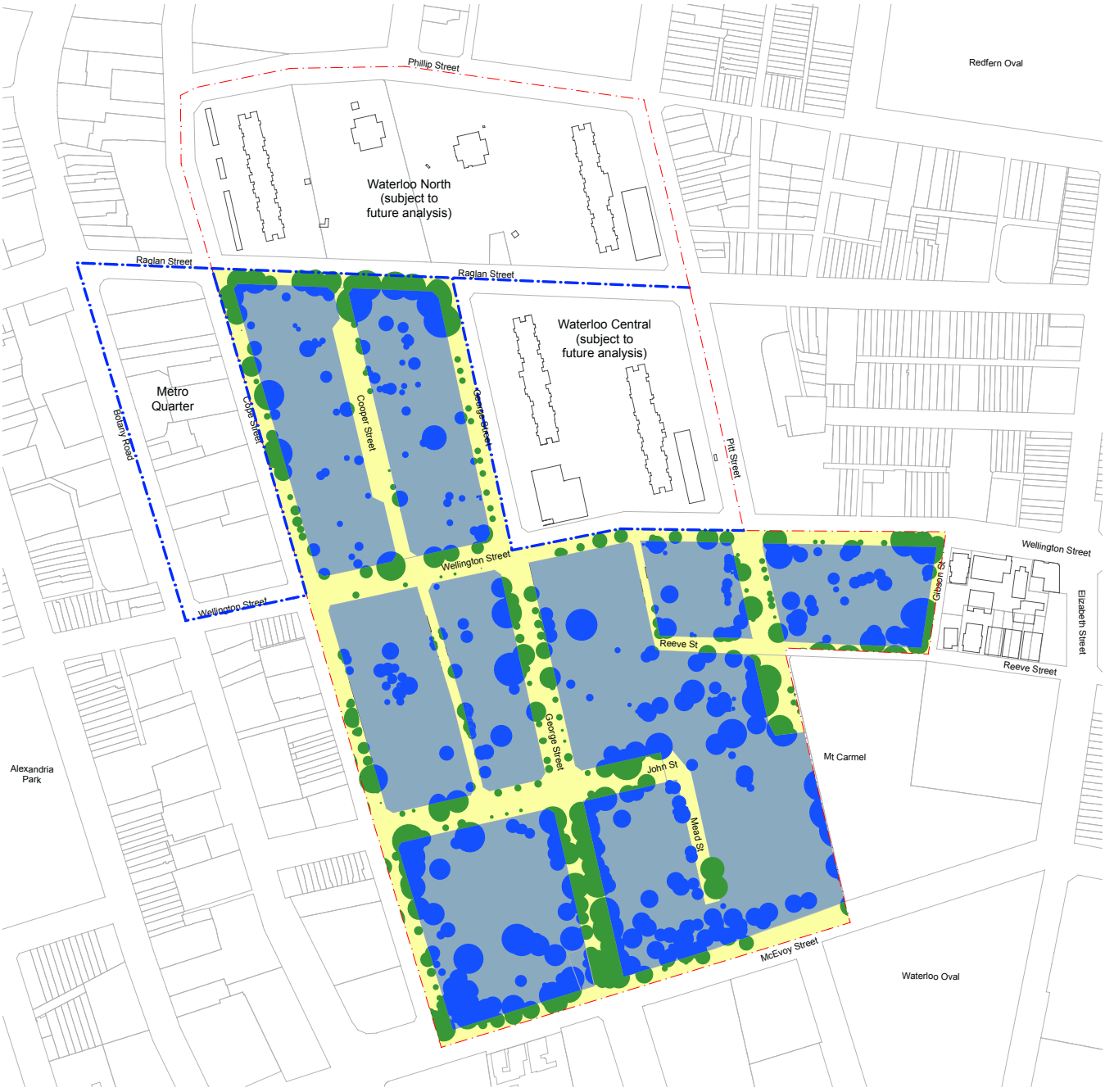
The targets that are considered particularly relevant in achieving these objectives and that can be measured at this phase of the project are outlined in the table below. (Refer also to Figure 5.5, 5.6 and Appendix 6.2)

Table 14 Comparison of Key Performance Indicators

Urban Forest Consideration	Baseline Condition	CoS or Other Target	Proposed Designed Solution **Waterloo South**	Compliance/ Trend Comment
Canopy Coverage Overall	29%	27%	**42.4%**	Target exceeded
Canopy Coverage				
Street	38%	50%	**59.8%**	Target exceeded
Parks	0%	25%	**59.0%**	Target exceeded
Private	25%	25%	**20.0%**	Acceptable (if overall still met)
Existing Trees Identified for Retention				Adequate outcome given size of development and the need
High Value Trees	-	50%	**52%**	to meet numerous other urban
Moderate Value Trees	-	50%	**52%**	design outcomes
Species Diversity				
Family	47%	40%	**40-45%**	Close to target likely
Genus	19%	30%	**20-30%**	Target likely to be achieved
Species	8%	10%	**<10%**	Target likely to be achieved
Size Class				
Civic	10%	10%	**6-8%**	Likely slightly less than target
Large	27%	35%	**30-35%**	Target likely to be achieved
Medium	44%	45%	**40-45%**	Target likely to be achieved
Small	19%	10%	**10-15%**	Likely slightly more than target
Ecological Contribution / Diversity				
Naturally Endemic Sydney Region	18%	-	**20-25%**	Acceptable Balance
Australian Native	56%	-	**50-55%**	Acceptable Balance
Exotic	23%	-	**20-25%**	Acceptable Balance
Weed/Non-desirable	3%	-	**-**	Desired

5.3.1 Canopy Coverage

Most pleasingly, and importantly, is the ability for Waterloo South to achieve and exceed the canopy coverage targets for the **overall** precinct. The street area canopy coverage is currently calculated at 59.8% which is well over the target figure of 50%. It is the author's opinion that with continued appropriate tree selection and road profile detailing at future design stages the 50% canopy coverage to streets will be exceeded. It is also noted that the Park areas will easily exceed the CoS 25% canopy coverage. It is our recommendation that the more aspirational target of a minimum of **46%** canopy coverage be adopted for the Park areas.



Legend

- Precinct boundary - Estate
- Sub-Precinct boundary/Metro Quarter boundary
- Cadastre

	Site Area	Total Area
	Park	0m2
	Private	88,528m2
	Street	34,823m2
	Total	**123,351m2**

Canopy Extent	Canopy Type	Canopy Coverage	% of Area
	Park	0m2	0%
	Private	22,372m2	25.3%
	Street	13,293m2	38.2%
	Total	**35,665m2**	**28.9%**

Note:-
Site area calculations include immediately adjoining streets up to the Estate Precinct and Waterloo South Precinct boundary and excludes Metro Quarter/Waterloo North and Central

0 40 100 200m

Figure 5.5 – Map of the Estate illustrating the existing trees and their relative contribution to canopy coverage . (Source: Arterra)

Legend

- Precinct boundary - Estate
- Sub-Precinct boundary/Metro Quarter boundary
- Cadastre

	Area	Total Area
	Park	29,166m2
	Private	53,207m2
	Street	40,978m2
	Total	**123,351m2**

Canopy Extent	Canopy Type	Canopy Coverage	% of Total Area	% of Relative Area
	Park	17,204m2	13.9%	59.0%
	Private	**10,641m2	8.6%	20%
	Street	24,506m2	19.9%	59.8%
	Total	**51,568m2**	**42.4%**	—

** Private area is an assumed area with imposition of a DCP provision requiring a minimum of 20% projected 'tree' canopy cover at ground or building podium level over all private portions of land

Note:-
Site area calculations include immediately adjoining streets up to the Estate Precinct and Waterloo South Precinct boundary and excludes Metro Quarter/Waterloo North and Central

0 40 100 200m

Figure 5.6 – Map of the Estate illustrating the retained existing trees together with a conservative estimate of the proposed trees and their potential contribution to ultimate canopy coverage when mature. (Source: Arterra)

Given the high density and highly urbanised development that is being proposed it is likely that the CoS target for 25% canopy coverage to private areas will not be met in many instances. At present we have calculated the canopy coverage of private areas based on a **notional 20%** canopy coverage. This should be calculated on m2 of projected canopy, regardless of whether it is on the ground levels or on the elevated portions of the buildings. If this 20% canopy is achieved in the private areas, then the overall canopy cover target of 30% will be generously exceeded. It is therefore recommended that a minimum of 20% canopy coverage for private areas be accepted and mandated within the relevant DCP provisions. This together with the contribution of green roofs and other shrub and groundcover planting areas on the podium levels of new buildings should further boost the overall urban greening. The extent of this other supplementary planting is currently unknown and therefore cannot be commented on definitively.

5.3.2 Species Diversity

The high level nature of the current concepts means that the actual species diversity can not be precisely measured or commented on. It is the intention of the concept proposals to develop a diverse and appropriate mix of plants within the redevelopment. The selection of the new trees is intended to ultimately:

- Provide a mix of species that is culturally appropriate and respects the strong association with Aboriginal heritage.
- Provide a mix of trees that are robust, long lived with acceptable maintenance regimes that, most importantly, actively contribute to canopy coverage and urban shading and cooling.
- Install tree species that are appropriate to their positions and are well suited to use in streets and highly used urban areas.
- Minimise the reliance on the Myrtaceae Family to acceptable levels, ideally closer to 40%, but certainly no more than 50% of the total trees being planted belonging to the above Family.
- Contribute to an acceptable balance of locally endemic, native and exotic trees, recognising that exotic trees will still play very valuable roles for urban shading and winter sun and providing trees that provide appropriate scales and wind tolerance in relation to the proposed tall towers and likely wind tunnel affects.
- Contribute to productive landscapes, but not at the expense of canopy coverage or meeting the maintenance requirements of the CoS for public area trees.

There is likely to remain a heavy reliance on Myrtaceae family, which is very common throughout Australian cities and is reflective of the proposed street tree species that are desired under the current CoS street master plan and the extensive Eucalyptus and Corymbia species that already existing along Cope and George Street. The diversity achieved from proposed replenishment planting across the Southern Precinct should moderate the figures towards the desired outcome. In the author's opinion it is ultimately more important that the right type of tree is proposed for each given urban situation, microclimate and the spaces available and provided.

Minimal capacity exists for 'extensive' use of endemic trees in the South Precinct, as they are potentially unsuitable for heavily used, highly urban spaces within fully paved and tower environments. In the author's opinion the selection of proposed trees as provided in Appendix 6.2 is balanced and appropriate and should form the basis for the majority of tree selections. The diversity for the overall Estate should ultimately trend towards the desired population-wide outcome for the City.

5.3.3 Tree Size

There is a likely to be a general reliance on small to medium sized trees, which is reflective of the spaces and type of landscapes and streets and laneways to be created around the South Precinct. Capacity certainly exists for the more extensive use of larger civic-scaled trees in parts of the precinct, particularly in the Parks and the wider streets. The dominance of medium sized trees compared to small trees is welcome and preferred. Again, in the author's opinion, it is more important to ensure the right type of tree is proposed for the given urban situation and spaces provided. We continue to recommend that efforts are applied to placement of civic-scaled (extra large trees) such as Figs, Agathis and Araucarias and some of the larger Eucalypts at key nodes and focal points around the precinct during detailed designs. This will aid in the street canopy coverage and compliance with CoS targets for larger tree sizes.

5.4 Suitability of Proposed and Suggested Tree Species

The relatively simplistic public domain plans currently prepared as part of the Indicative Concept Proposal have been reviewed. It appears there will be a range of tree species proposed and provided throughout the redevelopment. There is a selection of proposed trees provided within Appendix 6.2 which should form the basis for all new tree planting within the public and semi-public areas. They are considered generally appropriate to the normal constraints and conditions likely to be imposed by the local urban surroundings and will positively contribute to the implementation of the objectives of the UFS and the wider Estate. All new tree planting must still be considered with relation to the individual microclimatic, spatial and soil conditions expected around each development.

Specifically the proposed species put forward are considered appropriate for the following reasons:

- There is a range of species that provide both deciduous and evergreen trees.
- They are all hardy proven performers within the local urban context.
- The species generally comply and align with the CoS Street Tree Master Plan 2015 but we recommend that there be some additional diversity provided to the streets for civic, place making and cultural purpose.
- Some deciduous trees are recommended for solar access during the cooler months which should be applied to some parts of the public open spaces, streets and to northern or western sides of buildings. They may also facilitate seasonal views to important buildings or other features.
- It provides a balanced approach to diversity with a dominance of trees native to the NSW coastal region with *Corymbia* and *Angophora sp.* likely to provide a strong correlation with the other species along Cope & George Street as well as spring flowering nectar food sources for native fauna and insects.
- It provides trees that provide reliable shading and canopy coverage with a large proportion of the trees providing excellent shade and evapotranspiration rates that will help mitigate urban heat island effects (eg. *Lophostemon confertus, Waterhousea floribunda, Syzygium paniculatum and Harpullia pendula*).

Any future detailed designs should be expected and enforced to generally align with the proposed species selections, the proposed road setbacks and horizontal spacings, unless otherwise agreed by the CoS.

5.5 Proposed DCP Provisions Relating to Urban Forest

The following are the proposed Urban Forest DCP provisions that should be adopted for the South Precinct. Many of these will also contribute to the realisation of other objectives and requirements.

1. Any existing trees identified and proposed to be retained are to be assessed and then protected as per the requirements outlined in the Australian Standard 4970 – Protection of Trees on Development Sites.
2. Overhead power lines and communication cables are to be undergrounded within all streets servicing the Precinct to remove the current conflict between overhead cabling and existing and proposed trees. If existing trees occur within the planned undergrounding routes then mitigation measures shall be employed to avoid incursions into the tree(s) calculated Tree Protection Zones, as defined under Australian Standard 4970 – Protection of Trees on Development Sites. Where this cannot be reasonably accommodated, alternative methods of construction should be used such as under-boring, directional drilling or non-destructive trenching to install the cabling without impact to the trees' health or stability.
3. A minimum of 20% projected canopy coverage shall be achieved for all private land (non-public) developments. This shall be measured as the projected square metre canopy from the trees using reasonable estimates of the mature size of the chosen trees. Coverage may include trees planted at ground level as well as any trees planted in upper levels of buildings, such as podiums. It may also include any canopy overhanging from an adjoining public domain area. A tree shall be as defined by CoS LEP.
4. A minimum of 50% projected canopy coverage shall be achieved for all streets and laneways, unless it can be clearly demonstrated that it is unreasonable to meet this requirement from an urban design outcome and only in a specific instance.
5. A minimum of 46% projected canopy coverage shall be achieved for all parks.
6. Tree species selection for the public domain shall be as per the proposed tree species list contained in Appendix 6.2. Small trees shall only be used where it is unreasonable to install a larger tree. This is to avoid the use of small trees where the space clearly exists for a larger tree to be planted.
7. Planting throughout the Precinct shall typically aim for a balance of tree sizes with the following proportion of trees, by number:
   - 10% civic (extra large trees) (ie. greater than 25m in spread and/or height)
   - 35% large trees (ie. greater then 15m in spread and height)

- 45% medium trees (ie. greater than 10m in spread and height)
- 10% small trees (ie. less than 10m in spread and height)

8. When planted within a potentially constrained soil environment (eg. on-structure or where other subsurface conditions would be expected to constrain root development and available rooting volumes) all trees are to be planted in accordance with the soil volume requirements contained within Section 4.6.1 of the Waterloo Estate Urban Forest Study.
9. New street trees to be planted where possible a minimum of 800mm from the face of adjoining road kerbs or parking lanes with a distance of 1000-1200mm preferred.

5.6 New Tree Planting

5.6.1 Planting Program and Timing

The implementation of any new tree planting needs to be carefully planned and considered. This will involve the critical elements below:

- The quality and species of the trees planted;
- The size at which they are planted; and
- The way they are physically planted and cared for in the first few weeks and months.

The following outlines the **minimum** requirements that should be adopted for all new tree planting within the Estate.

- All new street tree planting shall be a minimum of 200L container sizes with this increased to 400L for the key feature trees being preferred. Sizes of >800L should be considered where suitable and quality advanced stock is available.
- All trees shall be grown to the minimum standards of AS2303 – 2015 Tree Stock For Landscape Use with certification provided by the supplying nurseries. Trees shall be true to type and the species and cultivars specified.
- Tree planting ideally should be undertaken in either Autumn or Winter. This will greatly increase the success of the planting and reduce the establishment maintenance burdens.
- Soil volumes provided shall be consistent with the requirements for the size and species of the tree as outlined in this document.
- Surrounding pavements and any installed tree grates shall allow for proper expansion of the trees base over time.
- Trees should be planted a minimum of 800mm from the back of adjoining kerbs. Distances greater than 1000mm are preferred.
- Trees shall be transported, lifted and planted in a manner that limits any possibility of physical damage.
- Trees shall be regularly maintained for a minimum of 24 months from the date of planting to ensure adequate establishment maintenance. This is to include pest and disease monitoring and control, watering and timely replacement of any failed trees, if required.

5.6.2 Tree Stock Quality and Sourcing

Considerable effort and resources can be spent in planting new trees. This considerable effort can be wasted if the tree dies shortly after planting, or if the tree is supplied in a substandard form or condition that may ultimately lead to poor performance or the later development of serious structural defects and poor health. As outlined by authors such as Gilman (Gilman 2012), most tree defects that occur in mature trees were present and identifiable at the time a tree was initially planted. It is therefore essential that the tree and its roots be in optimal condition when delivered and planted.

An important aspect of the planting implementation is in the planning and procurement of nursery stock. Implementing a 'forward-thinking' and pre-planned approach to plant procurement has numerous benefits, which include:

- Securing favourable contract growing prices.
- Ability to prepare and coordinate planting at optimum times of the year.
- Ability to purchase trees of the required species and cultivars.
- Ability to purchase trees of the required sizes and dimensions and formatively pruned to suit street tree installation.
- Assurance of the required quantities, including allowance for replacements when necessary.
- Ability to inspect and demand high quality stock, free of above and below ground defects.

In summary, all trees should be sourced and supplied as part of an advanced plant supply contract with one or more reputable commercial suppliers and they shall conform to the NATSPEC "Guide for assessing the quality of and purchasing of landscape trees" by Ross Clark 2003 and AS AS2303 – 2015 Tree Stock For Landscape Use.

5.6.3 Early Establishment and Maintenance

Most defects that lead to tree problems and failures are present in the tree upon delivery from the nursery and the planting. If stock is properly sourced, as noted above, most of the issues noted below should not present themselves. For example:-

1. Included branches
2. Co-dominant or tri-dominant stems
3. Congested branching architecture
4. Crossing and rubbing branches
5. Leans

If these issues do occur, however, they are to be properly managed through formative pruning. At an early age these problems seem insignificant and unimportant. The tree, branches and defects are relatively small. These branches however are often the trunks and branches that are the major branches of the tree when it matures and as it grows so do the size of the trunks and these branches. A 50mm branch today will be the 200mm branch in 10 years' time. Branches are typically at the same point in the tree in the future as they are when young. Plants elongate from the ends, and the early trunks and stems just expand in girth, they do not move upwards in the tree. That is, if the tree currently has a major branch at 1.5m high, that major branch will always be emanating from about 1.5m high on the tree. When it is small that may not be an issue, but when the tree is mature this may not be desirable for clearances under the tree.

Defects, where present, can become more serious if left untreated as the tree matures. The size of the tree will typically increase and the damage to persons or property, if failure occurs, may become more significant. When a tree is mature the ability to rectify some of these defects can also become substantially more difficult and costly. It may also involve removing potentially very large branches or trunks, a lot of foliage and pruning into heartwood, thereby leaving substantial wounds that the tree expends substantial reserves trying to compensate for and seal around.

Formative pruning, although straightforward in theory, does require individual assessment and decisions based on each trees' specific needs. It is both 'art' and 'science' and should be conducted only by an experienced arboricultural professional and in line with AS4373 Pruning of Amenity Trees. Experiences from professionals such as Gilman indicate that in some younger trees foliage removal in the order of 40-50% is not an unacceptable figure and may be necessary in achieving the longer term desired outcomes.

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6. APPENDICES

6.1 Schedule of Existing Trees

Waterloo Estate, Waterloo - Existing Tree Assessment Schedule

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
203	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
204	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
205	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
206	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
207	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
208	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
209	C	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	15.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
210	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	10.0	0.30	0.30	3.60	2.00	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Conifer	Remove
211	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	10.0	0.30	0.30	3.60	2.00	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Conifer	Remove
212	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	12.0	0.50	0.50	6.00	2.47	Semi-mature	Good	Average	Major Inclusions	Long (>40 years)	Moderate		Exotic	Large	Conifer	Retain
213	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor		Long (>40 years)	Moderate	Moderate as group but Low if retained individually.	Endemic	Medium	Evergreen	Remove
214	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.30	0.30	3.60	2.00	Mature	Fair	Poor		Long (>40 years)	Moderate	Moderate as group but Low if retained individually.	Endemic	Medium	Evergreen	Remove
215	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor		Long (>40 years)	Moderate	Moderate as group but Low if retained individually.	Endemic	Medium	Evergreen	Remove
216	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.70	0.70	8.40	2.85	Mature	Fair	Poor		Long (>40 years)	Moderate	Moderate as group but Low if retained individually.	Endemic	Medium	Evergreen	Remove
217	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Long (>40 years)	Moderate	Moderate as group but Low if retained individually.	Endemic	Medium	Evergreen	Remove
218	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Moderate as group but low individually	Native	Civic	Evergreen	Remove
219	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Moderate as group but low individually	Native	Civic	Evergreen	Remove
220	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy, Major Inclusions	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
221	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
222	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.70	0.80	8.40	3.01	Mature	Fair	Average	Major Inclusions	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
223	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
224	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
225	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.20	0.20	2.40	1.68	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
226	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
227	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
228	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
229	C	*Populus nigra 'Italica'*	Lombardy Poplar	SALICACEAE	20.0	0.30	0.30	3.60	2.00	Mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Deciduous	Remove
230	C	*Populus nigra 'Italica'*	Lombardy Poplar	SALICACEAE	20.0	0.30	0.30	3.60	2.00	Mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Deciduous	Remove
231	C	*Populus nigra 'Italica'*	Lombardy Poplar	SALICACEAE	20.0	0.30	0.30	3.60	2.00	Mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Deciduous	Remove
232	C	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	18.0	0.40	0.40	4.80	2.25	Mature	Good	Good		Long (>40 years)	Low		Invasive	Medium	Deciduous	Remove
233	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	High		Endemic	Medium	Evergreen	Remove
234	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
235	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Moribund	Average		Remove (<5 years)	V Low / Remove		Endemic	Medium	Evergreen	Remove
236	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	20.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
237	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
238	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
239	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
240	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
241	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
242	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.50	0.70	6.00	2.85	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
243	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.50	0.70	6.00	2.85	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
244	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.50	0.70	6.00	2.85	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
245	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Medium (15-40 years)	V Low / Remove		Endemic	Medium	Evergreen	Remove
246	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	16.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Civic	Evergreen	Remove
247	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Endemic	Medium	Evergreen	Remove
248	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Good	Good	Excessively Pruned	Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
249	C	*Ficus benjamina*	Weeping Fig	MORACEAE	12.0	0.70	0.70	8.40	2.85	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Large	Evergreen	Remove
250	C	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
251	C	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low	Ivy covered.	Exotic	Medium	Deciduous	Remove
252	C	*Prunus sp.*	Plum	ROSACEAE	3.0	0.10	0.10	2.00	1.26	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Small	Deciduous	Remove
253	C	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	15.0	0.35	0.45	4.20	2.37	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
254	C	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	8.0	0.30	0.30	3.60	2.00	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
255	C	*Araucaria columnaris*	Cook Pine	ARAUCARIACEAE	17.0	0.25	0.30	3.00	2.00	Semi-mature	Good	Good		Long (>40 years)	High		Exotic	Civic	Conifer	Remove
256	C	*Banksia serrata*	Old Man Banksia	PROTEACEAE	10.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Moderate		Endemic	Small	Evergreen	Remove
257	C	*Banksia serrata*	Old Man Banksia	PROTEACEAE	10.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Moderate		Endemic	Small	Evergreen	Remove
258	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
259	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Poor	Poor		Short (5-15 years)	V Low / Remove		Native	Medium	Evergreen	Remove
260	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
261	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
262	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.40	0.50	4.80	2.47	Mature	Poor	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
263	C	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	7.0	0.20	0.25	2.40	1.85	Mature	Dead	Average		Remove (<5 years)	V Low / Remove		Endemic	Small	Evergreen	Remove
264	C	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	9.0	0.20	0.25	2.40	1.85	Mature	Good	Average		Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
265	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
266	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
267	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
268	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
269	C	*Melia azedarach*	White Cedar	MELIACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Excellent	Good		Long (>40 years)	High		Native	Medium	Deciduous	Remove
270	C	*Araucaria heterophylla*	Norfolk Island Pine	ARAUCARIACEAE	14.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	Moderate		Exotic	Civic	Conifer	Retain
271	C	*Araucaria heterophylla*	Norfolk Island Pine	ARAUCARIACEAE	17.0	0.30	0.29	3.60	1.98	Semi-mature	Good	Good		Long (>40 years)	High	Good corner civic tree.	Exotic	Civic	Conifer	Retain
272	C	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	7.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
273	C	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	7.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
274.1	C	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	8.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Poor	Very Asymmetric Canopy, Excessively Pruned, Major Inclusions	Medium (15-40 years)	Low	Very closely spaced group. Generally poor trees.	Exotic	Medium	Deciduous	Remove
274.2	C	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	8.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Poor	Very Asymmetric Canopy, Excessively Pruned,Major Inclusions	Medium (15-40 years)	Low	Very closely spaced group. Generally poor trees.	Exotic	Medium	Deciduous	Remove
275	C	*Ficus macrophylla*	Moreton Bay Fig	MORACEAE	20.0	1.00	1.40	12.00	3.81	Mature	Good	Good		Long (>40 years)	Moderate	Very difficult to retain given realtionship to surrounding infrastructure, but otherwise very good civic tree.	Native	Civic	Evergreen	Remove
276	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	8.0	0.25	0.25	3.00	1.85	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
277	C	*Phoenix canariensis*	Canary Island Date Palm	ARECACEAE	2.0	0.60	0.60	7.20	2.67	Semi-mature	Fair	Average		Long (>40 years)	Low	Two small palms - probably self sown growing under other trees.	Exotic	Small	Palm-SingleStem	Remove
277	C	*Phoenix canariensis*	Canary Island Date Palm	ARECACEAE	2.0	0.60	0.60	7.20	2.67	Semi-mature	Fair	Average		Long (>40 years)	Low	Two small palms - probably self sown growing under other trees.	Exotic	Small	Palm-SingleStem	Remove
278	C	*Ficus benjamina*	Weeping Fig	MORACEAE	9.0	0.20	0.25	2.40	1.85	Semi-mature	Fair	Poor		Long (>40 years)	Low		Exotic	Large	Evergreen	Remove
279	C	*Howea forsteriana*	Kentia Palm	ARECACEAE	3.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
280	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	10.0	0.30	0.30	3.60	2.00	Mature	Poor	Poor		Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
281	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
282	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
283	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
284	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
285	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Poor	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
286	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Poor	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
287	C	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
288	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.00	1.20	12.00	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Part of a tightly spaced grouping. Moderate as individuals, high if retained as a grouping.	Native	Civic	Evergreen	Retain
289	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.00	1.20	12.00	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Part of a tightly spaced grouping. Moderate as individuals, high if retained as a grouping.	Native	Civic	Evergreen	Retain
290	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.00	1.20	12.00	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Part of a tightly spaced grouping. Moderate as individuals, high if retained as a grouping.	Native	Civic	Evergreen	Retain
291	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.00	1.20	12.00	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Part of a tightly spaced grouping. Moderate as individuals, high if retained as a grouping.	Native	Civic	Evergreen	Retain
292	C	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.00	1.20	12.00	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	High	Part of a tightly spaced grouping. Moderate as individuals, high if retained as a grouping.	Native	Civic	Evergreen	Retain
293	C	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Previously ivy covered.	Exotic	Large	Deciduous	Retain
294	C	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.80	1.10	9.60	3.44	Mature	Good	Good		Long (>40 years)	High	Previously ivy covered.	Exotic	Large	Deciduous	Retain

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
295	C	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.10	9.60	3.44	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
296	C	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.10	9.60	3.44	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
297	C	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.50	15.00	3.92	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Retain
298	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	12.0	0.80	1.10	9.60	3.44	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Conifer	Remove
299	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	12.0	0.80	1.10	9.60	3.44	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Conifer	Remove
300	C	*Eucalyptus pilularis*	Blackbutt	MYRTACEAE	22.0	1.20	1.20	14.40	3.57	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Retain
301	C	*Eucalyptus pilularis*	Blackbutt	MYRTACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
302	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
303	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Excessively Pruned, Very, Asymmetric Canopy	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
304	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.15	0.20	2.00	1.68	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
305	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	11.0	0.20	0.20	2.40	1.68	Mature	Fair	Average	Major Inclusions	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
306	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
307	C	*Phoenix canariensis*	Canary Island Date Palm	ARECACEAE	3.0	0.80	0.90	9.60	3.17	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
308	C	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	3.0	0.80	0.90	9.60	3.17	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
309	C	*Pittosporum undulatum*	Sweet Pittosporum	PITTOSPORACEAE	6.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
310	C	*Angophora costata*	Smooth-barked Apple	MYRTACEAE	9.0	0.30	0.30	3.60	2.00	Semi-mature	Fair	Average		Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
311	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
312	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
313	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.20	0.20	2.40	1.68	Mature	Good	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
314	C	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Good	Poor		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
315	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	8.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
316	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	8.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
317	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	10.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Large	Conifer	Remove
318	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	10.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Conifer	Remove
319	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	10.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Conifer	Remove
320	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	8.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
321	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	8.0	0.30	0.50	3.60	2.47	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
322	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
323	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	9.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Large	Conifer	Remove
324	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	9.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Poor		Long (>40 years)	Low		Exotic	Large	Conifer	Remove
325	C	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	9.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Poor		Long (>40 years)	Low		Exotic	Large	Conifer	Remove
326	C	*Olea europaea subsp. europea*	European Olive	OLEACEAE	5.0	0.40	0.50	4.80	2.47	Mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	Low		Invasive	Small	Evergreen	Remove
327	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Closely spaced group. Moderate if retained retain as group.	Native	Medium	Evergreen	Remove
328	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Closely spaced group. Moderate if retained retain as group.	Native	Medium	Evergreen	Remove
329	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Closely spaced group. Moderate if retained retain as group.	Native	Medium	Evergreen	Remove
330	C	*Eucalyptus pilularis*	Blackbutt	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
331	C	*Eucalyptus pilularis*	Blackbutt	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
332	C	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
333	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
334	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
335	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
336	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
337	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
338	C	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate	Closely spaced grouping growing on top of nearby crib block retaining wall.	Native	Medium	Evergreen	Remove
12465	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	8.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12476	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	4.0	0.05	0.05	2.00	0.94	Young	Poor	Suppressed	Very Asymmetric Canopy	Replaceable (Small/Young)	V Low / Remove		Exotic	Medium	Deciduous	Remove
12478	C	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	7.0	0.60	0.60	7.20	2.67	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
12479	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	5.0	0.15	0.20	2.00	1.68	Semi-mature	Poor	Suppressed		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12481	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	4.0	0.10	0.10	2.00	1.26	Young	Poor	Suppressed		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
12482	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	8.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12484	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	4.0	0.10	0.15	2.00	1.49	Young	Fair	Average		Medium (15-40 years)	Low	Tree replaceable	Exotic	Medium	Deciduous	Remove
12485	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	5.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
13270	C	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	17.0	0.70	0.80	8.40	3.01	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
13271	C	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	18.0	0.70	0.80	8.40	3.01	Mature	Fair	Good		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Retain
13272	C	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	21.0	0.80	0.90	9.60	3.17	Mature	Good	Average	Excessively Pruned, Very Asymmetric Canopy	Long (>40 years)	Moderate		Endemic	Large	Evergreen	Retain
13273	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	6.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
13274	C	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed		Long (>40 years)	Moderate	Would benefit from removal of nearby Poplar.	Native	Medium	Evergreen	Retain
13275	C	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
13276	C	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
13277	C	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.25	2.40	1.85	Semi-mature	Fair	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
15084	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	7.0	0.30	0.40	3.60	2.25	Mature	Poor	Suppressed	Very Asymmetric Canopy, Excessively Pruned	Short (5-15 years)	Low		Native	Small	Evergreen	Remove
15088	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	6.0	0.30	0.30	3.60	2.00	Mature	Poor	Suppressed		Short (5-15 years)	Low		Native	Small	Evergreen	Remove
15089	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Fair	Suppressed	Excessively Pruned, Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
15092	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	8.0	0.30	0.50	3.60	2.47	Mature	Good	Suppressed	Excessively Pruned, Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
15095	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	5.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Good		Replaceable (Small/Young)	Low		Native	Small	Evergreen	Remove
15096	C	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	5.0	0.15	0.15	2.00	1.49	Semi-mature	Fair	Suppressed		Short (5-15 years)	Low		Native	Small	Evergreen	Remove
31966	C	*Robinia pseudacacia*	Black Locust	FABACEAE	5.0	0.10	0.10	2.00	1.26	Young	Fair	Average		Replaceable (Small/Young)	Low		Exotic	Medium	Deciduous	Remove
31967	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	5.0	0.10	0.10	2.00	1.26	Young	Fair	Average		Replaceable (Small/Young)	Low		Exotic	Medium	Deciduous	Remove
31968	C	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	4.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Exotic	Medium	Deciduous	Remove
1	N	*Eucalyptus piperita?*	Sydney Peppermint?	MYRTACEAE	15.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Medium (15-40 years)	Moderate		Endemic	Medium	Evergreen	Remove
2	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	15.0	1.00	1.00	12.00	3.31	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Retain
3	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	15.0	0.30	0.40	3.60	2.25	Mature	Good	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
4	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
5	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
6	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
7	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
8	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	0.90	1.10	10.80	3.44	Mature	Good	Good		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
9	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
10	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
11	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
12	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	0.90	1.00	10.80	3.31	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
13	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
14	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Average		Long (>40 years)	High	Part of a closely spaced group.	Native	Civic	Evergreen	Retain
15	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.40	1.40	15.00	3.81	Mature	Fair	Average		Long (>40 years)	Moderate	Part of a closely spaced group. Sparse canopy.	Native	Civic	Evergreen	Retain
16	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	15.0	0.30	0.30	3.60	2.00	Mature	Fair	Average		Medium (15-40 years)	Moderate		Endemic	Medium	Evergreen	Remove
17	N	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	16.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
18	N	*Macadamia integrifolia*	Macadamia	PROTEACEAE	8.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Remove
19	N	*Ficus microcapa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.40	14.40	3.81	Mature	Excellent	Good		Long (>40 years)	High	Growing on top of concrete retaining wall.	Native	Civic	Evergreen	Remove
20	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	19.0	0.50	0.60	6.00	2.67	Mature	Fair	Poor	Very Asymmetric Canopy, Excessively Pruned	Medium (15-40 years)	Low		Endemic	Large	Evergreen	Remove
21	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	6.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Palm-SingleStem	Remove
22	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Palm-SingleStem	Remove
23	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	8.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
24	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	10.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
25	N	*Melaleuca armillaris*	Bracelet Honey-myrtle	MYRTACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor	Very Asymmetric Canopy	Short (5-15 years)	Low		Endemic	Small	Evergreen	Remove
27	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	18.0	0.80	0.90	9.60	3.17	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low	Supressed canopy	Endemic	Medium	Evergreen	Remove
28	N	*Brachychiton acerifolius*	Illawarra Flame Tree	MALVACEAE	7.0	0.20	0.30	2.40	2.00	Semi-mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Deciduous	Remove
29	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
30	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	2.0	0.15	0.15	2.00	1.49	Mature	Poor	Suppressed	Excessively Pruned	Short (5-15 years)	V Low / Remove		Native	Small	Evergreen	Remove
31	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
32	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	9.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Medium (15-40 years)	Low	Multi trunk from base, very spreading form.	Native	Small	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
33	N	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	8.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Evergreen	Remove
34	N	*Ficus rubiginosa*	**Port Jackson Fig**	**MORACEAE**	8.0	0.70	0.80	8.40	3.01	Semi-mature	Excellent	Average		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Remove
35	N	*Eucalyptus bicostata*	**Southern Blue Gum**	**MYRTACEAE**	15.0	0.90	1.00	10.80	3.31	Mature	Good	Average		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Remove
36	N	*Celtis sinensis*	**Chinese Hackberry**	**ULMACAEAE**	10.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	**Low**		Invasive	Medium	Deciduous	Remove
37	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.15	0.20	2.00	1.68	Mature	Fair	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
38	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	9.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Average		Long (>40 years)	**Low**		Exotic	Large	Deciduous	Remove
39	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.10	1.20	13.20	3.57	Mature	Good	Average		Long (>40 years)	**High**	Part of a closely spaced group.	Native	Civic	Evergreen	Remove
40	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	0.90	1.00	10.80	3.31	Mature	Good	Average		Long (>40 years)	**High**	Part of a closely spaced group.	Native	Civic	Evergreen	Remove
41	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Suppressed		Medium (15-40 years)	**Low**		Exotic	Large	Deciduous	Remove
42	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Suppressed		Medium (15-40 years)	**Low**		Exotic	Large	Deciduous	Remove
43	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	18.0	0.90	1.00	10.80	3.31	Mature	Good	Average		Long (>40 years)	**High**		Native	Civic	Evergreen	Remove
44	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	18.0	0.70	0.70	8.40	2.85	Mature	Fair	Poor		Long (>40 years)	**Low**		Native	Civic	Evergreen	Remove
45	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	18.0	0.70	0.70	8.40	2.85	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Low**		Native	Civic	Evergreen	Remove
46	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	12.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	**Low**		Exotic	Large	Deciduous	Remove
47	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	12.0	0.30	0.30	3.60	2.00	Mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	**Low**		Exotic	Large	Deciduous	Remove
48	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
49	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
50	N	*Eucalyptus haemastoma*	**Scribbly Gum**	**MYRTACEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	**Low**		Endemic	Medium	Evergreen	Remove
51	N	*Eucalyptus haemastoma*	**Scribbly Gum**	**MYRTACEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	**Low**		Endemic	Medium	Evergreen	Remove
52	N	*Cupaniopsis anacardioides*	**Tuckeroo**	**SAPINDACEAE**	7.0	0.10	0.10	2.00	1.26	Semi-mature	Good	Average		Long (>40 years)	**Low**		Native	Small	Evergreen	Remove
53	N	*Casuarina cunninghamiana*	**River She-Oak**	**CASUARINACEAE**	9.0	0.20	0.30	2.40	2.00	Semi-mature	Good	Average		Long (>40 years)	**Low**		Native	Medium	Evergreen	Remove
54	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	20.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	**High**		Exotic	Large	Deciduous	Retain
55	N	*Casuarina cunninghamiana*	**River She-Oak**	**CASUARINACEAE**	20.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Low**		Native	Medium	Evergreen	Remove
56	N	*Casuarina cunninghamiana*	**River She-Oak**	**CASUARINACEAE**	20.0	0.60	0.70	7.20	2.85	Mature	Good	Average	Excessively Pruned	Long (>40 years)	**High**		Native	Medium	Evergreen	Remove
57	N	*Casuarina cunninghamiana*	**River She-Oak**	**CASUARINACEAE**	20.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	**High**		Native	Medium	Evergreen	Remove
58	N	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	5.0	0.10	0.10	2.00	1.26	Young	Good	Good		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
59	N	*Celtis australis*	**Southern Hackberry**	**ULMACAEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Good		Long (>40 years)	**Low**	Small size, otherwise good trees.	Exotic	Medium	Deciduous	Remove
60	N	*Celtis australis*	**Southern Hackberry**	**ULMACAEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Good		Long (>40 years)	**Low**	Small size, otherwise good trees.	Exotic	Medium	Deciduous	Remove
61	N	*Celtis australis*	**Southern Hackberry**	**ULMACAEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Good		Long (>40 years)	**Low**	Small size, otherwise good trees.	Exotic	Medium	Deciduous	Remove
62	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Good	Good		Long (>40 years)	**High**	Growing as group with 63	Native	Civic	Evergreen	Retain
63	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Good	Good		Long (>40 years)	**Moderate**	Growing as group with 62	Native	Civic	Evergreen	Retain
64	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
64.2	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
64.3	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
64.4	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
64.5	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
64.6	N	*Archontophoenix cunninghamiana*	**Bangalow Palm**	**ARECACEAE**	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**		Native	Small	Palm-SingleStem	Remove
65	N	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Long (>40 years)	**Low**		Endemic	Large	Evergreen	Remove
66	N	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Long (>40 years)	**Low**		Endemic	Large	Evergreen	Remove
67	N	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	**High**		Endemic	Large	Evergreen	Remove
68	N	*Lophostemon confertus*	**Brush Box**	**MYRTACEAE**	8.0	0.15	0.20	2.00	1.68	Semi-mature	Fair	Average		Long (>40 years)	**Low**		Native	Medium	Evergreen	Remove
69	N	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Good	Good	Very Asymmetric Canopy	Long (>40 years)	**Moderate**	Growing in very close proximity to concrete walls	Endemic	Large	Evergreen	Remove
70	N	*Lophostemon confertus*	**Brush Box**	**MYRTACEAE**	11.0	0.15	0.15	2.00	1.49	Semi-mature	Fair	Average		Long (>40 years)	**Low**		Native	Medium	Evergreen	Remove
71	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Low**		Exotic	Large	Deciduous	Remove
71	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	15.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Low**		Exotic	Large	Deciduous	Remove
72	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	15.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Low**		Exotic	Large	Deciduous	Remove
73	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Fair	Poor		Long (>40 years)	**Moderate**	Growing as part of a very lightly spaced group. Individually trees would be ranked Low value.	Native	Civic	Evergreen	Remove
74	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Fair	Poor		Long (>40 years)	**Moderate**	Growing as part of a very lightly spaced group. Individually trees would be ranked Low value.	Native	Civic	Evergreen	Remove
75	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Fair	Poor		Long (>40 years)	**Moderate**	Growing as part of a very lightly spaced group. Individually trees would be ranked Low value.	Native	Civic	Evergreen	Remove
76	N	*Platanus x acerifolia*	**London Plane**	**PLATANACEAE**	20.0	0.20	0.25	2.40	1.85	Mature	Fair	Suppressed		Medium (15-40 years)	**Low**	Highly suppressed.	Exotic	Large	Deciduous	Remove
77	N	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	20.0	1.00	1.20	12.00	3.57	Mature	Fair	Poor		Long (>40 years)	**Moderate**	Growing as part of a very lightly spaced group. Individually trees would be ranked Low value.	Native	Civic	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
78	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.20	0.25	2.40	1.85	Mature	Fair	Suppressed		Medium (15-40 years)	Low	Highly suppressed.	Exotic	Large	Deciduous	Remove
79	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	8.0	0.10	0.10	2.00	1.26	Mature	Moribund	Suppressed		Remove (<5 years)	V Low / Remove	Highly suppressed.	Exotic	Large	Deciduous	Remove
80	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Moderate		Exotic	Large	Deciduous	Remove
81	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Suppressed		Medium (15-40 years)	Low	Growing as part of a very lightly spaced group. Individually trees would be ranked Low value. This specimen very suppressed, smallest specimen in group.	Native	Civic	Evergreen	Remove
82	N	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Remove
83	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
84	N	*Castanospermum australe*	Blackbean	FAGACEAE	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
85	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
86	N	*Flindersia australis*	Crows Ash	RUTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Retain
87	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
88	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.40	0.40	4.80	2.25	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
89	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
90	N	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	6.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Medium (15-40 years)	Moderate		Endemic	Small	Evergreen	Retain
91	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
92	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.20	0.25	2.40	1.85	Mature	Fair	Average		Long (>40 years)	Moderate	Intergrown grouping. Retain as a group.	Native	Large	Evergreen	Retain
93	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.20	0.25	2.40	1.85	Mature	Fair	Average		Long (>40 years)	Moderate	Intergrown grouping. Retain as a group.	Native	Large	Evergreen	Retain
94	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.20	0.25	2.40	1.85	Mature	Fair	Average		Long (>40 years)	Moderate	Intergrown grouping. Retain as a group.	Native	Large	Evergreen	Retain
95	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.30	0.50	3.60	2.47	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
96	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	12.0	0.20	0.25	2.40	1.85	Mature	Fair	Suppressed	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Large	Evergreen	Remove
97	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Good	Good	Very Asymmetric Canopy	Long (>40 years)	High		Native	Large	Evergreen	Retain
98	N	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	12.0	0.50	0.70	6.00	2.85	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Large	Evergreen	Remove
99	N	*Banksia integrifolia*	Coastal Banksia	PROTEACEAE	9.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
100	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
101	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
102	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
103	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	15.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
104	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
105	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	16.0	0.30	0.30	3.60	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
106	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	15.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
107	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	15.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
108	N	*Grevillea robusta*	Silky Oak	PROTEACEAE	18.0	0.20	0.25	2.40	1.85	Semi-mature	Good	Good		Long (>40 years)	Low		Invasive	Large	Evergreen	Remove
109	N	*Radermachera sinica?*	China Doll Tree?	BIGNONIACEAE	18.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Evergreen	Remove
110	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	22.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
111	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	22.0	0.70	0.80	8.40	3.01	Mature	Good	Good	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
112	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	15.0	0.20	0.30	2.40	2.00	Mature	Fair	Suppressed	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
113	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	20.0	0.30	0.50	3.60	2.47	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
114	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	20.0	0.30	0.50	3.60	2.47	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
115	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	16.0	0.30	0.50	3.60	2.47	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Large	Evergreen	Remove
116	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
117	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
118	N	*Banksia serrata*	Old Man Banksia	PROTEACEAE	7.0	0.30	0.50	3.60	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Small	Evergreen	Retain
119	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.15	0.30	2.00	2.00	Mature	Fair	Average		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
119	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.15	0.30	2.00	2.00	Mature	Fair	Average		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
120	N	*Afrocarpus falcatus*	Outeniqua Yellow-wood	PODOCARPACEAE	12.0	0.60	0.70	7.20	2.85	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Conifer	Remove
121	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.25	0.25	3.00	1.85	Mature	Fair	Suppressed		Medium (15-40 years)	Low		Native	Large	Evergreen	Remove
122	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.25	0.25	3.00	1.85	Mature	Fair	Average	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Large	Evergreen	Remove
123	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	9.0	0.10	0.15	2.00	1.49	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Evergreen	Remove
124	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.25	0.40	3.00	2.25	Mature	Fair	Average	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Large	Evergreen	Remove
125	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	High		Native	Civic	Evergreen	Retain

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
126	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.20	1.40	14.40	3.81	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	High		Native	Civic	Evergreen	Retain
127	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	0.90	9.60	3.17	Mature	Good	Poor	Very Asymmetric Canopy, Lean-Major	Long (>40 years)	Low		Native	Civic	Evergreen	Remove
128	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.20	1.40	14.40	3.81	Mature	Good	Good	Very Asymmetric Canopy	Long (>40 years)	High		Native	Civic	Evergreen	Retain
129	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.50	15.00	3.92	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Retain
130	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Suppressed	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Retain
131	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.50	15.00	3.92	Mature	Excellent	Good	Very Asymmetric Canopy	Long (>40 years)	High	Group of 4	Native	Civic	Evergreen	Retain
132	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	22.0	1.00	1.20	12.00	3.57	Mature	Excellent	Good	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Civic	Evergreen	Remove
133	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	22.0	1.00	1.20	12.00	3.57	Mature	Excellent	Good	Very Asymmetric Canopy	Long (>40 years)	High		Native	Civic	Evergreen	Retain
134	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	22.0	1.00	1.20	12.00	3.57	Mature	Excellent	Good	Very Asymmetric Canopy	Long (>40 years)	High		Native	Civic	Evergreen	Retain
135	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	22.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
136	N	*Macadamia integrifolia*	Macadamia	PROTEACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
137	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
137.2	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
137.3	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
137.4	N	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
138	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Trimed away from buildings	Native	Civic	Evergreen	Remove
139	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Trimed away from buildings	Native	Civic	Evergreen	Remove
140	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Trimed away from buildings	Native	Civic	Evergreen	Remove
141	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
142	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
143	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Excellent	Good		Long (>40 years)	High	Very good tree	Native	Civic	Evergreen	Remove
144	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
145	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
146	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
147	N	*Ulmus parvifolia*	Chinese Elm	ULMACAEAE	16.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
148	N	*Ulmus parvifolia*	Chinese Elm	ULMACAEAE	16.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
149	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	16.0	0.20	0.20	2.40	1.68	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
150	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Remove
151	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Remove
152	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
153	N	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate	Fascination noted in canopy.	Endemic	Medium	Evergreen	Remove
154	N	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate	Group	Endemic	Medium	Evergreen	Remove
155	N	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate	Group	Endemic	Medium	Evergreen	Remove
156	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	14.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Medium	Evergreen	Remove
157	N	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	High	Group	Native	Medium	Evergreen	Remove
158	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
159	N	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	10.0	0.70	0.70	8.40	2.85	Mature	Good	Good		Long (>40 years)	Low		Invasive	Medium	Deciduous	Remove
160	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	8.0	0.10	0.15	2.00	1.49	Young	Fair	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
161	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.40	0.40	4.80	2.25	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
162	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
163	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.40	0.60	4.80	2.67	Mature	Good	Average	Lean-Major, Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
164	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.40	0.40	4.80	2.25	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
165	N	*Phoenix canariensis*	Canary Island Date Palm	ARECACEAE	8.0	0.50	0.50	6.00	2.47	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Small	Palm-SingleStem	Remove
166	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.50	0.50	6.00	2.47	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
166.2	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.50	0.50	6.00	2.47	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
166.3	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.50	0.50	6.00	2.47	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
167	N	*Eucalyptus piperita?*	Sydney Peppermint?	MYRTACEAE	20.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
168	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
169	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
170	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
171	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
172	N	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	22.0	1.50	1.80	15.00	4.24	Mature	Good	Good		Long (>40 years)	High	Good tree	Native	Civic	Evergreen	Remove
173	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	20.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
174	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	15.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
175	N	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	22.0	0.30	0.50	3.60	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
176	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.30	0.50	3.60	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
177	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Large	Evergreen	Remove
178	N	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	10.0	0.20	0.30	2.40	2.00	Mature	Fair	Poor		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
179	N	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	15.0	0.60	0.60	7.20	2.67	Mature	Good	Average		Long (>40 years)	Low		Invasive	Medium	Deciduous	Remove
180	N	*Corymbia maculata*	Spotted Gum	MYRTACEAE	15.0	0.60	0.60	7.20	2.67	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
181	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	20.0	0.60	0.60	7.20	2.67	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
182	N	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	7.0	0.15	0.20	2.00	1.68	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
183	N	*Brachychiton acerifolius*	Illawarra Flame Tree	MALVACEAE	7.0	0.15	0.20	2.00	1.68	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Deciduous	Remove
403	N	*Lagerstroemia indica*	Crepe Myrtle	LYTHRACEAE	7.0	0.20	0.25	2.40	1.85	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Small	Deciduous	Remove
404	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	8.0	0.20	0.25	2.40	1.85	Semi-mature	Fair	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
405	N	*Platanus x acerifolia*	London Plane	PLATANACEAE	14.0	0.25	0.30	3.00	2.00	Semi-mature	Good	Good		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
998	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	14.0	0.40	0.40	4.80	2.25	Semi-mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6833	N	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	16.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
6834	N	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.60	0.60	7.20	2.67	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
12171	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	12.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
12172	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
12173	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	12.0	0.50	0.50	6.00	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
12456	N	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	9.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	Moderate	Young Tree <12 months	Endemic	Medium	Evergreen	Remove
12458	N	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.70	0.70	8.40	2.85	Mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	Low	Tree growing into canopy.	Endemic	Medium	Evergreen	Remove
12460	N	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	17.0	1.00	1.00	12.00	3.31	Mature	Fair	Poor	Very Asymmetric Canopy, Lean-Major	Medium (15-40 years)	Low	Tree leaning away	Endemic	Medium	Evergreen	Remove
12461	N	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	17.0	0.80	0.80	9.60	3.01	Mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
12462	N	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
12463	N	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	3.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low	Replaceable	Exotic	Medium	Deciduous	Remove
13278	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Native	Medium	Evergreen	Remove
13279	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.25	2.40	1.85	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
13280	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
13281	N	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	8.0	0.10	0.20	2.00	1.68	Young	Poor	Average		Replaceable (Small/Young)	Low		Native	Small	Evergreen	Remove
13282	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	8.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Moderate	Tree valley pruned	Native	Medium	Evergreen	Retain
13283	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
13284	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	7.0	0.20	0.25	2.40	1.85	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
16172	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
29812	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
29813	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	4.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
31432	N	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	4.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
32577	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	4.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Exotic	Medium	Deciduous	Remove
32578	N	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	3.0	0.05	0.05	2.00	0.94	Young	Fair	Poor		Replaceable (Small/Young)	Low	Young Tree <12 months	Exotic	Medium	Deciduous	Remove
184	N	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	9.0	0.30	0.30	3.60	2.00	Semi-mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
185	N	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	9.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
31831	N	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	Low	Replacable	Native	Medium	Evergreen	Remove
0.00103	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
0.00104	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Average	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
0.00105	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
0.00106	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
0.00107	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
0.00108	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	7.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
0.00109	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	5.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
186	S	*Cotoneaster glaucophyllus*	Large Leaf Cotoneaster	ROSACEAE	9.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Poor		Long (>40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
187	S	*Bauhinia variegata*	Orchid Tree	FABACEAE	10.0	0.40	0.50	4.80	2.47	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
188	S	*Eucalyptus caleyi ? hybrid?*	Caley's Ironbark	MYRTACEAE	18.0	1.40	1.50	15.00	3.92	Mature	Excellent	Good		Long (>40 years)	High	Excellent tree. Identification uncertain.	Native	Medium	Evergreen	Retain
189	S	*Lagunaria patersonia*	Norfolk Island Hibiscus	MALVACEAE	8.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
190	S	*Cotoneaster glaucophyllus*	Large Leaf Cotoneaster	ROSACEAE	7.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average		Long (>40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
191	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
192	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	8.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average		Long (>40 years)	Low	Ivy covered.	Native	Small	Evergreen	Remove
193	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
193	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
194	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
194	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
195	S	*Gleditsia triacanthos*	Honey Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
196	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Medium (15-40 years)	Moderate		Exotic	Medium	Deciduous	Retain
197	S	*Calodendrum capense*	Cape Chestnut	RUTACEAE	10.0	0.30	0.30	3.60	2.00	Semi-mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Medium	Evergreen	Remove
198	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.90	1.10	10.80	3.44	Mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
199	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.60	15.00	4.03	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Retain
200	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	12.0	0.10	0.10	2.00	1.26	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
201	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.60	15.00	4.03	Mature	Good	Good	Major Inclusions	Long (>40 years)	High		Native	Civic	Evergreen	Retain
202	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.40	1.60	15.00	4.03	Mature	Good	Good	Major Inclusions	Long (>40 years)	High		Native	Civic	Evergreen	Retain
339	S	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	9.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
340	S	*Schinus areira*	Peppercorn Tree	ANACARDIACEAE	9.0	0.30	0.40	3.60	2.25	Mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Evergreen	Remove
341	S	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	11.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	High		Exotic	Medium	Deciduous	Retain
342.1	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	9.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
342.2	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	9.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
343	S	*Washingtonia robusta*	Washington Palm	ARECACEAE	9.0	0.20	0.30	2.40	2.00	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Small	Palm-SingleStem	Retain
344	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	11.0	0.30	0.30	3.60	2.00	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
345	S	*Ficus benjamina*	Weeping Fig	MORACEAE	8.0	0.50	0.50	6.00	2.47	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Large	Evergreen	Remove
346	S	*Acacia saligna*	WA Golden Wattle	FABACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Medium (15-40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
347	S	*Melaleuca styphelioides*	Prickly Paperbark	MYRTACEAE	8.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Good		Long (>40 years)	Moderate		Endemic	Small	Evergreen	Retain
348	S	*Melaleuca bracteata*	Black Tea-Tree	MYRTACEAE	6.0	0.10	0.15	2.00	1.49	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
349	S	*Glochidion ferdinandi*	Cheese Tree	EUPHORBIACEAE	9.0	0.30	0.30	3.60	2.00	Mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
350	S	*Glochidion ferdinandi*	Cheese Tree	EUPHORBIACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Remove
351	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	20.0	0.90	1.00	10.80	3.31	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
352	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	20.0	0.90	1.00	10.80	3.31	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
353	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	18.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
354	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
355	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	20.0	0.30	0.40	3.60	2.25	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
356	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	22.0	0.80	0.90	9.60	3.17	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
357	S	*Araucaria heterophylla*	Norfolk Island Pine	ARAUCARIACEAE	12.0	0.25	0.35	3.00	2.13	Semi-mature	Good	Poor		Long (>40 years)	Low	Codominant stem from base.	Exotic	Civic	Conifer	Remove
358	S	*Bauhinia variegata*	Orchid Tree	FABACEAE	7.0	0.25	0.35	3.00	2.13	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
359	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	20.0	1.50	1.80	15.00	4.24	Mature	Good	Good	Excessively Pruned	Long (>40 years)	High	Much epicormic growth from base.	Native	Large	Evergreen	Retain
360	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
361	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
362	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
363	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Good		Long (>40 years)	Moderate	Closely spaced group	Native	Large	Evergreen	Retain
364	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Good		Long (>40 years)	Moderate	Closely spaced group	Native	Large	Evergreen	Retain
365	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Remove
366	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	16.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
367	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Fair	Average	Major Inclusions	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
368.1	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate	Closely spaced group, one large one smaller.	Native	Large	Evergreen	Remove
368	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.20	0.25	2.40	1.85	Mature	Good	Average		Long (>40 years)	Moderate	Closely spaced group, one large one smaller.	Native	Large	Evergreen	Remove
369.1	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate	Closely spaced group, all very close together. Treat as one tree if retained-canopies intergrown.	Native	Large	Evergreen	Remove
369.2	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate	Closely spaced group, all very close together. Treat as one tree if retained-canopies intergrown.	Native	Large	Evergreen	Remove
369.3	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Average		Long (>40 years)	Moderate	Closely spaced group, all very close together. Treat as one tree if retained-canopies intergrown.	Native	Large	Evergreen	Remove
370	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.70	6.00	2.85	Mature	Good	Poor	Major Inclusions	Long (>40 years)	Low		Native	Large	Evergreen	Remove
371	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	16.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Long (>40 years)	Low		Native	Large	Evergreen	Remove
372	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	16.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Long (>40 years)	Low		Native	Large	Evergreen	Remove
373	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	22.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
374	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	22.0	0.60	0.80	7.20	3.01	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Remove
375	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.25	0.25	3.00	1.85	Mature	Fair	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
376	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	20.0	0.25	0.25	3.00	1.85	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
377	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	22.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
378	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	22.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
379	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
380	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
381	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
382	S	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	10.0	0.60	0.60	7.20	2.67	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
383	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	7.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
384	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	7.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
385	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	6.0	0.15	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Palm-SingleStem	Remove
386	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	5.0	0.15	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Palm-SingleStem	Remove
387	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	4.0	0.15	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Palm-SingleStem	Remove
388	S	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	10.0	0.40	0.50	4.80	2.47	Mature	Good	Good	Excessively Pruned	Long (>40 years)	Moderate	Part of a tightly spaced grouping	Native	Large	Evergreen	Remove
389	S	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	10.0	0.40	0.50	4.80	2.47	Mature	Poor	Suppressed	Excessively Pruned	Long (>40 years)	Low	Part of a tightly spaced grouping	Native	Large	Evergreen	Remove
390	S	*Ficus rubiginosa*	Port Jackson Fig	MORACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate	Part of a tightly spaced grouping	Native	Large	Evergreen	Remove
391	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
392	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Fair	Suppressed		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
393	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Fair	Suppressed	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
394	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.50	0.50	6.00	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
395	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Poor	Suppressed	Very Asymmetric Canopy, Excessively Pruned	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
396	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.50	0.50	6.00	2.47	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate	Raised canopy	Native	Medium	Evergreen	Remove
397	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
398	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.30	0.30	3.60	2.00	Mature	Fair	Suppressed		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
399	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
400	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.30	0.30	3.60	2.00	Mature	Good	Suppressed	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
401	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	10.0	0.30	0.30	3.60	2.00	Mature	Poor	Suppressed	Excessively Pruned	Short (5-15 years)	Low		Native	Medium	Evergreen	Remove
408	S	*Brachychiton acerifolius*	Illawarra Flame Tree	MALVACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Deciduous	Retain
409	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	16.0	0.60	0.65	7.20	2.76	Mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
410	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.50	0.65	6.00	2.76	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
411	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	13.0	0.60	0.80	7.20	3.01	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
412	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	13.0	0.70	0.70	8.40	2.85	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
413	S	*Callistemon salignus cv.*	Willow Bottlebrush	MYRTACEAE	13.0	0.20	0.20	2.40	1.68	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
414	S	*Persea gratissima*	Avocado	LAURACEAE	10.0	0.20	0.30	2.40	2.00	Mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Evergreen	Remove
415	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
416	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
417	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
418	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
419	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
420	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.70	0.70	8.40	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
421	S	*Persea gratissima*	Avocado	LAURACEAE	15.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Evergreen	Remove
422	S	*Persea gratissima*	Avocado	LAURACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Fair	Average		Short (5-15 years)	Low		Exotic	Medium	Evergreen	Remove
423	S	*Harpephyllum caffrum*	Kaffir Plum	ANACARDIACEAE	17.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Invasive	Large	Evergreen	Remove
424	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	17.0	0.70	0.70	8.40	2.85	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
425	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	17.0	0.25	0.25	3.00	1.85	Semi-mature	Fair	Good		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
426	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	20.0	0.40	0.60	4.80	2.67	Mature	Good	Good		Long (>40 years)	Moderate	Part of tightly spaced group of three.	Endemic	Medium	Evergreen	Remove
427	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	20.0	0.40	0.60	4.80	2.67	Mature	Good	Average		Long (>40 years)	Moderate	Some tip dieback. Part of tightly spaced group of three.	Endemic	Medium	Evergreen	Remove
428	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	18.0	0.40	0.60	4.80	2.67	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low	Part of tightly spaced group of three.	Endemic	Medium	Evergreen	Remove
429	S	*Bauhinia variegata*	Orchid Tree	FABACEAE	5.0	0.15	0.20	2.00	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
430	S	*Cotoneaster glaucophyllus*	Large Leaf Cotoneaster	ROSACEAE	5.0	0.10	0.15	2.00	1.49	Mature	Good	Average		Long (>40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
431	S	*Cotoneaster glaucophyllus*	Large Leaf Cotoneaster	ROSACEAE	8.0	0.20	0.35	2.40	2.13	Mature	Good	Average		Long (>40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
432	S	*Schefflera actinophylla*	Umbrella Tree	ARALIACEAE	7.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor		Medium (15-40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
433	S	*Ficus benjamina*	Weeping Fig	MORACEAE	9.0	0.50	0.50	6.00	2.47	Semi-mature	Good	Average		Long (>40 years)	Moderate	Growing in against retaining walls and carpark infrastructure.	Exotic	Large	Evergreen	Retain
434	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	13.0	0.40	0.40	4.80	2.25	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Large	Evergreen	Remove
435	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	22.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
436	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
437	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	20.0	0.80	0.90	9.60	3.17	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
438	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	11.0	0.80	0.90	9.60	3.17	Mature	Fair	Poor	Very Asymmetric Canopy, Lean-Major	Medium (15-40 years)	Low		Endemic	Large	Evergreen	Remove
439	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	22.0	0.50	0.60	6.00	2.67	Mature	Fair	Good		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
440	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
441	S	*Acacia floribunda*	Gossamer Wattle	FABACEAE	8.0	0.10	0.15	2.00	1.49	Over-mature	Fair	Poor		Short (5-15 years)	Low		Endemic	Small	Evergreen	Remove
442	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	18.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed		Long (>40 years)	Low		Native	Large	Evergreen	Remove
443	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	19.0	0.40	0.45	4.80	2.37	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
444	S	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	8.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
445	S	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
446	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.90	1.20	10.80	3.57	Mature	Good	Good		Long (>40 years)	High	3 Intergrown trees in one. Considered as one tree although probably 3 individuals planted close together.	Endemic	Medium	Evergreen	Retain
447	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	16.0	0.40	0.60	4.80	2.67	Mature	Good	Good		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
448	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	22.0	0.60	0.80	7.20	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
449	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	23.0	0.40	0.60	4.80	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
450	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	20.0	0.80	0.80	9.60	3.01	Mature	Good	Good		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
451	S	*Schinus areira*	Peppercorn Tree	ANACARDIACEAE	13.0	0.50	0.90	6.00	3.17	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Evergreen	Remove
452	S	*Gleditsia triacanthos*	Honey Locust	FABACEAE	10.0	0.25	0.25	3.00	1.85	Mature	Fair	Poor	Excessively Pruned, Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
453	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	13.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
454	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	13.0	0.25	0.25	3.00	1.85	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
455	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	11.0	0.25	0.25	3.00	1.85	Mature	Fair	Poor		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
456	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	12.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Major Inclusions	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
457	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	12.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
458	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	12.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
459	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	12.0	0.15	0.20	2.00	1.68	Mature	Good	Average		Medium (15-40 years)	Low	Growing very close to carpark infrastructure.	Exotic	Medium	Deciduous	Remove
460	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	11.0	0.15	0.20	2.00	1.68	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
461	S	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	10.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Poor		Long (>40 years)	V Low / Remove	Self sown	Invasive	Medium	Deciduous	Remove
462	S	*Buckinghamia celsissima*	Ivory Curl Tree	PROTEACEAE	10.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
463	S	*Acmena smithii var. minor*	Small Leaf Lilly Pilly	MYRTACEAE	9.0	0.10	0.15	2.00	1.49	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
464	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	9.0	0.20	0.20	2.40	1.68	Semi-mature	Poor	Poor		Short (5-15 years)	Low		Exotic	Medium	Deciduous	Remove
465	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Low		Native	Small	Deciduous	Remove
466	S	*Morus nigra*	Mulberry	MORACEAE	7.0	0.20	0.30	2.40	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Small	Deciduous	Remove
467	S	*Acmena smithii var. minor*	Small Leaf Lilly Pilly	MYRTACEAE	6.0	0.10	0.15	2.00	1.49	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Endemic	Small	Evergreen	Remove
468	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	7.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	Low	Multitrunk from base.	Native	Small	Evergreen	Remove
469	S	*Cordyline australis*	Cabbage Tree	ASPARAGACEAE	8.0	0.20	0.40	2.40	2.25	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
470	S	*Citrus limon cv.*	Lemon	RUTACEAE	7.0	0.10	0.15	2.00	1.49	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Evergreen	Remove
471	S	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	V Low / Remove		Invasive	Medium	Deciduous	Remove
472	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	9.0	0.25	0.30	3.00	2.00	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
473	S	*Eucalyptus pseudoglobulous*	Gippsland Blue Gum	MYRTACEAE	15.0	0.60	0.70	7.20	2.85	Mature	Good	Good		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
474	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Poor	Excessively Pruned	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
475.1	S	*Syzygium paniculatum*	Magenta Cherry	MYRTACEAE	9.0	0.10	0.15	2.00	1.49	Mature	Good	Average		Long (>40 years)	Low	Small trees, closely spaced, fomerly a hedge.	Native	Medium	Evergreen	Remove
475.2	S	*Syzygium paniculatum*	Magenta Cherry	MYRTACEAE	9.0	0.10	0.15	2.00	1.49	Mature	Good	Average		Long (>40 years)	Low	Small trees, closely spaced, fomerly a hedge.	Native	Medium	Evergreen	Remove
476	S	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	9.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Poor		Long (>40 years)	V Low / Remove		Invasive	Medium	Deciduous	Remove
477	S	*Melia azedarach*	White Cedar	MELIACEAE	9.0	0.20	0.30	2.40	2.00	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Deciduous	Remove
478	S	*Melia azedarach*	White Cedar	MELIACEAE	8.0	0.15	0.30	2.00	2.00	Semi-mature	Good	Average		Long (>40 years)	Low	Self sown, in very narrow gap.	Native	Medium	Deciduous	Remove
479.1	S	*Pittosporum tenuifolium cv.*	New Zealand Pittosporum	PITTOSPORACEAE	8.0	0.10	0.15	2.00	1.49	Mature	Fair	Poor		Medium (15-40 years)	Low	Two trees, planted as a hedge.	Exotic	Small	Evergreen	Remove
479.2	S	*Pittosporum tenuifolium cv.*	New Zealand Pittosporum	PITTOSPORACEAE	8.0	0.10	0.15	2.00	1.49	Mature	Fair	Poor		Medium (15-40 years)	Low	Two trees, planted as a hedge.	Exotic	Small	Evergreen	Remove
480	S	*Metrosideros excelsa*	New Zealand Christmas Tr	MYRTACEAE	10.0	0.10	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
481	S	*Olea europaea subsp. africana*	African Olive	OLEACEAE	8.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
482.1	S	*Melaleuca linariifolia*	Flax Leaved Paperbark	MYRTACEAE	8.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor		Long (>40 years)	Low	Two trees planted close together.	Endemic	Small	Evergreen	Remove
482.2	S	*Melaleuca linariifolia*	Flax Leaved Paperbark	MYRTACEAE	8.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor		Long (>40 years)	Low	Two trees planted close together.	Endemic	Small	Evergreen	Remove
483	S	*Leptospermum petersonii*	Lemon Scented Tea Tree	MYRTACEAE	8.0	0.20	0.25	2.40	1.85	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
484	S	*Calodendrum capense*	Cape Chestnut	RUTACEAE	9.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Evergreen	Retain
485	S	*Lagerstroemia indica*	Crepe Myrtle	LYTHRACEAE	7.0	0.25	0.30	3.00	2.00	Mature	Good	Average		Long (>40 years)	Low		Exotic	Small	Deciduous	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
486	S	*Cinnamomum camphora*	Camphor Laurel	LAURACEAE	6.0	0.10	0.20	2.00	1.68	Young	Good	Poor		Long (>40 years)	V Low / Remove		Invasive	Large	Evergreen	Remove
487.1	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	7.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
487.2	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	7.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
488	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	22.0	0.40	0.45	4.80	2.37	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
489	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	22.0	0.60	0.80	7.20	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Remove
490.1	S	*Persea gratissima*	Avocado	LAURACEAE	12.0	0.10	0.15	2.00	1.49	Mature	Fair	Average		Long (>40 years)	Low	Two trees growing very close to adjoining wall.	Exotic	Medium	Evergreen	Remove
490.2	S	*Persea gratissima*	Avocado	LAURACEAE	12.0	0.10	0.15	2.00	1.49	Mature	Fair	Average		Long (>40 years)	Low	Two trees growing very close to adjoining wall.	Exotic	Medium	Evergreen	Remove
491	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	25.0	0.70	0.90	8.40	3.17	Mature	Good	Good		Long (>40 years)	High		Native	Civic	Evergreen	Remove
492	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.30	0.50	3.60	2.47	Mature	Fair	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
493	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
494	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	15.0	0.30	0.35	3.60	2.13	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
495	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	18.0	0.90	1.00	10.80	3.31	Mature	Fair	Average	Major Inclusions	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
496	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Good		Replaceable (Small/Young)	Low		Native	Small	Evergreen	Remove
497	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	6.0	0.10	0.10	2.00	1.26	Young	Good	Good		Replaceable (Small/Young)	Low		Exotic	Large	Deciduous	Remove
498	S	*Persea gratissima?*	Avocado	LAURACEAE	9.0	0.30	0.30	3.60	2.00	Mature	Poor	Average	Major Tip Dieback	Short (5-15 years)	Low		Exotic	Medium	Evergreen	Remove
499	S	*Persea gratissima*	Avocado	LAURACEAE	9.0	0.30	0.30	3.60	2.00	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Evergreen	Remove
500	S	*Mangifera indica*	Mango	ANACARDIACEAE	6.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Long (>40 years)	Low		Exotic	Small	Evergreen	Remove
501	S	*Eriobotrya japonica*	Loquat	ROSACEAE	6.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
502	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
503	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
504	S	*Archontophoenix cunninghamiana*	Bangalow Palm	ARECACEAE	9.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Native	Small	Palm-SingleStem	Remove
505	S	*Podocarpus elatus*	Plum Pine	PODOCARPACEAE	11.0	0.60	0.70	7.20	2.85	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Conifer	Remove
506	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	6.0	0.15	0.20	2.00	1.68	Mature	Good	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
507	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	9.0	0.30	0.50	3.60	2.47	Mature	Good	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
508	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	6.0	0.20	0.30	2.40	2.00	Mature	Good	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
509	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	4.0	0.20	0.30	2.40	2.00	Mature	Good	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
510	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	4.0	0.30	0.30	3.60	2.00	Mature	Good	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
511	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	4.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
512	S	*Celtis sinensis*	Chinese Hackberry	ULMACAEAE	6.0	0.20	0.30	2.40	2.00	Semi-mature	Good	Poor		Long (>40 years)	V Low / Remove		Invasive	Medium	Deciduous	Remove
513	S	*Sapium sebiferum*	Chinese Tallow Tree	SAPINDACEAE	4.0	0.15	0.20	2.00	1.68	Mature	Fair	Poor	Excessively Pruned	Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
514	S	*Cinnamomum camphora*	Camphor Laurel	LAURACEAE	15.0	0.90	1.10	10.80	3.44	Mature	Poor	Average		Short (5-15 years)	Low		Invasive	Large	Evergreen	Remove
515	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
516	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	1.10	1.30	13.20	3.69	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
517	S	*Leptospermum petersonii*	Lemon Scented Tea Tree	MYRTACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
518	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	14.0	0.90	1.10	10.80	3.44	Mature	Poor	Poor	Excessively Pruned, Very Asymmetric Canopy	Short (5-15 years)	Low		Native	Medium	Evergreen	Remove
519	S	*Callitris rhomboidea?*	Port Jackson Cypress	CUPRESSACEAE	10.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy, Lean-Major	Long (>40 years)	Low	Very close to building wall. Asymmetric canopy.	Native	Small	Conifer	Remove
520	S	*Melia azedarach*	White Cedar	MELIACEAE	4.0	0.10	0.15	2.00	1.49	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Deciduous	Remove
521	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
522	S	*Flindersia australis*	Crows Ash	RUTACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Retain
523	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
524	S	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
525	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	14.0	0.25	0.30	3.00	2.00	Mature	Fair	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
526	S	*Murraya paniculata*	Murraya	RUTACEAE	4.0	0.15	0.20	2.00	1.68	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
527	S	*Olea europaea subsp. africana*	African Olive	OLEACEAE	2.0	0.10	0.10	2.00	1.26	Semi-mature	Good	Poor		Long (>40 years)	V Low / Remove		Invasive	Small	Evergreen	Remove
528	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	6.0	0.15	0.20	2.00	1.68	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
529	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.50	0.60	6.00	2.67	Mature	Poor	Average		Medium (15-40 years)	Low		Endemic	Large	Evergreen	Remove
530	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	High		Exotic	Large	Deciduous	Remove
531	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	14.0	0.50	0.65	6.00	2.76	Mature	Good	Average		Long (>40 years)	High		Exotic	Large	Deciduous	Retain
532	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.80	0.95	9.60	3.24	Mature	Good	Average		Long (>40 years)	High		Exotic	Large	Deciduous	Retain
533	S	*Citrus limon cv.*	Lemon	RUTACEAE	2.5	0.10	0.10	2.00	1.26	Mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
534	S	*Plumeria rubra*	Frangipani	APOCYNACEAE	3.5	0.30	0.30	3.60	2.00	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Deciduous	Remove
535	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.80	0.95	9.60	3.24	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
536	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	20.0	0.80	0.95	9.60	3.24	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
537	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low	Closely spaced group of 4.	Native	Medium	Evergreen	Remove
538	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low	Closely spaced group of 4.	Native	Medium	Evergreen	Remove
539	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low	Closely spaced group of 4.	Native	Medium	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
540	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low	Closely spaced group of 4.	Native	Medium	Evergreen	Remove
541	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.60	0.80	7.20	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
542	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
543	S	*Eucalyptus robusta*	Swamp Mahogany	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Retain
544	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.90	1.20	10.80	3.57	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
545	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.40	0.60	4.80	2.67	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
546	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.50	0.70	6.00	2.85	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
547	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.90	1.20	10.80	3.57	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
548	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
549	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.90	1.20	10.80	3.57	Mature	Good	Average	Very Asymmetric Canopy, Lean-Major	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
550	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.90	1.20	10.80	3.57	Mature	Good	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
551	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.90	1.20	10.80	3.57	Mature	Good	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
552	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.30	0.35	3.60	2.13	Mature	Fair	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
553	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.30	0.35	3.60	2.13	Mature	Poor	Poor		Short (5-15 years)	Low		Native	Medium	Evergreen	Remove
554	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.70	0.80	8.40	3.01	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
555	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	10.0	0.70	0.80	8.40	3.01	Mature	Fair	Poor	Very Asymmetric Canopy, Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
556	S	*Araucaria columnaris*	Cook Pine	ARAUCARIACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Exotic	Civic	Conifer	Retain
557	S	*Araucaria columnaris*	Cook Pine	ARAUCARIACEAE	20.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Exotic	Civic	Conifer	Retain
558	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
559	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
560	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	22.0	0.40	0.50	4.80	2.47	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
561	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	8.0	0.15	0.20	2.00	1.68	Mature	Poor	Suppressed		Medium (15-40 years)	Low		Endemic	Large	Evergreen	Remove
562	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	19.0	0.50	0.70	6.00	2.85	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
563	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	6.0	0.40	0.60	4.80	2.67	Mature	Good	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
564	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
565	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	8.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
566	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
567	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Moribund	Suppressed	Very Asymmetric Canopy Major Tip Dieback	Short (5-15 years)	V Low / Remove		Endemic	Large	Evergreen	Remove
568	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Poor		Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
569	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.30	0.30	3.60	2.00	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
570	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	15.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
571	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	8.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
572	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	8.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
573	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.70	0.80	8.40	3.01	Mature	Moribund	Average	Major Tip Dieback	Remove (<5 years)	V Low / Remove		Native	Medium	Evergreen	Remove
574	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	7.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
575	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Retain
576	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	16.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
577	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	16.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
578	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	9.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
579	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	15.0	0.70	0.70	8.40	2.85	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
580	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	12.0	0.20	0.25	2.40	1.85	Semi-mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
581	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	22.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
582	S	*Citrus limon cv.*	Lemon	RUTACEAE	3.5	0.10	0.10	2.00	1.26	Mature	Poor	Average		Short (5-15 years)	Low		Exotic	Small	Evergreen	Remove
583	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	18.0	0.80	0.95	9.60	3.24	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
584	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	10.0	0.40	0.45	4.80	2.37	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
585	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	16.0	0.70	0.70	8.40	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
586	S	*Agonis flexuosa*	Willow Myrtle	MYRTACEAE	9.0	0.60	0.70	7.20	2.85	Mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
587	S	*Eucalyptus scoparia*	Wallangarra White Gum	MYRTACEAE	16.0	0.60	0.60	7.20	2.67	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
588	S	*Jacaranda mimosifolia*	Jacaranda	BIGNONIACEAE	10.0	0.25	0.30	3.00	2.00	Semi-mature	Good	Poor		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
589	S	*Grevillea robusta*	Silky Oak	PROTEACEAE	7.0	0.15	0.25	2.00	1.85	Semi-mature	Poor	Poor	Excessively Pruned	Remove (<5 years)	V Low / Remove		Invasive	Large	Evergreen	Remove
590	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	22.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
591	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	12.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
592	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	12.0	0.35	0.40	4.20	2.25	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
593	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	9.0	0.40	0.50	4.80	2.47	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Retain
594	S	*Magnolia grandiflora*	American Bull Bay Magnol	MAGNOLIACEAE	7.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Good		Long (>40 years)	Moderate		Exotic	Small	Evergreen	Remove
595	S	*Magnolia grandiflora*	American Bull Bay Magnol	MAGNOLIACEAE	6.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Good		Long (>40 years)	Moderate		Exotic	Small	Evergreen	Remove
596	S	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	8.0	0.20	0.30	2.40	2.00	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
597	S	*Gleditsia triacanthos*	Honey Locust	FABACEAE	10.0	0.35	0.40	4.20	2.25	Mature	Good	Average		Long (>40 years)	Low		Exotic	Medium	Deciduous	Remove
598	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	11.0	0.35	0.40	4.20	2.25	Mature	Fair	Poor		Long (>40 years)	Low		Native	Large	Evergreen	Remove
599	S	*Eriobotrya japonica*	Loquat	ROSACEAE	7.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
600	S	*Ficus benjamina*	Weeping Fig	MORACEAE	7.0	0.30	0.50	3.60	2.47	Semi-mature	Good	Average		Long (>40 years)	Low		Exotic	Large	Evergreen	Remove
601	S	*Robinia pseudoacacia 'Frisia'*	Black Locust	FABACEAE	9.0	0.20	0.25	2.40	1.85	Semi-mature	Fair	Poor		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
602	S	*Olea europaea subsp. africana*	African Olive	OLEACEAE	9.0	0.30	0.40	3.60	2.25	Mature	Good	Average		Long (>40 years)	Low		Invasive	Small	Evergreen	Remove
803	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.70	0.90	8.40	3.17	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
804	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.60	0.80	7.20	3.01	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
805	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.50	0.70	6.00	2.85	Mature	Fair	Suppressed		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
806	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
807	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.80	0.90	9.60	3.17	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
808	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
809	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.60	0.70	7.20	2.85	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
810	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.70	0.90	8.40	3.17	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
811	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
812	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	12.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Suppressed		Long (>40 years)	Low		Native	Large	Evergreen	Remove
813	S	*Corymbia maculata*	Spotted Gum	MYRTACEAE	17.0	0.70	0.90	8.40	3.17	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
814	S	*Eucalyptus saligna*	Sydney Blue Gum	MYRTACEAE	17.0	0.70	0.90	8.40	3.17	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Remove
815	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	18.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
816	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
817	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	13.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
818	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
819	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	14.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
820	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	15.0	0.40	0.50	4.80	2.47	Mature	Fair	Average		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
821	S	*Callistemon viminalis cv.*	Weeping Bottlebrush	MYRTACEAE	6.0	0.10	0.15	2.00	1.49	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
822	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
823	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
824	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
825	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.20	0.30	2.40	2.00	Mature	Fair	Poor		Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
826	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	18.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
939	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.00	1.20	12.00	3.57	Mature	Good	Average		Long (>40 years)	High		Native	Civic	Evergreen	Remove
940	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	20.0	0.60	0.70	7.20	2.85	Mature	Good	Poor		Long (>40 years)	Low		Native	Large	Evergreen	Remove
941	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	20.0	0.60	0.80	7.20	3.01	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
942	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	20.0	0.60	0.80	7.20	3.01	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
943	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	21.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
944	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.20	1.20	14.40	3.57	Mature	Fair	Poor	Very Asymmetric Canopy, Major Inclusions	Short (5-15 years)	Low		Native	Civic	Evergreen	Remove
945	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	20.0	1.20	1.20	14.40	3.57	Mature	Excellent	Average		Long (>40 years)	High		Native	Civic	Evergreen	Remove
946	S	*Cupressus torulosa*	Bhutan Cypress	CUPRESSACEAE	10.0	0.40	0.40	4.80	2.25	Mature	Good	Average		Medium (15-40 years)	Low		Exotic	Small	Conifer	Remove
947	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	7.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
948	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	19.0	0.80	1.00	9.60	3.31	Mature	Good	Poor	Excessively Pruned, Trunk Cracks/Splits	Long (>40 years)	Low		Native	Large	Evergreen	Remove
949	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
950	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	18.0	1.20	1.20	14.40	3.57	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
951	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.50	0.60	6.00	2.67	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
952	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.40	0.50	4.80	2.47	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
953	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Average		Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
954	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.40	0.50	4.80	2.47	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
955	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.40	0.40	4.80	2.25	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
956	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	13.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Poor		Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
957	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Good	Poor	Very Asymmetric Canopy, Major Inclusions	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
958	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Average	Very Asymmetric Canopy	Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
959	S	*Casuarina glauca*	Swamp She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
960	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	12.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
961	S	*Angophora floribunda*	Rough-barked Apple	MYRTACEAE	16.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
962	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	16.0	0.70	0.80	8.40	3.01	Mature	Fair	Average		Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
963	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	16.0	0.60	0.70	7.20	2.85	Mature	Poor	Poor	Major Tip Dieback, Excessively Pruned	Short (5-15 years)	Low		Native	Large	Evergreen	Remove
964	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	14.0	0.60	0.80	7.20	3.01	Mature	Good	Average	Excessively Pruned, Lean-Major	Medium (15-40 years)	Moderate		Native	Large	Evergreen	Remove
965	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.60	0.80	7.20	3.01	Mature	Poor	Poor		Short (5-15 years)	Low		Endemic	Medium	Evergreen	Remove
966	S	*Corymbia citriodora*	Lemon Scented Gum	MYRTACEAE	20.0	1.00	1.20	12.00	3.57	Mature	Excellent	Good		Long (>40 years)	High		Native	Civic	Evergreen	Retain
967	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Remove
968	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.60	0.70	7.20	2.85	Mature	Good	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
969	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
970	S	*Casuarina cunninghamiana*	River She-Oak	CASUARINACEAE	18.0	0.50	0.60	6.00	2.67	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Native	Medium	Evergreen	Remove
971	S	*Eucalyptus bicostata*	Southern Blue Gum	MYRTACEAE	14.0	0.60	0.80	7.20	3.01	Mature	Good	Average	Excessively Pruned	Long (>40 years)	Moderate		Native	Large	Evergreen	Remove
972	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	12.0	0.30	0.40	3.60	2.25	Semi-mature	Fair	Average	Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
973	S	*Ficus microcarpa var. hillii*	Hills Weeping Fig	MORACEAE	15.0	0.30	0.40	3.60	2.25	Mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Civic	Evergreen	Remove
974	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	7.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
975	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
976	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
977	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
978	S	*Araucaria heterophylla*	Norfolk Island Pine	ARAUCARIACEAE	6.0	0.15	0.15	2.00	1.49	Young	Fair	Average		Replaceable (Small/Young)	Low		Exotic	Civic	Conifer	Remove
979	S	*Howea forsteiana*	Kentia Palm	ARECACEAE	7.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
980	S	*Syagrus romanzoffiana*	Queen Palm	ARECACEAE	8.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Low		Exotic	Small	Palm-SingleStem	Remove
981	S	*Syzygium paniculatum*	Magenta Cherry	MYRTACEAE	6.0	0.15	0.15	2.00	1.49	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
982	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	1.10	1.20	13.20	3.57	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
983	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	11.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Large	Evergreen	Remove
984	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	11.0	0.40	0.40	4.80	2.25	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	Low		Native	Large	Evergreen	Remove
985	S	*Syzygium paniculatum*	Magenta Cherry	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
986	S	*Brachychiton acerifolius*	Illawarra Flame Tree	MALVACEAE	9.0	0.20	0.30	2.40	2.00	Mature	Excellent	Good		Long (>40 years)	High		Native	Medium	Deciduous	Retain
987	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.90	1.00	10.80	3.31	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
997	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
6779	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	2.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Small	Evergreen	Remove
6780	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6781	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6782	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6783	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6784	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	4.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6835	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	6.0	0.30	0.30	3.60	2.00	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6836	S	*Eucalyptus camaldulensis*	River Red Gum	MYRTACEAE	12.0	0.50	0.50	6.00	2.47	Mature	Good	Good		Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
6837	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	8.0	0.30	0.40	3.60	2.25	Mature	Fair	Poor	Lean-Major	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6838	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	16.0	0.80	1.10	9.60	3.44	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
6839	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.90	1.10	10.80	3.44	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
6840	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	8.0	0.40	0.50	4.80	2.47	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6841	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.80	1.00	9.60	3.31	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
6842	S	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	3.5	0.10	0.10	2.00	1.26	Young	Good	Good		Replaceable (Small/Young)	Low	Young Tree <12 months	Native	Medium	Evergreen	Remove
6843	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	14.0	0.60	0.80	7.20	3.01	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
6844	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	17.0	0.60	0.80	7.20	3.01	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
6845	S	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Young	Good	Good		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
6846	S	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	6.0	0.10	0.15	2.00	1.49	Young	Good	Good		Replaceable (Small/Young)	Moderate		Native	Medium	Evergreen	Retain
6847	S	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	5.0	0.10	0.10	2.00	1.26	Young	Good	Good		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
6851	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	9.0	0.40	0.45	4.80	2.37	Mature	Fair	Poor	Lean-Major	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6852	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	14.0	0.50	0.60	6.00	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6853	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	11.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
6854	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	11.0	0.25	0.25	3.00	1.85	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
6863	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	15.0	0.50	0.60	6.00	2.67	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
6864	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
6865	S	*Platanus x acerifolia*	London Plane	PLATANACEAE	9.0	0.10	0.10	2.00	1.26	Semi-mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
6866	S	*Eucalyptus punctata*	Grey Gum	MYRTACEAE	12.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	High		Endemic	Medium	Evergreen	Remove
6867	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	7.0	0.10	0.10	2.00	1.26	Young	Fair	Average		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6868	S	*Corymbia eximia*	Yellow Bloodwood	MYRTACEAE	3.0	0.07	0.07	2.00	1.08	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
6869	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6870	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	11.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Medium	Evergreen	Retain
6871	S	*Eucalyptus punctata*	Grey Gum	MYRTACEAE	12.0	0.35	0.40	4.20	2.25	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
6878	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	8.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
6883	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	8.0	0.15	0.15	2.00	1.49	Semi-mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
8492	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
8493	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.25	2.40	1.85	Semi-mature	Good	Average	Major Inclusions	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8494	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.25	2.40	1.85	Mature	Fair	Suppressed	Excessively Pruned	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8496	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed	Excessively Pruned, Very, Asymmetric Canopy	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8500	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.20	2.40	1.68	Mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8501	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	5.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Native	Medium	Evergreen	Remove
8505	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Young	Fair	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8506	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Mature	Fair	Suppressed	Excessively Pruned	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8507	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Suppressed	Excessively Pruned	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8508	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.20	2.40	1.68	Mature	Good	Average		Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8509	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.15	0.20	2.00	1.68	Mature	Fair	Suppressed	Excessively Pruned	Medium (15-40 years)	Low		Native	Small	Evergreen	Remove
8511	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	7.0	0.25	0.30	3.00	2.00	Mature	Excellent	Good		Long (>40 years)	High	Great Tree	Native	Small	Evergreen	Retain
8512	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Native	Medium	Evergreen	Remove
8513	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	4.0	0.20	0.25	2.40	1.85	Mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Small	Evergreen	Remove
8514	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	4.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Good		Long (>40 years)	Low		Native	Small	Evergreen	Remove
8515	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8516	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	12.0	0.50	0.70	6.00	2.85	Mature	Excellent	Good		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Remove
8517	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	10.0	0.50	0.60	6.00	2.67	Mature	Fair	Poor	Very Asymmetric Canopy, Major Tip Dieback	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
8518	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.15	0.20	2.00	1.68	Semi-mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8519	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8520	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	4.0	0.10	0.15	2.00	1.49	Semi-mature	Fair	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8521	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	13.0	0.60	0.70	7.20	2.85	Mature	Fair	Suppressed	Very Asymmetric Canopy, Excessively Pruned	Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
8522	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.30	2.40	2.00	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8523	S	*Fraxinus griffithii*	Griffith's Ash	OLEACEAE	4.0	0.30	0.30	3.60	2.00	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Small	Evergreen	Remove
8524	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.30	2.40	2.00	Mature	Good	Good		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8525	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	10.0	0.80	0.80	9.60	3.01	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
8526	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8527	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High	Valley pruned	Endemic	Medium	Evergreen	Retain
8528	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.25	2.40	1.85	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8529	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	5.0	0.20	0.25	2.40	1.85	Mature	Good	Average	Very Asymmetric Canopy,, Excessively Pruned	Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8530	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.30	0.30	3.60	2.00	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8531	S	*Cupaniopsis anacardioides*	Tuckeroo	SAPINDACEAE	6.0	0.30	0.35	3.60	2.13	Mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
8532	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	10.0	0.60	0.70	7.20	2.85	Mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
8533	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	14.0	0.70	0.70	8.40	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
8534	S	*Ulmus procera*	English Elm	ULMACAEAE	12.0	0.70	0.80	8.40	3.01	Mature	Fair	Average	Significant Decay	Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
8535	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.60	0.70	7.20	2.85	Mature	Fair	Poor	Excessively Pruned	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
8536	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.60	0.65	7.20	2.76	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
8537	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.90	1.10	10.80	3.44	Mature	Fair	Poor	Excessively Pruned	Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove
8538	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.90	1.10	10.80	3.44	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Remove
8539	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
8540	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
8541	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.80	0.90	9.60	3.17	Mature	Good	Average	Major Inclusions	Long (>40 years)	Moderate		Native	Large	Evergreen	Retain
8542	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
8543	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.90	1.20	10.80	3.57	Mature	Excellent	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
8544	S	*Celtis australis*	Southern Hackberry	ULMACAEAE	11.0	0.60	0.80	7.20	3.01	Mature	Good	Good		Long (>40 years)	Moderate		Exotic	Medium	Deciduous	Retain
8573	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	4.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9821	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9822	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9823	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	10.0	0.25	0.25	3.00	1.85	Semi-mature	Fair	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove

Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
9824	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	10.0	0.20	0.20	2.40	1.68	Semi-mature	Poor	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
9825	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	11.0	0.25	0.25	3.00	1.85	Semi-mature	Poor	Poor		Long (>40 years)	Low		Native	Medium	Evergreen	Remove
9826	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	12.0	0.25	0.25	3.00	1.85	Semi-mature	Fair	Average		Long (>40 years)	Moderate	Valley pruned.	Endemic	Large	Evergreen	Remove
9827	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	15.0	0.25	0.25	3.00	1.85	Semi-mature	Fair	Average		Long (>40 years)	Moderate	Valley pruned.	Endemic	Large	Evergreen	Remove
9828	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9829	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Poor	Poor	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
9830	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	10.0	0.25	0.25	3.00	1.85	Semi-mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate		Native	Medium	Evergreen	Remove
9831	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9832	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	8.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
9833	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.05	0.05	2.00	0.94	Young	Good	Good		Replaceable (Small/Young)	Low		Native	Medium	Evergreen	Remove
9834	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	16.0	0.60	0.60	7.20	2.67	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
9835	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	18.0	0.60	0.80	7.20	3.01	Mature	Fair	Average	Excessively Pruned	Long (>40 years)	Moderate	Tree valley pruned	Endemic	Large	Evergreen	Remove
9836	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	10.0	0.50	0.50	6.00	2.47	Mature	Fair	Poor	Excessively Pruned, Very Asymmetric Canopy	Long (>40 years)	Low		Endemic	Large	Evergreen	Remove
9837	S	*Eucalyptus sideroxylon*	Mugga Ironbark	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Suppressed	Excessively Pruned	Long (>40 years)	Low		Native	Medium	Evergreen	Remove
10635	S	*Lophostemon confertus*	Brush Box	MYRTACEAE	15.0	0.80	0.80	9.60	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Medium	Evergreen	Retain
10636	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	12.0	0.40	0.50	4.80	2.47	Mature	Good	Suppressed	Excessively Pruned, Very Asymmetric Canopy	Long (>40 years)	Low		Exotic	Large	Deciduous	Remove
10637	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	6.0	0.30	0.35	3.60	2.13	Mature	Fair	Suppressed	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Large	Deciduous	Remove
10638	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	12.0	0.50	0.70	6.00	2.85	Mature	Fair	Suppressed	Very Asymmetric Canopy, Excessively Pruned	Medium (15-40 years)	Low		Exotic	Large	Deciduous	Remove
10639	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	14.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	Moderate		Exotic	Large	Deciduous	Retain
10646	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.70	0.80	8.40	3.01	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
10647	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	15.0	0.75	0.90	9.00	3.17	Mature	Good	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
10655	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	12.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Average	Very Asymmetric Canopy	Long (>40 years)	Moderate	Very close to kerb line. Pruned for wire clearance.	Exotic	Large	Deciduous	Retain
10656	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	11.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Average		Long (>40 years)	Moderate	Very close to kerb line. Pruned for wire clearance.	Exotic	Large	Deciduous	Retain
10657	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	10.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Average		Long (>40 years)	Moderate	Very close to kerb line. Pruned for wire clearance.	Exotic	Large	Deciduous	Retain
10658	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	9.0	0.30	0.40	3.60	2.25	Semi-mature	Good	Poor	Very Asymmetric Canopy	Long (>40 years)	Moderate	Very close to kerb line. Pruned for wire clearance.	Exotic	Large	Deciduous	Retain
10659	S	*Liquidambar styraciflua*	Liquidambar	HAMAMELIDACEAE	5.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Poor	Excessively Pruned	Long (>40 years)	Low	Very close to kerb line. Pruned for wire clearance.	Exotic	Large	Deciduous	Remove
12491	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	4.0	0.05	0.05	2.00	0.94	Young	Fair	Poor		Replaceable (Small/Young)	Low		Exotic	Medium	Deciduous	Remove
12492	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	3.0	0.05	0.05	2.00	0.94	Young	Fair	Average		Replaceable (Small/Young)	Low		Exotic	Medium	Deciduous	Remove
12493	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	24.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	High		Endemic	Large	Evergreen	Remove
12494	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.15	0.20	2.00	1.68	Semi-mature	Fair	Average		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12495	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	7.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor	Lean-Major	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12496	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	22.0	0.70	0.90	8.40	3.17	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Remove
12497	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	14.0	0.40	0.60	4.80	2.67	Mature	Fair	Poor	Lean-Major	Long (>40 years)	Moderate		Endemic	Large	Evergreen	Remove
12498	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12499	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	5.0	0.10	0.15	2.00	1.49	Young	Fair	Poor		Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12500	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.25	0.30	3.00	2.00	Semi-mature	Fair	Average		Medium (15-40 years)	Moderate		Exotic	Medium	Deciduous	Retain
12501	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12502	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.20	0.25	2.40	1.85	Mature	Fair	Poor	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
12503	S	*Robinia pseudacacia 'Frisia'*	Black Locust	FABACEAE	6.0	0.20	0.25	2.40	1.85	Mature	Poor	Poor	Excessively Pruned	Medium (15-40 years)	Low		Exotic	Medium	Deciduous	Remove
13285	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	16.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
13286	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	17.0	0.70	0.90	8.40	3.17	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
13287	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.80	0.90	9.60	3.17	Mature	Excellent	Good		Long (>40 years)	High		Native	Large	Evergreen	Retain
13288	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	21.0	0.60	0.70	7.20	2.85	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
13289	S	*Eucalyptus microcorys*	Tallowood	MYRTACEAE	20.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	High		Native	Large	Evergreen	Retain
15074	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	6.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	Low		Native	Small	Evergreen	Remove
15075	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	5.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	Moderate		Native	Small	Evergreen	Retain
15078	S	*Eucalyptus botryoides*	Bangalay	MYRTACEAE	18.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	High		Endemic	Large	Evergreen	Retain
15081	S	*Tristaniopsis laurina*	Water Gum	MYRTACEAE	3.0	0.10	0.15	2.00	1.49	Young	Good	Average		Replaceable (Small/Young)	Low		Native	Small	Evergreen	Remove
15082	S	*Waterhousea floribunda*	Weeping Lilly Pilly	MYRTACEAE	3.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	Low	Young Tree <12 months	Native	Medium	Evergreen	Remove
15085	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	0.90	0.90	10.80	3.17	Mature	Fair	Poor		Medium (15-40 years)	Low		Endemic	Medium	Evergreen	Remove
15086	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	1.20	1.20	14.40	3.57	Mature	Fair	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Remove
15087	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	12.0	1.00	1.20	12.00	3.57	Mature	Good	Average		Long (>40 years)	Moderate		Endemic	Medium	Evergreen	Retain
15090	S	*Melaleuca quinquenervia*	Broad Leafed Paperbark	MYRTACEAE	16.0	0.90	1.00	10.80	3.31	Mature	Fair	Average		Long (>40 years)	Low		Endemic	Medium	Evergreen	Remove

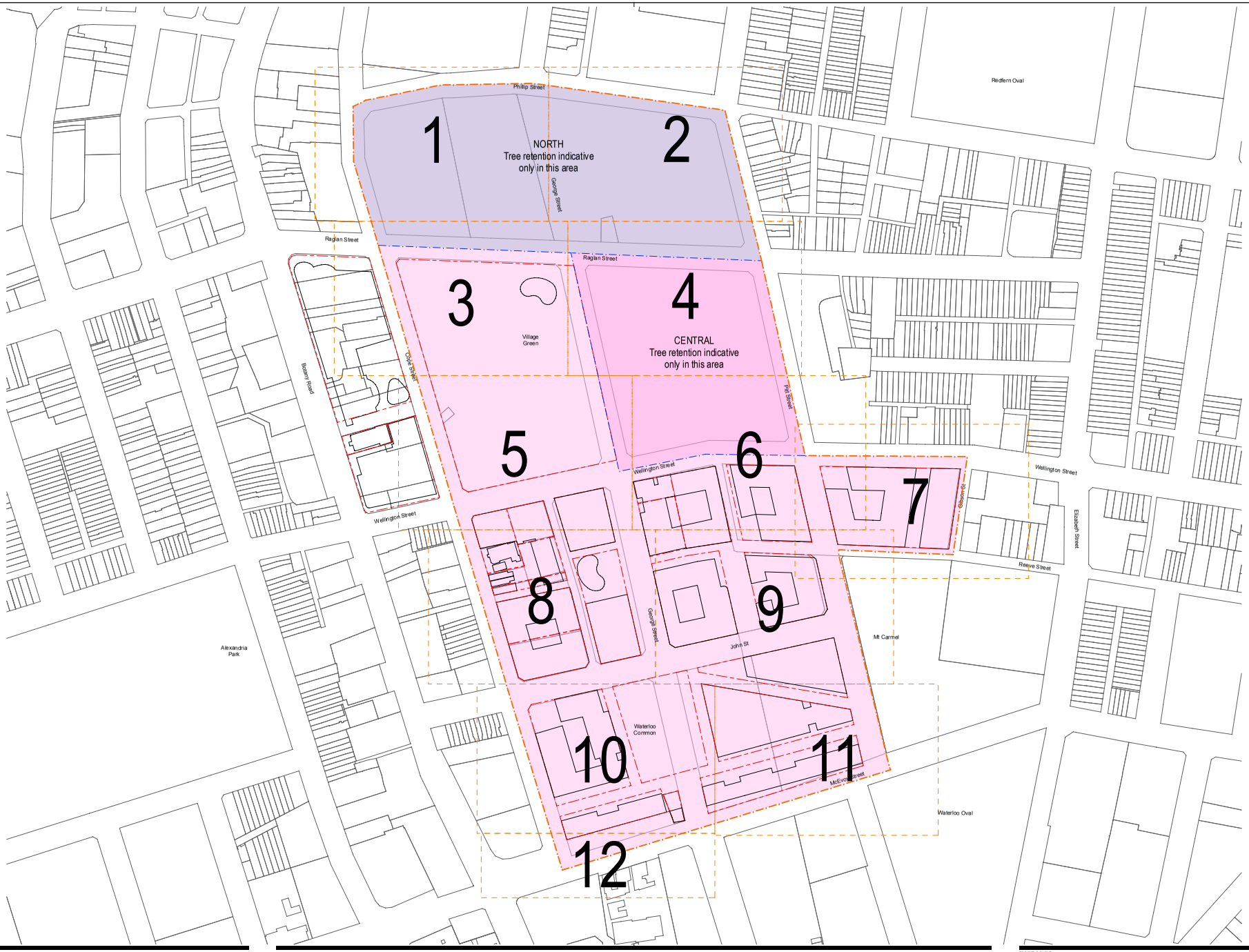
Tree ID	Precinct	Tree Species	Common Name	Family	Height (m)	Trunk Diameter at Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Tree Origin	Ultimate Tree Size	Tree Type	Planning Proposal Recommendation
15091	**S**	*Melaleuca quinquenervia*	**Broad Leafed Paperbark**	**MYRTACEAE**	12.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	**Moderate**		Endemic	Medium	Evergreen	Retain
15093	**S**	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	4.0	0.20	0.25	2.40	1.85	Semi-mature	Good	Good		Long (>40 years)	**Moderate**		Native	Small	Evergreen	Retain
15094	**S**	*Melaleuca quinquenervia*	**Broad Leafed Paperbark**	**MYRTACEAE**	12.0	0.90	1.00	10.80	3.31	Mature	Fair	Poor	Very Asymmetric Canopy	Medium (15-40 years)	**Low**		Endemic	Medium	Evergreen	Remove
15097	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	19.0	1.00	1.10	12.00	3.44	Mature	Excellent	Good		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
15098	**S**	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	3.0	0.10	0.10	2.00	1.26	Young	Good	Good		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
15099	**S**	*Melaleuca quinquenervia*	**Broad Leafed Paperbark**	**MYRTACEAE**	12.0	1.10	1.20	13.20	3.57	Mature	Good	Good		Long (>40 years)	**Moderate**		Endemic	Medium	Evergreen	Retain
15100	**S**	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	4.0	0.15	0.15	2.00	1.49	Young	Good	Good		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
16528	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	16.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	**High**	Tree codominant stems	Native	Large	Evergreen	Remove
16529	**S**	*Ficus microcarpa var. hillii*	**Hills Weeping Fig**	**MORACEAE**	18.0	0.80	1.00	9.60	3.31	Mature	Excellent	Average		Long (>40 years)	**High**		Native	Civic	Evergreen	Retain
16530	**S**	*Eucalyptus punctata*	**Grey Gum**	**MYRTACEAE**	20.0	0.60	0.70	7.20	2.85	Mature	Fair	Average		Long (>40 years)	**Moderate**	Tree growing close to fig	Endemic	Medium	Evergreen	Retain
16531	**S**	*Cupaniopsis anacardioides*	**Tuckeroo**	**SAPINDACEAE**	4.0	0.15	0.15	2.00	1.49	Semi-mature	Poor	Poor	Lean-Major	Short (5-15 years)	**Low**		Native	Small	Evergreen	Remove
16532	**S**	*Cupaniopsis anacardioides*	**Tuckeroo**	**SAPINDACEAE**	5.0	0.20	0.25	2.40	1.85	Semi-mature	Fair	Average		Medium (15-40 years)	**Low**		Native	Small	Evergreen	Remove
29814	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	20.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
29815	**S**	*Lophostemon confertus*	**Brush Box**	**MYRTACEAE**	19.0	0.50	0.70	6.00	2.85	Mature	Good	Suppressed	Very Asymmetric Canopy	Long (>40 years)	**Moderate**		Native	Medium	Evergreen	Retain
29816	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	20.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
29817	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	20.0	0.80	1.00	9.60	3.31	Mature	Excellent	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
29818	**S**	*Melaleuca quinquenervia*	**Broad Leafed Paperbark**	**MYRTACEAE**	18.0	1.40	1.50	15.00	3.92	Mature	Good	Average		Long (>40 years)	**Moderate**		Endemic	Medium	Evergreen	Retain
29819	**S**	*Melaleuca quinquenervia*	**Broad Leafed Paperbark**	**MYRTACEAE**	19.0	1.20	1.30	14.40	3.69	Mature	Good	Average		Long (>40 years)	**Moderate**		Endemic	Medium	Evergreen	Retain
29820	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	17.0	0.70	0.90	8.40	3.17	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
29821	**S**	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	5.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Average		Long (>40 years)	**Low**		Native	Small	Evergreen	Remove
29822	**S**	*Tristaniopsis laurina*	**Water Gum**	**MYRTACEAE**	4.0	0.15	0.20	2.00	1.68	Semi-mature	Fair	Average		Long (>40 years)	**Low**		Native	Small	Evergreen	Remove
29837	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	20.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
31543	**S**	*Cupaniopsis anacardioides*	**Tuckeroo**	**SAPINDACEAE**	5.0	0.25	0.30	3.00	2.00	Semi-mature	Good	Good		Long (>40 years)	**Moderate**		Native	Small	Evergreen	Retain
32613	**S**	*Waterhousea floribunda*	**Weeping Lilly Pilly**	**MYRTACEAE**	3.0	0.10	0.10	2.00	1.26	Young	Good	Average		Replaceable (Small/Young)	**Low**	Young Tree <12 months	Native	Medium	Evergreen	Remove
32615	**S**	*Corymbia eximia*	**Yellow Bloodwood**	**MYRTACEAE**	2.5	0.07	0.07	2.00	1.08	Young	Good	Average		Replaceable (Small/Young)	**Low**		Native	Medium	Evergreen	Remove
32842	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	14.0	0.80	1.00	9.60	3.31	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Remove
32843	**S**	*Corymbia maculata*	**Spotted Gum**	**MYRTACEAE**	14.0	0.30	0.35	3.60	2.13	Semi-mature	Good	Average		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Retain
32844	**S**	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	5.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
32857	**S**	*Eucalyptus sideroxylon*	**Mugga Ironbark**	**MYRTACEAE**	7.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Poor		Long (>40 years)	**Low**		Native	Medium	Evergreen	Remove
32859	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	14.0	0.30	0.40	3.60	2.25	Mature	Fair	Average		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Retain
32861	**S**	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	2.0	0.05	0.05	2.00	0.94	Semi-mature	Poor	Average		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
32863	**S**	*Corymbia maculata*	**Spotted Gum**	**MYRTACEAE**	7.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Suppressed		Long (>40 years)	**Low**		Native	Large	Evergreen	Remove
32864	**S**	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	3.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
32865	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	14.0	0.70	0.80	8.40	3.01	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Retain
32866	**S**	*Eucalyptus saligna*	**Sydney Blue Gum**	**MYRTACEAE**	16.0	0.90	0.90	10.80	3.17	Mature	Good	Average		Long (>40 years)	**High**		Native	Civic	Evergreen	Retain
32868	**S**	*Eucalyptus saligna*	**Sydney Blue Gum**	**MYRTACEAE**	16.0	0.35	0.60	4.20	2.67	Mature	Good	Good		Long (>40 years)	**High**		Native	Civic	Evergreen	Retain
32869	**S**	*Corymbia maculata*	**Spotted Gum**	**MYRTACEAE**	10.0	0.20	0.20	2.40	1.68	Semi-mature	Fair	Suppressed		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Retain
32870	**S**	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	3.0	0.10	0.10	2.00	1.26	Semi-mature	Fair	Average		Replaceable (Small/Young)	**Low**		Native	Small	Evergreen	Remove
32871	**S**	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	13.0	0.40	0.50	4.80	2.47	Mature	Fair	Poor		Long (>40 years)	**Moderate**		Endemic	Large	Evergreen	Retain
32872	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	14.0	0.60	0.70	7.20	2.85	Mature	Good	Poor		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Retain
32873	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	14.0	0.80	0.90	9.60	3.17	Mature	Good	Average		Long (>40 years)	**High**		Native	Large	Evergreen	Remove
32874	**S**	*Eucalyptus grandis*	**Flooded Gum**	**MYRTACEAE**	14.0	0.30	0.35	3.60	2.13	Semi-mature	Fair	Average		Long (>40 years)	**Moderate**		Native	Civic	Evergreen	Retain
32878	**S**	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	**MYRTACEAE**	5.0	0.10	0.15	2.00	1.49	Mature	Good	Good		Medium (15-40 years)	**Moderate**	Small specimen to the east not numbered or recorded.	Native	Small	Evergreen	Retain
32879	**S**	*Eucalyptus grandis*	**Flooded Gum**	**MYRTACEAE**	14.0	0.60	0.70	7.20	2.85	Mature	Fair	Average		Long (>40 years)	**Moderate**		Native	Civic	Evergreen	Retain
32880	**S**	*Eucalyptus microcorys*	**Tallowood**	**MYRTACEAE**	12.0	0.40	0.40	4.80	2.25	Mature	Good	Suppressed		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Retain
32881	**S**	*Eucalyptus botryoides*	**Bangalay**	**MYRTACEAE**	12.0	0.40	0.40	4.80	2.25	Mature	Fair	Average		Long (>40 years)	**Moderate**		Endemic	Large	Evergreen	Retain
32882	**S**	*Corymbia maculata*	**Spotted Gum**	**MYRTACEAE**	10.0	0.20	0.20	2.40	1.68	Semi-mature	Good	Average		Long (>40 years)	**Moderate**		Native	Large	Evergreen	Remove
32886	**S**	*Eucalyptus sideroxylon*	**Mugga Ironbark**	**MYRTACEAE**	8.0	0.15	0.15	2.00	1.49	Semi-mature	Fair	Poor	Very Asymmetric Canopy	Long (>40 years)	**Moderate**		Native	Medium	Evergreen	Retain

6.2 Schedule of Proposed Tree Species

Recommended New Tree Selection Schedule - Waterloo Estate Urban Forest Study

Family	Genus	Species	Common Name	Potential Height Reached in Street	Ultimate Size Class	Typical Ultimate Canopy Extent (Canopy Cover)	Native/ Exotic	Evergreen/ Deciduous	Typical Waterloo Estate Street or Usage
PODOCARPACEAE	*Afrocarpus*	*falcatus*	**Outeniqua Yellow Wood**	20-25m	Civic	314m2	Exotic	Evergreen	
ARAUCARIACEAE	*Agathis*	*robusta*	**Queensland Kauri**	20-25m	Civic	78m2	Native	Evergreen	
ARAUCARIACEAE	*Araucaria*	*columnaris*	**Cook Pine**	20-28m	Civic	78m2	Exotic	Evergreen	
ARAUCARIACEAE	*Araucaria*	*cunninghamii*	**Hoop Pine**	20-28m	Civic	78m2	Native	Evergreen	
ARAUCARIACEAE	*Araucaria*	*heterophylla*	**Norfolk Island Pine**	20-28m	Civic	175m2	Exotic	Evergreen	
MYRTACEAE	*Corymbia*	*citriodora*	**Lemon-Scented Gum**	18-25m	Civic	314m2	Native	Evergreen	
MYRTACEAE	*Eucalyptus*	*pilularis*	**Blackbutt**	20-25m	Civic	314m2	Endemic	Evergreen	
MYRTACEAE	*Eucalyptus*	*saligna*	**Sydney Bluegum**	20-28m	Civic	314m2	Native	Evergreen	
MORACEAE	*Ficus*	*macrophylla*	**Morton Bay Fig**	20-25m	Civic	314m2	Native	Evergreen	
MORACEAE	*Ficus*	*microcarpa var. hillii*	**Hills Weeping Fig**	20-25m	Civic	314m2	Native	Evergreen	
MYRTACEAE	*Angophora*	*costata*	**Smooth-barked Apple**	12-20m	Large	175m2	Endemic	Evergreen	
MYRTACEAE	*Angophora*	*floribunda*	**Rough-barked Apple**	12-20m	Large	175m2	Native	Evergreen	
FABACEAE	*Castanospermum*	*australe*	**Black Bean**	15-18m	Large	175m2	Native	Evergreen	
MYRTACEAE	*Corymbia*	*maculata*	**Spotted Gum**	18-25m	Large	175m2	Native	Evergreen	
MYRTACEAE	*Eucalyptus*	*microcorys*	**Tallowood**	20-25m	Large	175m2	Native	Evergreen	
MORACEAE	*Ficus*	*rubiginosa*	**Port Jackson Fig**	15-20m	Large	175m2	Native	Evergreen	
HAMAMELIDACEAE	*Liquidambar*	*styraciflua*	**Liquidambar**	15-22m	Large	175m2	Exotic	Deciduous	
PLATANACEAE	*Platanus*	*x acerifolia 'Bloodgood'*	**London Plane**	18-25m	Large	175m2	Exotic	Deciduous	
ULMACEAE	*Ulmus*	*parvifolia 'Todd'*	**Chinese Elm**	10-12m	Large	175m2	Exotic	Deciduous	
ACERACEAE	*Acer*	*negundo 'Sensation'*	**Box Elder**	8-12m	Medium	78m2	Exotic	Deciduous	
MYRTACEAE	*Acmena*	*smithii*	**Creek Lilly-Pilly**	10-15m	Medium	78m2	Endemic	Evergreen	
SAPINDACEAE	*Alectryon*	*tomentosus*	**Woolly Rambutan**	10-15m	Medium	78m2	Native	Evergreen	
MALVACEAE	*Brachychiton*	*acerifolius*	**Illawarra Flame Tree**	15-20m	Medium	78m2	Native	Deciduous	
MALVACEAE	*Brachychiton*	*discolor*	**Queensland Lacebark**	15-20m	Medium	78m2	Native	Deciduous	
FABACEAE	*Caesalpinia*	*ferrea*	**Leopardwood**	10-15m	Medium	78m2	Exotic	Deciduous	
ULMACEAE	*Celtis*	*australis*	**European Nettle Tree**	10-15m	Medium	78m2	Exotic	Deciduous	
MYRTACEAE	*Corymbia*	*eximia*	**Yellow Bloodwood**	10-18m	Medium	78m2	Native	Evergreen	CoS STMP - Cope St
MYRTACEAE	*Corymbia*	*gummifera*	**Red Bloodwood**	10-18m	Medium	78m2	Native	Evergreen	
MYRTACEAE	*Eucalyptus*	*botryoides*	**Bangalay**	18-25m	Medium	78m2	Endemic	Evergreen	
MYRTACEAE	*Eucalyptus*	*haemastoma*	**Scribbly Gum**	10-15m	Medium	78m2	Endemic	Evergreen	
MYRTACEAE	*Eucalyptus*	*punctata*	**Grey Gum**	18-25m	Medium	78m2	Native	Evergreen	
MYRTACEAE	*Eucalyptus*	*robusta*	**Swamp Mahogany**	10-15m	Medium	78m2	Endemic	Evergreen	
MYRTACEAE	*Eucalyptus*	*sideroxylon*	**Red Ironbark**	18-25m	Medium	78m2	Native	Evergreen	
RUTACEAE	*Flindersia*	*australis*	**Crows Ash**	15-20m	Medium	78m2	Native	Evergreen	
OLEACEAE	*Fraxinus*	*pennsylvanica*	**Red Ash**	12-18m	Medium	78m2	Exotic	Deciduous	
GINKGOACEAE	*Gingko*	*biloba*	**Maidenhair Tree**	12-18m	Medium	78m2	Exotic	Deciduous	
CAESALPINIACEAE	*Gleditsia*	*triacanthos 'Sunburst'*	**Honey Locust**	10-15m	Medium	78m2	Exotic	Deciduous	
EUPHORBIACEAE	*Glochidion*	*ferdinandi*	**Cheese Tree**	8-12m	Medium	78m2	Endemic	Evergreen	
SAPINDACEAE	*Harpullia*	*pendula*	**Tulipwood**	8-12m	Medium	78m2	Native	Evergreen	
BIGNONIACEAE	*Jacaranda*	*mimosifolia*	**Jacaranda**	10-15m	Medium	78m2	Exotic	Deciduous	CoS STMP - Phillip St
SAPINDACEAE	*Koelreuteria*	*bipinnata*	**Chinese Rain Tree**	10-15m	Medium	78m2	Exotic	Deciduous	
MAGNOLIACEAE	*Liriodendron*	*tulipifera*	**Tulip Tree**	15-20m	Medium	78m2	Exotic	Deciduous	
MYRTACEAE	*Lophostemon*	*confertus*	**Brush Box**	20-25m	Medium	78m2	Native	Evergreen	CoS STMP-McEvoy,Raglan,George & Botany
MYRTACEAE	*Melaleuca*	*leucadendra*	**Weeping Paperbark**	15-18m	Medium	78m2	Native	Evergreen	
MYRTACEAE	*Melaleuca*	*quinquinervia*	**Broad-Leaf Paperbark**	18-20m	Medium	78m2	Endemic	Evergreen	
ANACARDIACEAE	*Pistacia*	*chinensis*	**Chinese Pistachio**	7-12m	Medium	78m2	Exotic	Deciduous	
SALICACEAE	*Populus*	*simonii*	**Simons Poplar**	15-20m	Medium	78m2	Exotic	Deciduous	
ROSACEAE	*Pyrus*	*ussuriensis*	**Machurian Pear**	8-12m	Medium	78m2	Exotic	Deciduous	
FAGACEAE	*Quercus*	*ilex*	**Holm Oak**	12-15m	Medium	78m2	Exotic	Evergreen	
FABACEAE	*Robinia*	*pseudoacacia 'Frisia'*	**Black Locust**	10-12m	Medium	78m2	Exotic	Deciduous	CoS STMP - Pitt St & Botany Rd
EUPHORBIACEAE	*Sapium*	*sebiferum*	**Chinese Tallow Tree**	10-12m	Medium	78m2	Exotic	Deciduous	
ANACARDIACEAE	*Schinus*	*areira*	**Peppercorn Tree**	10-12m	Medium	78m2	Exotic	Evergreen	
MYRTACEAE	*Syzygium*	*paniculatum*	**Brush Cherry**	8-12m	Medium	78m2	Native	Evergreen	
MYRTACEAE	*Waterhousea*	*floribunda 'Green Avenue'*	**Weeping Lilly Pilly**	18-25m	Medium	78m2	Native	Evergreen	CoS STMP - John St, Wellington St, Mead St
ULMACAEAE	*Zelkova*	*serrata 'Green Vase'*	**Japanese Zelkova**	10-12m	Medium	78m2	Exotic	Deciduous	
FABACEAE	*Acacia*	*binervia*	**Coastal Myall**	8-12m	Small	38m2	Endemic	Evergreen	
ACERACEAE	*Acer*	*buergeranum*	**Trident Maple**	8-12m	Small	38m2	Exotic	Deciduous	
MYRTACEAE	*Angophora*	*hispida*	**Dwarf Apple**	5-7m	Small	38m2	Endemic	Evergreen	
MYRTACEAE	*Backhousia*	*citriodora*	**Lemon-scented Myrtle**	7-10m	Small	38m2	Native	Evergreen	
PROTEACEAE	*Banksia*	*integrifolia*	**Coast Banksia**	7-10m	Small	38m2	Endemic	Evergreen	
MYRTACEAE	*Callistemon*	*salignus*	**Willow Bottlebrush**	7-10m	Small	38m2	Native	Evergreen	
MYRTACEAE	*Callistemon*	*viminalis cv.*	**Bottlebrush**	7-10m	Small	38m2	Native	Evergreen	
SAPINDACEAE	*Cupaniopsis*	*anacardioides*	**Tuckeroo**	8-15m	Small	38m2	Endemic	Evergreen	CoS STMP - Cooper St
ELAEOCARPACEAE	*Elaeocarpus*	*eumundi*	**Eumundi Quondong**	10-20m	Small	38m2	Native	Evergreen	
ELAEOCARPACEAE	*Elaeocarpus*	*reticulatus*	**Blue Berry Ash**	8-12m	Small	38m2	Endemic	Evergreen	CoS STMP - Reeve St & Gibbson St
OLEACEAE	*Fraxinus*	*griffithii*	**Evergreen Ash**	7-10m	Small	38m2	Exotic	Deciduous	
OLEACEAE	*Fraxinus*	*oxycarpa 'Raywood'*	**Claret Ash**	10-15m	Small	38m2	Exotic	Deciduous	
THEACEAE	*Gordonia*	*axillaris*	**Gordonia**	5-8m	Small	38m2	Exotic	Evergreen	
MALVACEAE	*Hibiscus*	*tiliaceous*	**Coast Cottonwood**	8-10m	Small	38m2	Native	Evergreen	
SAPINDACEAE	*Koelreuteria*	*paniculata*	**Golden Rain Tree**	7-9m	Small	38m2	Exotic	Deciduous	
LYTHRACEAE	*Lagerstroemia*	*indica cv.*	**Crepe Myrtle**	8-10m	Small	38m2	Exotic	Deciduous	
ARECACEAE	*Livistona*	*australis*	**Cabbage Tree Palm**	15-20m	Small	38m2	Endemic	Evergreen	
MAGNOLIACEAE	*Magnolia*	*grandiflora 'Exmouth'*	**Bull-bay Magnolia**	12-15m	Small	38m2	Exotic	Evergreen	
MYRTACEAE	*Melaleuca*	*styphelioides*	**Prickly Paperbark**	8-12m	Small	38m2	Endemic	Evergreen	
ARECACEAE	*Phoenix*	*dactylifera*	**Date Palm**	8-12m	Small	38m2	Exotic	Evergreen	
ROSACEAE	*Prunus*	*cerasifera 'Nigra'*	**Purple-leaf Cherry Plum**	6-8m	Small	38m2	Exotic	Deciduous	
ROSACEAE	*Pyrus*	*calleryana 'Chanticleer'*	**Callery Pear**	6-8m	Small	38m2	Exotic	Deciduous	
PROTEACEAE	*Stenocarpus*	*sinuatus*	**Firewheel Tree**	8-12m	Small	38m2	Native	Evergreen	
MYRTACEAE	*Syzygium*	*leuhmannii*	**Riberry**	8-12m	Small	38m2	Native	Evergreen	
MYRTACEAE	*Tristaniopsis*	*laurina*	**Water Gum**	7-10m	Small	38m2	Native	Evergreen	
MYRTACEAE	*Tristaniopsis*	*laurina 'Luscious'*	**Glossy-Leaved Water Gum**	7-10m	Small	38m2	Native	Evergreen	
ARECACEAE	*Washingtonia*	*robusta*	**Mexican Fan Palm**	20-25m	Small	38m2	Exotic	Evergreen	
SALICACEAE	*Xylosma*	*senticosum*	**Xylosma**	6-10m	Small	38m2	Exotic	Evergreen	

6.3 Plans of Proposed Trees to be Retained and Removed



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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : NTS

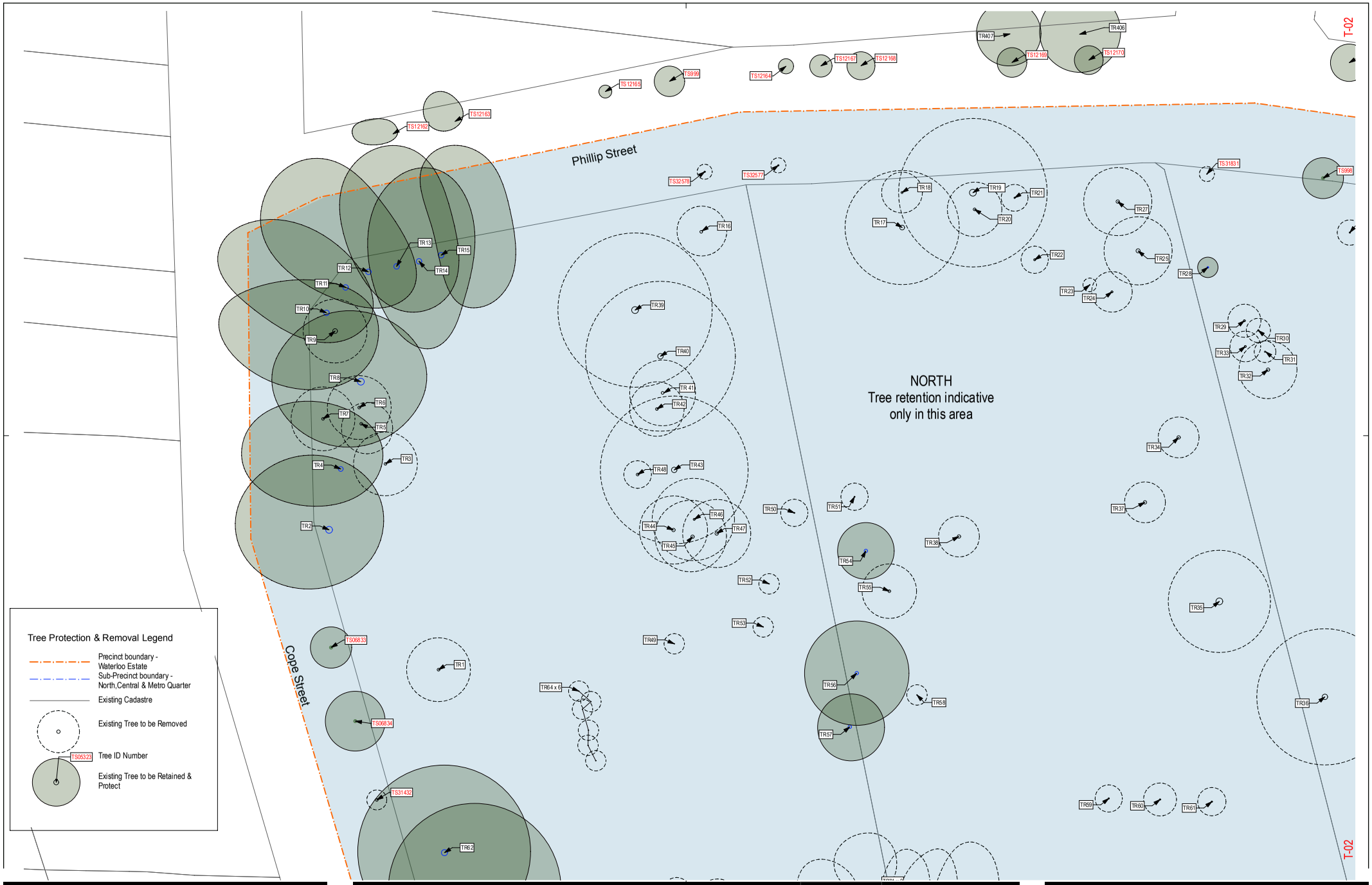
DRAWING TITLE

Tree Protection & Removal Key Plan

DRAWING NUMBER: TR-00

REVISION: A

Plotted at: 5:32 pm 7/7/20



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Scale	1:250@A1 , 1:500@A3

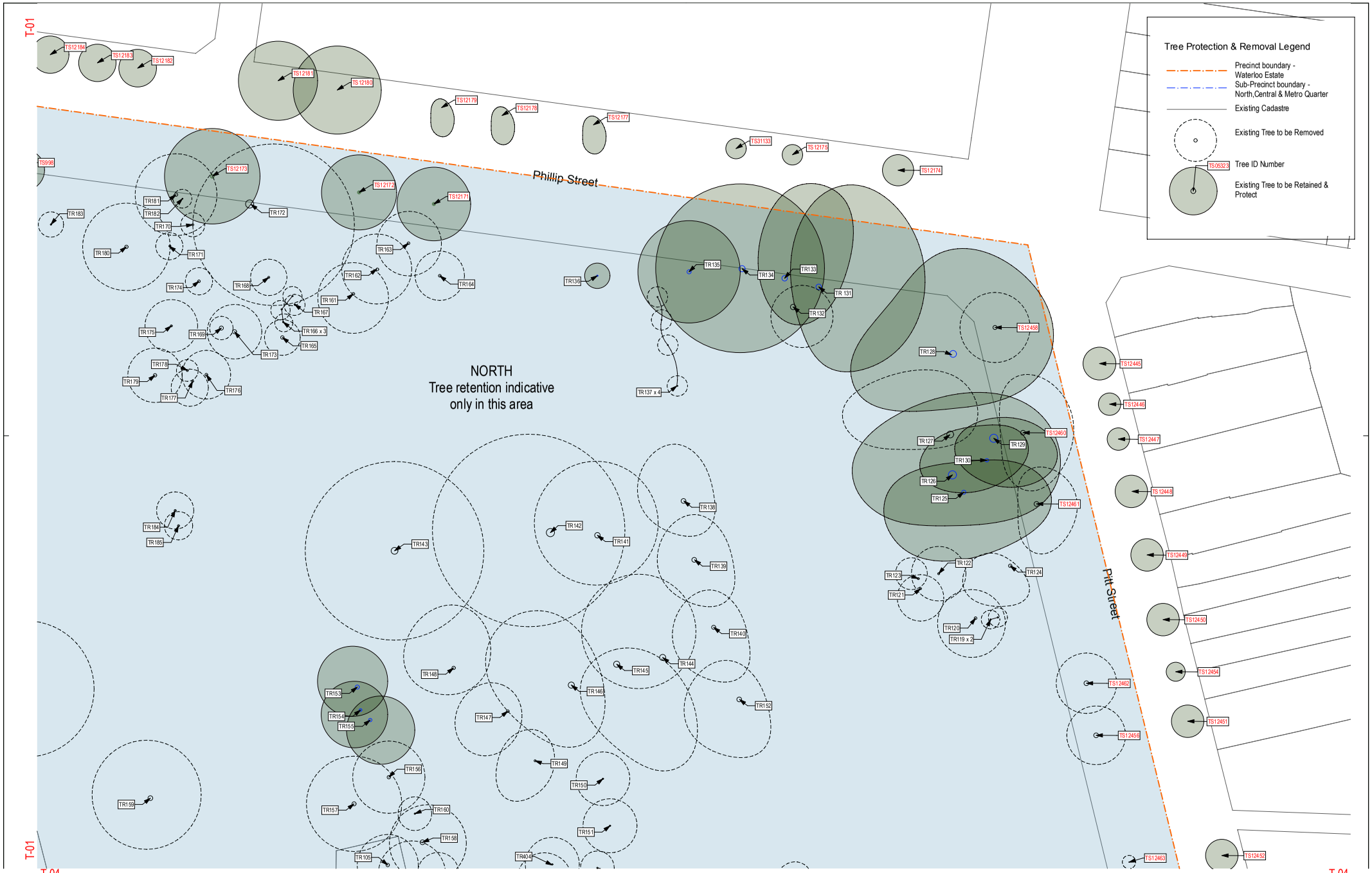
DRAWING TITLE

Tree Protection & Removal Map 1

DRAWING NUMBER: TR-01

REVISION: A

Plotted at : 5:32 pm 7/2/20



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Waterloo-Urban Forest Study

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Project No : 17.07
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Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE

Tree Protection & Removal Map 2

DRAWING NUMBER: TR-02

REVISION: A

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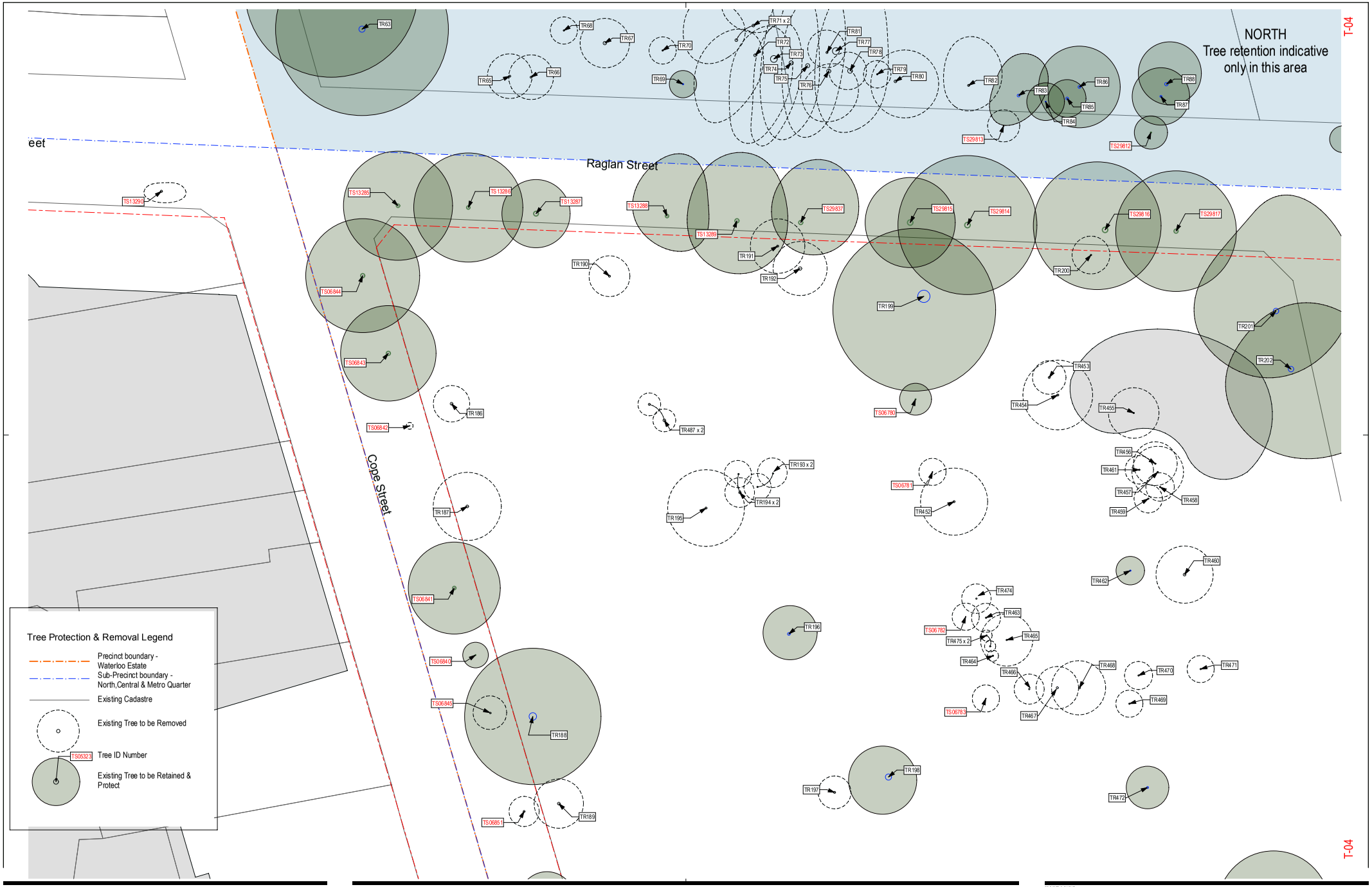

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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT
Waterloo-Urban Forest Study
NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE
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DRAWING NUMBER TR-03

REVISION A

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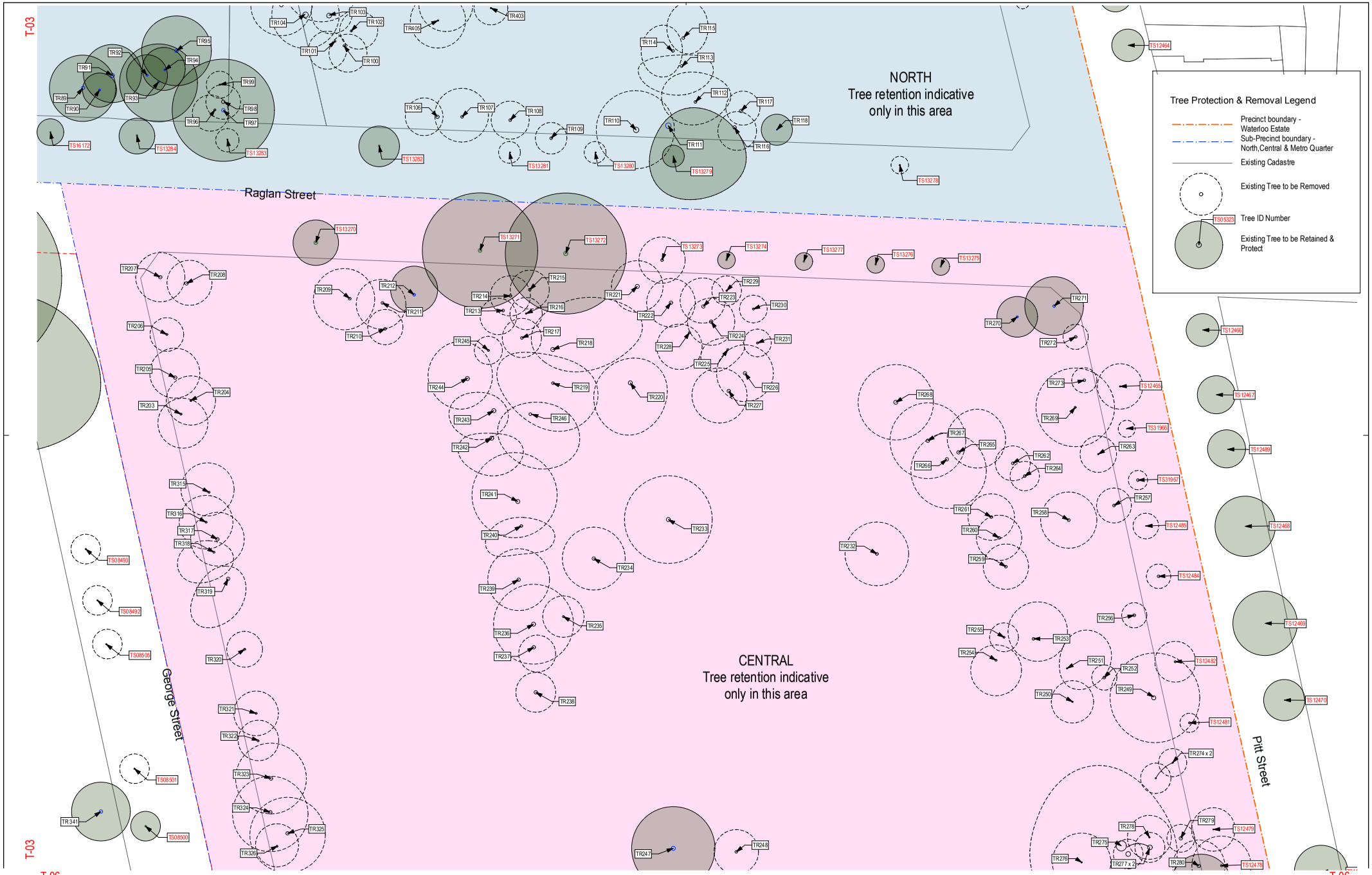

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ARTERRA DESIGN PTY LTD ABN 40 069 552 610
SUITE 602 / 51 RAWSON STREET, EPPING, NSW 2121
P 02 9957 2466 F 02 9957 3977 W ARTERRA.COM.AU

0 5 10 25m

REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT
Waterloo-Urban Forest Study
NSW Land & Housing Corporation

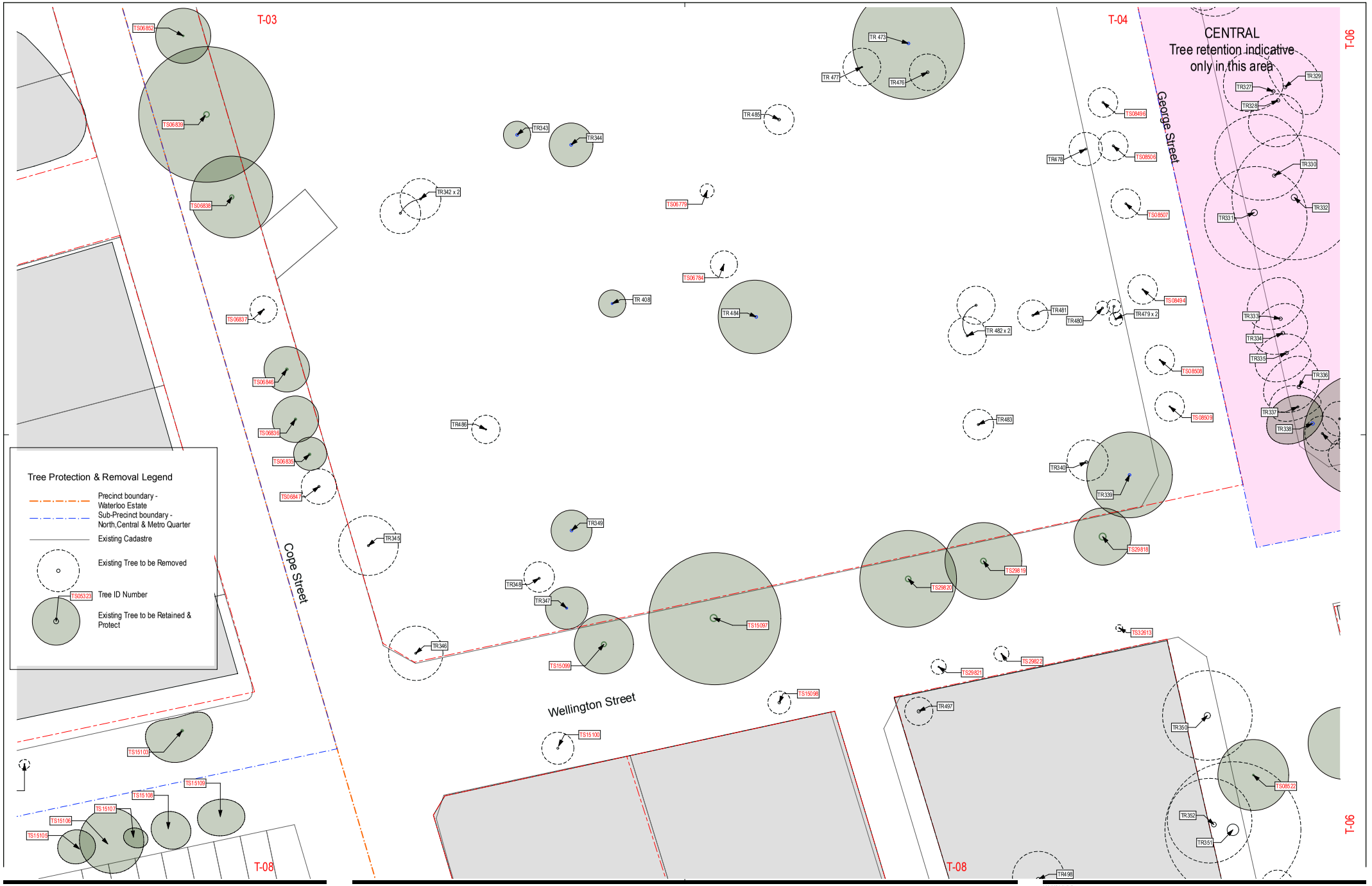
Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE
Tree Protection & Removal Map 4

DRAWING NUMBER
TR-04

REVISION
A

Plotted at : 5:34 pm 7/2/20



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0 5 10 25m

REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT
Waterloo-Urban Forest Study
NSW Land & Housing Corporation

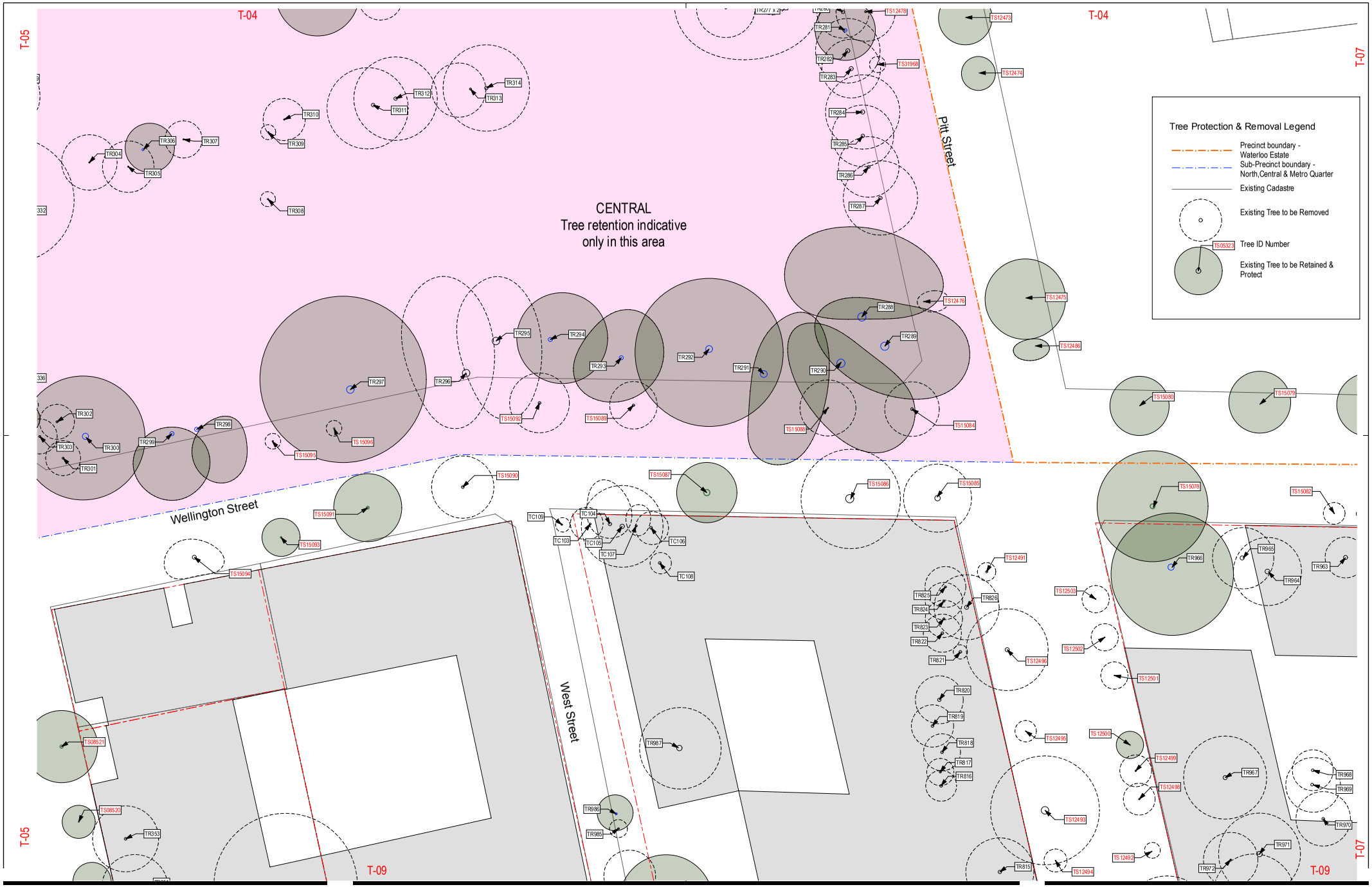
Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE
Tree Protection & Removal Map 5

DRAWING NUMBER
TR-05

REVISION
A

Plotted at : 5:34 pm 7/2/20



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P 02 9957 2466 F 02 9957 3977 W ARTERRA.COM.AU

0 5 10 25m

REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT
Waterloo-Urban Forest Study
NSW Land & Housing Corporation

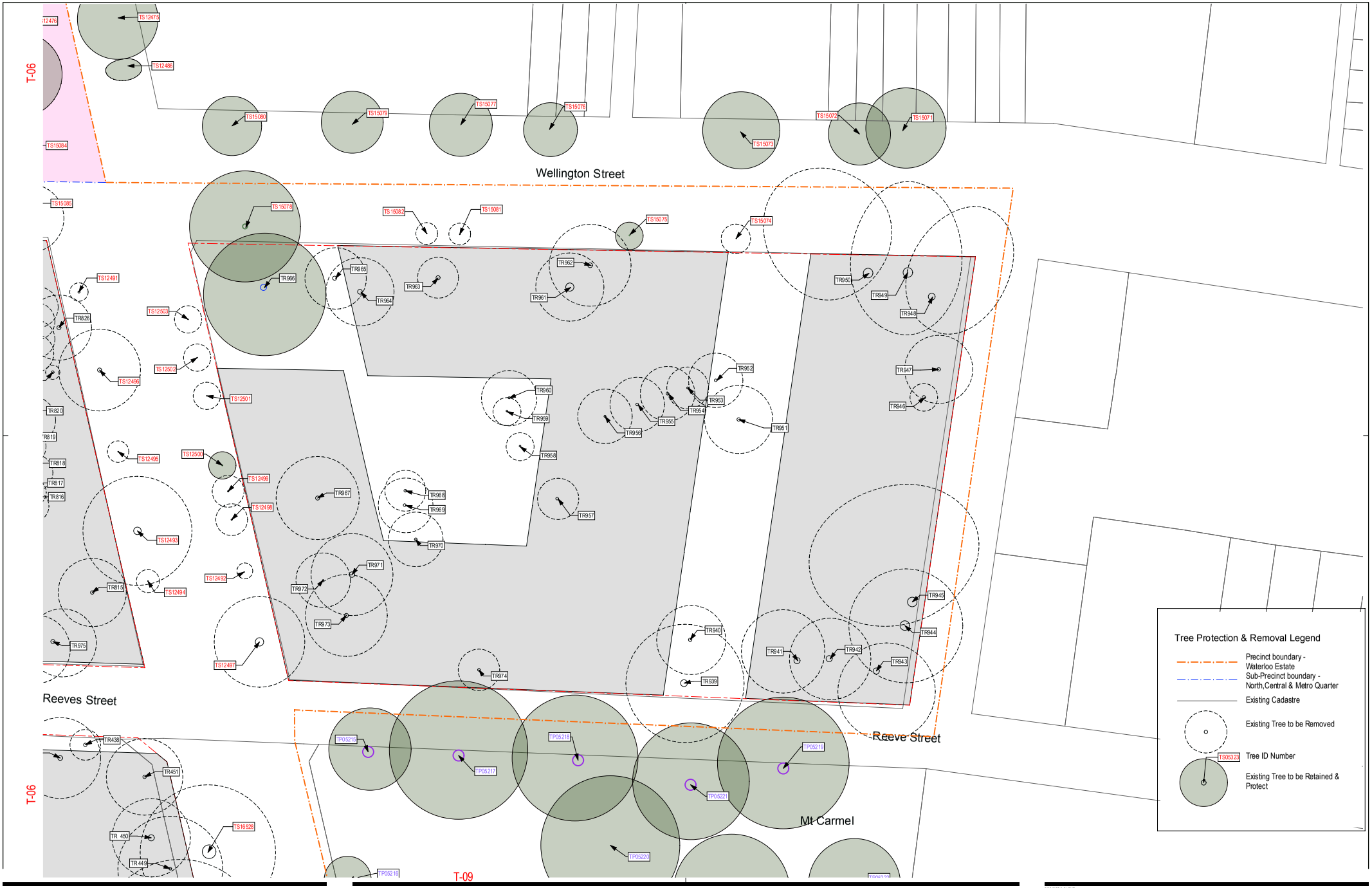
Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE
Tree Protection & Removal Map 6

DRAWING NUMBER
TR-06

REVISION
A

Plotted at : 5:34 pm 7/2/20



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P 02 9957 2466 F 02 9957 3977 W ARTERRA.COM.AU

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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE

Tree Protection & Removal Map 7

DRAWING NUMBER: TR-07

REVISION: A

Plotted at : 5:35 pm 7/2/20

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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No	17.07
Designed	RWS
Drawn	RWS
Scale	1:250@A1 , 1:500@A3

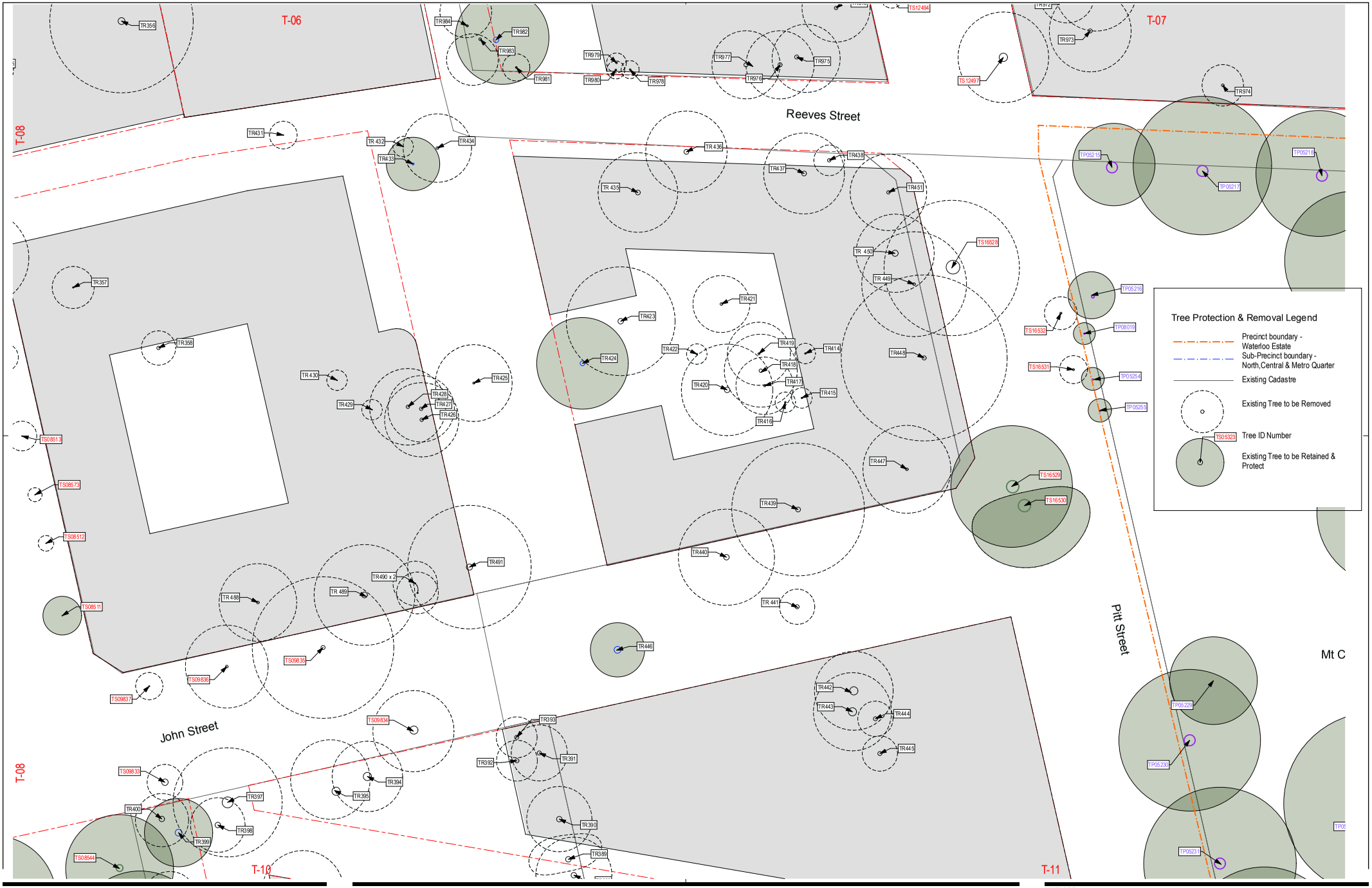
DRAWING TITLE

Tree Protection & Removal Map 8

DRAWING NUMBER: TR-08

REVISION: A

Plotted at : 5:35 pm 7/2/20



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0 5 10 25m

REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

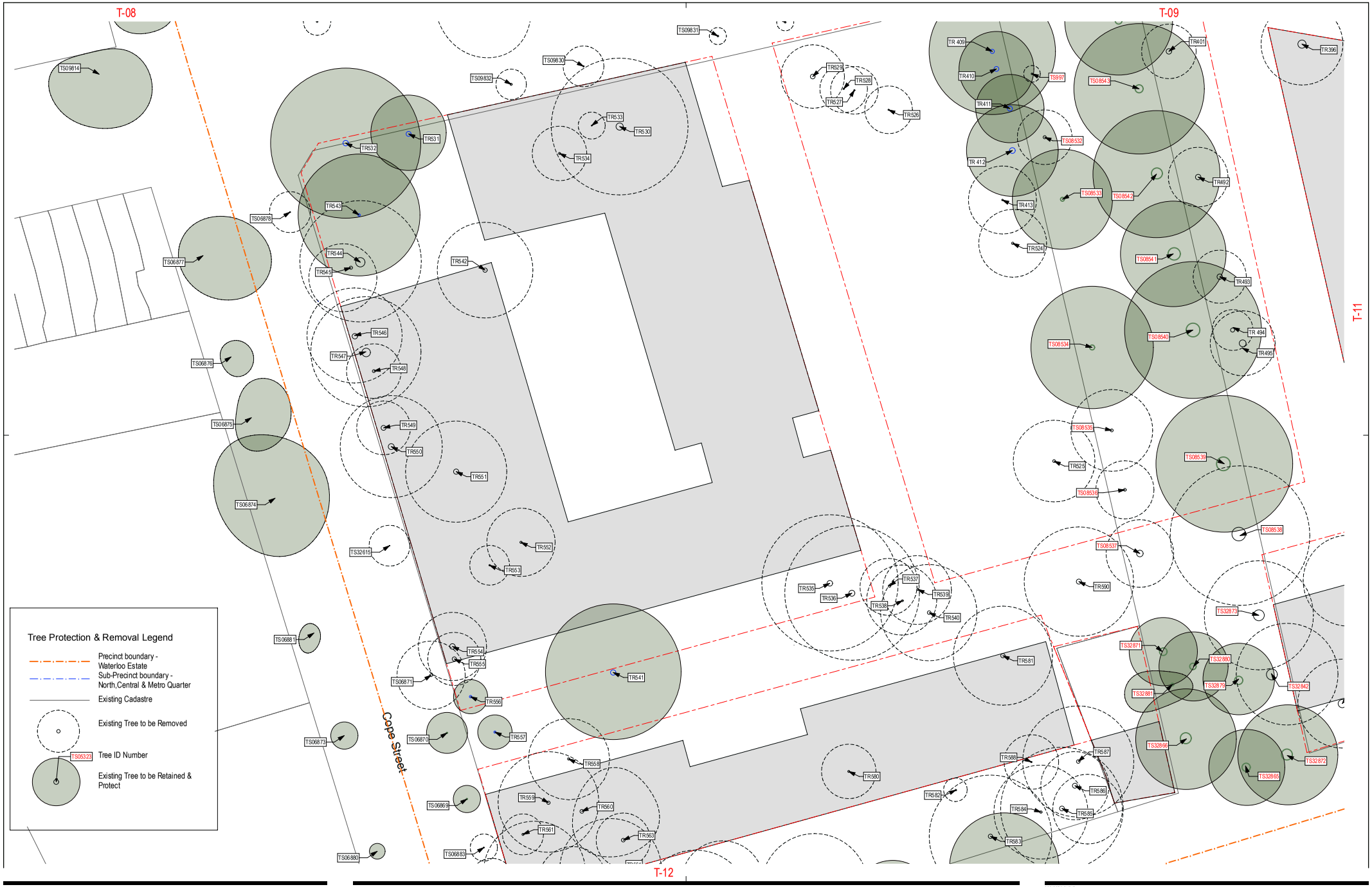
DRAWING TITLE

Tree Protection & Removal Map 9

DRAWING NUMBER: TR-09

REVISION: A

Plotted at : 5:38 pm 7/2/20



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0 5 10 25m

REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

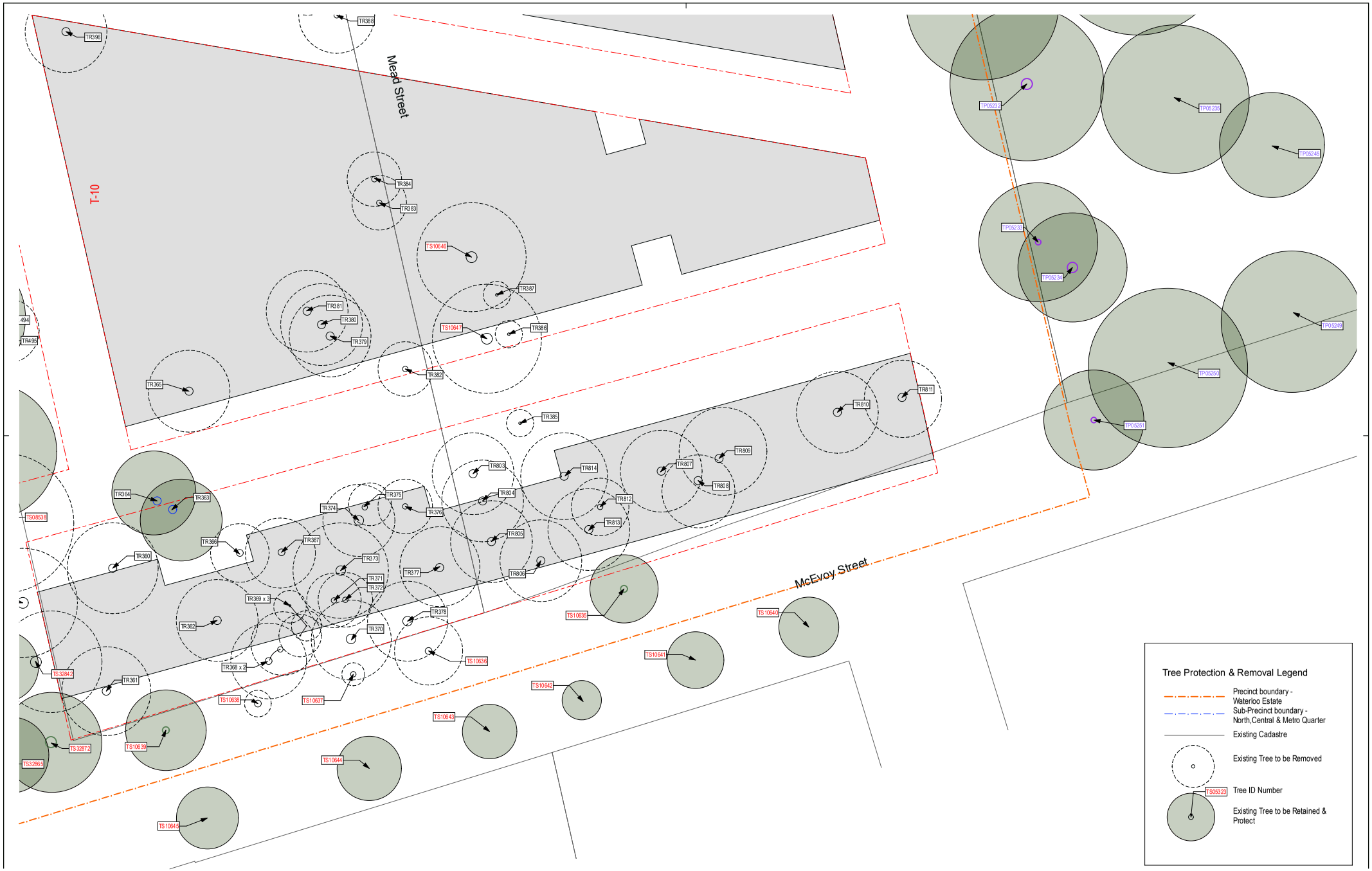
DRAWING TITLE

Tree Protection & Removal Map 10

DRAWING NUMBER: TR-10

REVISION: A

Plotted at : 5:38 pm 7/2/20



Tree Protection & Removal Legend

- Precinct boundary - Waterloo Estate
- Sub-Precinct boundary - North,Central & Metro Quarter
- Existing Cadastre
- Existing Tree to be Removed
- Tree ID Number (TS05323)
- Existing Tree to be Retained & Protect

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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE

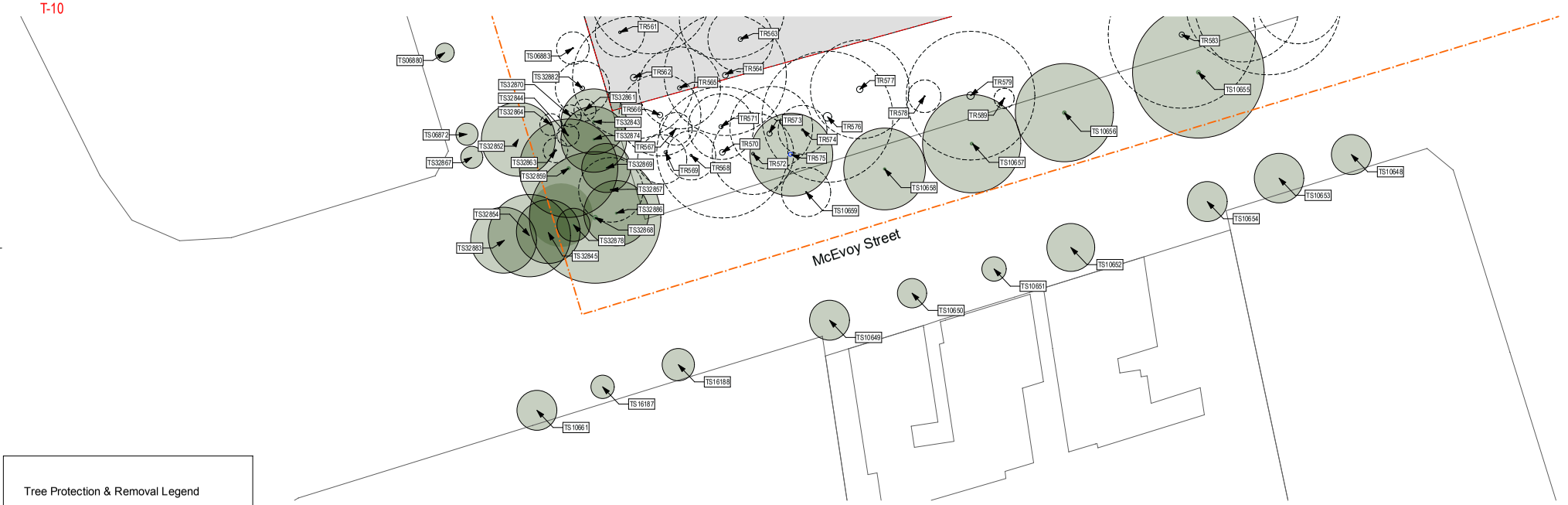
Tree Protection & Removal Map 11

DRAWING NUMBER: TR-11

REVISION: A

Plotted at : 5:16 pm 7/2/20

T-10



Tree Protection & Removal Legend

- Precinct boundary - Waterloo Estate
- Sub-Precinct boundary - North,Central & Metro Quarter
- Existing Cadastre
- Existing Tree to be Removed
- TS0532 3 Tree ID Number
- Existing Tree to be Retained & Protect

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REVISION	DESCRIPTION	CHKD	DATE
A	For Draft Review	RWS	5/2/20

PROJECT & CLIENT

Waterloo-Urban Forest Study

NSW Land & Housing Corporation

Project No : 17.07
Designed : RWS
Drawn : RWS
Scale : 1:250@A1 , 1:500@A3

DRAWING TITLE

Tree Protection & Removal Map 12

DRAWING NUMBER: TR-12

REVISION: A

Plotted at: 5:37 pm 7/7/20

6.4 Typical Planting Details to be Adopted for the Project

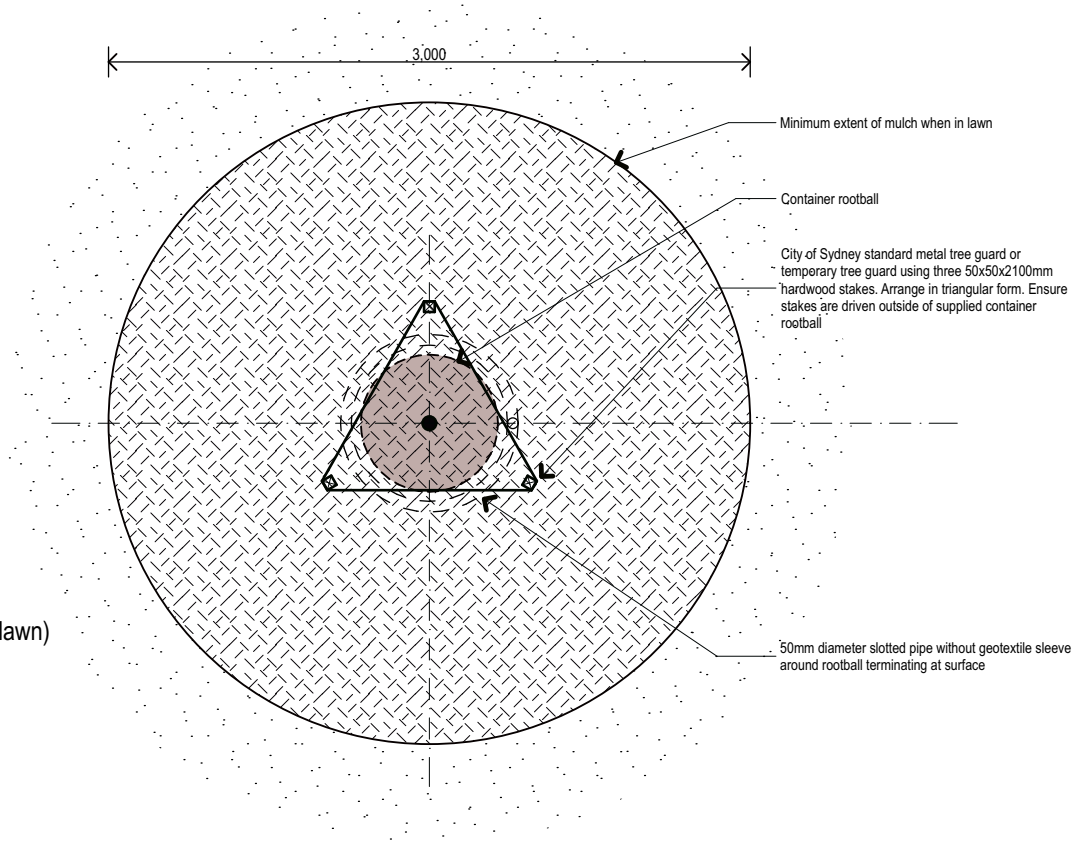
The following pages are the currently unpublished but standard tree planting details for the CoS. They have been reproduced here with the permission of the CoS to assist and facilitate appropriate installation of public trees. These supersede the current planting details that are contained within the current CoS Street Tree Master Plan 2015.

These details are generic and standard details. They should be referred to as a guide to appropriate tree planting and proper resolution of elements related to street and public area tree planting. Detailed and site specific details will be expected to be produced during refinement and detailed design stages of the proposed new development. Future appointed designers and developers are encouraged to refer to these details for guidance on the minimum standards and general approaches that will expected.

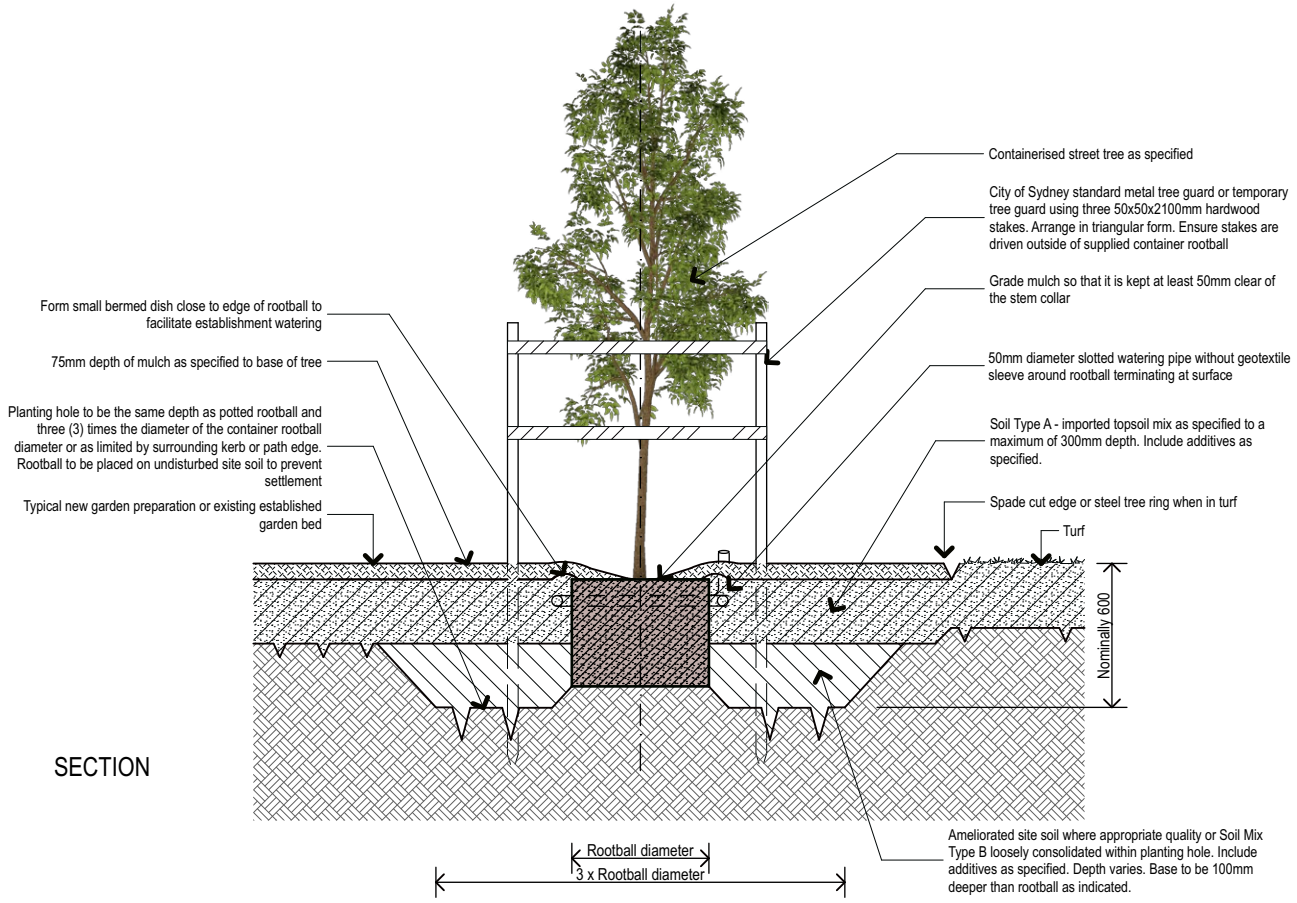
These details may be subsequently superseded by later revisions to policy, codes and plans that may be prepared by the CoS.

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

PLAN (When in lawn)



SECTION

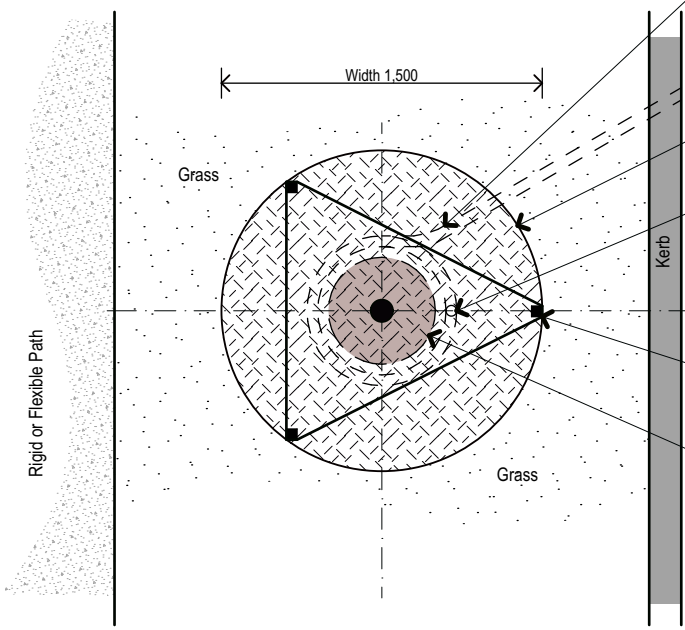


Scale 1: 25 @ A3 0 500 1000mm

TYPE 1 - TREE PLANTING IN WIDE OPEN TURF

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

PLAN



WSUD OPTION:
Cut 50mm diam. hole at 30-45º angle towards direction of flow into gutter and push slotted pipe into end for passive watering from stormwater flows

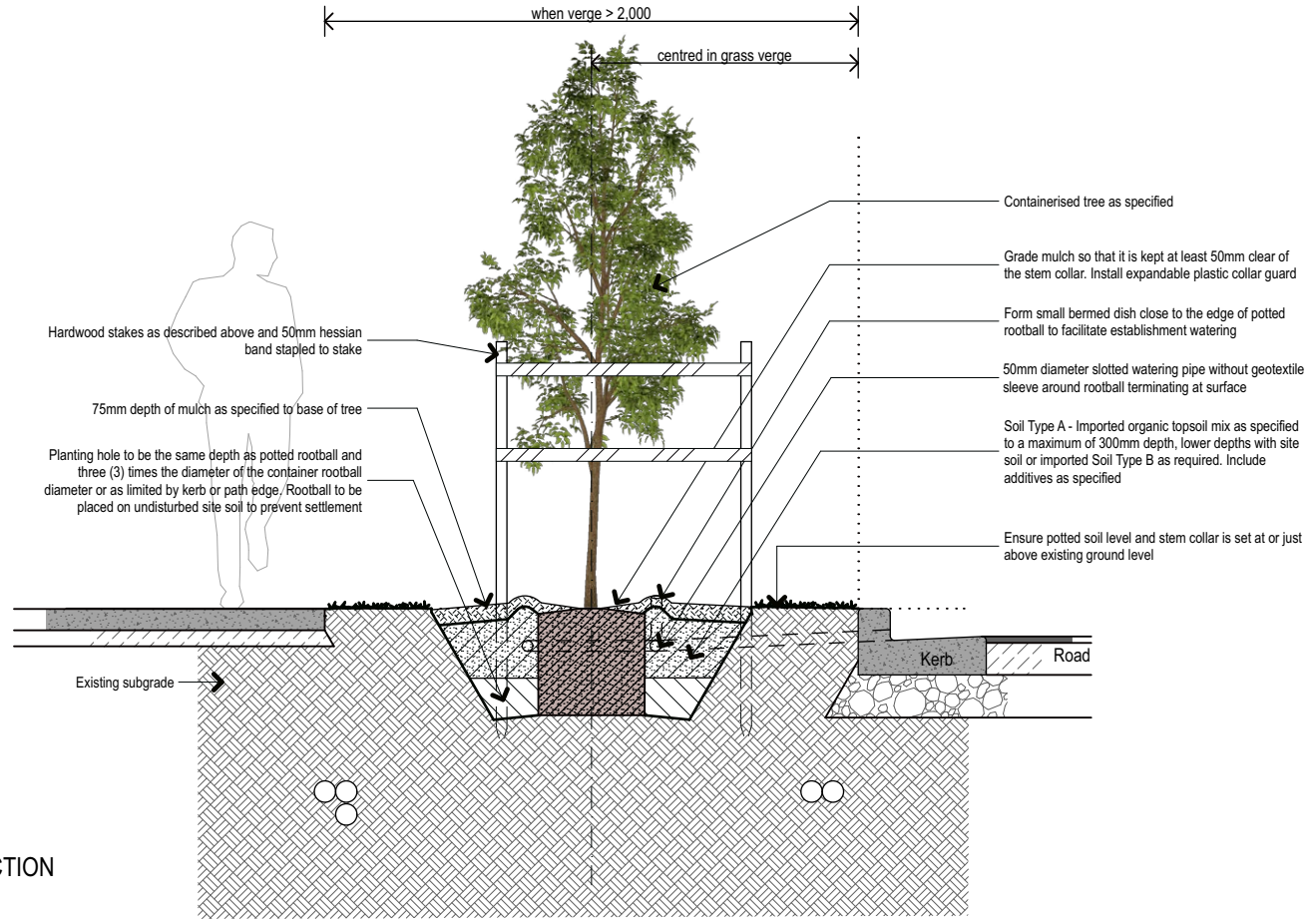
Planting hole to be three (3) times the diameter of the container rootball diameter or as limited by kerb or path edge. 75mm depth of mulch as specified (Chipped recycled wood waste, no fines, if nothing specified) to the base of tree to the extent of planting hole excavation. Tree planting area edging as specified by Council. (No edge if nothing specified)

50mm diameter slotted pipe without geotextile sleeve around rootball terminating at surface

Temporary tree guard using three 50x50x1800mm hardwood stakes at edge of planting pit. Arrange in triangular form to minimise conflict with opening car doors. Ensure stakes are driven outside of supplied container rootball

Container rootball

SECTION



Containerised tree as specified

Grade mulch so that it is kept at least 50mm clear of the stem collar. Install expandable plastic collar guard

Form small bermed dish close to the edge of potted rootball to facilitate establishment watering

50mm diameter slotted watering pipe without geotextile sleeve around rootball terminating at surface

Soil Type A - Imported organic topsoil mix as specified to a maximum of 300mm depth, lower depths with site soil or imported Soil Type B as required. Include additives as specified

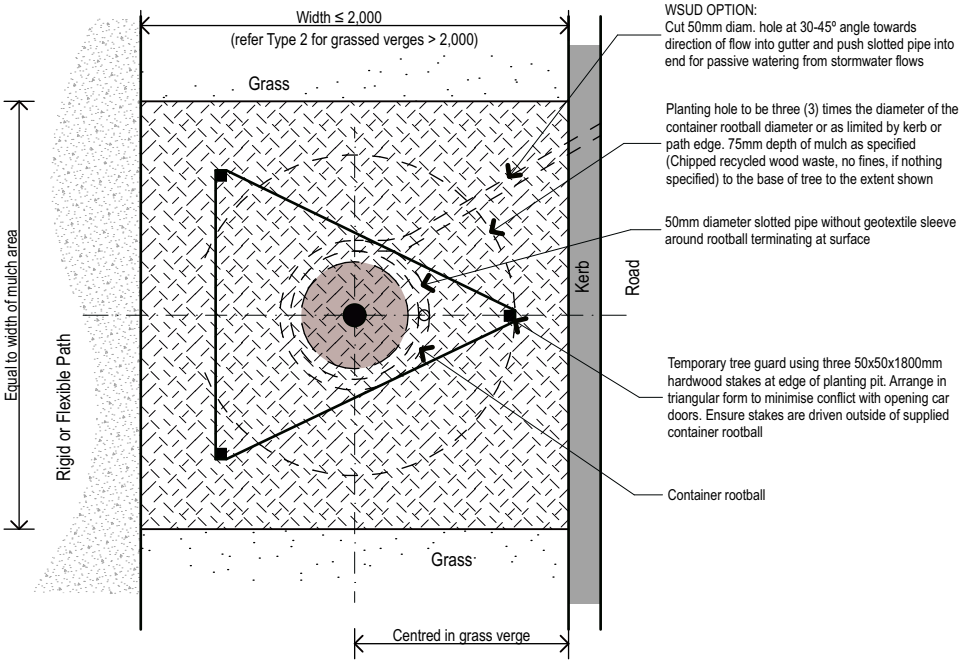
Ensure potted soil level and stem collar is set at or just above existing ground level

Scale 1: 25 @ A3 0 500 1000mm

TYPE 2 - TREE PLANTING IN WIDE GRASSED VERGE

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

PLAN



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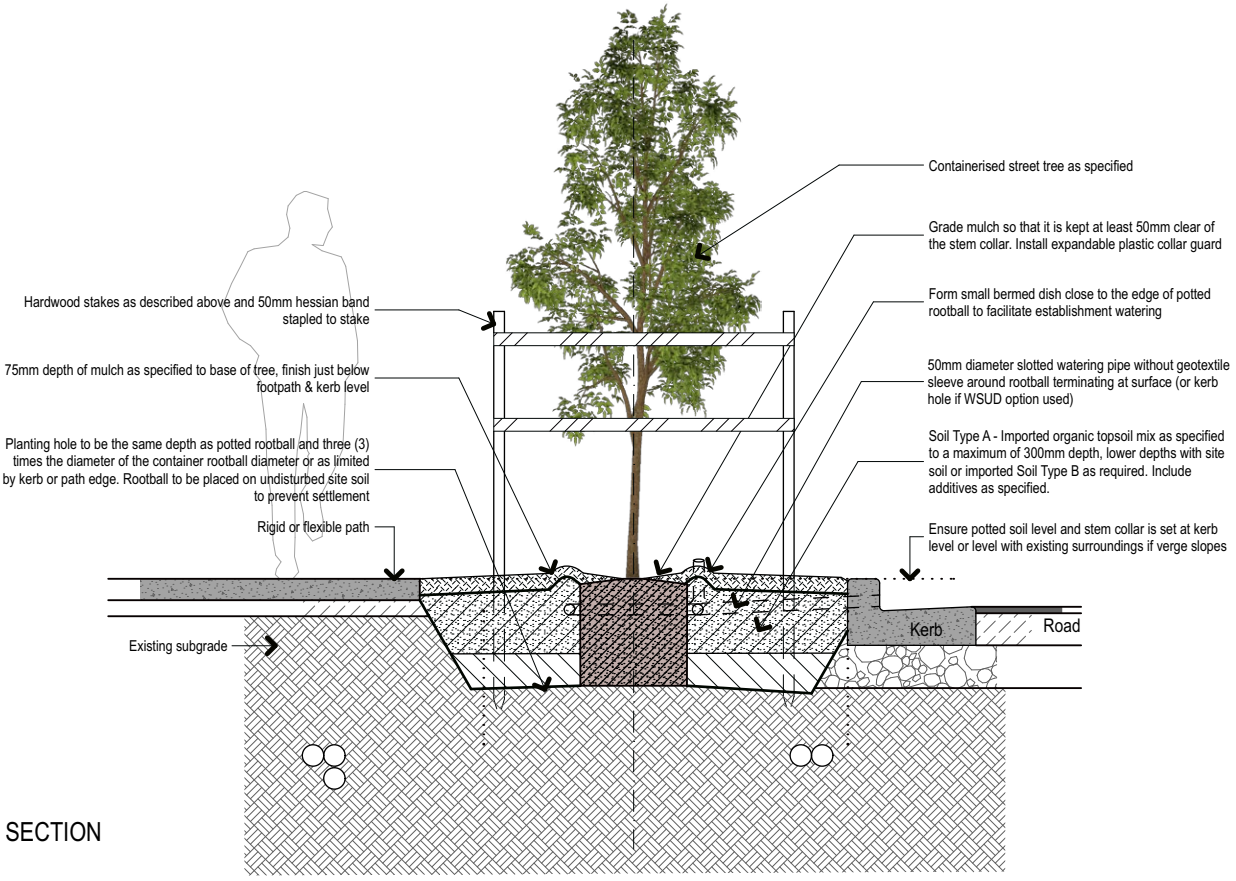
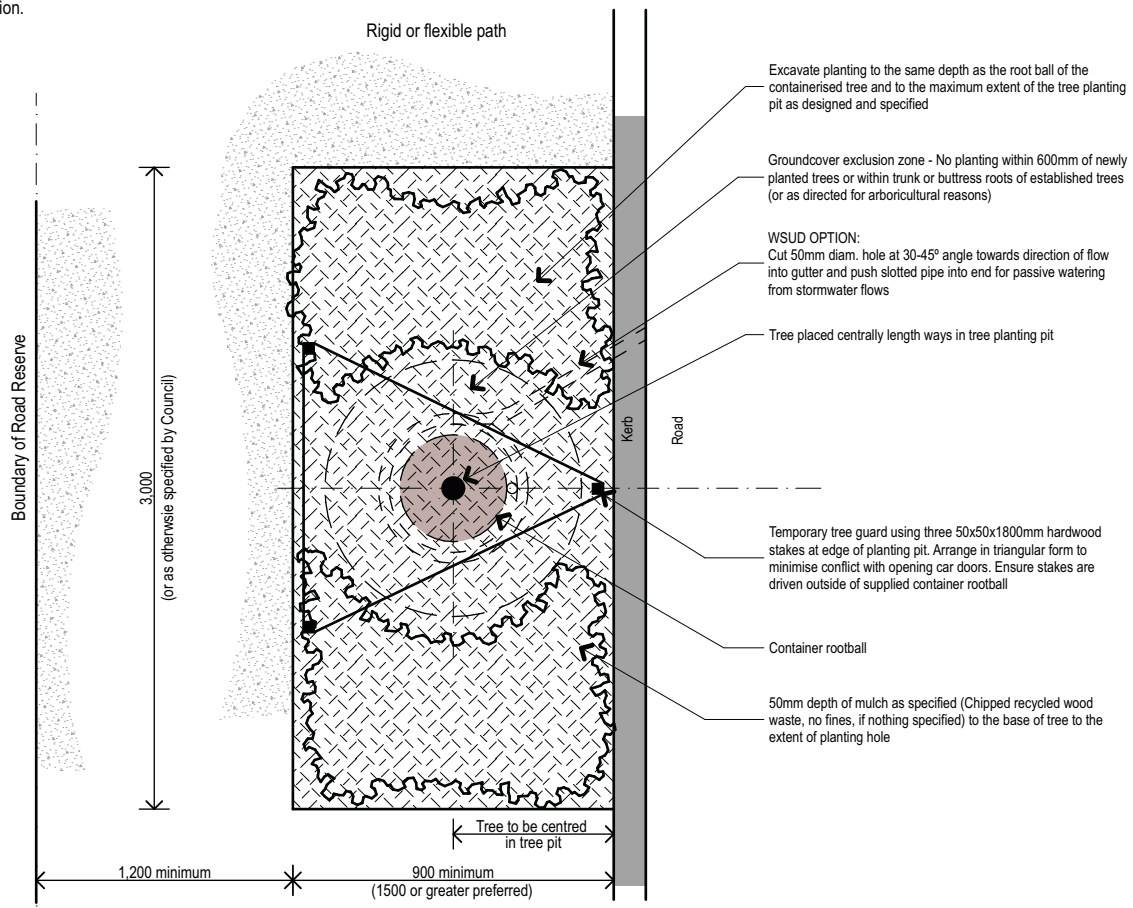


Scale 1: 25 @ A3 0 500 1000mm

TYPE 3 - TREE PLANTING IN NARROW GRASSED VERGE

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

PLAN



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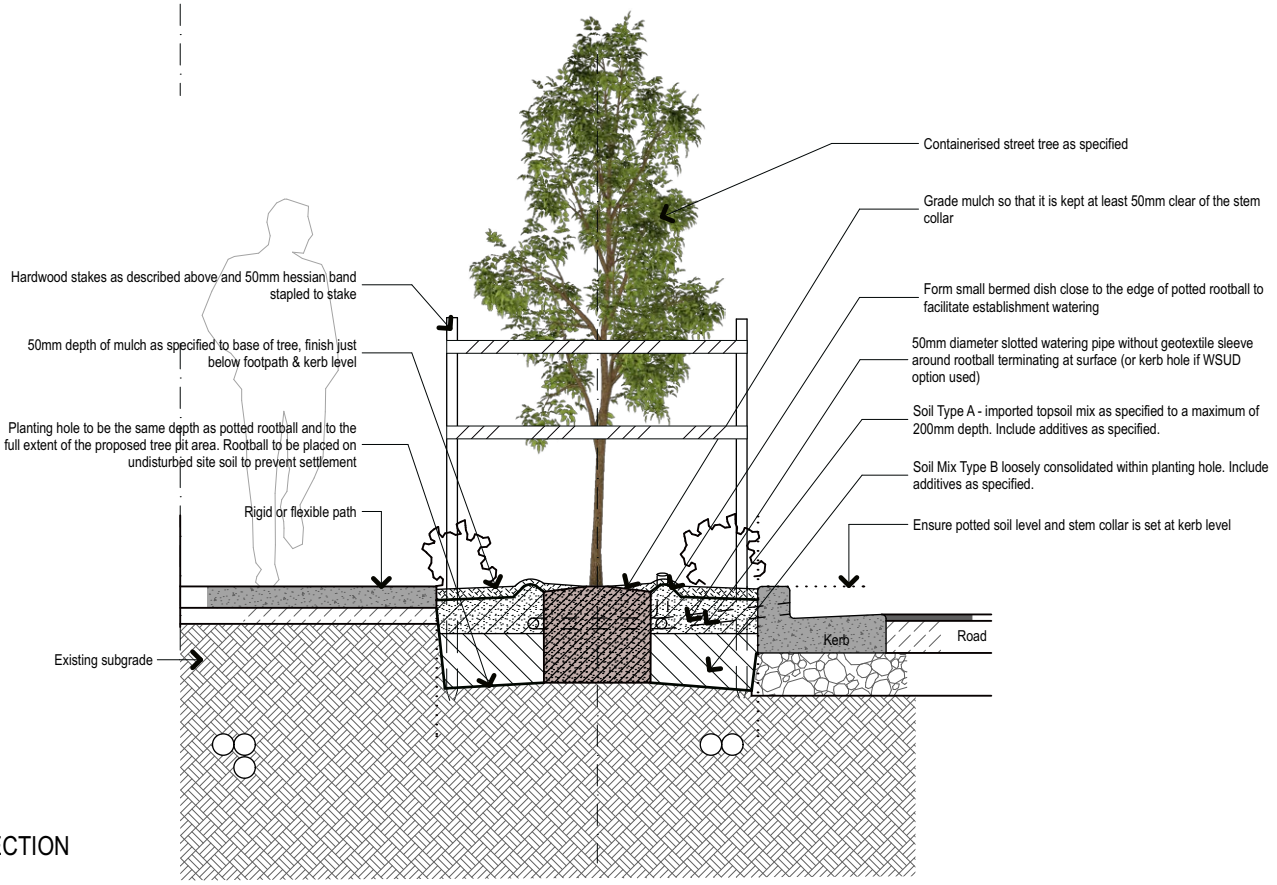
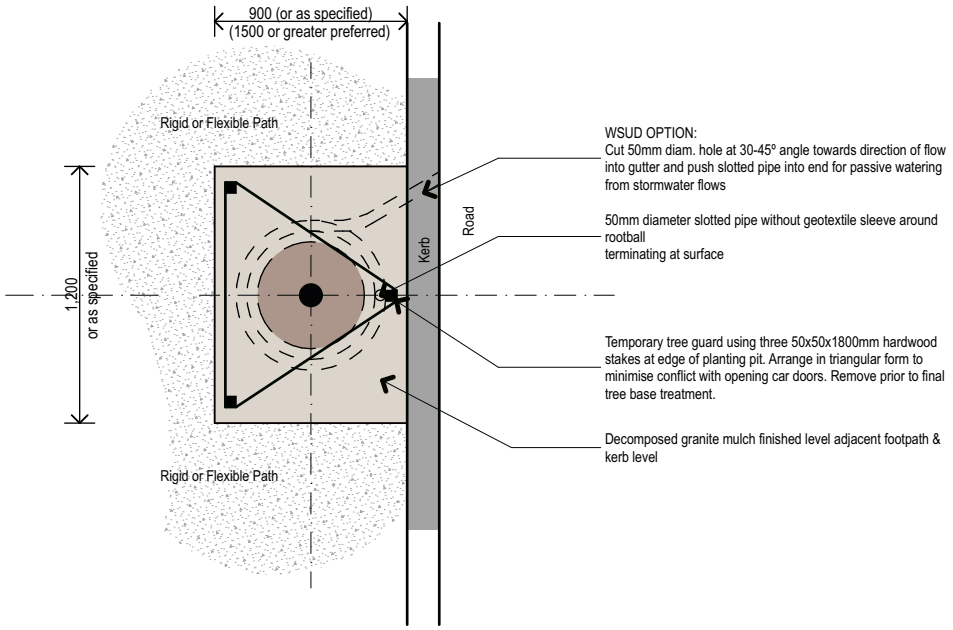


Scale 1: 25 @ A3 0 500 1000mm

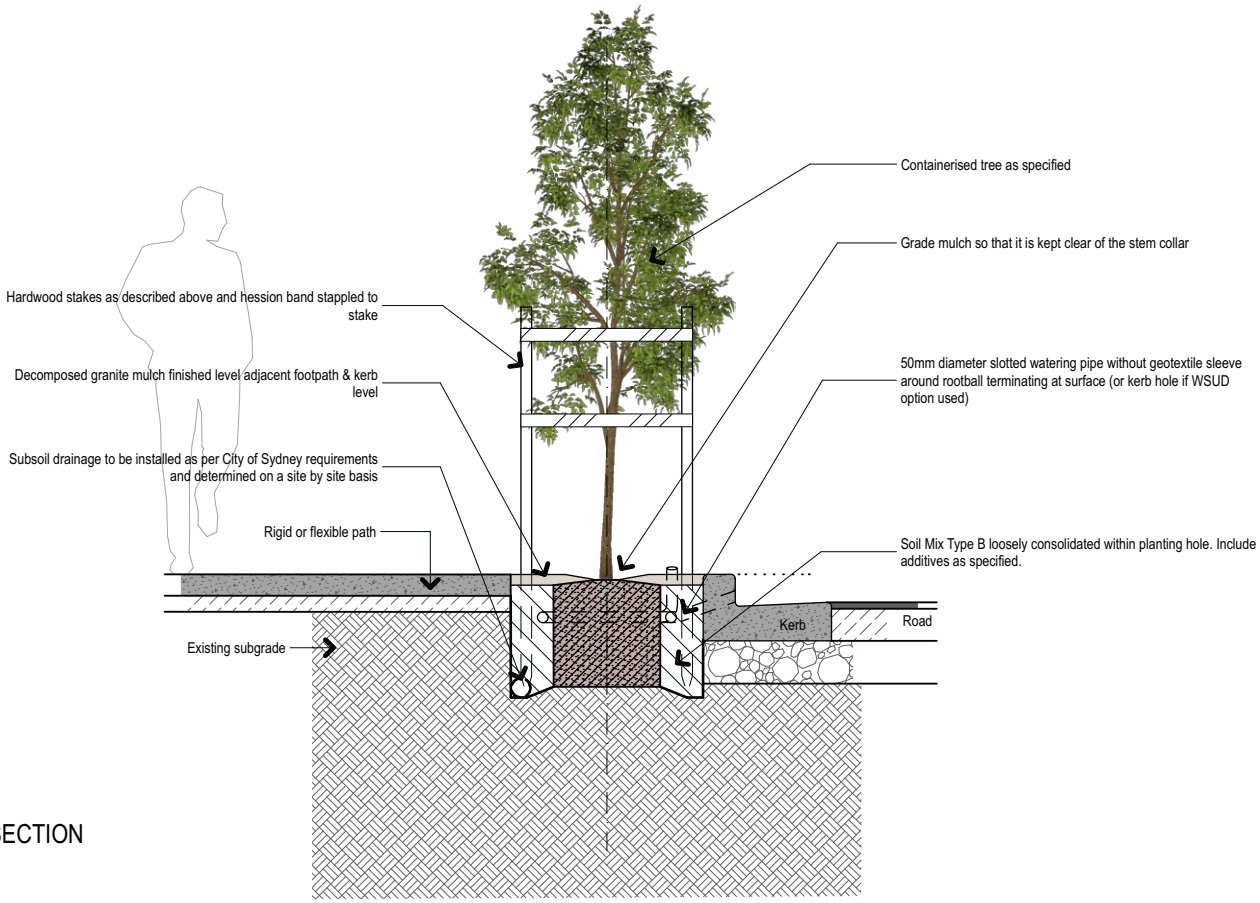
TYPE 4 - TREE PLANTING IN FULLY PAVED VERGE WITHIN STREET GARDEN

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

NOTE 2: Existing Trees
a. Size of tree pit may vary depending on depth of surface roots or trunk flare of mature trees.
b. Paving construction may be altered to accommodate tree roots at the direction of Council.
c. Tree pit surface to be installed level with surrounding paving, leaving surface roots exposed where necessary.



PLAN



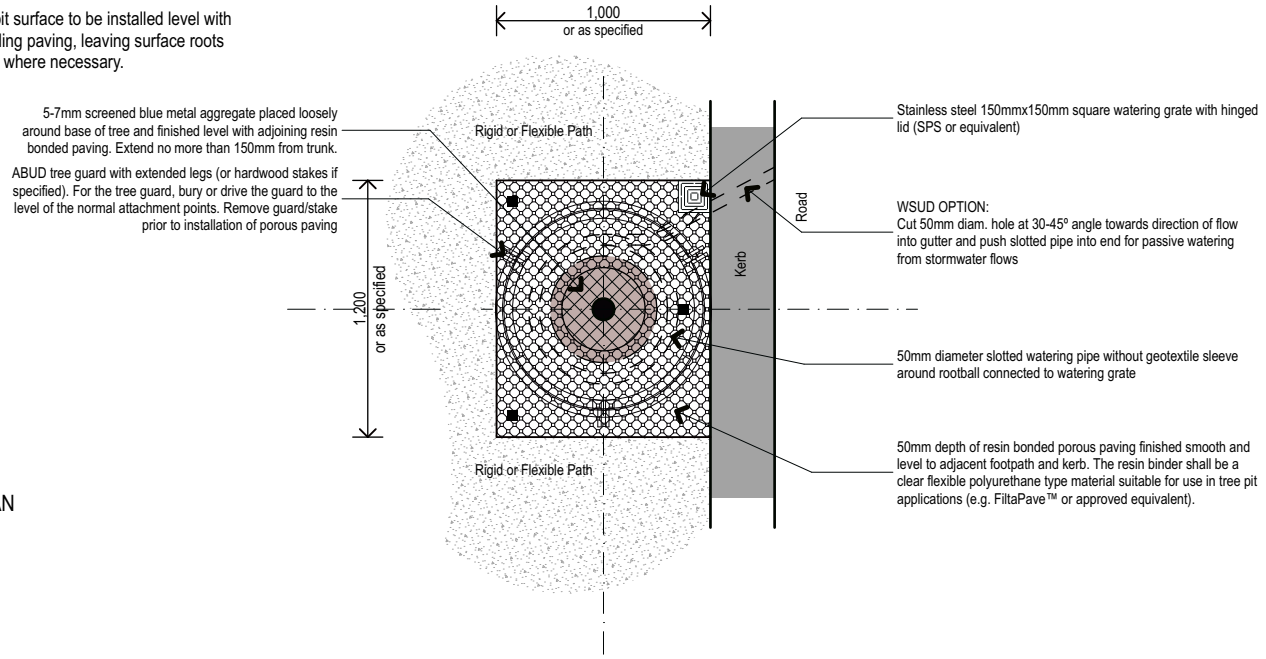
SECTION

Scale 1: 25 @ A3 0 500 1000mm

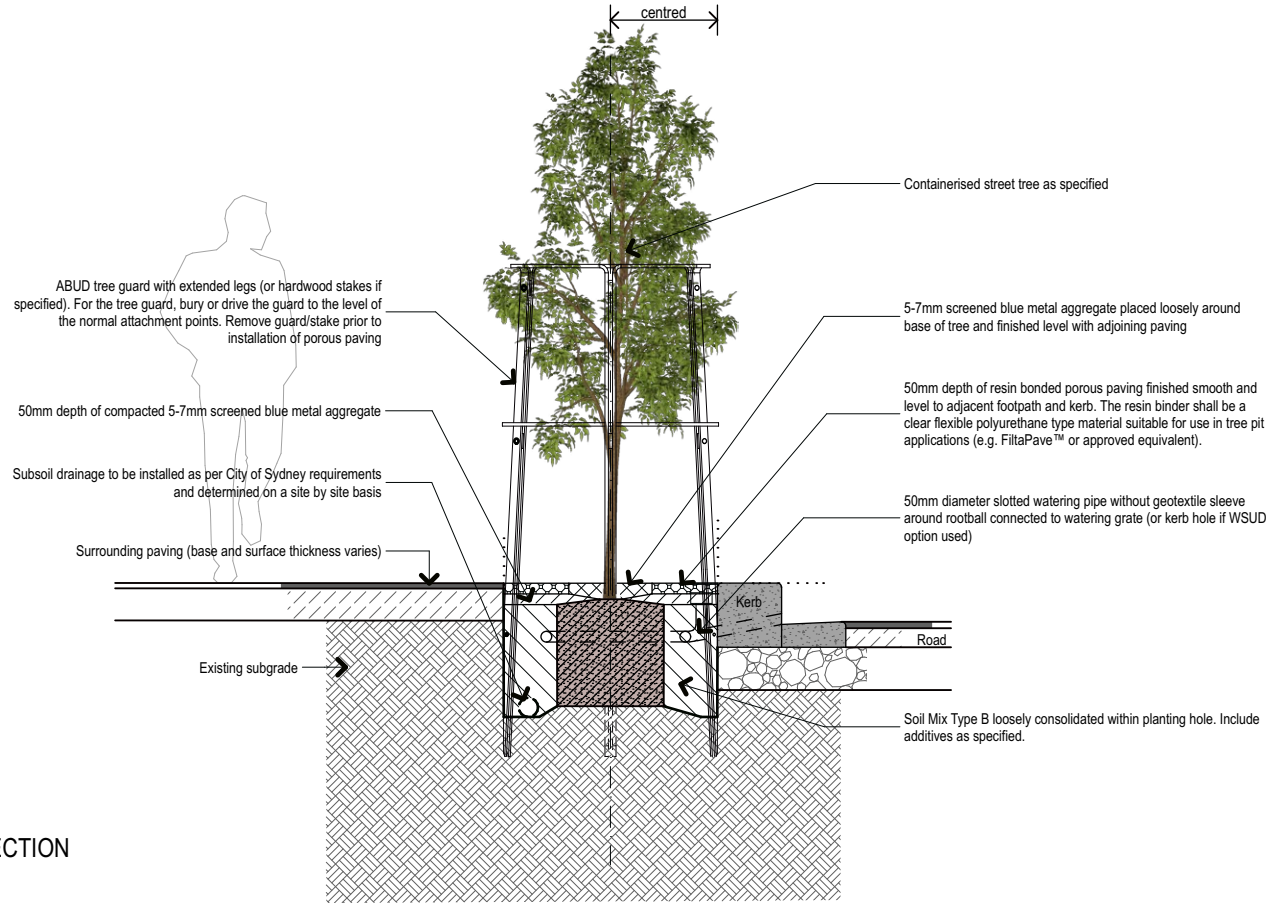
TYPE 5 - TREE PLANTING WITH DECOMPOSED GRANITE SURROUND

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

NOTE 2: Existing Trees
a. Size of tree pit may vary depending on depth of surface roots or trunk flare of mature trees.
b. Paving construction may be altered to accommodate tree roots at the direction of Council.
c. Tree pit surface to be installed level with surrounding paving, leaving surface roots exposed where necessary.



PLAN



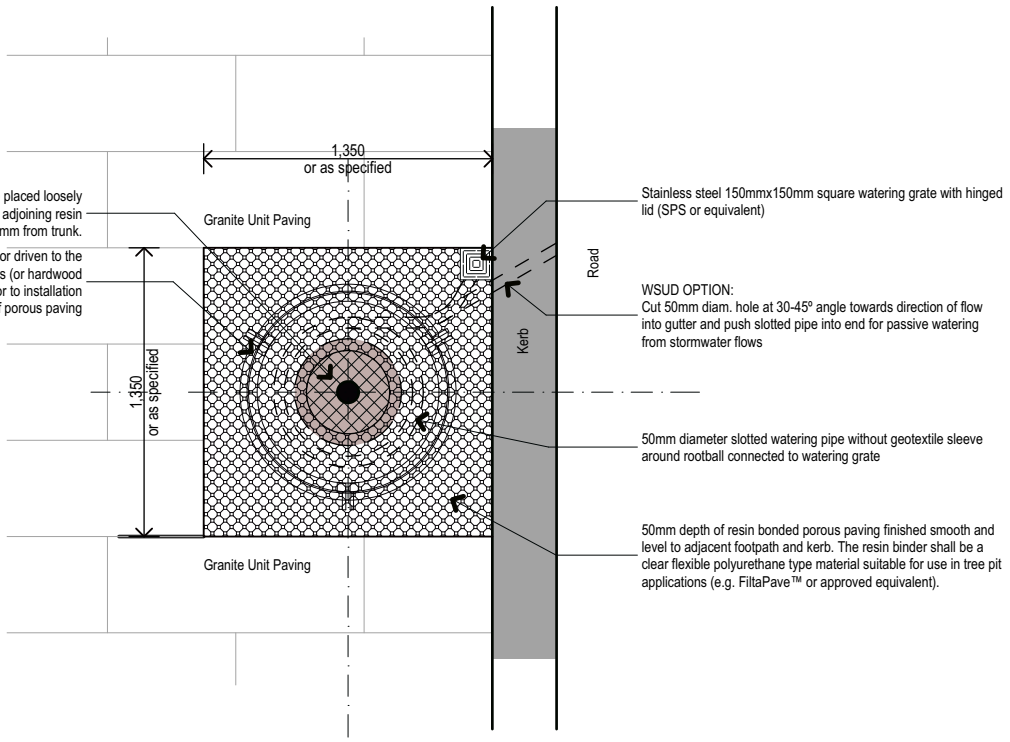
SECTION

Scale 1: 25 @ A3 0 500 1000mm

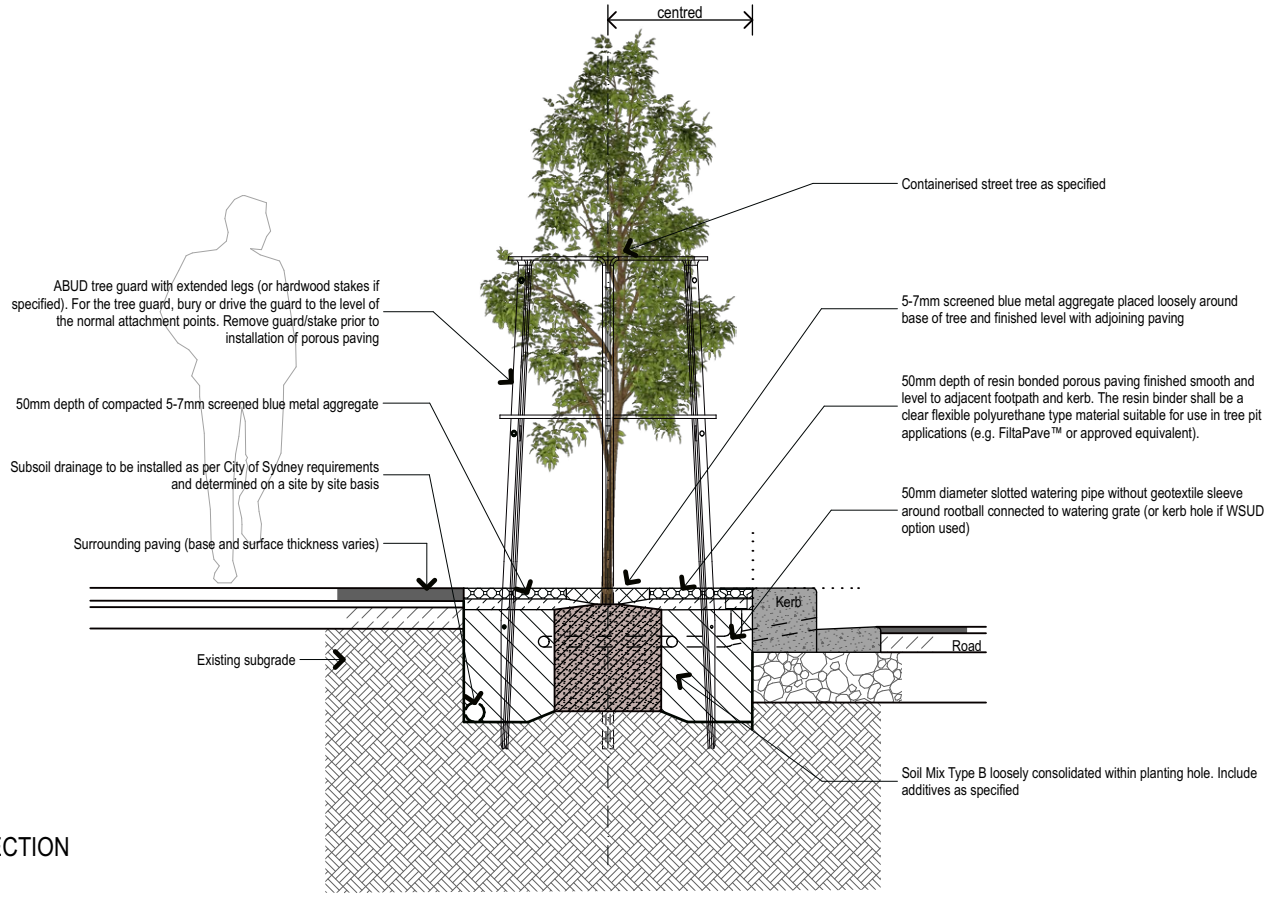
TYPE 6 - TREE PLANTING WITH POROUS PAVING SURROUND

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

NOTE 2: Existing Trees
a. Size of tree pit may vary depending on depth of surface roots or trunk flare of mature trees.
b. Paving construction may be altered to accommodate tree roots at the direction of Council.
c. Tree pit surface to be installed level with surrounding paving, leaving surface roots exposed where necessary.



PLAN

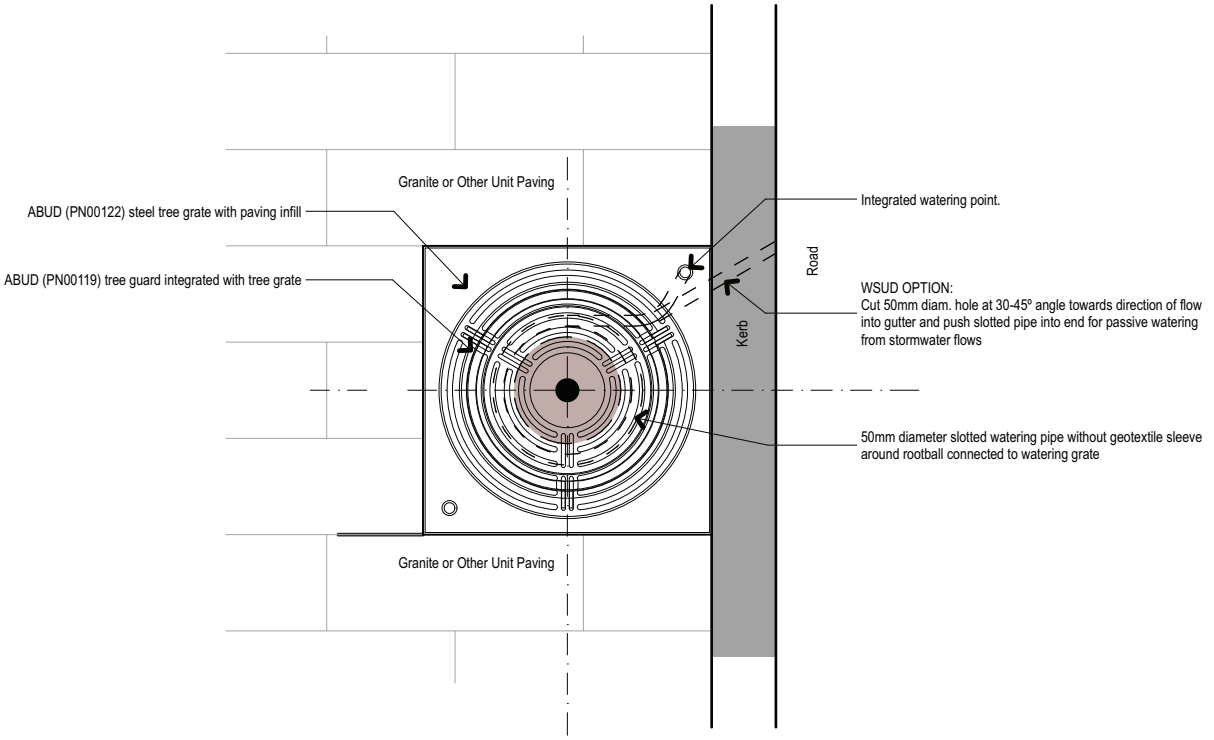


SECTION

Scale 1: 25 @ A3 0 500 1000mm

TYPE 7 - TREE PLANTING IN CBD OR OTHER SPECIFIED LOCATIONS - POROUS PAVING

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.



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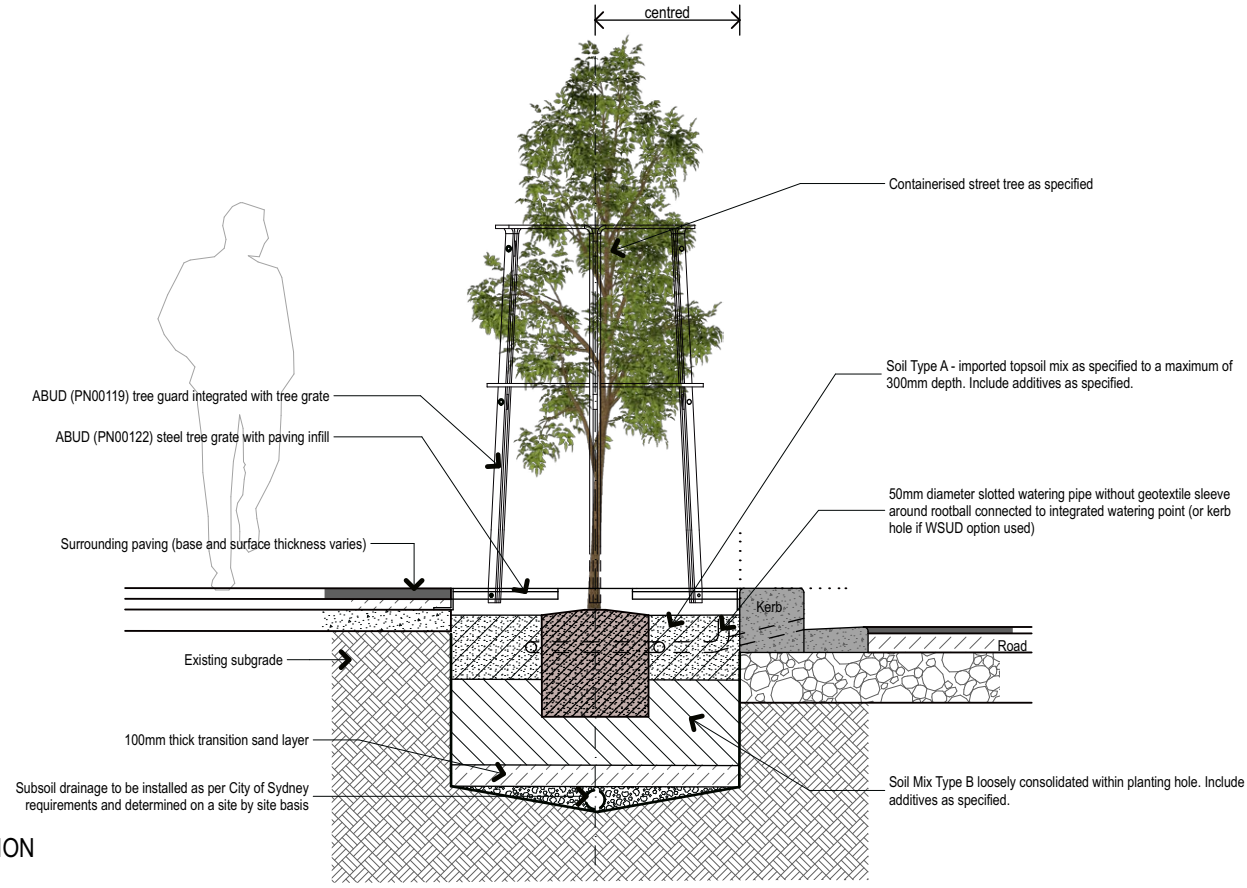
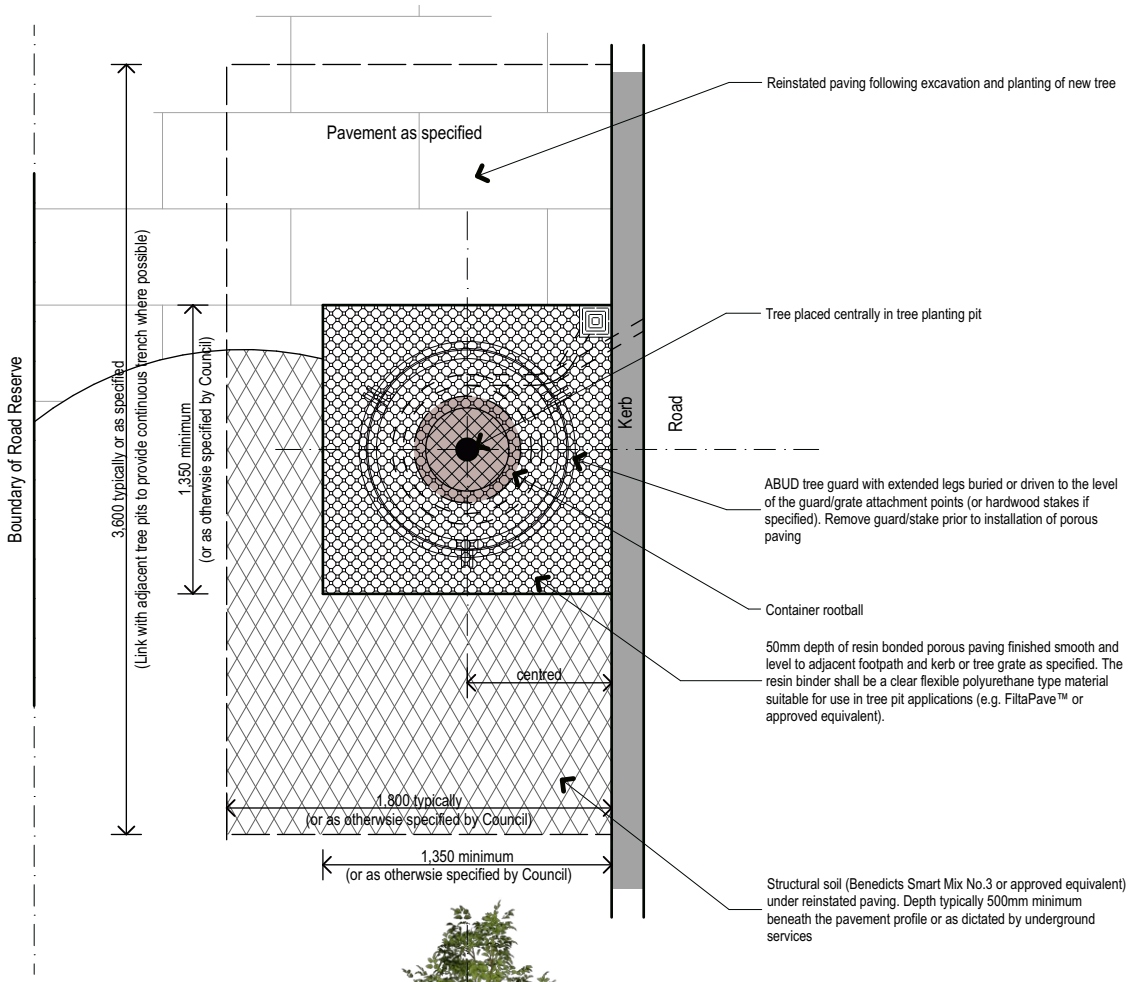


SECTION

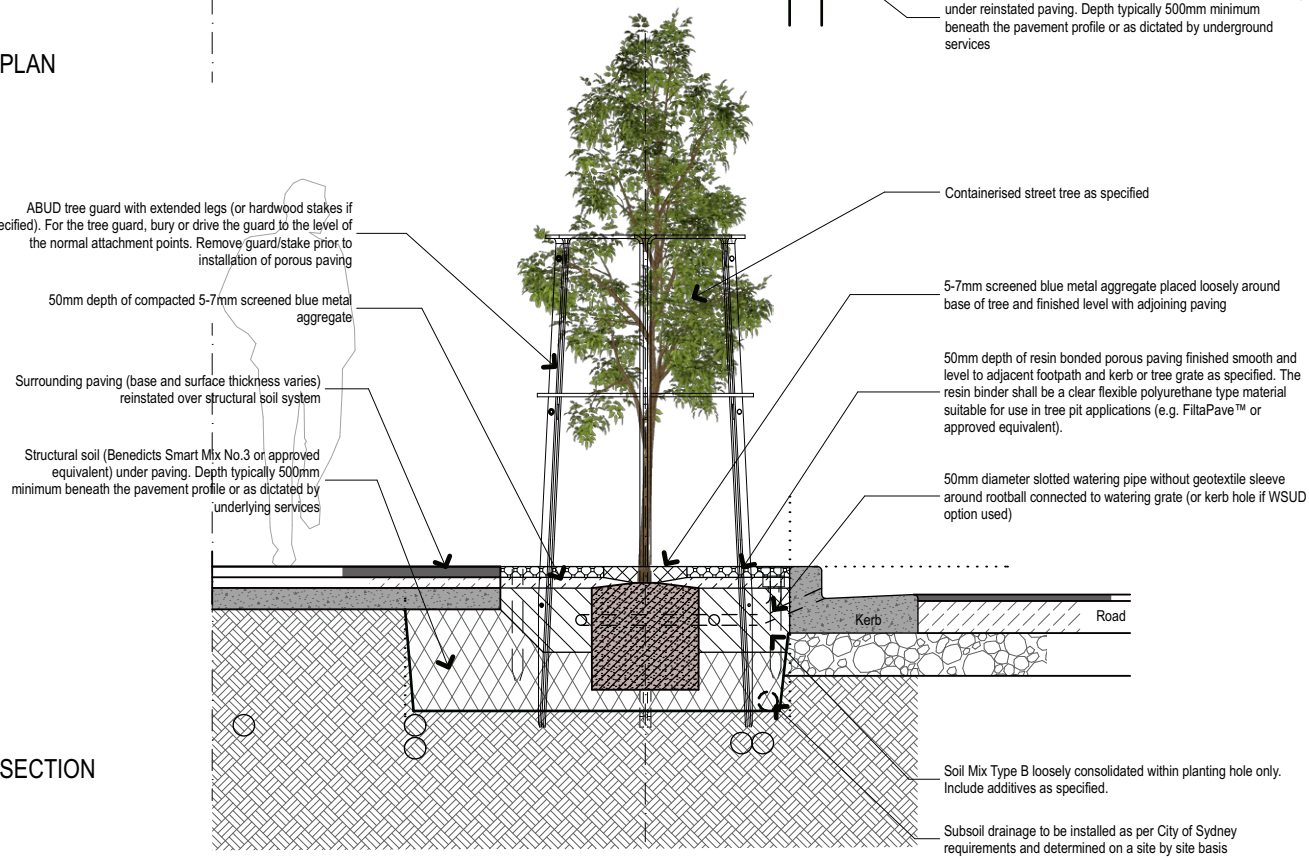
Scale 1: 25 @ A3 0 500 1000mm

TYPE 8 - TREE PLANTING IN CBD OR OTHER SPECIFIED LOCATIONS - TREE GRATE

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.



PLAN

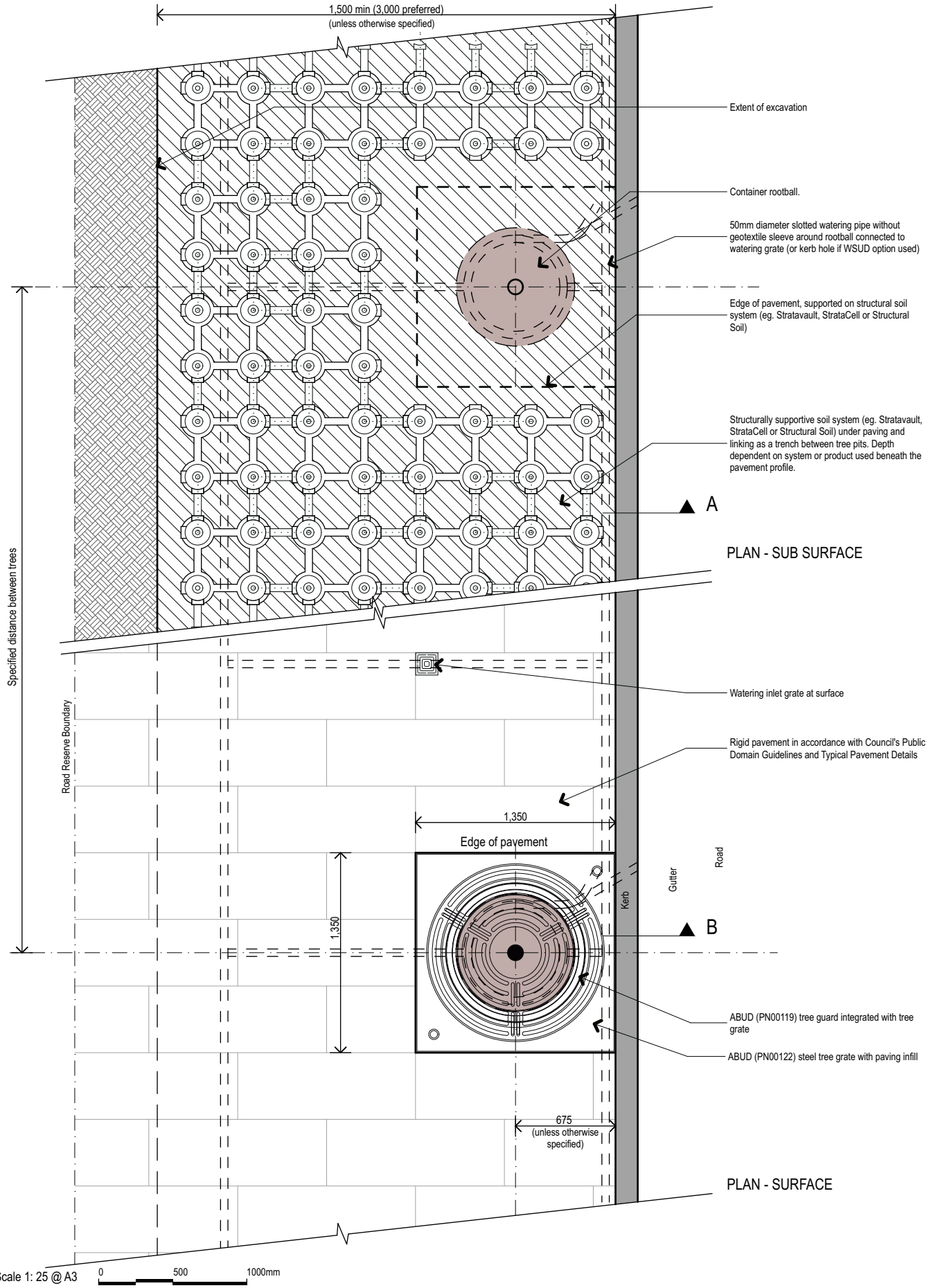


SECTION

Scale 1: 25 @ A3 0 500 1000mm

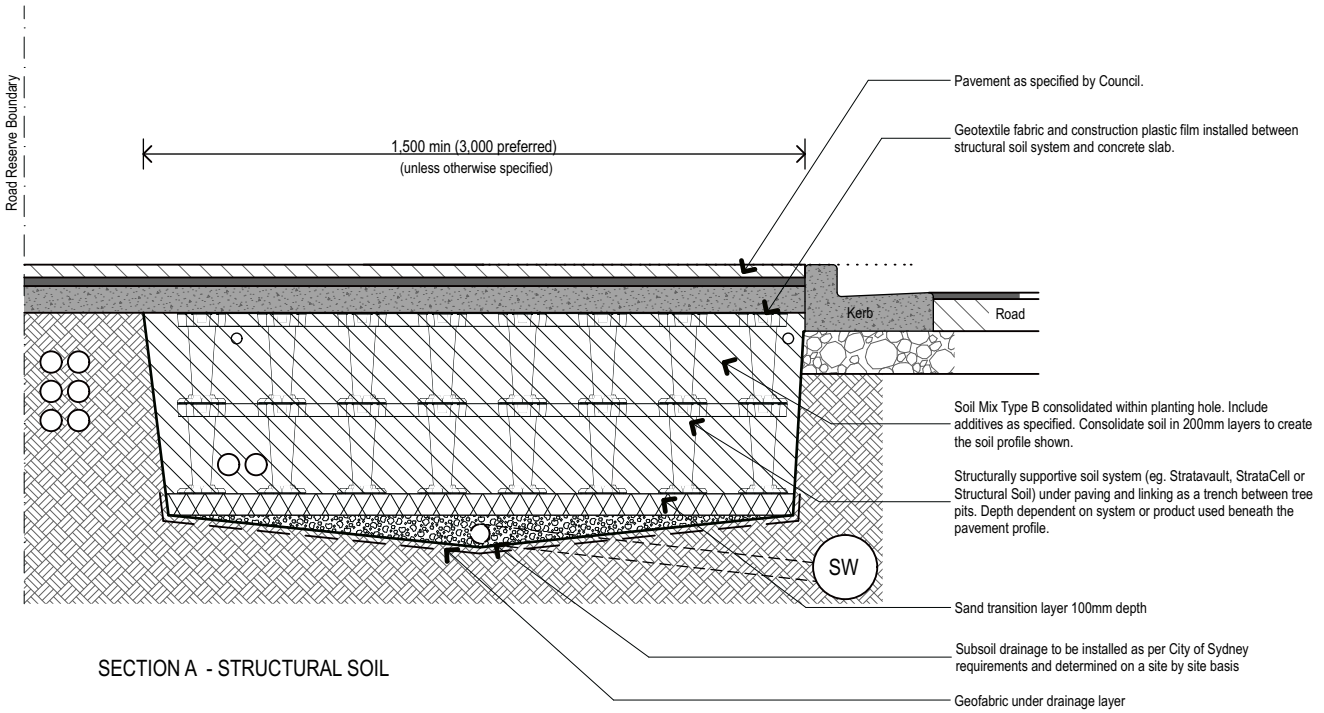
TYPE 9 - TREE PLANTING IN FULLY PAVED VERGE WITH EXPANDED SOIL VOLUME

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

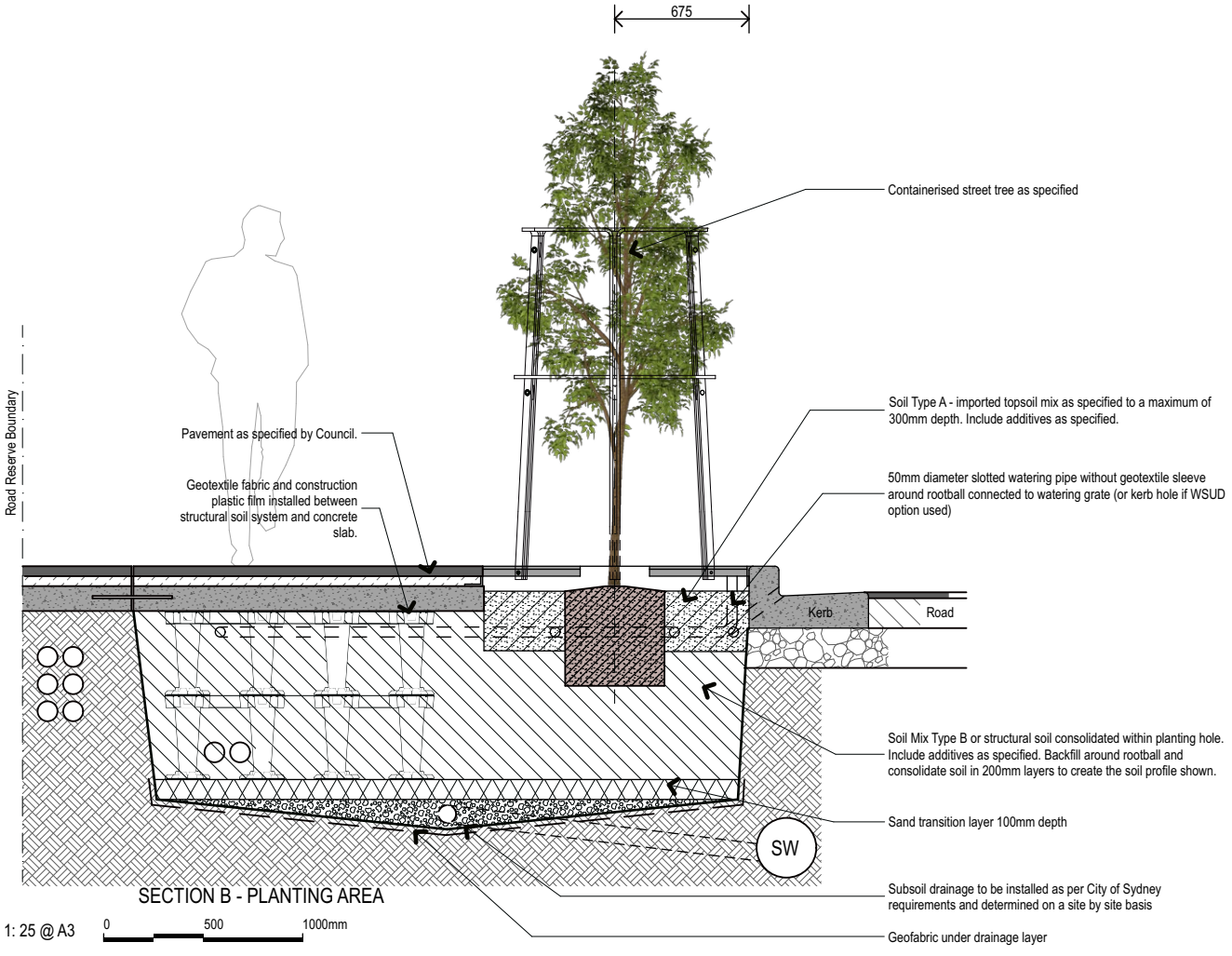


TYPE 10A - INDICATIVE TREE PLANTING WITH STRUCTURAL SUPPORT & CONTINUOUS TRENCH [PLANS]

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.



SECTION A - STRUCTURAL SOIL



SECTION B - PLANTING AREA

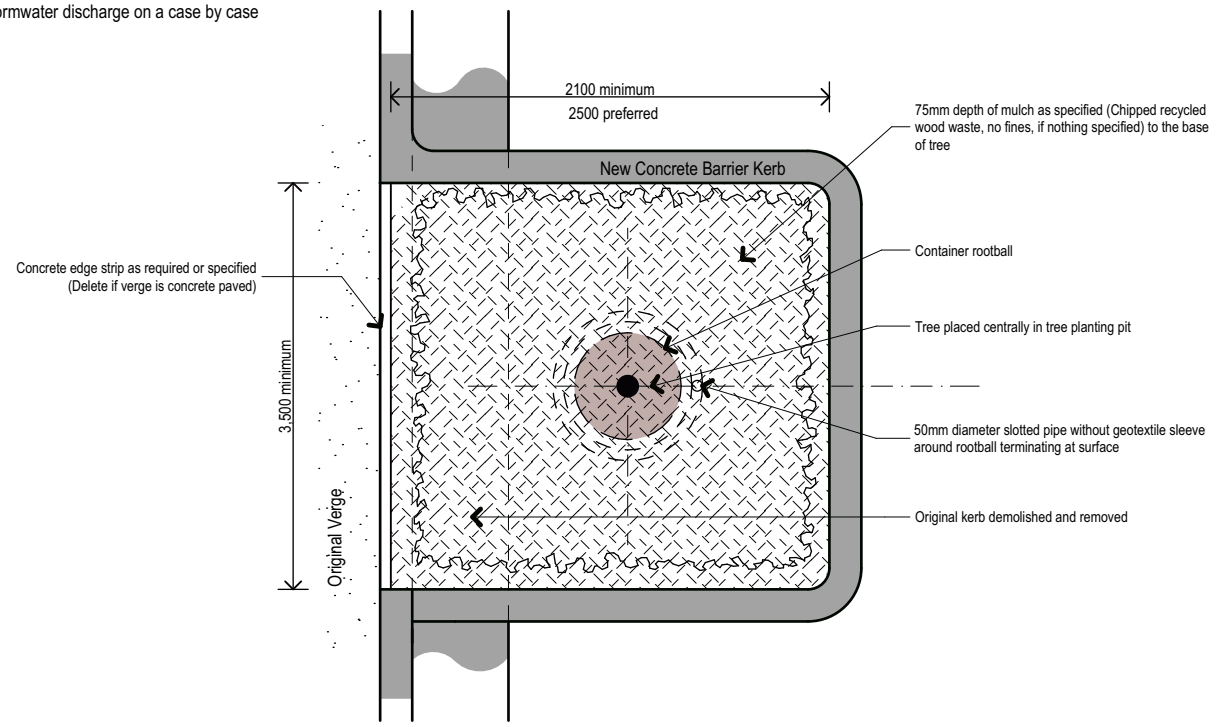
Scale 1: 25 @ A3

0 500 1000mm

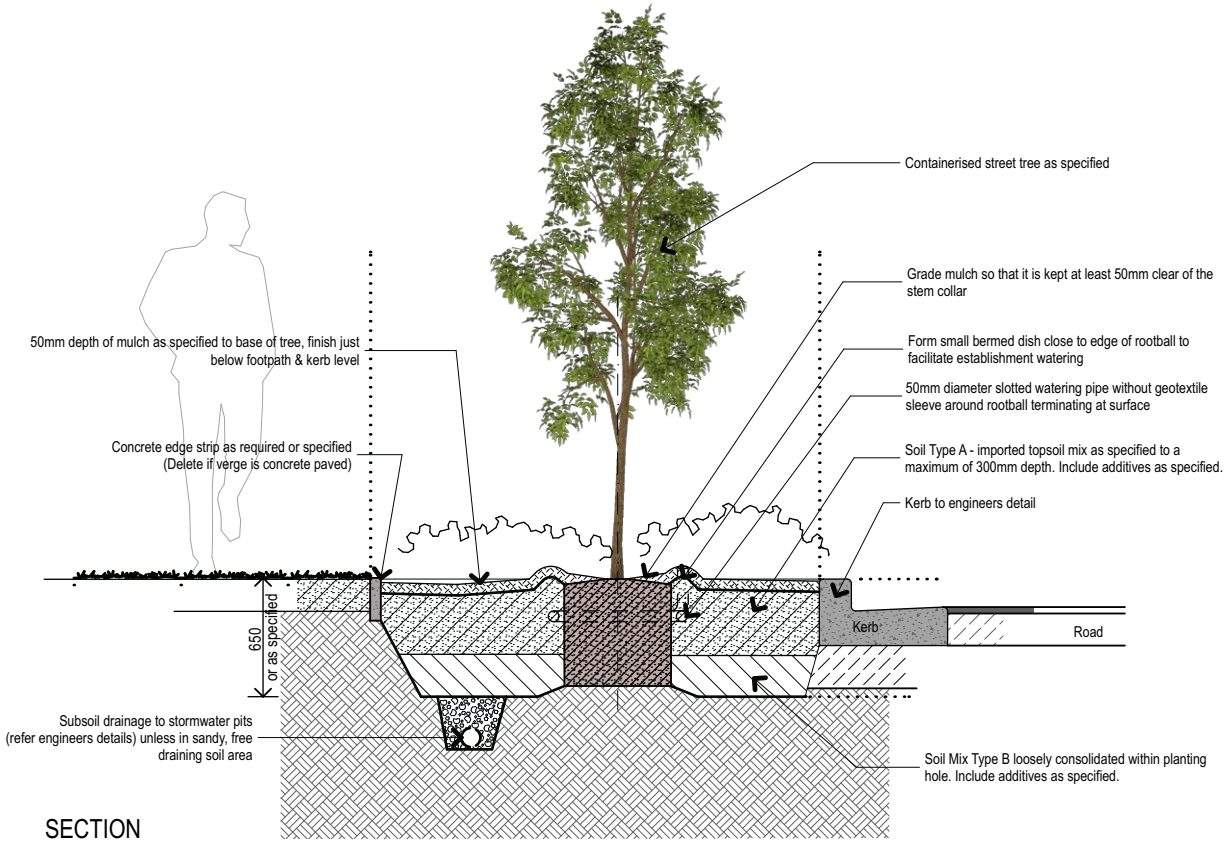
TYPE 10B - INDICATIVE TREE PLANTING WITH STRUCTURAL SUPPORT & CONTINUOUS TRENCH [SECTIONS]

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

NOTE 2:
All blister and kerb extension details are to be verified for adequate drainage and existing gutter stormwater discharge on a case by case basis.



PLAN



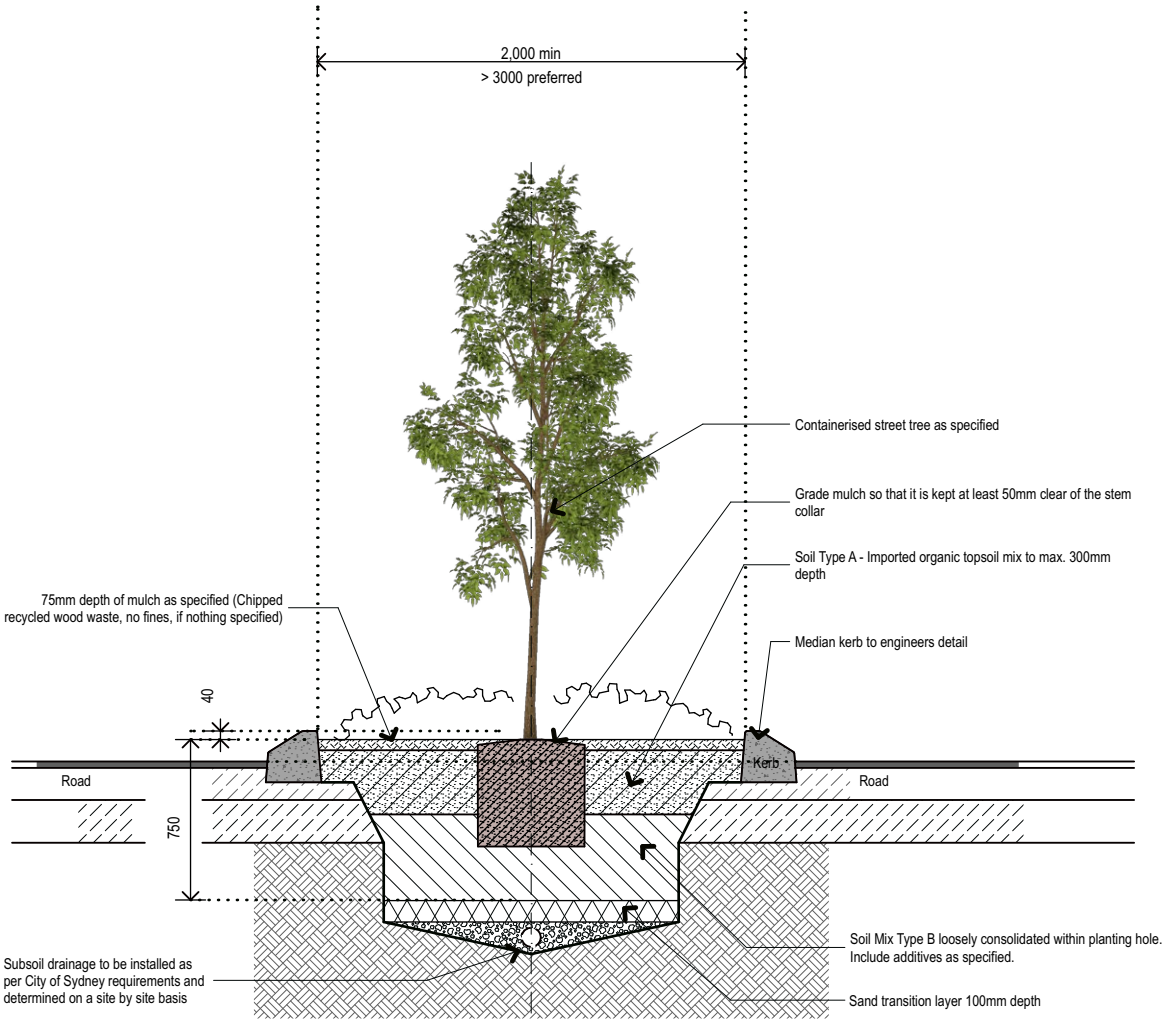
SECTION

Scale 1: 25 @ A3 0 500 1000mm

TYPE 11 - INDICATIVE TREE PLANTING IN-ROAD BLISTER

NOTE 1:
All details are to be read in conjunction with any site specific DA conditions or Council issued Contract Documentation.

NOTE 2:
All median details are to be verified for adequate drainage and soil depths on a case by case basis.



Scale 1: 25 @ A3 0 500 1000mm

TYPE 12 - INDICATIVE TREE PLANTING IN-ROAD MEDIAN