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Background

The Tree Masterplan is the third in a suite of three documents that will assist the future planning and management of trees in The Rocks and Circular Quay precincts.

The first document, Tree Policy 2010, was designed to guide the future management of tree assets across all management precincts. This strategy had various objectives including ensuring the long term sustainability of tree planting and asset management, improving community awareness of the value of trees in urban settings, managing safety and encouraging preservation. Generally the policy offers guidance to the competing challenges of trees seen as both an asset and a liability.

The second document is the Tree Asset Register a comprehensive audit of the status and condition of the approximately 900 trees within the Rocks and Circular Quay. This operates as a specialized database to be accessed by asset managers and horticultural staff.

The Tree Masterplan is the third in this series and sets a vision for species selection for the variety of spaces that make up the streets, laneways, courtyards and parks of The Rocks and Circular Quay. The basis of the Tree Masterplan is the framework of analytical criteria for assessing tree performance as well as establishing the principles for the location and variety of tree species.
Executive Summary

The Tree Masterplan is a visionary tool which sets out in a non-time specific environment, an idealised vision for trees in the Rocks and Circular Quay.

The Rocks is an eclectic urban environment with a complex network of spaces streets and parks which seem to call for specific approaches and defy categorisation. The Rocks Heritage Management Plan captures the unique values of The Rocks and its enduring fascination as a place of interpretation, described as follows:

‘Few areas in Australia are so rich in pointers to the nature and impact of European settlement, from the small terraces and merchants houses of the 1840s and 1850s to blocks and offices of the 1990s. In The Rocks, successive layers of urban development confront Sydney’s past - the life of convict households, publicans’ expansion plans, the habits of sailors and wharf labourers, the changing alignment of the waterfront - can still be read from archaeological advice, written and oral testimony and the very fabric and setting of many of the buildings’ (Godden Mackay Logan 2002 Vol 1, p.2)

The Plan has been prepared against a backdrop of heritage guidelines including the Burra Charter 1999 and other specific tree management guidelines including the Australian Urban Tree Charter 2008 which specifically sets out principles for urban tree management reflecting Burra Charter values.

The Plan is not to be interpreted as an ‘action plan’ to remove trees proactively but is a vision of how trees, when they reach their senescence, can be replaced in new locations to achieve the aim of re-exposing heritage fabric while maintaining a net or increased canopy cover for the precinct. Species choices are made within an environment of competing heritage, horticultural, environmental and urban design values being the most dominant. The urban
environment has been influenced by styles and fashions and this Plan seeks to harmonise a multitude of historical decisions by the selective addition, replacement and redistribution of trees.

The basis for tree selection is underpinned by an analysis of existing trees not only in terms of their appearance and condition, but also in terms of how they affect the visual urban environment. Criteria includes heritage considerations, impacts on archaeology, urban design principles including aesthetics and amenity, the potential for trees to become landmarks or placemakers and the relationship between trees and significant views and vistas. Environmental criteria include microclimate, modified soils, the impact of pests and disease, horticulture and facilities management. The quality and performance of particular trees, species over-use, culling self-sown trees and the importance of quality tree stock are additional considerations.

An analysis of historic tree planting and styles shows that in the early days of The Rocks, tree planting and gardens were limited to the ridge areas and other spaces were largely treeless. This in keeping with the 19th century industrial character. In the early 20th century, the trees most commonly used were Moreton Bay and Port Jackson Figs as well as Lombardy poplar, and a variety of garden plants. Generally, the pre WW11 period is characterised by predominantly built form with few trees.

The post-war period saw the gentrification of the Rocks and an increase in the use of a variety of palms including Washingtonias, Canary Island date palms and a variety of garden plants. Tree planting expanded from the 1960s' with a civic beautification regime that is still evident today. Examples include the Peppercorn Trees in First Fleet Park, bicentennial plantings such as the Jacaranda trees in both East and West Circular Quays and the extensive planting of Hackberry (Celtis australis) in key streets such as George and Hickson Road.
This Tree Masterplan sets out four key design principles to guide the selection of tree species.

The first principle is balancing tree selection and placement with the built heritage. Tree planting needs to work with the heritage significance of buildings and places. The Rocks has a significant number of heritage buildings demonstrating a rich past use and a spectrum of architectural styles as well as a series of urban spaces of scale and form that strongly define the character and quality of the precinct.

The Burra Charter and the Model Heritage Provisions for Local Environmental Plans (NSW Heritage Office 2000) state that trees should not have an impact on the setting of a heritage item, in terms of significant views to that item or from overshadowing. The key actions will be to position, frame and reveal the facades of buildings, items and places listed on the NSW State Heritage Register. Tree planting will be minimised in areas of high heritage value. Views and vistas will need to be maintained to all the key harbour icons of Bridge, Opera House, City and Harbour.

The second principle is to re-think the avenue. In the post-war beautification of The Rocks, there has been a gradual increase in tree planting, particularly formal avenue tree planting in Harrington and Gloucester Streets. Steps could be taken over time to redistribute trees to less sensitive locations so legibility of heritage buildings and public spaces can be dominant, whilst maintaining a net overall number of trees through the precinct. There should be an introduction of specimen trees to highlight particular places and vistas. Also there should be interplanting with new trees to promote sustainability.

The third principle is the enhancement of the aesthetics and amenity of the place for public enjoyment. Trees can help improve the amenity and aesthetics of an environment. The visibility of the highly sensitive foreshore spaces in The
Rocks are punctuated by trees contributing to the overall experience of viewing Sydney Harbour from various vantage points. Evergreen and deciduous trees help enhance seasonal change, and dense canopies serve as windbreaks. Trees can also be landmark plantings and assist in the defining of view corridors, and provide legibility and spatial definition to urban spaces. Examples include the Ficus var. hillii plantings in Dawes Point Park or the Phoenix palms in Hickson Road Reserve.

The fourth principle is to improve the life performance of tree plantings. In order, for trees to be sustainable in the urban landscape, the species must be carefully selected to thrive under the prevailing site conditions. Selection must be appropriate to topography, soil and microclimatic conditions. Tree selection needs to take into account species diversity to minimise impact from monocultures, risk of nuisance such as fruit and branch drop and detrimental impact on the environment such as weed infestation. Best practice tree planting requires consideration of ground conditions. High level maintenance is also important for improving tree performance.
Aim:
To create a vision for the long term management and renewal of tree assets across The Rocks and Circular Quay precinct.

Objectives:
Deliver a plan that will -
- Complement heritage values
- Embellish public amenity and aesthetics
- Deliver environmental improvements
- Guide best practice horticulture management
Approach

- Describe the criteria that will inform the selection, placement and successful establishment of trees with clear recognition of the successes and failures of existing trees

- Define design principles with objectives and actions to deliver a desired outcome

- Spatially apply and demonstrate the principles on a sub-precinct based approach

West side of Gloucester Street not planted with any trees, highlighting heritage facades. Planting of Brush Box to soften modern building intervention.

Hills Weeping Fig in Dawes Point Reserve showing the effects of wind and salt
Tree Planting Styles

Prior to European settlement the sandstone ridge that became known as The Rocks was probably home to trees of Blackbutt, Red Bloodwood, Sydney Peppermint, Smooth-Barked Apple or Angophora costata, and the occasional local conifer, the Port Jackson Pine. Port Jackson figs probably grew near the shoreline.

1800-1901

From 1788 the forest around Sydney Cove was cleared. Isolated remnant or regrowth eucalypts still appeared in early views of The Rocks. As larger houses were constructed, gardens were developed around them. The most prominent of these was the garden setting for Cumberland House (then called Cumberland Place) on the ridgeline. As the 19th century progressed landmark plantings of Norfolk Island pines featured in isolated locations. Vegetation was concentrated along the ridgeline and around the residence attached to the battery near the end of Dawes Point. The trees were mostly Moreton Bay or Port Jackson figs, which were admired for their dark glossy foliage and umbrageous forms. Other trees include Lombardy poplar, peach which was plentiful throughout early Sydney gardens, banana, loquat, African olive and, in the late 19th century, Kentia palms.

Over all, The Rocks was characterised by built form with few trees.
1902-1965

In 1908 Dawes Point Reserve trustees were appointed to oversee improvements and the flat portion east of Hickson Road was planted with Canary Island palms. Trees with a sub-tropical appearance were chosen in this period. Examples include George Street, which was planted with Washington Palms in front of the Commissariat stores. In 1917 Essex Street was planted with Washingtonias. A specimen of the same palm was planted in the garden of Cadman’s Cottage during this period. Following the completion of the Sydney Harbour Bridge, the Dawes Point Reserve was replanted during the 1930s and 1940s. The new trees supplemented the Canary Island palms that survived the bridge construction and re-enforced their sub-tropical characters – Senegal date palm, giant bird of paradise and an avenue of Hill’s fig were chosen. By 1959 street trees were well established in Argyle Street. There was further disruption to The Rocks with the construction of the Cahill Expressway. On its completion the construction of a park and the adjacent Circular Quay West esplanade commenced in 1963.

During the first part of the 20th century, The Rocks saw major changes with street re-alignments and the construction of the Sydney Harbour Bridge. Despite beautification works around Dawes Point Reserve and the principal streets in The Rocks, it remained characterised by predominantly built form with few trees.
1965-2008

In 1972 a distinctive band of peppercorn trees were planted on the George Street side of First Fleet Park and by 1973 street tree planting of Plane trees from the 1950s in Argyle Street was sufficiently mature for the canopies to almost meet across the street. Raised planter boxes made from railway sleepers were installed in Playfair Street in the 1970s. By 1989 planting along Circular Quay west and the foreshore parks included a large and impressive fig tree, jacarandas, eucalypts and casuarinas. A 1990 planting program of cabbage palms around Circular Quay was inspired by similar vegetation that is thought to have grown along the watercourse (the Tank Stream) that fed into Sydney Cove.

During this period The Rocks remained characterised by built form but had an overlay that was the result of an enthusiastic beautification program. This included the addition of street furniture and tree planting of peppercorns, eucalypts, casuarinas, jacarandas, hackberry (Celtis australis), Norfolk Island hibiscus, water gum and New Zealand Christmas tree.
Parks of The Rocks

The Rocks evolved as the place of first settlement, its form arising from the needs of military security, maritime commercialism, public administration and cheap residential opportunities. It is a place strongly connected with the struggles of early colonialism to establish and survive as a far flung outpost of the British Empire. In this respect its urban form was based on purely functional needs and there was little consideration of public recreation or the protection of natural resources. The Rocks is also a physically challenging landscape with steep slopes and shallow soils which do not lend themselves to public parks and quality tree establishment. However, over time public parks have arisen in amongst the tightly connected hard urban spaces and have a mixed providence in respect of their origins and the way they evolved.

Today there are four public parks in The Rocks:
1. Dawes Point Park including Hickson Road Reserve
2. First Fleet Park
3. Foundation Park
4. Bligh and Barney Reserve
The following is a ‘potted’ history of each of these parks.

Dawes Point Park

Dawes Point Park is a remnant of an area set aside for military activities in the very earliest days of the settlement. The area was originally known by the Aboriginal name of Tar-ra. Lieutenant Dawes of the First Fleet, established an astronomy and positioned field artillery here in 1788. In 1791 a “permanent” battery was established, and in 1820, Governor Macquarie commissioned Francis Greenway to design a fort and gun emplacements to protect the harbour from Britain’s enemies at the time. It never engaged in any active service. By the turn of the 20th century, it was of no further use as a fortress and was briefly given over as the living quarters of the commandant of the newly formed Australian Military. Early 20th century photographic images of Dawes Point show all the natural vegetation cleared away and planted Moreton Bay fig trees as the predominant vegetation and generally around the southern sides of the fort. These trees probably date from the Charles Moore period 1848 to 1896 and planted at a similar time to the Observatory Hill and Domain fig plantings. The military was removed from Dawes Point after 1903 with the promise the lands would be given over to public promenade. Pathways around the lower battery were constructed and fence surrounded the
former military buildings which were used for Water Police offices and
a trades school. During this time a set of stairs was constructed leading
to Hickson Road (c1912-3) which still survives, and a Moreton Bay fig
planted nearby which also survives. The construction of the Sydney
Harbour Bridge in the 1920’s facilitated the removal of the former military
building and the removal of most plantings. The formal creation of
Dawes Point as a public park followed two years after the opening of the
bridge, in 1934.

Bradfield has little to say in respect of his landscape restoration following
bridge works, other than to allude to ‘Italianate’ style of formal garden
as being appropriate. There is no evidence of any concerted effort in
constructing gardens at the time, other than clumps of Bird of Paradise,
Strelitzia sp and Date Palm, Phoenix reclinata on either sides of the main
pylon; these species being popular public plantings during the 1920s
period. The main Hills Weeping fig avenue dates from the 1935 while the
Norfolk Island Hibiscus along Lower Fort Street probably date from the
1970s.

Hickson Road Reserve is an integral part of Dawes Point Park separated
from the main part of the park by the construction of Hickson Road
in 1911-12. The Park appears to have been essentially grass with tree
and palm plantings. The Date palms, Phoenix canariensis and clumps of Bird of Paradise appear in photographs from around 1910 to 1920 which suggest an involvement of Joseph Maiden, Director of the Botanic Gardens at the time and a great exponent of palm planting around Sydney, particularly this species. It is likely there were also fig trees as part of the planting which appear as dominant plantings in aerial photographs from 1951 but were gone by the 1980s when the adjoining Park Hyatt Hotel was constructed. Two of the original Date palms were lost from bird attack and replaced in 2006 and another palm was relocated from the centre of the park to the perimeter colonnade to make way for expanded event activities at that time.

A large Hills Weeping fig, probably dating from 1930/1950 plantings was also lost from disease in 2006 and replaced with a Port Jackson fig.

First Fleet Park

This park, originally designed in 1938, arose from the demolition of the Commissariat Stores and the construction of the Maritime Service building (now MCA) which was not completed until 1953. The 1938-53 construction eliminated the former Queen’s Wharf/ Barton Street as well as the buildings directly to the south and allowed for a consolidated piece of open space to be created much as seen today. There were more
reconfigurations in 1990-91 when Circular Quay West (extension of Pitt Street) was partially removed, which allowed the park to expand forward and connect directly with Circular Quay as a pedestrian promenade; the George Street edge was redefined and new internal pathways created. Aerial photographs from the 1960s show very little tree establishment, some random plantings but little distinguishable canopy evolving. The Pepper tree, appear along George Street in the late 1960s and by 1978 are well established but still appear to be generally alone as parkland canopy. The 1990 overlay made significant changes to the planting character with the introduction of many palms and trees. Palms were introduced as feature clumps and trees were introduced to try and soften the visual impact of the Cahill Expressway and possibly the southern side of the MCA which is now dominated by large Hackberry.

The Jacaranda feature planting along the promenade dates from this period but has failed to prosper in this environment and continue to appear as poor specimens. Garden flower beds were also introduced at this time. The park has accumulated an eclectic variety of plants which now generally block views to the harbour from surrounding streets.
Foundation Park

This park was established in 1972 but has its origins as a vacant block of land following building demolitions in 1932-4. Like many sites demolished in the mid-20th century it remained economically unviable for redevelopment until after the creation of the Sydney Cover Redevelopment scheme the late 1960s. Aerial photographs from the 1960s and 70s show scrub which is most likely to be a mix of weed and native regeneration typical of abandoned demolition sites. The Pepper tree, which today dominates the centre of the park is of a similar era to the Pepper trees in First Fleet Park and probably dates from its conversion as parkland in 1972. The site was excavated in 1994 for archaeological remains and some of the findings were integrated into the interpretive landscape that is a feature of the park today. The more recent plantings of Jacaranda and citrus species are from this period and aim to present domestic type plantings that would have been typical for the type of residential dwellings here prior to 1932. The park is small in scale, offers quiet reflective qualities and has a strong interpretive overlay.

Bligh and Barney Reserve

This park arose from the demolition of the overhead vehicular bridge that linked George Street with the former southern end of the Overseas Passenger Terminal (OPT) in 1986. The site had traditionally been a place of buildings including a Bond Store that dated from c.1820. The park is intrinsically linked...
with Cadmans Cottage and provides space and setting for the cottage. The plants date from the 1980s period onwards including Poplar, Populus sp. along the Argyle Street edge, palms and gum trees along the George Street edge and Sheoak, Casuarina around the cottage itself. The park is home to sculptures and memorials to both Governor William Bligh and engineer Major George Barney, hence the park’s unofficial name. It is small in scale, passive in nature and offers some sense of recluse for visitors.

Essex Street Park

This park was created in 1917, by the Sydney Harbour Trust by blocking vehicular access between George and Harrington, Harrington and Gloucester and Gloucester and Cumberland Streets. The park featured sandstone retaining walls, edging elements and Mexican Fan Palm, amid lawns. The last section was removed in 1991 and the street reopened. Some landscape elements and a number of palms were relocated to the pedestrian paths on the edge of the street.
Tree Selection Criteria
Heritage

Historic Background

- Recognition that The Rocks and Circular Quay had a sparseness of trees until the post WWII modern period and tree plantings were confined to the ridge line

- Recognition that the current parklands, First Fleet, Bligh & Barney, and Foundation Parks are a modern intervention and were previously hard urbanised landscapes

- Significant heritage fabric has been progressively obscured by the encroachment of tree canopy

- The introduction of new architecture and canopy has ‘gentrified’ the visual character from its 19th century industrial roots

- The need to challenge the appropriateness of formal traditional avenue planting style and plant types for the post-industrial landscape of The Rocks.

Tree Selection Criteria
Archaeology

- Recognition that the root systems and canopy can have significant structural and maintenance implications for the conservation of heritage fabric, both buildings and public domain items.
Urban Design

- Trees make a significant contribution to the aesthetics and amenity of the public domain for visitor enjoyment - trees provide shade, filtered light, colour and form to enrich the public experience.
- Iconic trees can make and define a special place or accentuate spatial quality.
- Some self-sown trees become landmark plantings due to the context of their surroundings and intriguing manner of their growth habit - natural forces in action.
- Scale and density of tree canopy can be used to accentuate an appreciation of a place, however if the species is too large or dense, legibility and proportion can be diminished and overshadowing arises.
- Views and vistas can be progressively compromised by canopy.

Tree Selection Criteria
Environmental

- The impact of wind and salt arising from waterfront can severely distort the form and vigour of trees unsuited to such locations.
- The impact of micro-climate, particularly overshadowing from surrounding buildings force an elongation of the tree form in search of light.
- The Rocks has highly modified soils and drainage patterns which impact on tree form and performance.
- Trees provide effective shading of hard surfacing.
- Species selection to be more tolerant of drought conditions which will be a factor in the future.
- Species selection that focuses on trees with good structural integrity over its life is important for public safety.
- Stressed trees are susceptible to pests and diseases.
- Three provide a valuable means of lowering ambient temperature of roads and pathways contributing to a cooler urban environment.

Tree Selection Criteria
Horticulture and facilities management

- The long term quality and performance of a tree is often determined at the time of planting, good ground preparation, formative pruning and regular maintenance
- Single species overuse results in a monoculture leading to risks of pests and broad scale failure
- The need to be more vigilant in culling self sown trees that ultimately become established where not desirable, creating an unplanned landscape
- Quality tree stock at time of planting has a significant role in delivering a quality established tree in the long term
- The selection of tree species that are hardy performers with recognised longevity are preferred
- Large tree species in confined spaces accentuate the problems of structural damage and higher maintenance of guttering, drainage systems and cause damp conditions

Tree Selection Criteria

Brush Box on Gloucester Street showing good formative pruning and spacing and visually softening new infill

Failed ground treatment on Argyle Street
Design Principles
Aim: Balancing trees with heritage

Key Objective:
- The selection and placement of trees will primarily respond to heritage significance of the place, building or its curtilage

Actions:
- Tree plantings will be positioned to frame and reveal the facades of buildings, items and places listed on the NSW State Heritage Register
- Maximise tree planting opportunities in locations with low heritage impact
- Maintain significant views and vistas from The Rocks to iconic items such as the Opera House, Bridge, City and Harbour
- Tree locations will need to carefully consider archaeological sensitivities, particularly in respect of future root damage
- Tree plantings may not be appropriate in heritage places, which have no history of tree planting, and would affect an appreciation of the place and its curtilage
- Tree and tree patterns that have a long association with an historic building, park or place should be retained or replaced

Design Principles
Aim: Rethinking the avenue

Key Objective:

- To reduce the formality and density of avenue style planting by introducing species diversity, reducing the number of trees obscuring heritage items and enriching the urban experience

Actions:

- Design the avenue trees so the legibility of the buildings and public domain can be dominant whilst maintaining a softening of modern interventions
- Introduce occasional specimen trees to highlight particular places, views and vistas
- Interplant with new species where opportunities arise to expand species diversity and promote sustainability

Design Principles

- Hackberry on George Street blocking appreciation of heritage façade
- Hackberry on Hickson Road - scale and form inappropriate to the setting
Enhancing places for public enjoyment

Objective:

- The use of trees to improve amenity and aesthetics for pedestrian health and enjoyment
- To ensure a sustainable tree canopy is distributed throughout The Rocks and Circular Quay.

Actions:

Amenity

- Utilise both evergreen and deciduous trees to provide summer shade and winter sun opportunities in people gathering places
- Use dense canopy species in windy people places to create windbreaks as required
- Use trees to shade large areas of pavement to reduce heatloads and reflectivity.

Aesthetics

- Use landmark type trees to accentuate the definition of topography, meeting points and heritage fabric using trees as “place makers”
- Use trees to highlight iconic views and vistas including the Opera House, Bridge, City and Harbour
- Use deciduous trees for seasonal change and variety of colour and canopy branching

Design Principles
Addressing technical requirements for healthy trees

Objectives:
• To improve the whole of life performance of tree plantings

Actions:
• Select tree species most appropriate to site topography, soil and microclimate conditions
• The application of best practice tree planting technology, being mindful of in-ground services and highly modified ground conditions
• To deliver high levels of maintenance during the initial years of establishment for best long term performance

Design Principles

George Street - Granite sets with infill of 7mm crushed basalt with terrabonded gravel suggests an appropriate urban finish

Harrington Street - Narrow concrete pit edging with deco granite infill - surface finish impermeable, rootball constrained by kerb
Typical Existing Tree Planting in Asphalt Paving

**Plan** scale 1:20

- **Flush galvanised steel right angle edge**
- **100x100x40 bluestone setts**
- **Existing tree**
- **85mm depth bluestone gravel as specified with top layer**
- **40mm terrabond with mix ratio 2.5-3.0 kg/sqm**

**Section** scale 1:20

- **100x100x40 thick rough bluestone setts - all joints to be max. 15mm wide filled with blue metal**
- **Flush galvanised right angle edge**
- **100mm depth clean blue metal**
- **Incorporate root cells loaded with topsoil (if possible)**
- **Existing soil**

**Existing subgrade**

**Planting Pit**

**Depth Varies**
**PLAN** scale 1:20

- 85mm depth bluestone gravel as specified with top layer
- 40mm terrabond with mix ratio 2.5-3.0 kg/sqm
- New tree
- Kerb
- 100x100x40 bluestone setts
- Flushed galvanised steel right angle edge

**SECTION** scale 1:20

- 85mm depth bluestone gravel as specified with top layer
- 40mm terrabond with mix ratio 2.5-3.0 kg/sqm
- Twinwall geonet geotextile
- Existing subgrade
- Agriculture line to meet existing drainage
- New tree
- Sub-base varies

**Typical New Tree Planting in Asphalt Paving**