



Department of
Primary Industries
Catchments & Lands

MARRICKVILLE
council

Enmore Park

plan of management + masterplan

ENMORE PARK PLAN OF MANAGEMENT

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This plan of management revokes and replaces all previous plans of management.

Council in its capacity as Reserve Trust Manager endorsed the Plan of Management at Council Meeting 17 August 2010 C0810 Item 6.

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1.1 Background

The Enmore Park draft plan of management was commissioned and funded by Marrickville Council to review and update the previous plan of management document (1991) and consider and incorporate proposals for upgrading of the Annette Kellerman Aquatic Centre. The draft plan of management was undertaken by a consultancy team led by Landscape Architectural consultants Environmental Partnership. The team included specialist inputs from Mayne-Wilson and Associates, in preparation of a Historical Overview and Conservation Management Strategy for the Park.

This plan of management revokes and replaces all previous plans of management.

Development of the Annette Kellerman Aquatic Centre has run concurrently with the draft plan of management and Masterplan study. A design scheme for the Aquatic Centre was resolved in March 2009, and the finalisation of the draft PoM and Masterplan has incorporated and responded to this design.

Enmore Park is Crown land (State owned), managed on behalf of the State by Marrickville Council as Reserve Trustee. The park is reserved for the purposes of **public recreation** and the plan of management, along with any proposed leases and licences for use of the park, must be approved by the Minister administering the *Crown Lands Act 1989*.

Enmore Park presently comprises an area of approximately 4 hectares of open space, which lies between the town centres of Newtown and Marrickville. The park is a significant component of the local open space network, and is historically important as the first park to be established in the Municipality of Marrickville. The park was originally campaigned for by local residents, who demanded park provision in the context of growing residential development. The park was officially proclaimed in two sections, in May 1886 and October 1893, and the original area (4ha) remains intact.

The plan aims to provide a basis for guiding Council's ongoing enhancement and maintenance of this important open space and provide a suitable guide for day to day and long term decision making.

1.2 Land to which this plan applies

This plan of management applies to Enmore Park, located on Enmore Road, Enmore. The park is bounded by Enmore Road to the west, Llewellyn Street to the north, Black Street to the east and Victoria Road to the south.

1.3 Consultation

Consultation for the draft plan of management was coordinated separate of the plan study team by KJA Consultants for Marrickville Council.

This consultation was undertaken as part of an integrated programme addressing proposed upgrades at Enmore and Petersham Parks, and aiming to respond to both park specific and general open space / recreational factors that need to be considered by Council.

The community has also been involved in consultation regarding the detailed design and development application process for the Annette Kellerman Aquatic Centre redevelopment as well as the design of a new playspace and surrounds to the south east corner of the park.

The draft plan of management will also be subject to public exhibition in accordance with Section 113, *Crown Lands Act 1989* Crown Lands Management requirements prior to submission for approval by the Minister administering the *Crown Lands Act 1989*.



Figure I
Study Area

April 2010



1.4 Structure of the Plan of Management

The plan of management is presented in three parts:

Part A – Plan of Management

2 Basis for Management

Review of Crown Land management requirements and how this plan satisfies the requirements of the *Crown Lands Act 1989*.

3 Management Strategies

An overall planning and management vision for Enmore Park, upon which Detailed Management Policies are provided in practical categorisations relevant to open space management.

4 Concept Masterplan

Identification of planning principles and concept masterplan in response to the identified visions for the park, providing a basis for ongoing development of park improvements.

5 Implementation

Prioritisation of actions required for the implementation of strategies including potential funding / management responsibilities, and possible funding sources.

Part B – Management Strategy Framework

6 Management Strategy Framework

Provides the rationale for development of planning and management strategies, along with monitoring and evaluation targets.

Part C – Background

7 Review

Review of the existing physical and cultural character of the site as a basis for identification of values, desired outcomes and issues, and subsequent development of planning and management strategies.

8 Relevant Background Information

Appraisal of literature, reports, and studies relevant to the plan of management process, along with an identification of key implications of legislation and guidelines pertaining to the Park.

9 Appendix

Supporting documentation and related information

1.5 Crown Land management requirements

Enmore Park is Crown land reserved for public recreation in accordance with the *Crown Lands Act 1989*. This plan of management identifies how the park is to be managed in accordance with its purpose public recreation and in accordance with the principles of Crown land management (refer section 2.2).

The Catchments and Lands Division of Department of Primary Industries, land management philosophy is based on the principles of Crown land management as listed in Section 11 of the Crown lands Act 1989. These principles affect all aspects of land management activities and underpin major elements of land assessment, reservation / dedication of land and preparing plans of management. The principles are outlined in Part C of the plan of management – Planning Context (section 8.3).

Provision has been made for existing and new facilities to be leased and licensed to commercial operators or special interest groups in accordance with the Crown Lands Act requirements as listed in Crown Lands Policy for Food and Beverage Outlets on Crown Reserves (refer section 3.2.7 Leases and Licenses). The draft plan of management observes appropriate reserve policy applicable to the site along with relevant land management case law in respect of acceptable uses on public recreation reserves.

The Minister administering the *Crown Lands Act 1989* must always give consent before a reserve can be leased or licensed (refer Section 102, *Crown Lands Act 1989*). However, a Trust Manager may grant a temporary license for prescribed purposes (refer Section 108, *Crown Lands Act 1989*)

Council notified the Catchments and Lands Division of Department of Primary Industries of its intention to prepare a plan of management for the reserve in accordance with Section 112, *Crown Lands Act 1989*, and approval to do so was provided by the Minister. The draft plan has been prepared in consultation with the Catchments and Lands Division of Department of Primary Industries and will be placed on public exhibition for a minimum period of 28 days. Following the exhibition and consideration of public comments, it is proposed that Council may amend as necessary, and seek formal adoption of the plan by the Minister administering the *Crown Lands Act 1989*.

1.6 Study Area at a Glance

The information following outlines key management details for the park.

ENMORE PARK	
Reserve name and number:	Enmore Park Dedication 500327
Address:	Enmore Road, Marrickville
Key components:	Lot 7024, DP93582 Parkland and Swimming Pool complex
Ownership:	State of NSW as Crown Reserve administered by the Catchments and Lands Division of Department of Primary Industries under <i>Crown Lands Act 1989</i>
Trust Name:	Enmore Park D500327 Reserve Trust Marrickville Council manages the affairs of the trust
Care, control, management:	Marrickville Council
Area:	4 Ha
Zoning:	6a Open Space, Heritage Item Marrickville LEP 2001
Assets:	Annette Kellerman Aquatic Centre, Enmore Children's Centre, playground, bus shelter, paths, lighting, furniture
Condition of buildings:	Swimming pool: redevelopment under construction Enmore Children's Centre: fair condition
Existing uses:	Passive recreation: picnics, walking, swimming, dog walking Active recreation: swimming, informal ball games, Childrens Centre
Leases / licenses:	Annette Kellerman Aquatic Centre License – 5 year with 10 year option (2006-2011) Licensee – Belgravia Leisure
Caveats / easements:	Future easement for Annette Kellerman Aquatic Centre substation

1.7 Objectives

Objectives as identified in the Management Strategy Framework (refer 6.1.2) respond to the overall vision for Enmore Park and were developed through a synthesis of values along with study team investigations and previous studies of the site:

Enmore Park is to be conserved as a landscape and recreational setting for its local historical and social significance, and improved in its recreational and landscape amenity to better meet community needs

Objectives provide a basis for long term decision making in the park along with a framework evaluation for potential planning and management strategies.

Summary Objectives

- **Natural Environment**
Protection and enhancement of the park's natural character of tree canopy with improved soil conditions to areas of compaction and related poor grass coverage.
- **Heritage**
Identification, interpretation and protection of Aboriginal and European cultural heritage values.
- **Visual**
Positive views and vistas within and to the park conserved and enhanced along with visibility and sightlines for park users, whilst poor views and outlooks addressed where feasible.
- **Social / Cultural**
The park's historical role as a setting and meeting place for local and wider visitor interaction and events is conserved and enhanced.
- **Recreation / park use**
Sustainable recreational roles and functions of the park are conserved and enhanced with adequate facilities to meet user needs, compatible with other park values and objectives, and within the carrying capacity of the park setting.
- **Education**
Visitor / user awareness of the site's cultural significance is improved.
- **Intrinsic**
Conservation of the park for the use and enjoyment of future generations along with improved quality, amenity, and safety of access through the park.
- **Management and maintenance**
A sustainable, clean, and well kept park with appropriate leasing of Crown land for community use.

1.8 Key recommendations of the plan of management

The plan of management has developed key recommendations in response to the values, objectives and issues identified through the planning process.

- 1) Consolidate the function and landscape character of the 4 park quadrants including:
 - West** Passive parkland with garden character extensive tree canopy and good quality groundcover to lowest lying area of park
 - North** Retain open kickabout character and suitability for event gathering space whilst improving grass and general landscape quality
 - East** Consolidate facilities to optimise relationships and to provide visual buffer / transition from pool facility to the other park areas
 - South** Optimise as local family use area with good relationship to adjoining areas including mixed character of smaller open grassed spaces with good shade cover
- 2) Recognise the primary pedestrian access routes from Enmore Road to the eastern corners of the park
- 3) Recognise and address existing pedestrian desire lines:
 - along northern and southern edges of park
 - from heritage bus shelter to northern pathways
- 4) Remove visual obstructions from formal access paths (central planted features) to:
 - reinforce visual links and 'sense of space'
 - improve securityNote: This could include reinstating a water element to the central park node.
- 5) Upgrade park entry points to conserve heritage elements and reflect value of use
- 6) Simplify and unify pavement and wall materials where compatible with heritage objectives
- 7) Review and improve quality and character of general park materials and treatments where possible
- 8) Rationalise furniture provision to those locations where it will be used and is integrated with overall masterplan
- 9) Provide for sustainable formalised event use to enhance community values and promote interaction whilst managing impacts
- 10) Pursuant to s.112A of the *Crown Lands Act 1989*, this plan of management authorises Reserve D500327 be used for the "additional purpose" of "Community Purposes".

1.9 Implementation

The Management Strategy and Action Framework identifies priorities for planning and management strategies. The proposals outlined in the Concept Masterplan comprise a range of potential improvements with varying community and environmental priority. The Works Action Plan assigns priority to the proposals based on those, which are of most immediate community and environmental benefit, and are practically implementable.

The Concept Masterplan is the culmination of potentially three phases of park upgrading, itself representing Phase Three – Long Term (refer Figure 4.2).

Phase One Priorities

- Further investigations:
 - Aboriginal Heritage Investigation
 - Interpretive Strategy
 - Park detailed design / documentation
- Annette Kellerman Aquatic Centre redevelopment (underway)
- Park elements related to pool complex refurbishment:
 - Grassed terrace
 - Pool forecourt and plaza space
 - Café terrace
- East-west path upgrade
- Rocket play space upgrade (commencing May 2010)
- Picnic area upgrade

Phase Two Priorities

- Rondel upgrade
- Llewellyn Street and Victoria Road frontage works
- Enmore Road to Llewellyn Street / Black Street intersection path upgrade
- Northern slopes grassed area improvements
- Enmore Road frontage works / improvements
- New picnic shelter

Phase Three Priorities

- Rondel planting displays
- Reinstatement of radial planting displays
- Bus shelter path link
- Heritage entry improvements
- Relocation of Children's Resource Centre

Ongoing maintenance and tree management

Ongoing works to address day to day maintenance and replacement of fixtures and furniture as required. This should have regard for prioritisation of major capital works that will integrate replacements to specific areas of the park

Implementation of tree management recommendations (refer Appendix C), and lighting recommendations (refer Appendix E) should also be ongoing as funding allows, with regard for safety recommendations in those reports.

Part A
PLAN OF MANAGEMENT

2.0 BASIS FOR MANAGEMENT

The basis for management describes the process that has determined management strategies for the site. This includes relevant consultation and the identification of values and desired outcomes.

Supplementary information which forms part of the basis for management including:

- *Methodology*
 - *Consultation*
 - *Introduction to community values and desired outcomes*
- is provided in Appendix A.*

The following descriptions focus specifically on future management of the park and the response of the document to the relevant legislative controls.

2.1 How this plan of management satisfies the principles of Crown land management (s.11 of *Crown Lands Act 1989*)

The *Crown Lands Act 1989* defines management principles for Crown Lands. The following table summarises the key principles and identifies how the plan of management adheres to them.

Principle of Crown land management	How this plan of management is consistent with the principles
a. Environmental protection principles be observed in relation to the management and administration of Crown land.	a. The future DA process will enforce principles of sustainability and environmental protection measures such as erosion and sediment control during construction of any major improvement works (eg. pool refurbishment)
b. The natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible.	b. The plan identifies conservation of the park as open space, along with improvement and enhancement of its inherent natural and cultural elements (tree planting, etc.)
c. Public use and enjoyment of appropriate Crown land be encouraged.	c. The plan will facilitate greater public use and enjoyment of the park through enhanced quality of active facilities and passive recreation spaces for general public use, improvements to landscape amenity, increased safety measures and enhancement of cultural landscape interpretation
d. Where appropriate, multiple use of Crown land be encouraged.	d. The plan formalises the existing combination of a generally passive, non organised recreational use park integrating the public pool facility. In addition event use to enhance community vibrancy and interaction is provided for.
e. Where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity.	e. The plan seeks to conserve and improve the park for the enjoyment of current and future generations
f. Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.	f. This plan of management contains use and leasing prescriptions that would ensure principal tenants act in the best interest of the State

3.0 MANAGEMENT STRATEGIES

Management visions and policies will provide Council and those involved in management and maintenance of the open space with a framework for decision making and design and implementation of open space improvements.

3.1 Vision

Visions encapsulate the overall planning and management directions to be pursued. The overall vision for Enmore Park was developed through a synthesis of values as identified in study team investigations, community consultation and the 1991 plan of management.

Overall Vision:

Enmore Park is to be conserved as a landscape and recreational setting for its local historical and social significance, and improved in its recreational and landscape amenity to better meet community needs

3.2 Detailed Management Strategies

The Management Strategy Framework provided in Part B Section 6.1.2 outlines a comprehensive series of strategies in response to the identified park values and the range of planning and management issues that need to be addressed.

The following management policies further detail the broad strategies as identified in the management strategy framework as specific requirements and guidelines, and are listed within the open space management categories into which they will fall for day to day Council decision making, planning, and programming.

3.2.1 Heritage

General

The park is to be conserved in recognition of the following statement of significance as provided in the Conservation Management Strategy (Mayne-Wilson and Associates, 2006):

Enmore Park has local historical and social significance as the first public park to be established in the Marrickville area, following a petition from local residents. It is much used and esteemed by the local community, and its original layout and fabric is mostly intact. It is representative of many late Victorian era public parks in the Sydney region created under the impetus of the Public Parks Movement of the 1880s and embellished, possibly through funding under the Unemployment Relief Works, in the early to mid 1930s.

Policies will support conservation of its key fabric and community role whilst integrating necessary improvements to design materials and management to support community use.

Detailed Policies

1.1 Aboriginal Cultural Heritage

Limited information is available on Aboriginal cultural heritage specifically relevant to the Enmore Park site. As such it is suggested that oral history and general research is undertaken to develop:

- specific Aboriginal cultural heritage statement of significance
- further investigate key potential themes for local area
- identify potential interpretive themes / stories for integration into park interpretive strategies for both Enmore Park and the district generally

The following detailed heritage policies are derived from the Conservation Management Strategy for Enmore Park prepared by Mayne-Wilson & Associates. Refer to the detailed report (Appendix B) for full recommendations.

1.2 Paths

The existing paths date to various periods of park development, and also relate to varying intensities of use. Notably the main path from Enmore Road to the centre of the Park is considered to be of high significance due to its role as the main 'collector' path and appears to have been retained at its original width. However the path from the centre of the Park to Black Street adjoining the pool complex has been evaluated to be of low significance, due to its later inclusion in the Park (constructed after 1970).

Generally it is recommended that paths are retained in their current locations and widths maintained. The asphalt surface with concrete kerb is considered appropriate to the period of path formalisation (1930's, 1940's). However in the context of other objectives such as accessibility and infiltration of stormwater runoff, the removal of existing kerbs would achieve a number of park benefits.

1.3 Trees

Trees have been planted at various stages of park development and are of a variety of species and quality.

Trees to the following areas should be conserved and maintained by a skilled arborist:

- Fig trees to the corner of Black and Llewellyn Street
- Fig trees to corner of Llewellyn Street and Enmore Road
- Fig trees and Brushbox along the Enmore Road frontage
- Fig trees and Brushbox around the Park's southwestern corner
- Fig trees, Brushbox and other species fronting Victoria Road
- Mature Fig tree and grove to southeast corner
- Group of mature trees in the northern lawn area
- Row of Livistona Palms extending from Enmore Road to centre of the park should be retained as they are representative of a similar palm planting removed around the late 1940's. More recent plantings extended the avenue to Black Street. Palm specimens affected by the Annette Kellerman Aquatic Centre development have been transplanted to consolidate the existing row on the southern side of the Black Street path.

Species selection and new planting locations should consider the heritage values of the park while also taking into account:

- potential impact of canopy on park lighting
- proximity to pathways
- maintaining open sight lines for passive surveillance

1.4 North Western Entry Gateway

Built in the late 1930's as part of a substantial upgrading of the park. It appears to be retained in its original form, although the two top pillars were not present in the photo of the item taken after its completion. The brick paving to the front of the gateway may date back to its construction, when brick edging was seen around this street corner.

- Retain as existing and confirm original location of two blocks on the top of the gateway.
- Repair damaged sections as required and as advised by a conservation architect.
- Consider retention of brick paving in front of gateway.

1.5 South Western Archway

Sandstone archway built in the late 1930's as part of a substantial upgrading of the park.

- Retain as existing. Confirm existing composition reflects original design and construction.
- Repair damaged sections as required and as advised by a conservation architect.

3.0 MANAGEMENT STRATEGIES

1.6 Crazy Paved Sandstone Zone – (front of south western archway)

Likely to have been laid out at the time of construction of the sandstone archway, this area was probably formed in this crazy paved configuration to draw people's attention to the park entry. It is typical of paving of the inter-war period.

- Retain and repair as required.

1.7 Enmore Road Bus Shelter

Built as part of the upgrading works in the mid to late 1930's.

- Retain as existing and repair as required with the advice of a conservation architect.
- Consider removal of green timber benches along eastern platform behind building and the re-establishment of slatted benches under the roof as in original structure.

1.8 Former Sandstone Fountain

Small sandstone fountain set on an octagonal plinth dating from pre-1958.

- Retain and repair as required.

1.9 Sandstone Edged Planter Beds

A circular formation of arc shaped planter beds first seen in a photo of the park taken following the upgrading works of the late 1930's. The original sandstone edges have been supplemented by concrete mowing strips, which tend to diminish an appreciation of the original fabric.

- Retain planter beds and replant with species used commonly during 1930-40's.
- Remove those shrubs and tree plantings, which restrict an appreciation of the overall configuration of the formation.

1.10 Salvation Army Monument

Salvation Army shield surrounded by an oval brick dwarf wall lying on an artificial mound.

- Presumably has some social significance, however further research would be required to understand the origin and significance of this item.
- Subject to such research consider removal of mound and re-landscaping of setting to remove access / visual barrier of mound.

1.11 Northern Stone Edged Garden Beds

Circular beds appear to have been in this location for many decades, although plantings have frequently changed.

- Worth retaining for its long standing presence and it provides focal interest in an otherwise plain space.

1.12 Children's Rocket

Typical of elements built following the space race and moon landing, possibly dates from the late 1960's or early 1970's.

- Worth retaining as a good example of its type and an element that is becoming increasingly rare.
- Warrants being integrated into a children's play or nearer to barbeque facilities with required safety controls.

1.13 Concrete Rondel - Edging

The original stone edging around the central rondel is just visible behind the later concrete 'kerbing'.

- Edging should be retained for historical interpretation purposes.

1.14 Heritage Interpretation

- Develop interpretation plan
- Prepare an integrated wayfinding and interpretive signage strategy for the park to incorporate:
 - i. Local Aboriginal cultural heritage
 - ii. Park establishment
 - iii. Park modifications / improvements over time
 - iv. Community role of park
 - v. Community activism in maintaining passive recreational role

1.15 Further Heritage Investigations

Undertake investigations of aspects of heritage unable to be confirmed through available information:

- i. Presence / layout of bunkers / on site shelters during war periods
- ii. Function and layout of building to southern area of park established circa 1970 and later removed

3.0 MANAGEMENT STRATEGIES

3.2.2 Recreation

General

Enmore Park will continue to provide for a range of recreational opportunities including walking, lunchtime use for nearby workers, picnics and family gatherings, as well as informal ballgames.

This use is recognised in the park's reservation for public recreation under the *Crown Lands Act 1989*.

Detailed Policies

Policies are outlined for each of the key recreational uses to be recognised in the park.

Swimming pool

(refer 3.2.7 Leases and Licenses)

Children's playground

- Provide major new playspace to provide greater relationship with barbeque / picnic area and Aquatic Centre incorporating the following features:
 - Retention of rocket play structure as focus for playground, upgraded as required to meet relevant safety requirements and play equipment standards
 - combination of toddlers and 5-12 years play equipment
 - shade provision through tree planting and shade canopy
 - required safety measures
 - relationship to kiosk café terrace facilities including public toilet

Passive and unstructured recreation

- Conserve and enhance passive recreational character and facilities within the park (including trees in open grass, informal park seating)
- Provide for a range of passive recreation settings to cater for relaxation and lunchtime use including mature tree canopy, flexible use open grass spaces, and limited provision of more urban character plaza spaces in high use / activity areas (eg. adjoining pool entry)
- Provide for "kickabout" areas for informal ball games in the northern section of the park to facilitate recreational opportunities for young people (eg 13-25)

Dog use

- Maintain the 'on leash' role of the park in accordance with current Council policy
- Support dog use regulations with adequate signage – highlight 'on leash' use only
- Support dog use with rationalised dog waste facilities in line with current Council policy
- Consider signage / community awareness programme that identifies / highlights location of 'off leash' parks to encourage use of areas designated (with objective of reducing pressure on Enmore Park)

3.2.3 Access

General

Access within the park and the related path structure and through access role is a key contributing factor to park character and identity. Access and related activity assist physical and perceived security within the park through passive surveillance.

Detailed Policies

Entries

- Upgrade all park entries in accordance with its heritage status and where possible with a consistent and identifiable treatment compatible with heritage fabric
- North–West Entry gateway
as per Conservation Management Strategy
- South-West Gateway
as per Conservation Management Strategy
- Addison Road Entry
 - Extend circulation space of path / entry junction and adjust wall and garden bed configuration
 - Consolidate wall material as unified theme with Enmore Road frontage (concrete hob)
- North-East Entry
 - Extend area and provide asphalt paved entry threshold
- South-East Entry
 - Extend area and provide asphalt paved entry threshold
- Black Street (Pool) Entry
 - Integrate with pool refurbishment design with link to central rondel in complementary materials
 - Provide for park vehicular access / entry
 - Review ongoing potential for reconfiguration of vehicular access and parking to Black Street
- Leicester Street
 - Extend area and provide asphalt paved entry threshold
- Incorporate signage and heritage compatible measures required to prevent unauthorised vehicle access (eg. removable bollard)

Paths

- Cater for improved accessibility along path alignments as appropriate
- Establish simple clear path hierarchy with unified path surfaces and related elements (shade, signage, lighting)
- Provide flush steel edge to new asphalt path edges with crossfall on pathways assisting drainage towards adjoining grassed areas and enabling enhanced accessibility across the park

Vehicle access and parking

- Prevent unauthorised vehicle access, whilst maintaining controlled access to maintenance and emergency vehicles (refer entries)
- Vehicular access relocated to Black Street (pool entry) only. Trafficable surface to extend to central rondel as turning circle
- Pool redevelopment to incorporate provision for pool maintenance access off Black Street (pool vehicles no longer required to travel through park to access plant area)
- Mobility parking provided as designated spaces on street or adjacent to pool facilities
- Reinforce potential to access the park by walking or public transport through park signage to bus stop / central station and to the park from adjoining areas

3.0 MANAGEMENT STRATEGIES

Cycle facilities

- Continue to provide bicycle parking facilities (bike racks) in key activity locations (ie. Pool, playground / barbeque area) to increase convenience for cyclists
- Recognise low speed use by children of internal pathways and encourage other cyclists to use low speeds within the park to promote safe access for all park users recognising mixed pedestrian and cycle use

3.2.4 Park Facilities

General

The majority of park facilities are in an aged / poor condition and need to be upgraded or replaced to provide an appropriate level of service for park users and visitors to meet required standards, and to effectively contribute to park character.

Detailed Policies

- Development of a kiosk/café accessible to the general public (ie. Double frontage) as part of the swimming pool complex
- Rationalise number and location of park seats throughout the park to take advantage of views and varied sun / shade amenity
- Provide public toilet facility in conjunction with Aquatic Centre redevelopment
- Consider relocation of Enmore Children's Centre facilities and demolish building to return to general parkland area when the use is no longer required, is not equitable within the park, or can be catered for at an alternative site. No further development of the facility or vehicular access from street is to be provided under this plan
- Upgrade barbeque area in existing location with new facilities

3.0 MANAGEMENT STRATEGIES

3.2.5 Street Frontages

General

Enmore Park is of high visual prominence to all of its frontages, those being:

- Llewellyn Street
- Black Street
- Victoria Road
- Enmore Road

The Enmore Road frontage has further significance from a streetscape and public domain perspective located on this important and busy arterial road link for car traffic and public transport.

Detailed Policies

- Undertake progressive replacement of tree plantings with initial focus along park boundaries (refer Vegetation Management)
- Implement coordinated design theme to improve entrances to corners of Llewellyn and Black Street, and Black Street and Victoria Road
- Improvement works as required and in accordance with heritage policies and Conservation Management Strategy to park entry points along Enmore Road
- Reinforce access to pool complex on Black Street frontage (including vehicular maintenance access)

3.2.6 Vegetation Management

General

An Arborists assessment by Urban Forestry Australia reviewed the overall health, condition and landscape significance of the trees in Enmore Park. This was undertaken as a two part process, with an initial assessment of the trees that broadly sit within the Aquatic Centre development area to assess potential impacts of the proposed development. This was followed by an audit and assessment of the remainder of the park area.

Key findings of the assessment work undertaken is summarised below:

Aquatic Centre development area

- 91 trees were identified within the broad development envelope
- 16 trees were identified as within or too close to the footprint of the proposed development and should be removed
- 4 trees are recommended for removal due to poor health and / or condition
- 32 trees are identified as exempt from protection under the TPO or are of low significance and could be readily removed and replaced
- Tree removals for the Annette Kellerman Aquatic Centre redevelopment have been completed

Park area

- 159 trees were identified within the park area (excluding those within the Aquatic Centre development area)
- 16 trees are recommended for removal due to poor health and / or condition
- 28 trees have been identified that require specific attention or further investigations of identified defects. Generally this would involve aerial inspections and / or resistograph testing to determine structural integrity and extent of decay.
- Many of the trees to be retained within the park would benefit from crown maintenance pruning (as defined in AS 4373:2007 Pruning of Amenity Trees) and mulching

Detailed Policies

Tree Management

- It is recommended that in supplement to the audit and condition assessment work undertaken to date, a vegetation management plan is prepared for the entire park area. This should include a program and approach for ongoing replacement and infill planting to trees in declining condition, in particular to maintain boundary tree planting.

Tree Pruning

- Pruning will be required to ensure all deadwood over public footpaths, internal roads and open space areas is carried out to minimize damage to property or injury to people.
- Management of the mature trees within this park is a process relying on initial pruning works to reduce hazards, ongoing routine maintenance and monitoring of their health and condition.

Tree Monitoring

- All mature trees should be inspected by an experienced and competent Arborist at least once each year.
- Trees should be inspected after any major storm event eg. gale force winds, excessive or prolonged rain periods, or significant electrical storms.
- It is recommended that a number of mature trees be aurally inspected to determine the presence of structural defects such as weak branch attachment. The result of these inspections may require further arboricultural assessment and recommendations for ongoing tree management.

3.0 MANAGEMENT STRATEGIES

New Planting Works

New tree planting is proposed in several locations in the park to support park design objectives and interpretation themes. New planting locations must consider heritage values of park and safety / security factors such as:

- potential impact of canopy on park lighting
- proximity to pathways
- maintaining open sight lines for passive surveillance

Understorey planting is to be limited to situations where pedestrian / park user sight lines will not be compromised including:

- adjoining pool complex
- to radial planting displays to rest of park

To all cases understorey planting shall be of 750mm maximum height. Species shall be of as low recurrent water demand as feasible with constraints of species objectives.

Species Objectives

Trees

Generally replacement and review of tree canopy shall reflect the dominant existing fabric of Ficus species and Lophostemon confertus. The proposed improvements adjoining the pool complex should complement this general evergreen character.

Shrubs and perennials

Shrub planting will be limited to the interpretive radial beds in the west of the park. Species should complement heritage style planting themes for example:

- Agave attenuata
- Cordyline species
- Choisya ternata
- Dracena species
- Escallonia species
- Juniperus chinensis
- Michelia figo
- Strelizia regina
- Nandina domestica
- Nandina nana
- Raphiolepis indica
- Raphiolepis delacourii
- Viburnum tinus
- Viburnum suspensum

Groundcovers

Groundcovers shall be robust and hardy of low water demand and consistent visual appearance across the seasons. Potential species include:

- Aeonium arboreum 'Zwartkop'
- Alternanthera dentata (rubra)
- Dianella species
- Iresene herbstii
- Liriope species
- Phormium species
- Rhoeco discolor
- Stachys byzantina
- Tradescantia pallida

3.2.7 Leases and Licenses

General

As previously noted Enmore Park is a Crown Reserve dedicated for Public Recreation.

The *Crown Lands Act 1989* allows for leases or licences to be granted over all or part of crown reserves.

Leases and licences are a method of formalising the use of land and facilities. Leases or licences can be held by:

- groups such as community groups, sporting clubs or schools; and
- commercial organisations or individuals providing facilities and / or services.

The activities undertaken by any leaseholder must be compatible with any zoning or Council requirements and provide benefits and services or facilities for the users of the land. Terms and conditions of a lease should reflect the interest of Council as the reserve trust manager, protect the public and ensure proper management and maintenance.

Where short term, intermittent or non-exclusive occupation or control of all or part of an area or facility is proposed, a licence may be used. Providing there are no conflicts of interest, several licences may apply concurrently.

Requirements for leasing and licencing

The Catchments and Lands Division of Department of Primary Industries, Food and Beverage Outlets on Crown Reserves Policy (refer summary section 8.3.3) outlines that where plans of management are to make provision for the leasing or licencing of facilities to commercial operators or special interest groups, they need to address the following issues:

- sustainable use and management of the reserve;
- size and scale of the proposed area or facility in relation to the size of the reserve;
- relationship of the proposal to development on adjoining land or on other land in the locality;
- landscaping provisions that provide for the preservation of trees and other vegetation including any threatened species habitat and enhancement of the visual experience of the reserve;
- provision of adequate infrastructure, water, electricity and sewerage;
- provision for adequate protection of environmental features / hazards such as landform, stability, drainage and flooding, buffer zones, bushfire hazards, waste control and noise and lighting;
- the social and economic effect of the proposal on the reserve and the locality;
- the character, location, siting, bulk, scale, shape, size, height, density design or external appearance of the proposal;
- provisions for the protection and maintenance of any heritage buildings, archaeological, aboriginal sites or other items of cultural heritage;
- criteria for the erection of signs for the proposed use that will provide for minimal signage located on the site of the activity or facility; and
- the amount of traffic, parking, loading, unloading and manoeuvring likely to be generated by the proposal and how it can be provided without compromising other users of the reserve.



Figure 3.1
Leases / Licenses

April 2010



Existing leases and licences

This plan of management authorises existing leases and licences which have been granted by the Enmore Park Reserve Trust (managed by Marrickville Council) for Enmore Park.

- The current licence (expiring July 2011) with Belgravia Leisure for the Annette Kellerman Aquatic Centre, is hereby authorised.

The pool facility is well utilised by the local community and its redevelopment will be compatible with the principles of Crown land management.

Authorisation of Leases and Licences

Refer also Figure 3.1

Annette Kellerman Aquatic Centre

The Annette Kellerman Aquatic Centre is authorised to be leased / licensed for the purposes of public recreation and / or associated activities, to Council, a suitable organisation, club or co-operative for the benefit of the Marrickville and wider community generally. The lease shall include management and maintenance of the public toilet facility.

The maximum lease / licence period shall generally be 20 years, although up to 50 years may be considered upon submission and approval of an appropriate business case.

Annette Kellerman Aquatic Centre - Café

The Annette Kellerman Aquatic Centre café area including paved terrace and steps is authorised to be leased / licenced for the purposes of a café / kiosk, to Council, a suitable organisation, club or co-operative for the benefit of the Marrickville and wider community generally.

The maximum lease / licence period shall generally be 10 years.

Enmore Children's Centre

The Enmore Children's Centre is authorised to be leased / licensed for community purposes including childcare and / or associated activities, to a suitable organisation, club or co-operative for the benefit of the Marrickville and wider community generally.

The maximum lease / licence period shall be 5 years.

Events

Current events such as the Australia Day Festival held by Council, are important in encouraging use and awareness of the recreational opportunities of Enmore Park. Use of the park for community events would be subject to the Council's event approval / management policies and may be subject to a Development Application process to assess impacts.

3.0 MANAGEMENT STRATEGIES

Temporary Licences (refer Section 108, Crown Lands Act 1989)

Temporary licences may apply to any area (or part) within Enmore Park. This plan of management expressly authorises the granting of Temporary licences, subject to Council (as the reserve trust manager) approval, which fall within the following categories:

- markets;
- concerts;
- community, educational activities and uses for single one off events;
- the playing of a musical instrument, or singing for fee or reward;
- engaging in a trade or business;
- delivering a public address;
- commercial photographic session;
- picnics and private celebrations such as weddings and family gatherings;
- filming for cinema or television and
- Special events associated with the aquatic centre and/or Cafe.

When deciding about granting a temporary licence, Council as the reserve trust manager must ensure that:

- i) the use / activity is in the public interest;
- ii) the use / activity would not cause any significant detrimental impact on the park or on the local community;
- iii) no permanent building or structure is erected; and
- iv) the use or activity complies with the reserves use for public recreation as per the *Crown Lands Act 1989*, and any other relevant Federal and State legislation.

3.2.8 Management and Maintenance

General

General park maintenance is a key issue that can often impact on park use and enjoyment. Inherent in effective maintenance is consideration of other factors including sustainability (cost effectiveness, use of materials etc), along with safety and security.

Detailed Policies

Sustainability

- Park improvements are to have regard for environmentally sustainable design, resource use, and maintenance
- Park improvements to promote use of recycled materials where possible for path works and other park elements
- Energy efficient refurbishment of pool complex to be implemented in improvement works

Maintenance

- Design and material finishes to focus on long term durability with the aim of minimising recurrent maintenance
- Undertake grass conditioning works to include (as applicable): aeration, top dressing, enhanced drainage
- Provide dog waste bins and bag dispensers at appropriate locations (park entries)
- Provide co-mingled (recycling and waste) bin stations at appropriate locations
- Provide sharps disposal points to new public toilet facilities

Personal Safety

- Park improvements to be aimed at increasing general park visitation and minimising occurrence of anti social behaviour through passive surveillance
- Improve visual continuity between spaces
- Full review and replacement of park lighting – designated night time access routes are to be well lit

Enmore Children's Centre

- Investigate potential for relocation of Children's Centre facility and demolition of building to provide greater park area
- The facility should be retained within the park until such time that one of the following criteria are met:
 - Capital improvements required to sustain ongoing use are deemed unfeasible
 - Department of Community Services requirements and regulations necessitate improvements that are not considered feasible for the current facility
 - Ongoing maintenance, user and emergency access cannot be adequately provided or feasibly improved
 - The Children's Centre use adversely impacts on other park uses
 - An alternative (and improved) location and facility can be provided

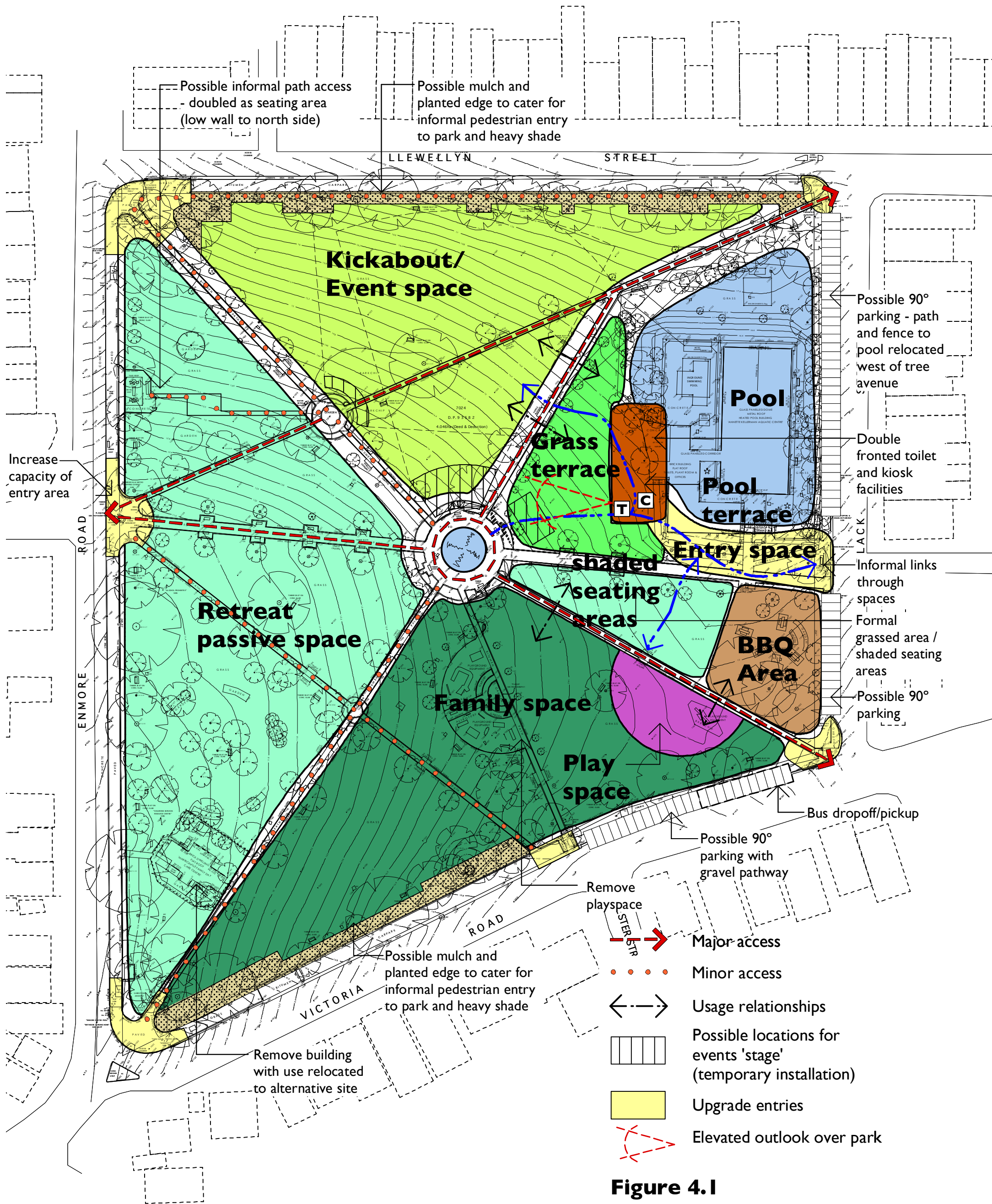
4.1 Planning principles for Enmore Park

Planning principles provide the basis for development of masterplan design solutions for Enmore Park. The principles provide cues to responses for realising the identified Visions and objectives as outlined in the plan of management through the development of appropriate public domain design and materials strategies.

The following principles have been identified for the park and are supplemented by the detailed design principles identified in the Management Strategy Framework:

- 1) Consolidate the function and landscape character of the 4 park quadrants:
 - West** Passive parkland with garden character extensive tree canopy and good quality groundcover to lowest lying area of park
 - North** Retain open kickabout character and suitability for event gathering space whilst improving grass and general landscape quality
 - East** Consolidate facilities to optimise relationships and to provide visual buffer / transition from pool facility to the other park areas
 - South** Optimise as local family use area with good relationship to adjoining areas including mixed character of smaller open grassed spaces with good shade cover
- 2) Recognise the primary pedestrian access routes from Enmore Road to the eastern corners of the park
- 3) Recognise and address existing pedestrian desire lines:
 - along northern and southern edges of park
 - from heritage bus shelter to northern pathways
- 4) Remove visual obstructions from formal access paths (central planted features) to:
 - reinforce visual links and 'sense of space'
 - improve security

Note: This could include reinstating a water element to the central park node.
- 5) Upgrade park entry points to conserve heritage elements and reflect value of use
- 6) Simplify and unify pavement and wall materials where compatible with heritage objectives
- 7) Review and improve quality and character of general park materials and treatments where possible
- 8) Rationalise furniture provision to those locations where it will be used and is integrated with overall masterplan
- 9) Provide for sustainable formalised event use to enhance community values and promote interaction whilst managing impacts



**Figure 4.1
Planning principles**

April 2010



4.2 Concept Masterplan

Figure 4.2 on the following page describes the preferred masterplan strategies identified in implementation of the detailed planning policies.

The numbered masterplanning proposals as identified on the plan are described in further detail following.

1. Pool complex redevelopment

Redevelopment of the existing pool complex to provide a new 50m pool, associated programme pool and gym facilities. Pool redevelopment is to incorporate extensive boundary / frontage improvements to provide greater visual and physical relationship / interface to the park. Landscape improvements to integrate native canopy tree planting to pool periphery and grassed areas.

2. Terrace

Establishment of a paved terrace adjoining the pool complex providing views over the lower grassed terrace and across the western side of the park. Potential incorporation of a double fronted kiosk to serve both pool patrons and general park users as well as publicly accessible toilet integrated into pool building.

3. Pool entry forecourt

Provision of a formalised entry forecourt to the pool complex.

4. Grassed terrace

Provision of a grassed terrace below the pool paved terrace area, to provide a gathering space with views across the park and adjoining the central rondel. The terrace may be utilised as a formal gathering space during events, and generally as a pleasant open grassed area for picnics or other informal park activity. Steps lead up from the lower path level to the grassed terrace, and provide seating opportunities looking over the central rondel. At grade access would also be available via adjoining paths. Integrate native shade tree planting compatible with grassed area maintenance.

5. Rocket play space

Relocate playspace to consolidated play area surrounding existing rocket structure. Rocket play structure to be retained in existing location with upgrade to formalise safe use of lower levels (eg. upgrade slides and address relevant Australian Standards requirements). Additional play items to be integrated in this area including provision of softfall surface. Play area to be defined by low sitting walls reusing stone salvaged from existing playspace. Optimise opportunities for a diversity of age groups to utilise the playspace and provide enhanced relationship to barbeque area.

6. Victoria Road frontage

Establishment of a mulch area under dense tree canopy as recommended in the Aboricultural Assessment (Appendix C) where grass coverage is poor due to overshadowing, and where tree root systems are being compacted by foot traffic. Mulched zone to allow for pedestrian access into the park from parking, preventing worn pedestrian access lines, and caters for east-west access along the park edge. Strategically located park seating along the edge takes advantage of the shaded areas and provides views across the open grassed area.

Further enhancement of this edge includes upgrade of the entry opposite Leicester Street and also to the Black Street corner.

Existing ninety degree parking will be made more efficient through line marking to be undertaken as part of Annette Kellerman Aquatic Centre redevelopment works.

1. Pool complex redevelopment
2. Terrace
3. Landscaped pool entry forecourt
4. Grassed Terrace
5. Upgrade to rocket playspace
6. Improvements to Victoria Rd. frontage
7. Upgrade to central rondel
8. Llewellyn St. upgrade
9. Relocation of children's resource centre



10. Interpretation of past planting design
11. Reinstatement of central path
12. Widening of northern east-west path
13. Upgrade to remaining asphalt paths
14. Provision of access link to bus shelter
15. Turf upgrade to northern active area
16. Upgrade Addison Road entry
17. Upgrade Enmore Road entry
18. Upgrade Picnic Area

Figure 4.2
Masterplan

April 2010



7. Central Rondel Upgrade

Existing shrub planting to central rondel to be removed to improve sightlines / visual links along access paths and enhance visual surveillance and park security. Provide central Howea Palm grove that interprets early plantings in the park. Potential integration of water element that recognises and interprets the central feature as part of early park history, originally being a water feature and later replaced with a concrete bandstand. Potential for water element to feature an interactive design for both display and water play (with sustainable water supply and treatment) to engage park users and provide a focal point to the centre of the park. Water feature design should integrate water and non-water modes as a cultural element to reinforce sustainability.

8. Llewellyn Street upgrade

Establishment of a mulch margin to area under dense tree canopy where grass coverage is poor due to overshadowing. Mulched area also allows for pedestrian access into the park from parking, assisting in prevention of worn pedestrian access lines (in grass), and caters for east-west access along the park edge. Strategically located park seating along the edge takes advantage of the shaded areas and provides views across the open grassed area.

9. Relocate Children's Resource Centre

Investigate potential for alternative locations for Children's Resource Centre that facilitate improved access and centre facilities, with potential for co-location with other community facilities (eg. libraries etc.). Existing Resource Centre building to be demolished and area restored to grassed parkland to consolidate passive use zone, and remove visual barrier.

10. Interpret past planting design

Restore radial garden beds with maintenance sustainable species that also respond to character of past park planting. Enhancement works to also consolidate tree planting in radial form.

11. Central path

Reinstatement of asphalt surface to central path when clay brick paving requires replacement including replacement of clay brick edging with steel edging to assist in surface drainage and promote accessibility across the park.

12. Northern east-west path

Main access path from Addison Road entrance to corner of Black and Llewellyn Street to be widened to cater for shared pedestrian and cycle use, including appropriate signage markings. Remove brick pavement to path intersection including removal of central planting, and reinstate asphalt path connection with steel edge.

13. General (other) paths

Upgrade asphalt path surfaces as required and reinstate asphalt surface to brick paved path intersections, including removal of central planting beds to improved sightlines and park user security along pathways. Provide steel edge to create flush edge treatment assisting in surface drainage and accessibility.

14. Planting feature / access link

Provision of access link through seating area to bus shelter, to cater for existing pedestrian desire line (worn access track). The path is proposed as informal in character with a focus on seating areas, reinstatement of the radial planting beds and consolidation of radial tree planting.

15. Northern active area

The northern grassed areas are an important component of the open space provided in the park as they provide open area for informal active 'kick about' games. Turf upgrading including subgrade aeration, soil conditioning and seeding / turfing will enhance the surface condition of this zone and increase usability.

16. Upgrade Addison Road entry

Investigate opportunities to allow a more open entry character and increased circulation space to accommodate the pedestrian flows to and from the park from this major access point. Replacement of clay masonry walls with stone walls to complement the entries to the north and south corners on Enmore Road, and provide an enhanced heritage character to this major entry.

17. Enmore Road frontage

Ongoing removal and replacement to Enmore Road with asphalt pavement as existing brick paving deteriorates and requires replacement. Consolidate edge walls along Enmore Road to a consistent design material and theme to provide a more cohesive visual character. Conservation and refurbishment works undertaken as required to north and south entry features including pavement and entrance structures as required.

18. Upgrade picnic area

Provide upgrade works to existing picnic and barbeque area to improve amenity and function including:

- upgrade table seat units on existing concrete slabs;
- clean / make good slabs through abrasive blasting prior to furniture installation;
- improved barbeque facility
- potential integration of new picnic shelter with table seat units

5.1 Staging Strategy

The preliminary proposals as described in the Concept Masterplan comprise a range of potential improvements with varying community and environmental priority. The following works action plan assigns priority to the proposals based on those, which are of most immediate community benefit, with lower priority items to be implemented as budgetary and funding opportunities allow.

Ultimately implementation will be influenced by budgetary availability and should be subject to ongoing monitoring and review by Council.

Detailed management principles are set out in the Management Strategy Framework (section 6.1.2).

- Further investigations:
 - Aboriginal Heritage Investigation
 - Interpretive Strategy
 - Park detailed design / documentation
- Annette Kellerman Aquatic Centre redevelopment (underway)
- Park elements related to pool complex refurbishment:
 - Grassed terrace
 - Pool forecourt and plaza space
 - Café terrace
- East-west path upgrade
- Rocket play space upgrade (commencing May 2010)
- Picnic area upgrade

Phase Two Priorities

- Rondel upgrade
- Llewellyn Street and Victoria Road frontage works
- Enmore Road to Llewellyn Street / Black Street intersection path upgrade
- Northern slopes grassed area improvements
- Enmore Road frontage works / improvements
- New picnic shelter

Phase Three Priorities

- Rondel planting displays
- Reinstatement of radial planting displays
- Bus shelter path link
- Heritage entry improvements
- Relocation of Children's Resource Centre

Ongoing maintenance and tree management

Ongoing works to address day to day maintenance and replacement of fixtures and furniture as required. This should have regard for prioritisation of major capital works that will integrate replacements to specific areas of the park

Implementation of tree management recommendations (refer Appendix C), and lighting recommendations (refer Appendix E) should also be ongoing as funding allows, with regard for safety recommendations in those reports.

5.2 Indicative Works Action Plan

The Works Action Plan provides recommended tasks and areas of work, which need to be addressed in order to implement the park enhancement works and management requirements. It is essential that the Works Action Plans involve the active participation of all relevant departments of Marrickville Council along with appropriate community groups.

The Works Action Plans are in the form of a schedule that:

- establishes recommended priorities for worked items;
- describes the detailed activities required including pre-construction elements for capital works items;
- describes the nature of actions required (capital works, policy review, management action, liaison action);
- recommends possible sources of funding for the works; and
- notes specific comments relating to the implementation of that item.

No.	Item	Priority	Description	Possible Resources (funding and technical inputs)
1.0 Planning / Investigation				
1.1	Aboriginal Heritage Investigation	High	<ul style="list-style-type: none"> • Prepare brief • Commission Consultant • Scope to include: <ul style="list-style-type: none"> - Oral history - Local history themes - Potential interpretation themes 	Heritage Council Council
1.3	Interpretive Strategy	High	<ul style="list-style-type: none"> • Prepare brief • Community consultation • Prepare coordinated interpretation strategy integrating all heritage themes and outlining interpretive elements 	Heritage Council Council
1.4	Park Detailed Design Documentation	High	<ul style="list-style-type: none"> • Prepare brief • Community consultation • Consultancy team to prepare documentation to meet Council implementation requirements 	Council
1.6	Water Re-use Strategy	High	<ul style="list-style-type: none"> • Prepare brief • Commission Consultant • Scope to include potential for water harvesting from pool complex • Design pipework and tank • Integrate to irrigation / maintenance system 	Australian Government Community Water Grants Council

5.0 IMPLEMENTATION

No.	Item	Priority	Description	Possible Resources (funding and technical inputs)
2.0 Capital Works				
2.1 Phase One				
2.1.1	Establishment / Preliminaries			Council
2.1.2	Pool complex design and implementation (construction in progress 2010)	High	<ul style="list-style-type: none"> • Design concepts • Design development and documentation • Pool construction including interface treatments to park 	Council
2.1.3	Rocket Play Space Upgrade (commencing May 2010)	High	<ul style="list-style-type: none"> • Excavation and fill as required • Walling barrier • Softfall surface • Additional play equipment • Upgrade works to Rocket structure 	Council
2.1.4	Picnic Area Upgrade	High	<ul style="list-style-type: none"> • Upgrade seating • Upgrade BBQ facilities 	Council
2.1.5	Grassed Terrace	High	<ul style="list-style-type: none"> • Excavation and fill as required • Concrete sitting steps • New turfing • Shade tree planting 	Council
2.1.6	Pool Forecourt	High	<ul style="list-style-type: none"> • Excavation and fill as required • Concrete pavement • Shade tree planting • Seating 	Council
2.1.7	Café Terrace	High	<ul style="list-style-type: none"> • Concrete pavement • Concrete sitting steps • Shade tree planting • Double frontage infrastructure including kiosk, café and toilets 	Council
2.1.8	East-West Path Upgrade	Med	<ul style="list-style-type: none"> • Demolition and removal of existing brick pavement • Asphalt pavement • Rationalisation and upgrade of seating adjoining pathway 	Council

No.	Item	Priority	Description	Possible Resources (funding and technical inputs)
2.2 Phase Two				
2.2.1	Establishment / Preliminaries			Council
2.2.2	Rondel Upgrade	High	<ul style="list-style-type: none"> • Demolition as required including removal of planting • Rationalisation of seating • Potential water feature • Asphalt pavement • Howea Palm planting 	Council
2.2.3	Llewellyn Street and Victoria Road Frontage Works	High	<ul style="list-style-type: none"> • Excavation of turfed surface • Gravel pavement (stabilised beyond tree root zones) 	Council
2.2.4	Enmore Road to Llewellyn / Black Street Intersection Path Upgrade	Med	<ul style="list-style-type: none"> • Removal of intersection area including brick pavement and planting • Path widening • Asphalt pavement 	Council
2.2.5	Northern Slopes Grassed Area Improvements	High	<ul style="list-style-type: none"> • Cultivation and soil improvement • Subsoil drainage works • Turf works 	Council
2.2.6	Enmore Road Frontage Works / Improvements	Med	<ul style="list-style-type: none"> • Demolition and removal of brick pavement • Removal of brick / stone walling • Asphalt pavement • Concrete hob walling 	Council
2.2.7	New Picnic Shelter	Med	<ul style="list-style-type: none"> • Confirm type / design • Base pavement and shelter installation 	Council
2.3 Phase Three				
2.3.1	Establishment / Preliminaries			
2.3.2	Rondel Planting Displays	Low	<ul style="list-style-type: none"> • Groundcover and shrub plantings 	Council
2.3.3	Reinstatement of radial planting displays	Low	<ul style="list-style-type: none"> • Removal of existing planting • Reinstatement of edging as required • Groundcover and shrub plantings 	Council
2.3.4	Bus Shelter Path Link	Low	<ul style="list-style-type: none"> • Removal of existing garden bed planting • Gravel pavement • Seating • Shade tree planting • Feature planting to radial garden beds 	Council
2.3.5	Heritage Entry Improvements	Low	<ul style="list-style-type: none"> • Gateway upgrade as directed by Conservation Architect • Pavement upgrade / restoration works 	Council
2.3.6	Relocation of Children's Resource Centre	High	<ul style="list-style-type: none"> • Investigate alternative locations for facility • Demolition of building • New turfing and planting works 	Council

5.0 IMPLEMENTATION

No.	Item	Priority	Description	Possible Resources (funding and technical inputs)
3.0 Maintenance				
3.1	Tree Management	High	<ul style="list-style-type: none">• Additional tree studies / investigations• Pruning• Replacement• Mulching at bases	Council

5.3 Implementation funding for improvement works

In addition to funds available from Council's capital works program and maintenance budgets, there are opportunities for grants and corporate sponsorship that could contribute to the completion of development works to the Enmore Park. These include:

- Metropolitan Green Space Group
- Heritage 2001
- Public Reserves Management Fund Program.

5.4 Approvals

Implementation of the Enmore Park Masterplan will be undertaken in accordance with this plan of management and all necessary approvals.

Playspace improvements commenced May 2010 are being undertaken as exempt development under Clause 66 of the State Environmental Planning Policy (Infrastructure) 2007.

Pool redevelopment works have been undertaken following a development consent process.

Part B
MANAGEMENT STRATEGY FRAMEWORK

6.0 MANAGEMENT STRATEGY FRAMEWORK

6.1 Management Strategy Framework

The framework provides the rationale for decision making in the reserves as open space and related improvements evolve over the next 10 - 15 years. The framework also provides the basis for the establishment of principles for the ongoing management of the reserve.

6.1.1 Framework categories and definitions

The management strategy framework describes the process of developing recommended management responses under the following headings:

Framework Categories:

The framework presents the preceding as a series of site specific categories aimed to provide commentary across Council's site specific open space planning strategies (based upon Succeeding with Plans of Management – DLWC and Manidis Roberts):

- **Natural Environment**
Physical and environmental factors relating to site quality and usage.
- **Heritage**
Conservation significance of the historical fabric.
- **Visual**
Relationship of the park to surrounding areas in terms of internal views and views into and out of the site area.
- **Social / Cultural**
Factors relating to the role of the site as an amenity for social interaction and use.
- **Recreation / park use**
Usage of the site for passive and active pursuits.
- **Education**
Role of the site as a community educational resource.
- **Intrinsic**
Specific factors contributing to site identity and character.
- **Management and maintenance**
Factors relating to open space management and maintenance.

Framework Definitions:

Objectives

Values: as derived from community consultation and site appraisal, are the features / qualities of the park that should be recognised, conserved or enhanced, and for which measurable outcomes should be established.

Desired outcomes: are objectives in relation to the identified park values that provide a basis and direction to decision making.

Pressures and Opportunities

Pressures may include impacts on the land or environment, and potential conflicts between users or usage and other qualities of the site. Opportunities are the qualities of the site which make it suitable for community or recreational uses or activities, and which may not be fully realised at present.

Means

Strategies and actions to achieve the desired outcome. Means are distilled into the detailed policies listed in each section.

Priority

Provides outline prioritisation of strategies based on community concerns and environmental and heritage management issues. Includes:

High (H): target within 2 years

Medium (M): target within 2-5 years

Low (L): target within 2-8 years

Planning Principles

Provide a basis for achieving the identified strategies through the development of appropriate public domain design and materials solutions on the site. Principles are reflected in the proposed Concept Masterplan (Section 4.0).

Assessment

Performance criteria: are physical / measurable effects of the desired outcomes usually driving monitoring programs.

Monitoring technique: How the performance criteria are monitored.

6.0 MANAGEMENT STRATEGY FRAMEWORK

6.1.2 Framework

	Objectives		Pressures and Opportunities	No	Means (Strategies)	Priority	Design Principles	Assessment	
	Values	Desired Outcome						Performance criteria	Monitoring technique
1	NATURAL ENVIRONMENT								
1.1	Established park character	Protection and enhancement of established trees and park character	Overall tree health is varied.	1.1.1	Undertake additional tree plantings / interplantings to progressively replace existing trees for the future	H	New plantings should respond to locations as indicated on Concept Masterplan	Successful planting and establishment of trees Minimise long term impact of tree senescence	Visual assessment / photographs
			In areas of tree shade on slopes and of poor quality soil, erosion and bare areas have developed	1.1.2	Review potential ground surface conditions under trees (eg. stabilised gravel, mulch) to problem areas	H	Consolidate areas of gravel / or mulch to provide stronger visual character and enhance function	Reduction in bare grassed areas	Visual assessment / photographs
			The natural characteristics of the park – grass, open space, size and trees are major attractions for the community	1.1.3	Grassed open space with related shade tree planting to be conserved / enhanced as major park elements	H	Park improvement masterplan retains existing character of trees and open grass areas and extends where possible (eg. existing play space to southern area)	Retention of existing park character	Review of existing park character and proposed improvements plan
1.2	Natural park environment	Effective interpretation of the park's natural heritage	The area now occupied by Enmore Park was thought to have contained a mixture of native vegetation types. None of the original vegetation remains.	1.2.1	Review potential for interpretation of vegetation in the park that were present prior to development of the area	M	Integrate native tree canopy to appropriate locations (eg. pool perimeter) Integrate native canopy tree planting to grassed terrace	Effective interpretation of historical park features	Plans for park improvement works, implementation of works
1.3	Natural soil profile	Improved soil conditions where possible	Poor soil quality and compaction in some areas is affecting grass and tree condition and development	1.3.1	Undertake soil improvement works to key areas in particular the northern open grassed area	H	N/A	Soil condition improved	Noticeable improvement in drainage issues and grass cover
2	HERITAGE								
2.1	Aboriginal heritage	Identification and interpretation of Aboriginal cultural heritage values	Minimal information available specific to the park site	2.1.1	Undertake consultation and investigations to develop a programme of themes relevant for interpretation of Aboriginal heritage of the area	H	Integrate interpretation and themes into design development and interpretational elements	Interpretation of local area history by park users	Visual assessment, community/visitor comments
2.2	European heritage	Protection and interpretation of appropriate aspects of European cultural heritage	The significance of the park as the first to park to be established within the Marrickville Municipality is poorly recognised	2.2.1	Interpret the park/site history in development of planning and management strategies to assist users in understanding heritage	M	Integrate heritage interpretation into design development and specific interpretation elements such as artworks and signage	Interpretation of local area history by park users	Visual assessment, community/visitor comments
			The significance of former park elements such as the central feature (water feature and bandstand) to the structure of the park	2.2.2	Review potential for reinstatement of central feature to interpret former park theme	M	Integrate reinstatement of water feature or interpretation of the central feature in design development	As above	As above
3	VISUAL								
3.1	Views from the site	Views from the park to surrounding roads softened by boundary tree plantings	The park is bounded by roads to all four sides with Enmore Road (busy collector road) to the main frontage	3.1.1	Conserve vegetated boundary to all frontages acting as buffer to adjoining uses	H	Park improvements to maintain boundary tree planting and interplant where required	No park development to compromise boundary planting visual character	Visual assessment
3.2	Views within the site	Visibility and sight lines through the park improved	Visual barriers (garden beds to path intersections) limit visual connection with access destinations and may reduce security for night use	3.2.1	Establish sight lines along access routes that reinforce legibility and enhance safety including avoiding use of understorey planting	H	Park improvement works to include removal of garden beds to path intersections	Internal park views improved for user safety and visual amenity	Proposed improvement works, visual assessment, community comments
			The pool enclosure partially screens some areas within the park and disrupts visual continuity of spaces	3.2.2	Review opportunities to enhance visual links between park spaces	H	Provide visual links between internal park spaces to improve safety and visual amenity	As above	As above

Objectives		Pressures and Opportunities	No	Means (Strategies)	Priority	Design Principles	Assessment		
Values	Desired Outcome						Performance criteria	Monitoring technique	
3.3	Views to the site	Park views from surrounding areas conserved and enhanced	The park is appreciated for its visual amenity as viewed from adjoining residences and roadways	3.3.1	Existing framed views to park to be protected in park enhancement/management	H	Park improvements to maintain boundary tree planting and interplant where required	No park development to compromise boundary planting visual character	Park improvement plans, and related visual assessment, completed improvement works
3.4	Park character	Formal park character reflecting early 20 th century design themes is conserved	Path layouts and other elements dissect usable park area	3.4.1	Conserve formal path layout but aim to simplify and consolidate elements within spaces to afford maximum open grassed character	H	Review location of existing play space and Children's Resource Centre to better relate to other facilities and better serve all park areas	Formal character retained and recognised by community	Community / visitor comments
4 SOCIAL / CULTURAL									
4.1	Community use	The park's role as a setting for local and visitor use is conserved and enhanced	The park is used by local residents and visitors from other suburbs who work / study in adjoining areas	4.1.1	Maintain passive recreation areas as a key use and setting objective for the park	H	Enhance and extend passive recreation zone through relocation of playground and Children's Resource Centre	Passive recreation areas maintained and improved	Visual assessment, Community feedback
				4.1.2	Maintain recreational facilities with improved siting relationships (to other uses and site characteristics) and amenity	H	Review long term / optimal location of playground and barbeque area in conjunction with pool redevelopment to enhance visual and functional relationships	Quality of facilities and compatibility of activities with adjoining park uses	As above
4.2	Enmore Children's Resource Centre	Role / services of centre maintained in alternative location	Children's Centre building is poorly sited with no relationship to adjoining park facilities or uses and with poor access	4.2.1	Investigate potential for relocation of Children's Centre facility to alternative location and demolish building to return to parkland	H	Enlarge park area and enhance quality of functional relationships of uses / facilities	Facility relocated to more suitable location with improved access and facilities, and existing building area returned to parkland	As above
5 RECREATION / PARK USE									
5.1	Active recreation	Active recreation role of the park is conserved and enhanced where possible	The park supports a number of active recreation uses which contribute to levels of activity	5.1.1	Continue use of Enmore Park for a range of informal active recreation pursuits as listed following: <ul style="list-style-type: none"> informal ball games swimming pool 	H	N/A	The park is available to the public for a variety of recreational pursuits without undue impact on other park values	Community feedback
	Swimming pool		Pool facilities require extensive upgrade and improvement works	5.1.2	Pool redevelopment underway in 2010	H	Minimise impact of pool location / footprint on adjoining parkland / open space. Pool boundary to be fenced with improved treatment that better integrates with adjoining landscapes / streetscapes	Improvement in relationship between pool and adjoining park space	Community feedback Visual assessment
			The pool location and design impacts park amenity: <ul style="list-style-type: none"> occupies northeast quadrant of the park visual impact of pool building on surrounding park areas and street frontage visual impact of fence enclosure 	5.1.3	Review opportunities to mitigate impacts of pool on park spaces and use: <p>Potential for pool complex to reduce impact through improved relationships to adjoining spaces, through visual connections, and active frontages to park</p>	H	As above	As above	As above
Informal ball games	Use of park by young people for informal games and healthy exercise		The park is often used for informal (not part of an organised competition) ball games which are currently not permitted by park signage	5.1.4	Review park rules to permit playing of ball games on northern grassed area	H	N/A	Rules permit playing of informal ball games in designated areas	Park rules revised, park signs updated
			The northern grassed area is used for informal ball games is also subject to soil compaction and poor grass coverage	5.1.5	Improve northern area for ball games with soil works and improved topsoil / grass cover	H	N/A	Playing surface for informal ball game improved to enable use with minimal impact	Improvement works carried out, condition of grassed surface

6.0 MANAGEMENT STRATEGY FRAMEWORK

Objectives		Pressures and Opportunities	No	Means (Strategies)	Priority	Design Principles	Assessment	
Values	Desired Outcome						Performance criteria	Monitoring technique
Children's playground		The children's playground is limited in scale and quality and has little relationship to adjoining facilities or uses such as the pool or barbeque area and higher quality grassed areas	5.1.6	Park planning to review potential location for new playground / playgrounds and implement proposal including: <ul style="list-style-type: none"> toddlers, youth play equipment shade related safety and amenities 	H	Playground to suit a range of ages to be constructed in central accessible park location with visual and functional relationships to adjoining facilities and compliant with relevant Australian Standards	Provision of new facility that works effectively with park layout, addresses a range of age groups, and meets safety requirements	Implementation of proposed improvement work, certification of works to be AS compliant
		The playground lacks formalised shade provision						
Passive recreation	Passive recreation role of the park conserved and enhanced	Increasing importance as a recreation area in context of urban environment	5.2.1	Conserve and enhance passive recreational character and facilities	H	Upgraded siting and quality of park furniture and targeted infill and additional planting	Park character and facilities are well maintained and there is an overall improvement in general condition	Community feedback, records of maintenance and improvement works
			5.2.2	Potential for facilities node incorporating pool complex entrance area and adjoining interface to park (on western side of pool)	M	Generous pathway link to double as forecourt entry to pool and link to park spaces beyond	Hard paved area with seating provides a suitable entry to the pool complex and relates to other park elements / uses	Detailed park design, implementation of improvement works
5.3	Magic Yellow Bus – mobile play use	Use of the park as a play area and gathering space is maintained	Weekly implementation of temporary play facilities	5.3.1	Continue Magic Yellow Bus use of the park in defined location	H	Potential for Magic Yellow Bus parking near new playspace adjoining existing rocket	Magic Yellow Bus activity maintained Continued use of the park by the Magic Yellow Bus
5.4	Park facilities	Park facilities meet user needs	Majority of park facilities are aged and of outdated visual appearance	5.4.1	Upgrade existing facilities or construct new ones as outlined elsewhere to provide an appropriate level of provision for users (refer below)	H	N/A	Park facilities are well maintained and there is an overall improvement in general appearance Community feedback, records of maintenance and improvement works
	Kiosk/café		Potential for a kiosk/café located within the park associated with pool redevelopment (double frontage)	5.4.2	Consider a public frontage of a kiosk/café located within the pool complex (that is double fronted)	M	Pool kiosk/café to operate on internal (pool) and external (park) frontage Potential to locate play facilities to complement café use for young families Potential for mobile play items operated by kiosk (ie. put away each night)	Kiosk/cafe facilities are accessible to a range of park users Implementation of pool and kiosk improvements, user comments
Toilets	Well lit and maintained public toilet facility is provided	Requirement for toilet facilities	Management of toilet facilities	5.4.3	Construct public toilet potentially in conjunction with swimming pool improvements in high activity / use areas (to improve security / surveillance)	M	Toilet design to facilitate safe public use with potential restriction on operation limited to pool hours	User safety, ease of use, maintenance Implementation of works, user comments
Picnic/bbq		Existing barbeque area facilities are in varied condition and have minimal relationship to adjoining uses such as the pool and the playground	5.4.4	Consider upgrade of barbeque area in conjunction with extension of secondary play space at rocket structure	M	Enhance barbeque facilities to provide greater user amenity and provide relationships to other uses (pool, playground etc.)	Improved siting relationship Implementation of works, user comments	
Seats/sitting areas		Current number and siting of seats does not relate to effective use	5.4.5	Rationalise seats throughout the park to key use locations	M	Position new seats in a range of accessible locations around the park (eg. to park edges and overlooking park)	As above As above	
5.5	Dog use	Dog access managed in accordance with Companion Animals Act	Popular dog walking area for local residents	5.5.1	Maintain on leash dog use of the park in accordance with Council's Dogs in Parks Strategy	H	N/A	Continued dog use, minimisation of conflicts with other park users Park user comments
				5.5.2	Support on leash use with dog bins etc. in accordance with Council's Dogs in Parks Strategy	H	N/A	As above As above

	Objectives		Pressures and Opportunities	No	Means (Strategies)	Priority	Design Principles	Assessment	
	Values	Desired Outcome						Performance criteria	Monitoring technique
5.6	Cycle Access	Cycle access effectively managed in context of other park users	Use of paths as through cycle route particularly by children	5.6.1	Park path network to cater for low speed cycle use (ie. Children) to major through routes. Commuter use encouraged to on road designated cycle routes, whilst northern east-west link upgraded to better cater for shared access	H	Widen northern east-west path link to cater for shared pedestrian and cycle access	Shared access route provided	Implementation, park user comments, visual assessment
5.7	Special Events	Optimum potential of park to cater for events without unduly compromising other park values is realised	Vehicular access	5.7.1	Maintain northern park area as key area for event use Use grassed terrace proposed adjoining Aquatic Centre redevelopment to cater for smaller events	H	Maintain northern grassed slopes as generally open area Provide grassed terrace proposed adjoining Aquatic Centre redevelopment to cater for smaller events	Events programme maintained and extended	Number of events undertaken without undue impact on other park values Community feedback
v6	EDUCATION								
6.1	Natural and Cultural heritage	Visitor awareness of site cultural significance improved	Potential to promote cultural heritage of the park	6.1.1	Refer 2.1.1 / 2.1.2 Review potential for interpretation of heritage features and site history in the park	H	Refer 2.1.1 / 2.1.2	Refer 2.1.1 / 2.1.2	Refer 2.1.1 / 2.1.2
				6.1.2	Investigate / review where required to provide basis for interpretation				
				6.1.3	Develop integrated interpretive / wayfinding signage strategy for the park				
				Park/interpretive signage should be multi-lingual	6.1.4	Integrate multi lingual elements into wayfinding and interpretive signage	H	N/A	Signs can be understood by all visitors to the park
7	INTRINSIC								
7.1	Access within the site	Internal and through site access links are maintained and improved	Potential conflicts between pedestrians and cyclists	7.1.1	Refer 5.7.1	H	Refer 5.7.1	Shared access route provided	Community feedback
			Impacts of vehicular access	7.1.2	Prevent unauthorised vehicle access with effective barrier system at driveway entries	H	Provision of single vehicular access point to Black Street	Impacts of vehicular access minimised	Detailed design, implementation, Community Feedback
				7.1.3	Relocate vehicular access to single location at Black Street – provide vehicle turn around at central rondel	H			
7.2	Access with adjoining areas	Access to/from adjoining areas maintained	The park is heavily used as a through route to nearby facilities such as the Marrickville Metro Shopping Centre	7.2.1	Recognise high use pathways and provide appropriate level of user amenity – resurface all paths as part of ongoing programme to quality asphalt finish	L	Visual dominance of central pathway diminished	Path connections to provide safe and equitable access	Detailed design, implementation, user survey
7.3	Car parking / vehicle access	Appropriate availability of carparking for staff and visitors of park and recreation facilities	Parking to Llewellyn and Victoria Streets is not sited in direct relationship to pool entry	7.3.1	Improve efficiency of 90° angle parking through linemarking – to be undertaken as part of Aquatic Centre redevelopment	H	More efficient parking to Victoria Road extending existing provision	Increase in effectiveness including siting of parking provision	Implementation of works
			Large number of park users walk to the park (as identified in community questionnaire)	7.3.2	Reinforce potential to access the park by walking or public transport through park signage to bus stop and to the park from adjoining areas	H	N/A	Increase in visitor awareness about public transport options	Increase in park visitation, community comments
		Efficient maintenance and emergency vehicle access	Maintenance access is currently provided from Victoria and Llewellyn Street and creates worn vehicle tracks into the park	7.3.3	Refer 7.1.3	H	Enhanced treatment of vehicle entries into the park	Clear identifiable vehicle entry to the park with minimal impacts	Detailed design plans for park improvements, implementation of works, community comments, visual assessment

6.0 MANAGEMENT STRATEGY FRAMEWORK

	Objectives		Pressures and Opportunities	No	Means (Strategies)	Priority	Design Principles	Assessment	
	Values	Desired Outcome						Performance criteria	Monitoring technique
7.4	Personal safety	Appropriate level of personal safety are afforded / perceived by park users	Antisocial behaviour by some park users	7.4.1	Park improvements to increase general park visitation and activity and assist through passive surveillance in reducing occurrence of anti social behaviour	H	N/A	Increase in general park usage, decrease in anti-social behaviour	Implementation of improvement works, community comments, police reports
			Lack of sight lines along some pathways pose risks particularly at night	7.4.2	Improve sight lines along access ways Improve lighting to access routes and adjoining areas that will be used at night	H	Improved visual links though the park through vegetation management aimed at increasing visual amenity and user safety	High level of visibility throughout park	Detailed design plans, implemented works, community comments, police reports
			Lighting provision does not specifically respond to desirable night access routes	7.4.3	Full review and replacement of park lighting focusing along main access routes with selected feature lighting as appropriate to key elements This will enable rationalisation of existing light poles where possible	H	N/A	Improved lighting provision along pathways and park focal points. Reduction in extent of pole provision across park	Lighting design plans, implementation of lighting improvements, community comments
7.5	Urban parkland	Parkland conserved and improved for current and future generations	Open space is a rare and a non-renewable resource	7.5.1	Refer generally – all strategies	H	N/A	Protection of open space areas	Council planning documents, Council meeting minutes, presence of the park
8	MANAGEMENT / MAINTENANCE								
8.1	Leases and licences to enhance public usability	Appropriate leasing of Crown Land for community use	Current management of the pool complex is by contract and lease is five year plus ten year option Leased areas are well utilised by the community and are believed to be compatible with the principles of Crown Land Management	8.1.1	Continue current lease arrangement and commence preparation of new lease agreement upon completion of pool redevelopment	H	N/A	Community benefit from leased areas	Community feedback
				8.1.2	Future lease / license arrangements to be compatible with the principles of Crown Land management and address new factors including: • double fronted kiosk / cafe • public toilet within pool building	M	N/A	As above	As above
8.2	Maintenance	A clean and well kept park	Litter bins are scattered throughout the park however are not sited in relation to key use areas or for easy emptying	8.2.1	Rationalise litter bin provision and site in locations in proximity to key uses as such as barbeque area and usage areas adjoining pool complex Site bins close to edge of park to limit impacts of maintenance vehicles entering the park	H	N/A	Provision of litter bins for visitor convenience	Park visitor survey
			Recycling desirable from an environmental perspective	8.2.2	Investigate potential to provide co-mingled (recycling and waste collection) bin stations at appropriate locations	H	N/A	Provision of recycling facilities	Bins installed
			High level of dog use	8.2.3	Provision of dog waste bins in relation to intensity of use	H	N/A	Provision of dog waste bins for visitor convenience	Community feedback
			Garden bed areas generally require higher level of maintenance species	8.2.4	Investigate potential to redefine garden bed character in the park by utilising hardy, native species Potential to rationalise extent of planting beds to highest impact locations	H	N/A	Lower maintenance requirements (including watering) to garden bed areas	Maintenance levels, Park user survey

<i>Objectives</i>		<i>Pressures and Opportunities</i>	<i>No</i>	<i>Means (Strategies)</i>	<i>Priority</i>	<i>Design Principles</i>	<i>Assessment</i>		
<i>Values</i>	<i>Desired Outcome</i>						<i>Performance criteria</i>	<i>Monitoring technique</i>	
8.3	Funding	Staged implementation programme addresses community and environmental priorities	Funding for improvement works needs to be confirmed / established Potential for external funding through State Government programmes (eg. Metropolitan Greenspace, Heritage Commission, etc)	8.3.1	Masterplan and staged action plan to provide basis for seeking of external funding	H	N/A	Suitability of plans in conveying proposed improvement works and assisting funding approval	Awarding of various funding grants

Part C
BACKGROUND

This section provides a review of existing and past physical and cultural character as a means of understanding its key values to the community and major issues for management.



View towards central garden bed



Enmore Road frontage



Open park character

7.1 Site context

Enmore Park is located between the centres of Marrickville and Newtown, and comprises 4ha of open space including the Annette Kellerman Aquatic Centre. The park is a significant element of the LGA's open space system and was the first park to be established in the Municipality of Marrickville.

The park is bounded by Llewellyn Street to the north, Black Street to the east, Victoria Road to the south, and Enmore Road to the west. Facilities of note located near the park include the Marrickville Metro shopping centre to the south west, the Bethesda Nursing Home situated on Black Street, and Stead House run by the Salvation Army.

7.2 Heritage

In pre-European times the site may have supported Turpentine-Ironbark Forest, however most of this was cleared for agriculture in the early 19th century.

Marrickville was originally part of the 'Eora' nation and populated by the Cadigal people who occupied much of the area between Port Jackson and the Cooks River.

The establishment of Enmore Park was in part due to public pressure largely instigated by Samuel Cook to provide park areas, and was the first park to be established in the Municipality of Marrickville.

One of the earliest features of the park (circa 1892), was a circular fountain to the centre, which may have contained fern plantings. This fountain was later replaced by a concrete bandstand between 1919 and 1922. At this stage drinking fountains were also installed and the pathways were asphalted.

By 1927 an informal cricket pitch had evolved to the southeastern corner of the park. During this time Council granted several sporting bodies permission to train on the park, despite pressure to conserve the park for non sports uses. Moveable soccer posts were allowed to be erected, however this use was not continued.

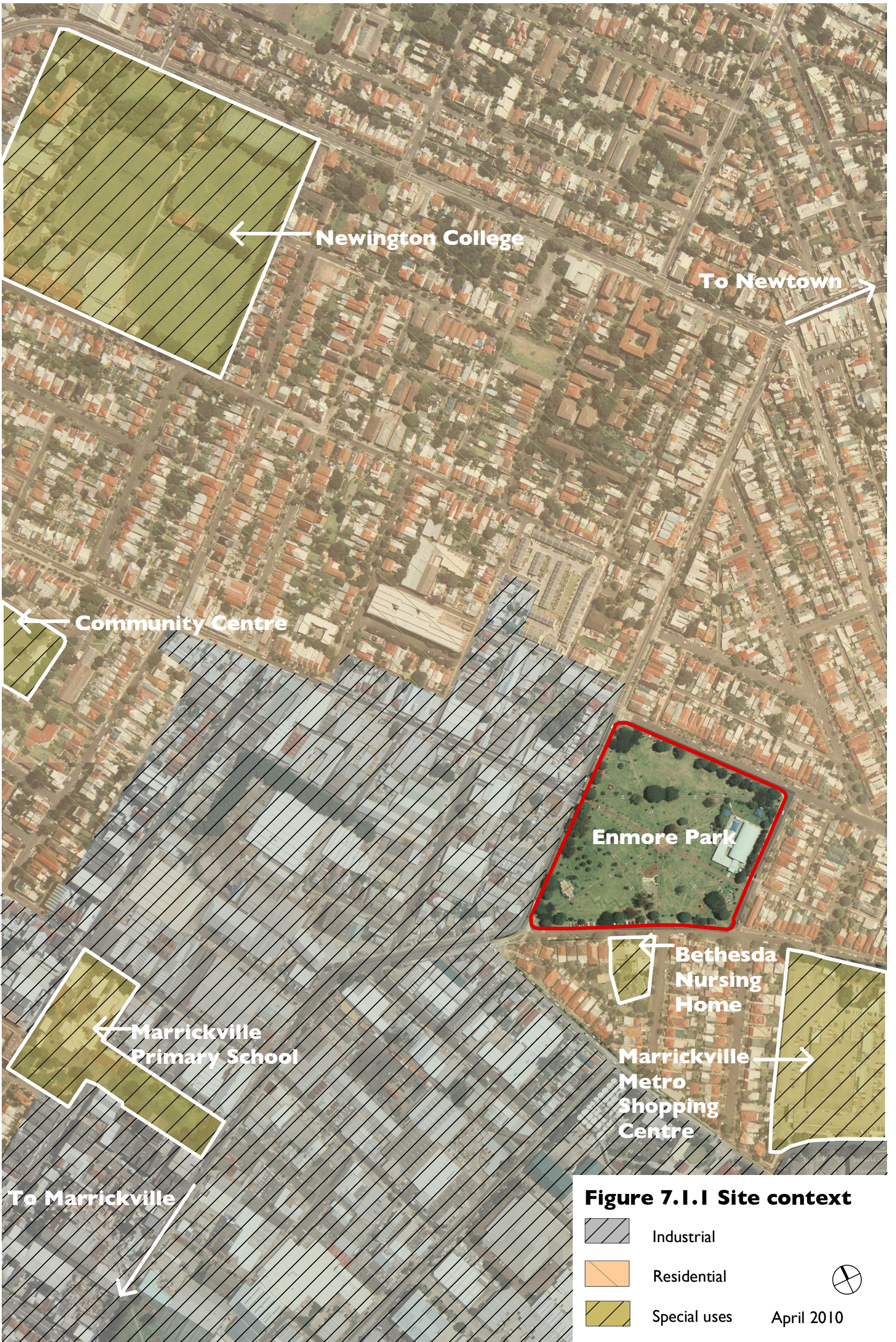
During the early part of the 1930's very few trees lay within the body of the park. Although a Phoenix Palm avenue had been planted, these were later removed and replaced with shrub planting.

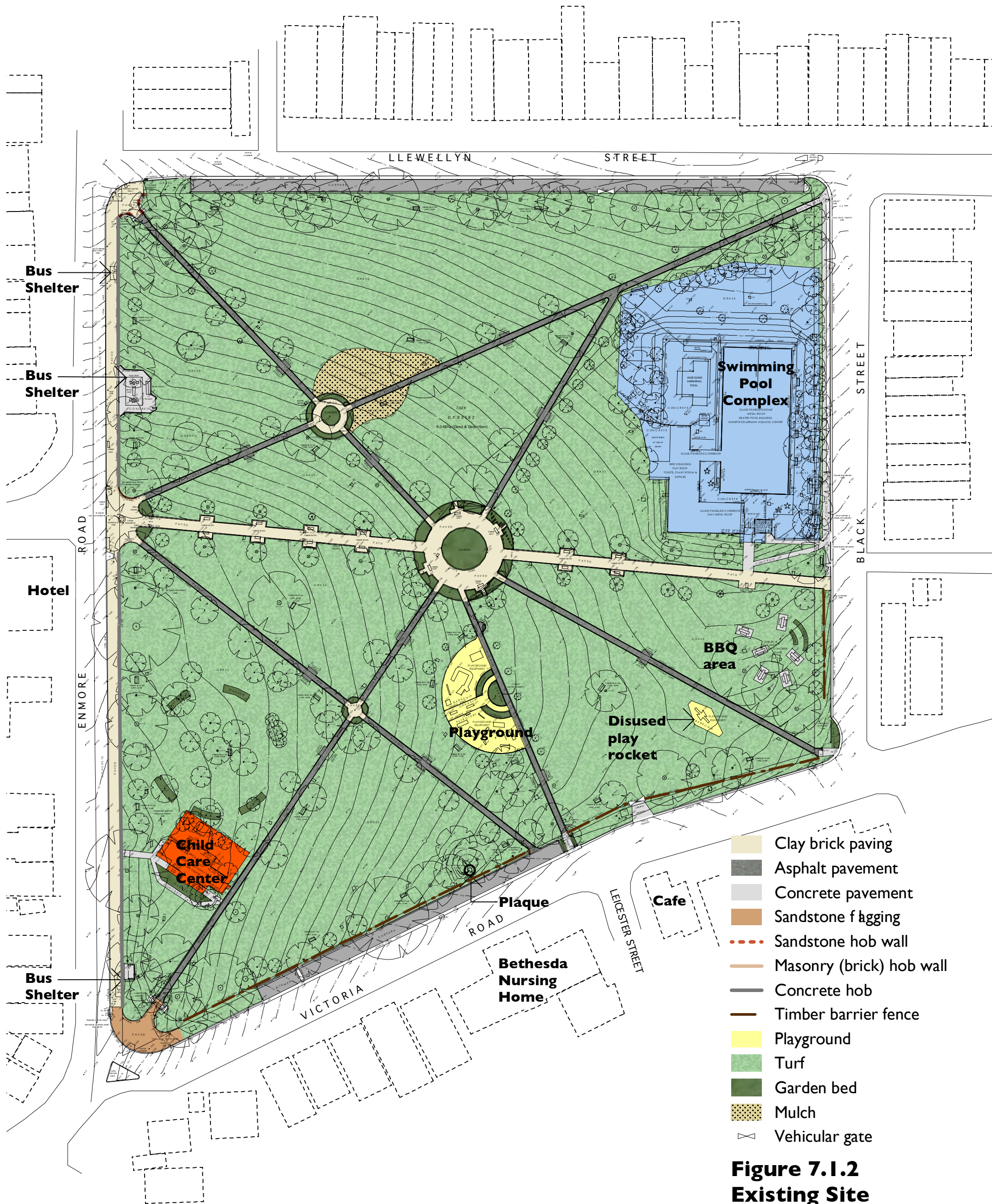
In 1937-1938 two stone entrances and a tram shelter were constructed on the Enmore Road frontage. Major works through 1951-1970 included the construction of the swimming pool complex, the children's resource centre building, and another building located in a southern quadrant of the park, which was later removed. The path layout remained fairly constant from 1930 up until the 1970's. Later path additions included extension of the central avenue to run adjoining the pool complex, connecting from Enmore Road to Black Street.

The overall configuration of the park has generally remained constant with its size remaining as it was officially proclaimed in 1886 and 1893. Many of the early pathways also remain in the same alignments.

A more detailed historical overview of the park is presented separately in the Conservation Management Strategy report prepared by Mayne-Wilson and Associates (refer Appendix).

A summary timeline of the evolution and development of the park is provided following.





- Clay brick paving
- Asphalt pavement
- Concrete pavement
- Sandstone flagging
- Sandstone hob wall
- Masonry (brick) hob wall
- Concrete hob
- Timber barrier fence
- Playground
- Turf
- Garden bed
- Mulch
- Vehicular gate

Figure 7.1.2
Existing Site



April 2010

Historical Timeline



1930



1942



1950



1970

- Pre 1788 The area now known as Enmore Park was an area of native vegetation. Geologically it contains the clay soils derived from the Wianamatta Shales. The area was part of the 'Eora' nation and populated by the Cadigal people.
- 1788 Arrival of Europeans and progressive occupation of the Sydney Basin from this time.
- c. 1810 35-acre grant to Wells' of which the southwest section incorporates the land of Enmore Park.
- 1883 Samuel Cook campaigns for provision with a letter to Sir Alexander Stuart (politician) outlining that the localities of St Peters and Marrickville had no park.
- 1885 10 acres of land resumed from original Wells' grant (now under trustees of John Black) and vested in trustees on June 5th.
- c. 1892 Central fountain constructed.
- 1893 4th May: first section of Marrickville Park (later to be known as Enmore Park) proclaimed.
- 1896 12th October: second section of Marrickville Park (later to be known as Enmore Park) proclaimed.
- 1911 2nd August: park was rededicated to the Municipality of Marrickville for public recreation.
- 1919-1922 Concrete bandstand erected in replacement of central fountain, several drinking fountains installed and paths asphalted.
- 1923 Council formally approaches Minister administering the *Crown Lands Act 1989* for a variation of the Trust. Approval to construct tennis courts or similar active recreation facility was sought. Later that year a proposal to enclose a 3¼-acre sport ground with picket fence was put forward to the Minister. No apparent action on these.
- 1920s Numerous local groups make applications to Council for access to the park for community events. Various letters also highlight the rundown and neglected state of the park during this time.
- 1924 Original fencing around the park removed.
- 1926 Sole control of the park transferred to Council. It appears that Council's intent was to pursue the option of a formal active recreation area for cricket, football and cycling.
- c. 1927 Cricket pitch created in the southeastern corner of the park. Around this time Council also granted permission to several sporting bodies to train on Enmore Park. Movable soccer posts were allowed to be erected.
- 1927 Council decided not to pursue active sports option for the park. Use of the park to train greyhounds was also banned.
- 1925-1927 Park's name changed from Marrickville Park to Enmore Park, however these names were interchangeable for many decades.
- 1930 Park defined by a haphazard line of canopy trees around its street boundaries with few internal trees. Appears park was being used for facilities and events as the 1930 aerial indicates a range of small structures that may have been associated with a circus event or something similar.
- c. 1936 Substantial expansion and improvement works undertaken to many of the parks within the Marrickville area.
- 1937 Funding allocated towards the construction of two stone entrances, and a tram shelter, constructed between 1937-1938 partly using relief labour.
- c. 1942 Park layout remains primarily unchanged. Zig-zagging elements located around the parks boundaries likely to have been facilities or features built for WWII purposes. These were removed by 1951.
- 1944-1959 Park changed its name to D.V. Cochrane Park in honour of the Labor alderman and mayor, however after he failed to fall in line with Labor policy he was expelled from the party.
- 1959 Name of park changed back to Enmore Park.
- 1951-1970 Several major works occurred including the construction of the swimming complex (early 1960's), use of a large triangular area of the site to the south (unknown facility) and the construction of the Children's Resource Centre building.
- c. 1992 Various upgrade works undertaken to park including new playground.

7.3 Vegetation

Enmore Park contains a number of different tree species of varying quality and maturity. There are also a number of garden bed areas that also lack a cohesive planting scheme with many different species used through out the park, and are difficult to sustain from a maintenance perspective.

Prior to 1788 the area would have supported native vegetation. According to Benson and Howell (1990), the Marrickville Municipality largely occupies undulating country with clay soils developed from the Wianamatta shales. The area would have supported Turpentine-Ironbark forest, however most of this was cleared for agriculture in the early 19th century. The Turpentine-Ironbark Forest would probably have had trees 20-30 metres high, forming an open forest structure. Tree species would have included Turpentine, White Stringybark, Red Mahogany and Grey Ironbark. Common understorey species included *Acacia falcata*, *Acacia parramattensis*, *Dodonea triquetra*, *Pittosporum undulatum* and *Polyscias sambucifolia*.



Open grass to eastern zone



Varied tree planting



Garden bed planting

Pressures	Opportunities
Varying species, age and quality of tree species provides somewhat uncohesive park landscape	The varying age of species will enable staged removal as they reach their maximum Safe Useful Life Expectancy (SULE) Varying species provides varied landscape character with the lower western zone typified by a greener 'civic park' landscape and the eastern more open and dryer
Garden bed planting uses many different species and lacks a cohesive vegetation character	Potential to redefine garden bed character in the park by utilising hardy, native species
Garden bed planting incorporates high maintenance species	Potential to rationalise extent of planting beds to highest impact locations
Some recent tree planting has not satisfactorily developed – potential issues with preparation, plant stock, and / or maintenance	
Shrub planting at path intersections often impacts view lines / security	

An Arborists assessment by Urban Forestry Australia reviewed the overall health, condition and landscape significance of the trees in Enmore Park. This was undertaken as a two part process, with an initial assessment of the trees that broadly sit within the Aquatic Centre development area to assess potential impacts of the proposed development. This was followed by an audit and assessment of the remainder of the park area. Full copies of these assessments are provided at Appendix C.

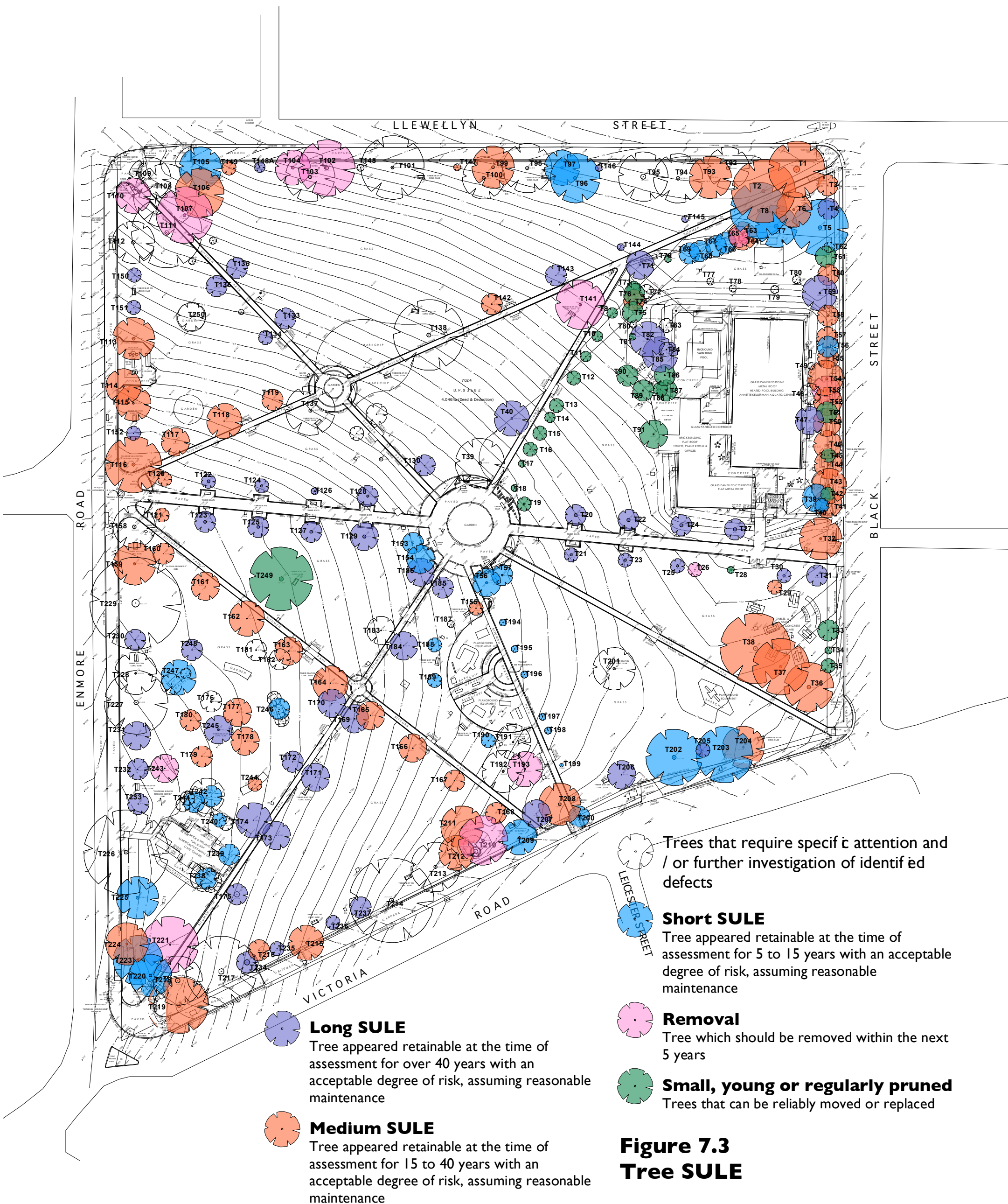


Figure 7.3
Tree SULE





Ball game area - north



Worn and compacted grass



Kerbed pathways

7.4 Landform, soils and drainage

The landform of the site generally falls to the west with the northern half strongly oriented to the southwest with a focus on the east-west path connection at Addison Road. The southern section slopes due west being steepest in the centre of the park. General falls average 1:27 in the northern zone and vary between 1:100 to 1:40 in the southern.

The 1991 Plan of Management for Enmore Park included an investigation of the soil and drainage conditions, which was undertaken by The Sydney Environmental and Soil Laboratory. Although 15 years old, the issues flagged by the report generally remain valid and so the significant findings of this report are summarised below.

The naturally occurring soils in Enmore Park have a high field capacity, which means that they retain relatively high quantities of water, and may feel damp. The western low points in the park are consistently quite damp in times of regular rainfall, reflected in the current contrast in that condition between these and higher lying areas of the park. Despite the high field capacity, the soils generally drain well unless compacted.

Three areas of compaction were identified:

- Around the two play areas (south-southwest)
- The old ball game area (north)
- Lines of regular vehicular wear (from Victoria Road)

The key implication of compaction is that it increases the run off during rainy periods and generally reduces turf quality. Compaction results from the passage of vehicles particularly when the soil is damp.

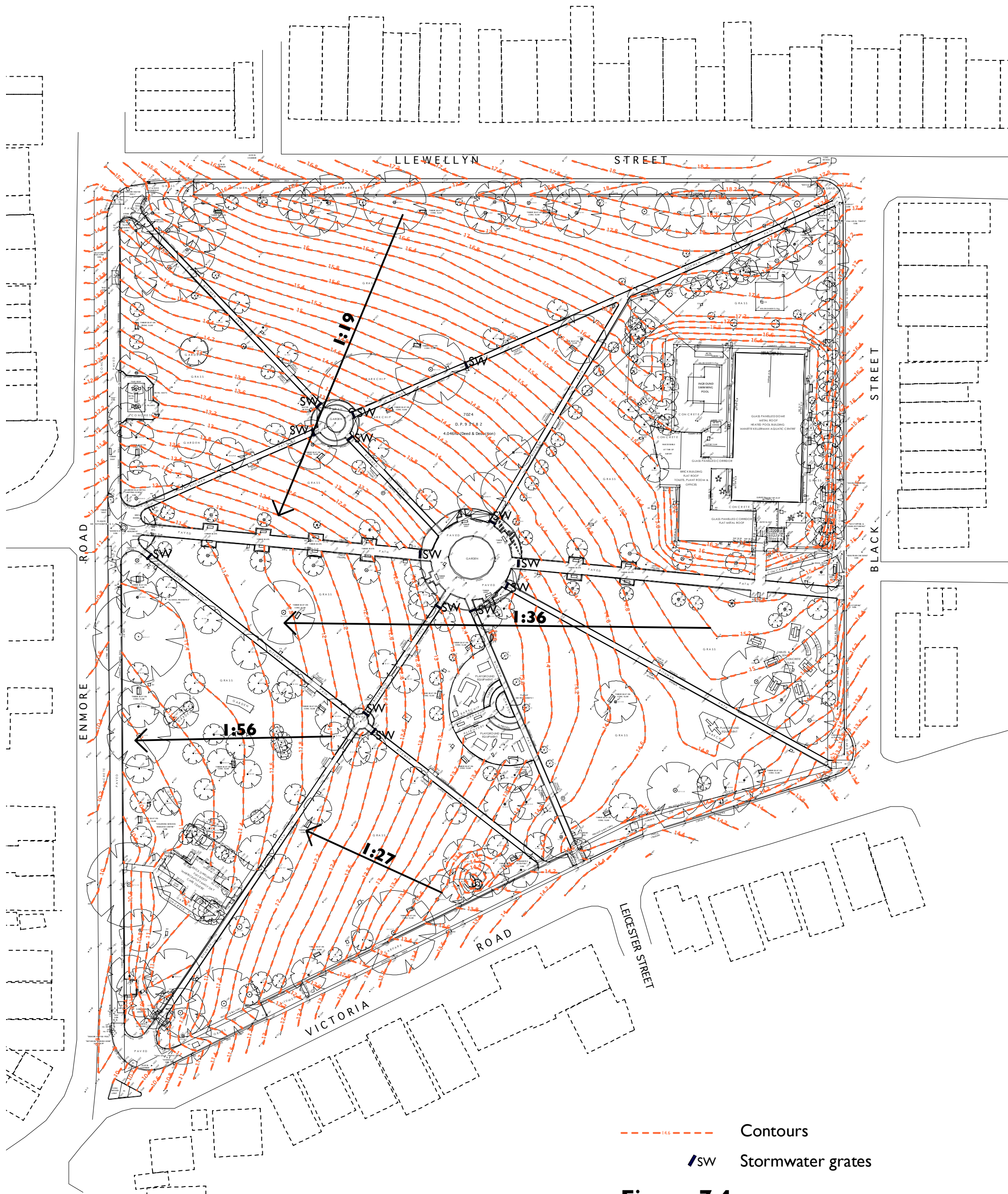
The report identifies that compaction can be relieved by surface cultivation and re-sowing of turf. This would be a short term measure lasting 12 months at most. If accompanied by slitting and/or coring with a coarse sand backfill the results would last a further 24 months. Alternatively compaction can be relieved by ripping to depth of 300 mm, regarding to ensure surface runoff and topdressing. Special treatment is needed for any areas damaged by construction work. This is a longer term solution. Application of potassium and phosphorus will increase the turf's resistance to wear.

The report recommends the reinstatement of the old surface drainage system (that is remove kerbs to pathways) and rationalisation and restriction of vehicular movement through the Park after heavy rain to alleviate the recurrence of the soil compaction problem in the future.

It also recommends some more specific changes to operational and maintenance regimes including mowing vehicles being rescheduled to avoid mowing when the ground is wet. It is understood however this could increase costs. Also suggested is the relocation of bins to near the edges of the Park so that they can be emptied from the kerbside.

Vehicle access to the pool complex is also addressed with the recommendation that vehicles to the pool complex could be given direct access from Black Street and if necessary pool chemicals piped to the kerb to reduce the necessity of tankers entering the Park. One or more paths could be reconstructed to a vehicular standard and become the route of entry for any vehicles such as the Magic Yellow Bus and any vehicles required for future events. Mini bus access to the Children's Resource Centre is also understood to be required from time to time. The report suggests relocating the Victoria Road vehicular access gate thereby reducing the distance that vehicles have to be driven over grass.

Drainage in the park would generally follow topography in focusing overland flow on the western edge of the park in particular towards the centre frontage near the Addison Road intersection. However the existing path network integrates a kerb and pit drainage system and so acts to interrupt surface runoff. This may limit the benefits of rainfall on moisture retention to grassed areas.



- - - - - 14.6 Contours
/ SW Stormwater grates

Figure 7.4
Landform, Soils & Drainage

7.0 REVIEW

The 1991 report addressed drainage problems where use was impacted by moisture retention after rainfall. These issues are of much diminished focus in the more recent conditions of water shortage. However drainage must be recognised as an issue to be considered in any other broader grassed surface improvements such as cultivation or soil improvements, particularly in the western section of the park.

Source: Manidis Roberts Consultants and Sydney Environmental and Soil Laboratory, Enmore Park POM 1991.

Pressures	Opportunities
Consistent sloping topography generally towards Enmore Road	Natural amphitheatre effect to many areas of the park creates visual interest and lends itself to event usage
Poor soil quality and compaction in some areas is affecting grass and tree condition and development	Improved soil quality across the park with particular emphasis to areas on eastern side of park
Kerb pathways with pit drainage draw a significant proportion of runoff away from park landscaped areas and grass land	Potential to remove kerbs to some paths to promote runoff to adjoining grassed areas
	Improve subsurface drainage to west section of park in any major grass improvement works in the future

7.5 Access

Enmore Road is a major vehicular route linking to King Street and the Sydney CBD. As such it supports several bus routes with stops on the park frontage (routes 355, 423, L23, 426, 428).

The park is bounded by roads to all sides, with the northern and eastern boundaries flanked by Llewellyn Street and Enmore Road, both of which are also busy collector roads that support high daily volumes of traffic.

Pedestrian Access

There are a number of entry access points across the park, however existing formal entrance treatments are focussed on the three entries on Enmore Road. The Enmore Road entries each have heritage elements and provide important contributions to park character. Entries occur to each park corner with centred entries to all frontages except for Llewellyn Street. Entries receive varying intensities of use with the most heavily utilised to the north eastern corner and central eastern edge (opposite Addison Road). These two entries also have signalised pedestrian crossings, which is a contributing factor.

To both the Llewellyn (north) and Victoria Road (south) frontages a degree of informal entry also occur through the flush park edge.

Enmore Park incorporates a number of pathways that have generally remained in the same locations since the 1930's. The most significant exception being the east-west avenue extension from the central garden bed to Black Street adjoining the pool, which was not implemented until the 1970's.

There appear to be several key links that support the greatest pedestrian movement. These are:

- The central pathway from Enmore Road to the centre of the park
- The path from the north west to the south east corner (that deflects slightly around the central feature)
- The path from the Enmore Road central entry to the north east corner.

The park user survey undertaken in preparation of the 1991 POM also identified that the path running from the centre of the park to the south-east corner is the most heavily utilised path. This may reflect a linkage through to Marrickville Metro.

Cycle Access

Cycle access through the park is common as it lies on a movement corridor from east to west with both Llewellyn Street and Victoria Road linking to Addison Road. Kerbs currently reduce the safety of cycle access through the park on the shared use paths as there is reduced ability for cyclists to avoid pedestrians.

Vehicular Access

The park provides vehicle access to police, service and emergency vehicles, as well as the Magic Yellow Bus play group that visits the park once a week and pool maintenance vehicles. Pool vehicles enter the park from the gate at Victoria Road and travel through the park some distance to access the pool buildings. The grass along this route is visibly worn and compacted due to vehicle access.

Parking is limited to on street areas to Black Street, Victoria Road and Llewellyn Street and is a combination of ninety degree angle and parallel parking. This parking provision must service both park and swimming pool users, and is currently not line marked (which may limit the maximum effectiveness of this parking during high use periods - Saturday morning swimming lessons etc).



Southeast corner entry



Vehicular access gate

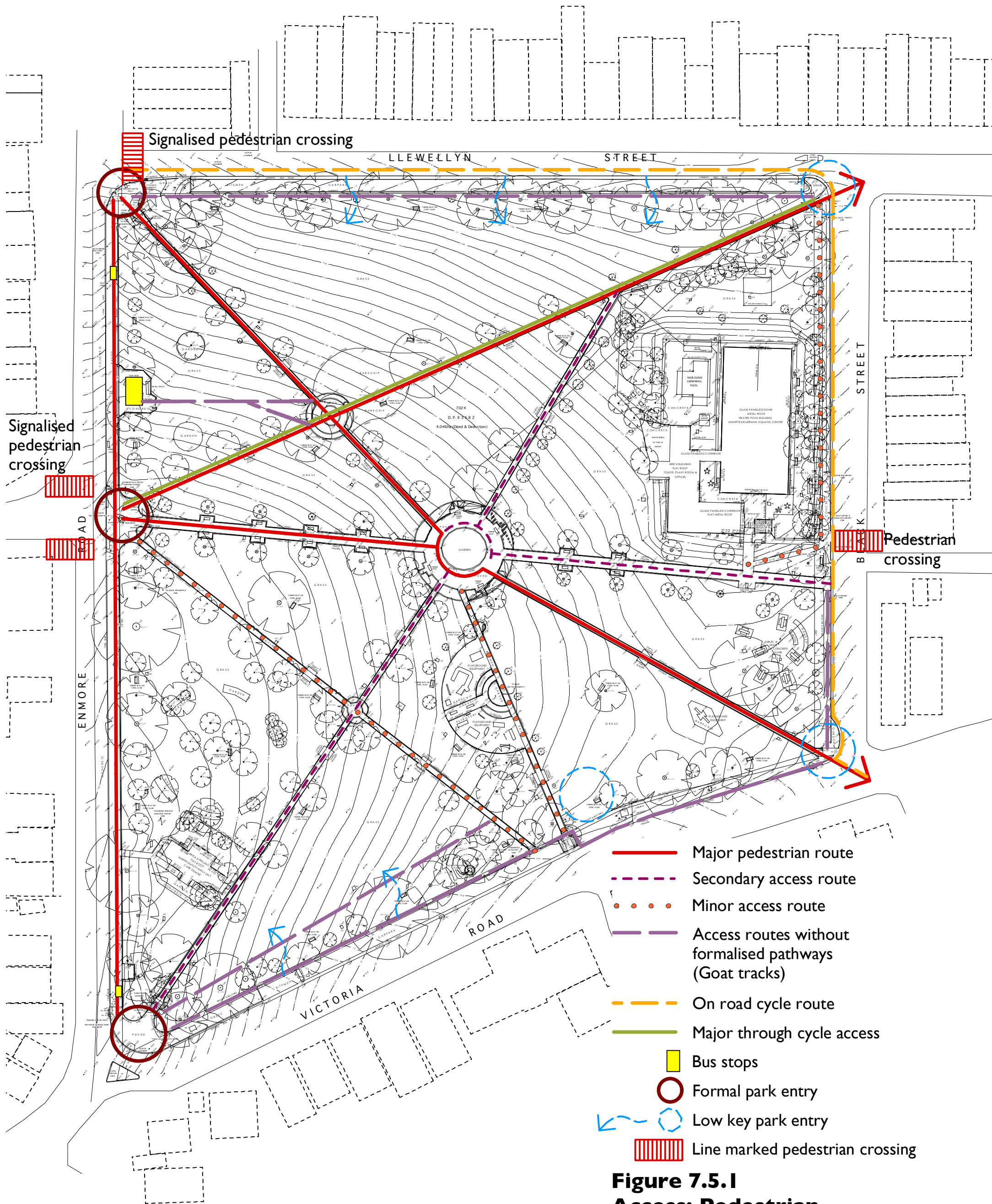


Enmore Road central entrance



Enmore Road southern entrance

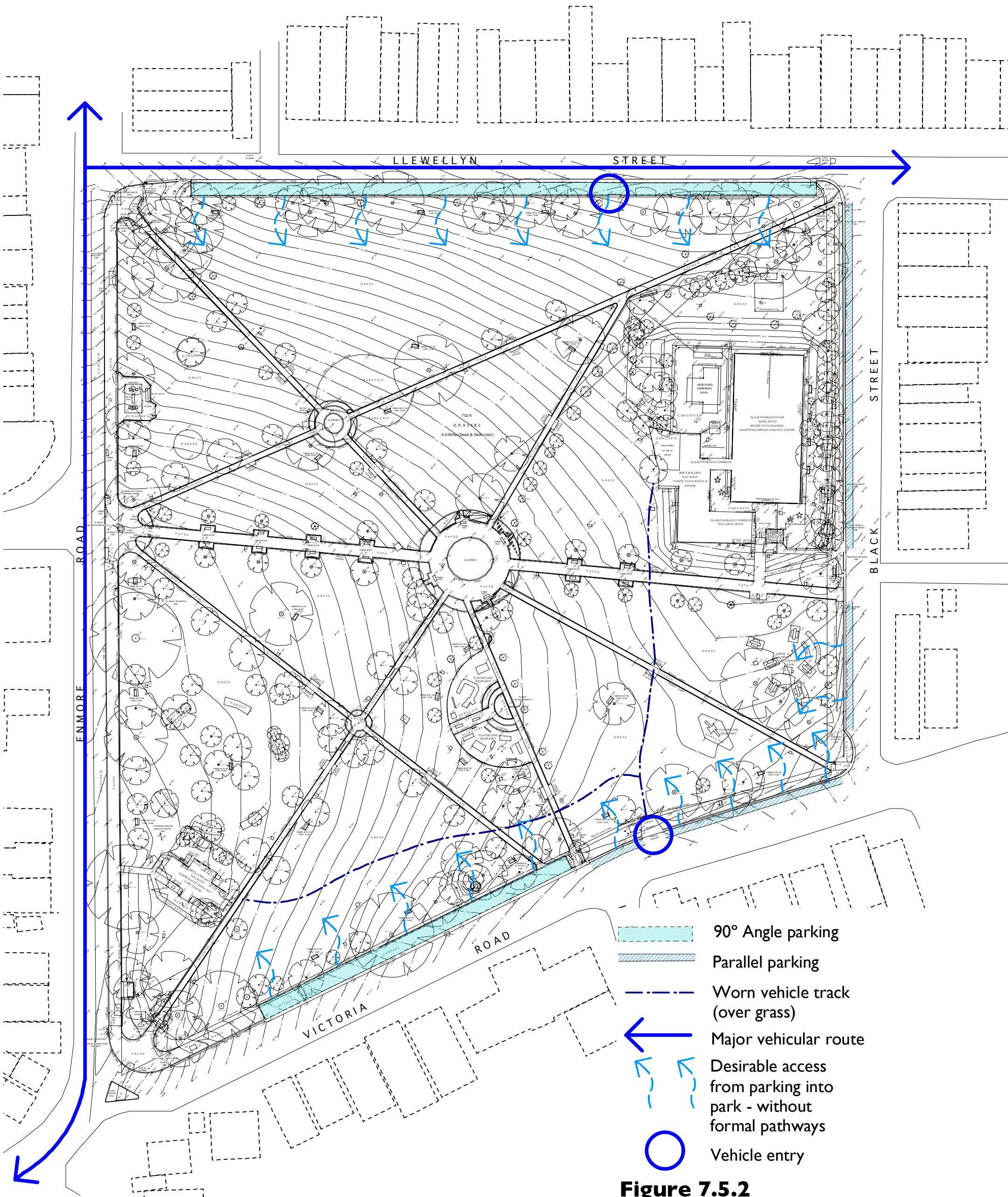
Pressures	Opportunities
Parking areas do not have an access threshold to the park and in combination with overshadowing resulting in worn / compacted grassed areas	Potential to provide edge treatment that reduces access impacts on grassed areas and can also better accommodate shade implications of boundary tree planting
Major avenue through centre of park does not reflect a major pedestrian route as the section adjoining the pool appears poorly used relative to other path routes	Pathway system to have regard of usage levels of pedestrian routes - Major paths central to central feature, and connecting paths to north east and south east corners
Visual barriers (garden beds to path intersections) limit visual connection with access destinations, and may reduce security for night use	Improved visual access and security along pathways through limitation of understorey planting
Poor entry feature / presentation to corners of Black and Llewellyn Streets, and Black and Victoria Road	Improved entrance areas to respond to the high level of access at the north and south east corners of the park
Major entrance from Enmore Road at Addison Road does not provide adequate space for multiple users of the three paths that radiate from this point	Improved major park entrance to Enmore Road better accommodating volume of users and focal visual role
Desire lines currently not catered for evidenced through worn tracks: - Victoria Road perimeter - Heritage bus shelter into park	Review potential path provision to desire line locations in context of minimising impacts on park usage and visual character



- Major pedestrian route
- - - Secondary access route
- . . . Minor access route
- Access routes without formalised pathways (Goat tracks)
- - - On road cycle route
- Major through cycle access
- Bus stops
- Formal park entry
- - - - Low key park entry
- Line marked pedestrian crossing

Figure 7.5.1
Access: Pedestrian





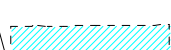





-  90° Angle parking
-  Parallel parking
-  Worn vehicle track (over grass)
-  Major vehicular route
-  Desirable access from parking into park - without formal pathways
-  Vehicle entry

Figure 7.5.2
Access: Vehicular

7.6 Landscape and visual character

Overall the park is mixed in character having evolved with a fundamentally Victorian structure that has been subject to several major interventions and interpretations of landscape theme.



Open grassed area

The park presents a Victorian park character to Enmore Road and the lower lying western quadrant of the park, where a higher quality of grass cover and extensive plantings promote a civic landscaped feel. The boundaries to Llewellyn Street and Victoria Road are also well treed and provide an attractive outlook for residents. The Black Street frontage is closed off for 50% of its length by the pool complex although buffered by a strongly native tree canopy.



Garden bed and mulched zone

Internally park character is somewhat un-cohesive with two identifiable zones to the eastern and western sides of the park.

The main element of the more elevated eastern side is the pool complex. The past building had minimal functional or visual interface with the park, with harsh brick facades, service areas, and visually obtrusive chain wire fencing presenting to the park. The new structure under construction in 2010 aims to significantly improve the visual and functional relationship with the park.



Black Street

A barbecue / picnic area is located opposite the pool entry, although there appears in the past to be minimal usage relationships between the two. The eastern zone is typified by fewer tree plantings and generally has a barren visual character with much of the open grassed area worn and compacted.

In contrast, the western zone of the park provides a more civic park character with more frequent tree planting and a 'greener' visual feel in part due to the better condition of the grass to this zone. There are also a greater number of garden beds, although these can create visual barriers, preventing clear views along pathways to destination points and overly fragmented grassed areas.



Victoria Road vehicular access

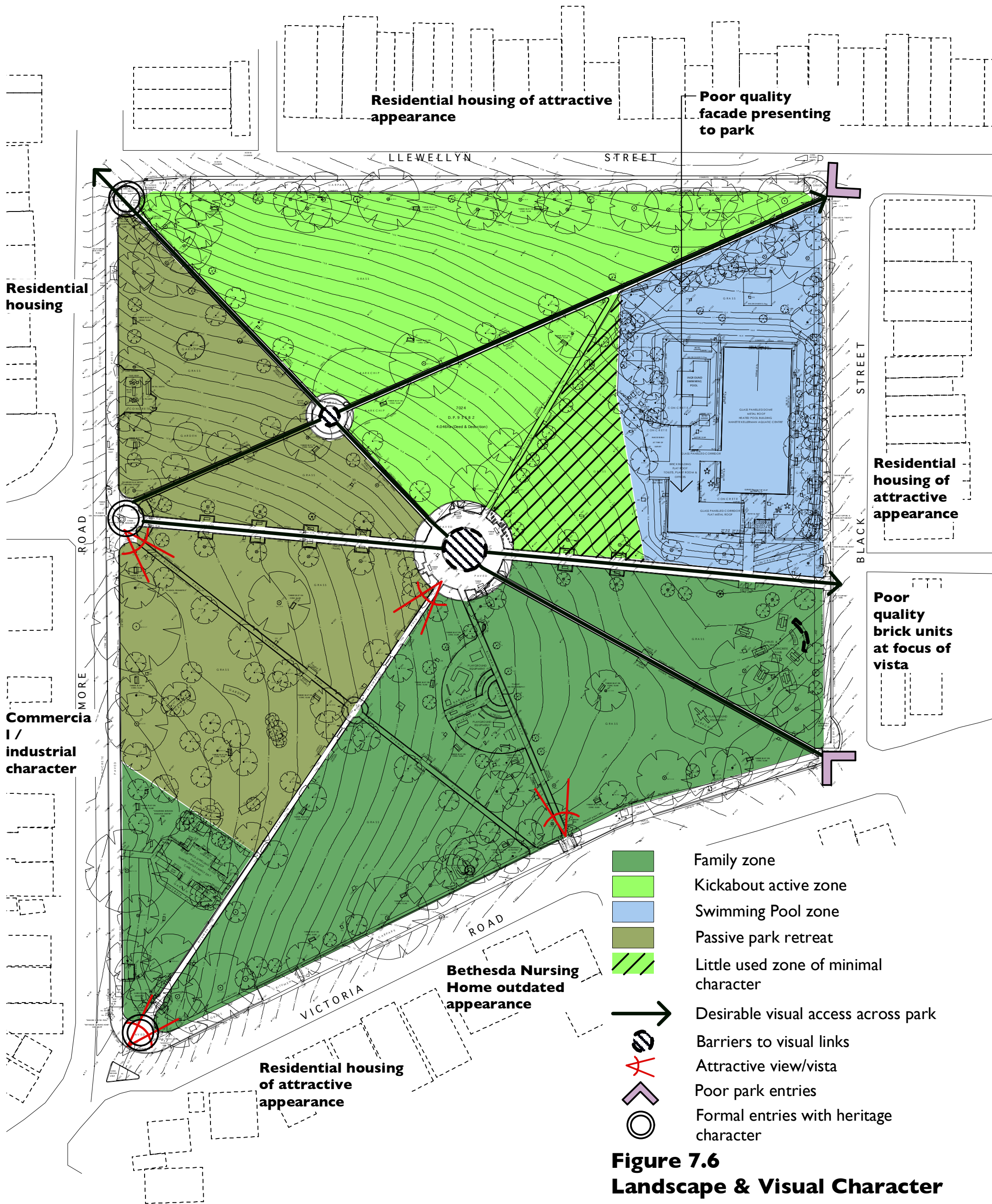
There is a sense across the park of a somewhat cluttered appearance. This is propagated by a number of factors of which extensive intervention of paths and garden beds to grassed spaces, the varied path materials, varied park furniture and varied tree planting species are major contributors.

Pathways include asphalt pavements with low concrete kerbs or brick pavement with low brick kerbs. The use of the different materials may be aimed at delineating a varied hierarchy to the pathways, however the overall visual impact is uncohesive and does not reflect the intensity of use each path receives. In particular the central path does not function as the main pathway east of the central feature, with users generally veering off the northeast or southeast corners once they reach the centre of the park.

The extensive variety of tree species also contributes to a lack of an overall park character, with trees of varying height, form, age and visual effect. Resolving the right balance of planting to retain a park character whilst promoting a tone and identity will be an important step.

The sheer number of park furniture elements including seats, garbage bins and lights contributes to the cluttered park landscape. This is further compounded by the often poor siting of these elements, which often does not relate to park use or function in a meaningful way. The character of the furniture elements is heritage in style, which may not be the most effective means of recognising and celebrating the heritage character of the site.

Pressures	Opportunities
Interface / visual relationship of pool to park is poor	Pool redevelopment to provide more open frontage / entrance area and visually attractive boundary treatments (palisade fencing etc.) Pool planning to consider and implement relationship to an 'interface' zone that acts as a transition between the park and the pool facility
Poor condition of grass to eastern side of the park contributes to a barren character and is a major factor in the visual division of the park into character zones	Different park character of western and eastern zones may be of use in defining park use / function
Varied path materials creates uncohesive park character	Unified path materials across park providing more cohesive park character and reducing maintenance requirements
Varied tree species across the park	Rationalisation of tree species over time will contribute to establishing a more identifiable and stronger park character
Number and placement of street furniture contributes to cluttered character	Rationalise park furniture and siting to better respond to usage / functions (eg. desirable seating locations, bins near picnic areas etc.)
Furniture elements attempt to promote heritage character	Potential to incorporate more contemporary furniture palette that is more visually recessive and reflect heritage character through other strategies



**Figure 7.6
Landscape & Visual Character**

7.7 Park use and recreation

Enmore Park supports a number of park uses predominantly focused on informal recreation such as walking, playing, kick about and picnics. The park serves an important walk through function in particular providing a pedestrian through route to the Marrickville Metro Shopping Centre. Children also use the park as a cycle through route, with older riders more likely to use the on road cycle routes to Black and Llewellyn Streets.

The western side of the park which provides a more defined green park character serves as a retreat space for more solitary park use such as sitting, lunchtime use etc. The eastern side is more open with the northern section in particular providing the greatest open area to facilitate informal ball games, kite flying etc. Park signage currently indicates that ball games are not permitted in the park however this use is occurring. Signage and Council's strategies also note that it is an 'on leash' dog use only park, however the park appears to be well utilised by local residents for 'off leash' use.

The 1991 POM included a park user survey (121 valid responses) and community consultations component. While this study was undertaken some time ago, the key findings that are believed to be of relevance today have been summarised below.

Park User Survey

The user survey identified that Enmore Park receives a high level of use for a local park with an estimated number of between 50,000-100,000 visits each year (excluding swimming pool users which was estimated to total 40,000 visits). This figure is low when compared with other urban parks with swimming pools such as Victoria Park and Prince Alfred Park which at the same time received around 500,000 visits a year.

The survey found that the majority of users visit the park at least once a week (58%) and that walking to the park was the most common mode of travel (76%). Generally visits to the park were short, with 71% of users spending less than one hour in the park.

Activities undertaken in the park include walking (often through the park to Marrickville Metro shopping centre), children playing on the play equipment, and using the Magic Yellow Bus temporary play facilities.

The survey identified that the path running from the centre of the park to the southeast corner is the most heavily utilised path.

The key attraction of the park is the open space available, for 30% of users surveyed. Other attractions to the park included the pool and trees. The main dislike (44% of respondents) of the park was the standard of park maintenance, including poorly maintained grounds and dog excrement.

Current General Community Use

The following activities generally reflect the ranges of informal uses occurring in the park.

- Walking through
- Lunchtime use (predominantly western zone)
- Rest and seating (predominantly western zone)
- Children's play
- Barbeques
- Cycling
- Jogging
- Dog use

Current General Community Use

The following organised uses occur in the park.

- Magic Yellow Bus (regular mobile play event)
- Festival events



Cycling



Playground



Central pathway



Cycling from Enmore Road



Dog use

Pressures	Opportunities
Park used as an important through route to key destinations such as Marrickville Metro	<p>Park routes can respond to through access by increasing path width and providing more formalised entries to key access points</p> <p>Through access should provide a pleasant experience for users on their broader neighbourhood journey</p>
High level of off leash dog use	Consider means to achieve better recognition of other parks that are available for off leash use
Signage currently notes that ball games are not permitted	Consider review of signage to permit informal ball games to northern park (note: generally the character and layout of the park will prevent formalised sporting use)
Zonation of park into quadrants (west, north, east and south) shaped by different landscape character (open, barren vs. green park)	<p>The zonation of the park may assist in defining park use and function:</p> <p>West: passive recreation in civic park setting</p> <p>North: ball games and active use / major events in open grassed area</p> <p>East: Pool complex</p> <p>South: local park family use (a balance of passive and active space)</p>

7.8 Structures

The park contains a number of buildings outlined in the table below.



Old Swimming pool entrance



Rocket



Bus shelter – Enmore Road



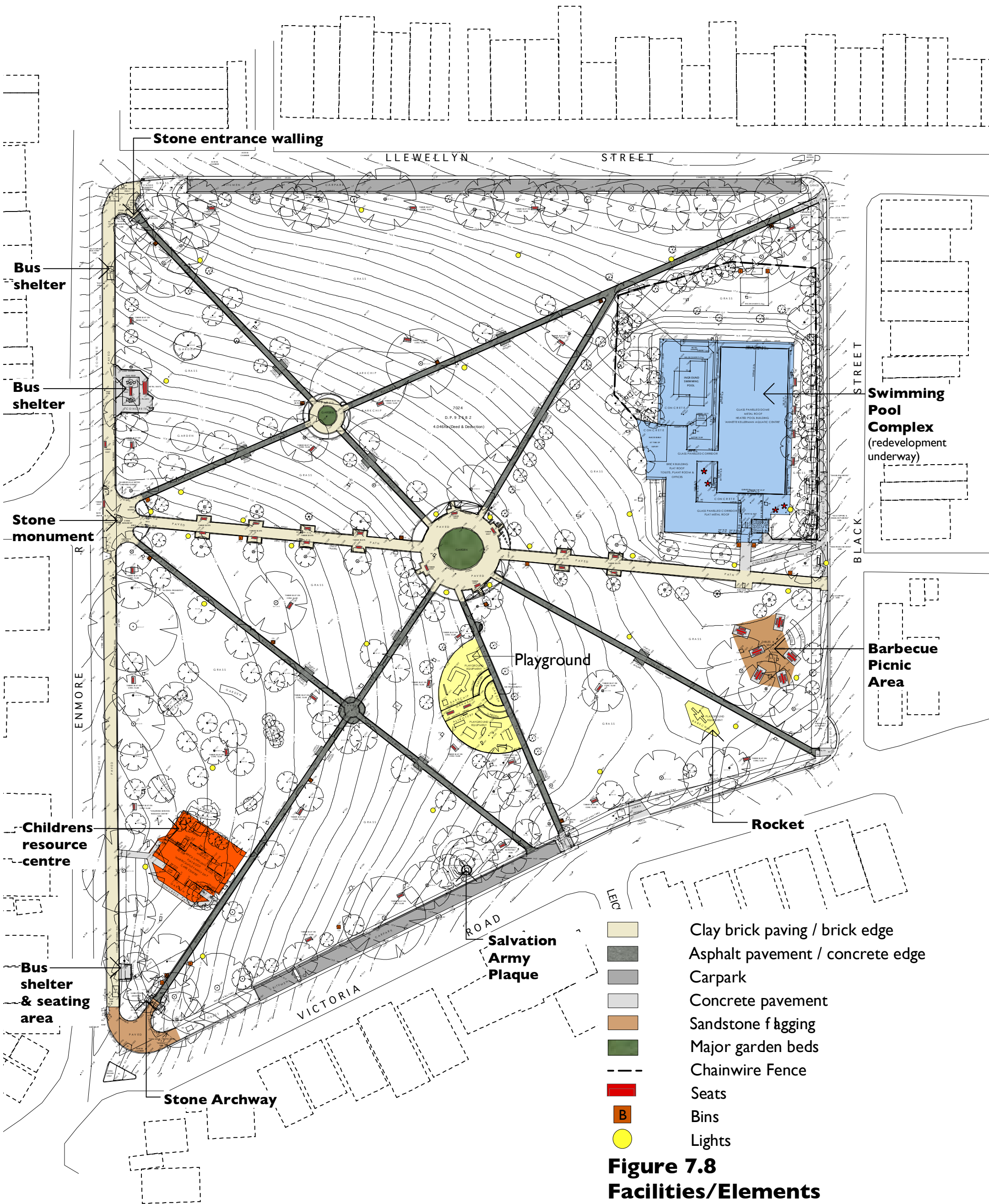
Children's Resource Centre

Structure/building	Description and condition
Swimming pool complex (upgrade in progress in 2010)	New Aquatic Centre comprising <ul style="list-style-type: none"> • 50m heated indoor pool • Learn to swim and leisure pool • Wellness Centre • café and paved terrace Expected completion in late 2010
Children's Resource Centre	<ul style="list-style-type: none"> • Blonde brick building of minimal character and relationship to park
Children's playground area	<ul style="list-style-type: none"> • Constructed in the 1990s

There are a number of other built elements found in the park including:

- The Rocket play structure – top tiers have been sealed off to prevent access
- Tram / bus shelter constructed late 1930's
- Sandstone gateway to corner Enmore Road and Llewellyn Street constructed late 1930's
- Sandstone archway to corner of Enmore Road and Victoria Road constructed late 1930's
- Stone monument to central Enmore Road entrance
- Central garden bed area featuring concrete edge (previously concrete bandstand and originally a central fountain)
- Salvation Army Plaque located opposite the Bethesda Nursing Home

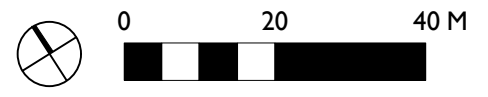
Pressures	Opportunities
	Existing elements (stone entrance and archway) to Enmore Road define entrances and provide important visual character to these areas
Children's Resource Centre (CRC) building is outdated and has little relationship visually or functionally to the rest of the park	Long term relocation of CRC building to alternative location (off site) providing more contemporary facilities and enabling corner of park to be better utilised for park recreation purposes
Pool building has poor relationship to the rest of the park (visually and functionally)	Pool redevelopment in progress in 2010
Playground does not have any significant shade available (trees or shade structure)	Implementation of shade structure to increase amenity to the playground in current or revised location
Playground appears relatively well used however location is more focussed on southern zone of park, and is visually separated from northern section of park	Consider relocation of the playground to provide more central location further away from roadways with better access to all park areas



- Clay brick paving / brick edge
- Asphalt pavement / concrete edge
- Carpark
- Concrete pavement
- Sandstone flagging
- Major garden beds
- Chainwire Fence
- Seats
- Bins
- Lights

Figure 7.8
Facilities/Elements

April 2010



7.9 Existing leases

Details of Leases & Licenses

Lessor /Licensor: Enmore Park Reserve Trust

Facility leased/licensed	Form of agreement	Lessee/Licensee
Swimming Pool	License (2006-2011) Five year with 10 year option	Belgravia Leisure

7.10 Management and maintenance

Enmore Park is managed by Marrickville Council and maintenance is undertaken by Council's maintenance staff in accordance with agreed service level specifications.

The Annette Kellerman Aquatic Centre is managed and maintained by the lessee.

8.0 RELEVANT BACKGROUND INFORMATION

8.1 Previous studies

8.1.1 Enmore Park Plan of Management & Masterplan 1991

The Enmore Park POM (1991) was prepared by Manidis Roberts Consultants in conjunction with development of a landscape masterplan for the site. The POM also incorporated preparation of a soil investigation undertaken by the Sydney Environmental and Soil Laboratory, and a historic resources survey prepared by Godden Mackay.

The primary aims of the plan are as listed:

- Increase the opportunities for recreation.
- Increase the quality of recreation opportunities.
- Develop a landscape character that reflects both the locality and history of the park.

In order to meet these aims, several key actions were identified:

- Replacement of existing play equipment with a range of equipment that caters for a variety of age groups from infants to teenagers, including a regional facility providing access for disabled children.
- Replacement and addition of new park furniture which is coordinated and in keeping with the heritage of the park.
- Rebuilding existing paths to be wheel chair friendly, with the addition of a new entrance to the pool complex.
- Removal of small flower beds and those shrubs that are in poor condition from the inside of the park. Planting of additional trees around the boundary including a display bed along Enmore Road.

The POM noted that given the parks size and location, the park has significant potential to offer greater opportunities to the community in terms of recreational use and amenity. As part of the POM process, park user survey and community consultation sessions were undertaken.

The preferred masterplan developed through the study process retained the basic path system configuration, however utilised curving pathways. Features of the plan are:

- A main avenue running from Enmore Road, past the pool to Black Street.
- Centralisation of play equipment to one area, located further from the roadway.
- Additional footpath along Black Street with a vehicular gate direct into the pool complex.
- Additional tree and planting beds, and rationalisation of smaller garden beds with intensified planting in the central rose garden and the Salvation Army plaque.
- Addition of barbeques, seats and tables.
- Development of a level area and grassed banks / amphitheatre.

8.1.2 Enmore Park Masterplan 1992

This Masterplan was prepared by Marrickville Council, and included four stages of recommended implementation. The main features of the plan are:

- All access picnic area to eastern area of park, opposite pool complex.
- All access toilet facility integrated with pool complex.
- All access playground and garden located between Victoria Road and the centre of the park.
- Formal rose garden to the western edge of the park adjoining Enmore Road and the Children's Resource Centre.
- Formal rose garden to the centre of the park.
- Main promenade / avenue running through the centre of the park from Enmore Road to Black Street.
- Restoration of the sandstone bus shelter to Enmore Road.
- Outdoor pergola area adjoining pool complex.
- Evergreen, deciduous and palm tree plantings.
- New garden bed areas.
- Victorian style furniture and lighting.
- Sandstone block walling adjoining the pool.

A number of these recommendations such as the all access playground and tree planting, have been implemented over time, however have not necessarily occurred in the staging order in which the plan had set out.

8.0 RELEVANT BACKGROUND INFORMATION

8.1.3 Aquatic Leisure Feasibility Study 2004

Prepared by HM Leisure Planning, C Leisure and Prior + Cheney, this study identified a number of aims and objectives derived from Council's brief including:

- To review existing and proposed public and private aquatic / leisure facilities in Marrickville and surrounding areas to determine whether there is a need for new facilities in the Council area and, if a need is determined, to ascertain how the proposed facilities might impact on the nature and viability of existing facilities in the Council area
Further to determine the mix of aquatic, dry and social needs to be met and whether these would be most effectively met through the upgrading or replacement of the existing indoor Annette Kellerman Aquatic Centre in Enmore Park or through the provision of a new facility at another site.
- To assess aquatic / leisure and wider recreational trends and community expectations as a guide to the level and nature of any demands for new aquatic / leisure facilities (and, as deemed appropriate, other recreational facilities) and how these might best be responded to through the provision of specific facilities, programs and services.

Enmore Pool was selected as the preferred location for Council's major aquatic venue and the study recommended that the existing facilities should be replaced with new assets rather than being upgraded. Further recommendations included initial concept layout for the Enmore Pool development, which incorporate the following facilities:

- Children's play
- Crèche / short term child care for users
- Change facilities and toilets
- Sauna, spa
- Indoor water play
- 25 metre, 8 lane swimming pool
- 15 by 10 metre program pool
- Café, social areas
- Outdoor lawn, picnic and activity areas
- Outdoor water play
- Administration areas, and
- Plant room
- Health and fitness gym

8.2 Current projects

8.2.1 Annette Kellerman Aquatic Centre redevelopment

The design and development of the Annette Kellerman Aquatic Centre has been undertaken by architects, Sutera Prior + Cheney, concurrently to the Enmore Park PoM and Masterplan study.

This new facility will provide the Marrickville community with a high quality aquatic and leisure complex which will cater for people of all ages and leisure interests. The new design aims to improve the overall experience of visiting the aquatic centre by providing additional services such as a crèche, Wellness centre and café and upgrading the outdated changing and administration facilities.

The key features of the proposed new Annette Kellerman Aquatic Complex are:

- a new state of the art 50m pool;
- a learn to swim pool and a leisure pool;
- tiered seating for up to 150 people;
- an outdoor paved terrace with terrace seating with that overlooks the park;
- a paved entry court off Black Street and the adjacent pathway;
- improved changing facilities, office and reception area, public toilets and lockers;
- a café that is accessible to both park and pool users;
- a multi-purpose space suitable for a crèche, and
- a wellness centre (including fitness and gym facilities)

Construction of the Annette Kellerman Aquatic Centre facility will be complete in late 2010.

Materials and finishes

The form of the building is a simple and elegant structure that mediates to the topography of the park so as not to compete with the natural landscape features of Enmore Park. The roof form has been designed to maximise the environmental performance of the building with a series of clerestories (skylights) that face south; the clerestories provide natural light and ensure hot air can be expunged from the building through natural convection. On mild days it is anticipated that a series of large fire-station doors that face to the north, west and south will open to further enhance the new Aquatic Centre's connection to its surrounds.

The external materials of the new Annette Kellerman Aquatic Centre have been selected to ensure that views through the park are maintained and enhanced. The predominant materials of the elevations will be high performance glazing and twin wall polycarbonate to ensure the building performs well environmentally and captures natural light and allows for a view from within the building to Enmore Park.

Along the east and west facade, between each large glass section, it is proposed that a panelled area of terracotta facade (Terracade) could be used to provide a material connection to the buildings adjacent residential neighbours along Black Street. To the north-east of the building it is anticipated that the plant areas will be painted fibre cement sheet, with access to the plant room via a colourbond rollerdoor that is accessed from Black Street.

The main pool hall of the Annette Kellerman Aquatic Centre will be filled with natural light, with the structure of the building being a series of east west trusses expressed within the building. Natural light will be abundant within the space with light filtering into the building through the facades and the clerestories.

Concrete tiered seating for up to 150 spectators is strategically positioned to face the starters blocks of the 50m pool with an additional area on the pool concourse available for temporary seating to cater for swimming carnivals. Additional timber seating is provided around the learn-to-swim pool, with chairs and tables also to be located between the leisure pool and the cafe.

8.0 RELEVANT BACKGROUND INFORMATION

The pool concourse will be a specialised epoxy brushed concrete surface with appropriate slip resistance. Overall, the finishes within the interior will be contemporary and appropriately selected for longevity in order to minimise ongoing costs associated with maintenance. Each pool will be fully tiled with ramps to the learn-to-swim and 50m pools to ensure equitable access for all.

It is proposed the exterior colours of the building will be selected from a neutral palette of silver and greys with highlights of the terracotta material with the incorporation of selected natural finished timbers. It is anticipated that the main internal walls facing onto the pool concourse will incorporate feature colour panels and finishes. Acoustic ceiling panels, made from "extenzo", a flexible and durable acrylic sheet, will form part of an articulated ceiling within the building.

As part of the integration of the new Aquatic Centre with the park, an accessible terrace facing onto Enmore Park will be provided for the cafe and aquatic centre. The section of paved outdoor terrace for the aquatic centre will be delineated by a transparent glass fence and balustrade, reinforcing the connection between the park and the new aquatic centre.

8.3 Planning context

8.3.1 Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth legislation provides a national framework for environment protection through a focus on protecting matters of national environmental significance and on the conservation of Australia's biodiversity.

Where possible open space should reflect environmental protection and enhancement philosophies although it is noted no existing features of environmental significance are present in Enmore Park.

Native Title Act 1993

The expression *native title* or *native title rights and interests* means the communal, group or individual rights and interests of Aboriginal peoples or Torres Strait Islanders in relation to land or waters, where:

- (a) the rights and interests are possessed under the traditional laws acknowledged, and the traditional customs observed, by the Aboriginal peoples or Torres Strait Islanders; and
- (b) the Aboriginal peoples or Torres Strait Islanders, by those laws and customs, have a connection with the land or waters; and
- (c) the rights and interests are recognised by the common law of Australia.

The main objectives of the Act are:

- (a) to provide for the recognition and protection of native title; and
- (b) to establish ways in which future dealings affecting native title may proceed and to set standards for those dealings; and
- (c) to establish a mechanism for determining claims to native title; and
- (d) to provide for, or permit, the validation of past acts, and intermediate period acts, invalidated because of the existence of native title.

The Act recognises and protects native title. It provides that native title cannot be extinguished contrary to the Act. The Act covers the following key areas:

- (a) acts affecting native title;
- (b) determining whether native title exists and compensation for acts affecting native title.

Should a Native Title claim be lodged on an open space reserve this will be assessed under the provisions of the Act and a ruling be made regarding ongoing use and management.

8.3.2 State Government Legislation

Crown Lands Act 1989

Succeeding with Plans of Management - A guide to the Local Government Act and Crown Lands Act, 1996 identifies that a plan of management may be prepared for Crown land dedicated or reserved for public purposes.

The Catchments and Lands Division of Department of Primary Industries land management philosophy directly relates to the principles of Crown land management, which are listed in section 11 of the *Crown Lands Act 1989*. These principles affect all aspects of the departments activities and, specifically, the major elements of land assessment, reservation / dedication of land and preparing plans of management.

8.0 RELEVANT BACKGROUND INFORMATION

The principles are that:

- Environmental protection principles be observed in relation to the management and administration of Crown land.
- The natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible.
- Public use and enjoyment of appropriate Crown land be encouraged.
- Where appropriate, multiple use of Crown land be encouraged.
- Where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity.
- Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

Additional requirements under the *Crown Lands Act 1989* relating to plans of management are:

- that the Minister administering the *Crown Lands Act 1989* or Minister assisting the Minister for Natural Resources (Lands), gives consent for the preparation of a plan of management and consent for a draft plan going on public exhibition;
- that the plan of management observe appropriate reserve policy applicable to the site along with relevant land management case law; and
- that the draft plan of management shall be placed on public display for not less than 28 days to allow for submissions to be made on the plan of management.

Local Government Act 1993

Although Enmore Park is Crown Land and subject to the *Crown Lands Act 1989*, various aspects of community land management policy as arise for the Local Government Act can be of assistance in management of Enmore Park.

The Local Government Act provides the legislative framework for a council's day to day operation. The Act emphasises a council's responsibility to actively manage land and to involve the community in developing a strategy for management.

Environmental and Planning Assessment Act 1979

The objectives of this Act are:

- (a) to encourage:
 - (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,
 - (ii) the promotion and co-ordination of the orderly and economic use and development of land,
 - (iii) the protection, provision and co-ordination of communication and utility services,
 - (iv) the provision of land for public purposes,
 - (v) the provision and co-ordination of community services and facilities, and
 - (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and
 - (vii) ecologically sustainable development, and
 - (viii) the provision and maintenance of affordable housing, and
- (b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and
- (c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

8.3.3 State Government Policies

Food and Beverage Outlets on Crown Reserves, Policy Position (version 3 – 20/12/2004)

This policy prepared by the Department of Lands outlines considerations related to kiosk and restaurant use on Crown reserves.

The policy notes that the gazettal of land as a Crown reserve for a specific purpose does not necessarily allow it to be used for all the possible uses that the purpose implies. The land uses within the reserve must also comply with:

- uses that are permissible under the relevant environment planning instruments (EPs) made under the Environmental Planning and Assessment Act, 1979; and
- identification of the uses indicated for the reserve in a plan of management under the *Crown Lands Act 1989*.

In some cases restaurants are acceptable uses within most public purposes but are not always identified as permissible uses in open space zones under Council's local environment plans (LEPs).

The following extracts are taken from the policy:

Policy Position

The establishment of food and beverage outlets would generally not be appropriate for reserves with the nominated public purpose of "environmental protection"; "rural services"; "travelling stock"; and "water".

Food and beverage outlets are generally considered to be acceptable uses on the reserves for public purposes. However, the facilities need to cater to the public generally rather than an exclusive group.

Leases and Licences

Any lease or licence for food and beverage outlets that comply with the public purpose of the reserve must sufficiently protect the public in their right to use the land for the public purpose of the reserve. Food and beverage outlets may not be established for special interest groups or used for functions. Expressions of interest should be called for the leasing or licensing of new food and beverage outlets on Crown reserves.

Signage

Facility signage on reserves should be kept to a minimum.

Plans of Management

*Any proposal for the establishment of a food and beverage outlet on a public purpose reserve should be contained in a plan of management made under the *Crown Lands Act, 1989*, to ensure that it is evaluated by the community and stakeholders and its scope defined by the Plan.*

State Environmental Planning Policy (Infrastructure) 2007

The aim of this Policy is to facilitate the effective delivery of infrastructure across the State by:

- (a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and
- (b) providing greater flexibility in the location of infrastructure and service facilities, and
- (c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and
- (d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and
- (e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and
- (f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing.

The current playspace upgrade works are being undertaken as exempt development under Clause 66 of the SEPP (infrastructure) 2007.

8.0 RELEVANT BACKGROUND INFORMATION

8.3.4 Local Planning Policies

Marrickville Local Environmental Plan 2001

The aim of this plan is to establish the framework for future development within the Marrickville local government area.

The objectives of this plan are:

- (a) to consolidate and update planning controls in the area, and
- (b) to create a land use framework which allows detailed provisions to be made in development control plans, and
- (c) to enhance the quality of life and promote the well-being of the local community, and
- (d) to encourage new development to apply the principles of ecologically sustainable development, in particular, energy, water and stormwater efficiency, waste reduction and biodiversity conservation, and
- (e) to identify and conserve those items and localities which contribute to the local, built form, environmental and cultural heritage of Marrickville, and
- (f) to ensure that there are adequate controls to minimise aircraft noise impact upon residential and community uses, and
- (g) to encourage housing affordability, diversity and choice, and
- (h) to promote an accessible and safe living environment, and
- (i) to maximise business and employment opportunities, particularly in Marrickville's existing commercial centres.

The Marrickville Local Environmental Plan 2001 includes the zoning of Enmore Park as 6a Open Space and identifies Enmore Park as a heritage item

8.4 Consultation

Consultation for the draft plan of management was coordinated separate of the Plan study team by KJA Consultants for Marrickville Council. This consultation was undertaken as part of an integrated programme addressing proposed upgrades at Enmore and Petersham Parks, and aiming to respond to both park specific and general open space / recreational factors that need to be considered by Council.



The community has also been involved in consultation regarding the detailed design and development application process for the Annette Kellerman Aquatic Centre redevelopment as well as the design of a new playspace and surrounds to the south east corner of the park.

As part of this programme a community open day was held at the park on Saturday the 2nd of December 2006 from 10am to 12 noon. A particular focus of the open day and a related community questionnaire was the redevelopment of the Annette Kellerman Pool Complex.



Key responses to the questionnaire are listed following:

- The most common uses of Enmore Park are:
 - Passive recreation (eg. barbeques, picnics, relaxation etc.)
 - Attending Council events (eg. Magic Yellow Bus, Australia Day)
 - Using open space
 - To enter / exit the swimming pool
- The majority of those surveyed use the park weekly, with a high number also indicating they use the park daily
- Walking is the most popular method of travelling to the park
- 77% of those surveyed indicated that development of the Annette Kellerman Aquatic Centre would make them use the park more frequently
- It was widely felt that the physical relationship between the park and pool should be more integrated



In addition to the above community consultation was undertaken during 2008 and 2009 for the following:

Annette Kellerman Aquatic Centre

Development Application exhibition and comments process

Playspace Design development

Community open day and consultation period was provided to seek comments on potential playspace improvements. Comments were considered along with Councils budgetary and maintenance constraints in the finalisation of design by Council.

The draft plan of management will also be subject to public exhibition in accordance with Crown Lands Management requirements prior to submission for approval by the Minister.

**A Basis for Management
Supplementary Information**

1.0 Methodology

In accordance with the guidelines established in “Succeeding with Plans of Management” (DLWC / Manidis Roberts 1996), the Enmore Park Plan of Management has been prepared based on a “values based approach”. Using values as the foundation of the plan of management process ensures the plan will remain valid for longer.

Alternatively an issues based approach (as often followed in plan preparation in the past) whilst dealing effectively with the issues of the day has no flexibility to deal with new issues that arise over time, and may quickly become out of date. This is “based on the assumption that community values change at a much slower rate than issues” (DLWC / Manidis Roberts 1996).

The identification of values for Enmore Park (refer 4.3) has provided a foundation for decision making which enables each step in plan preparation to relate and cross reference back to the established values.

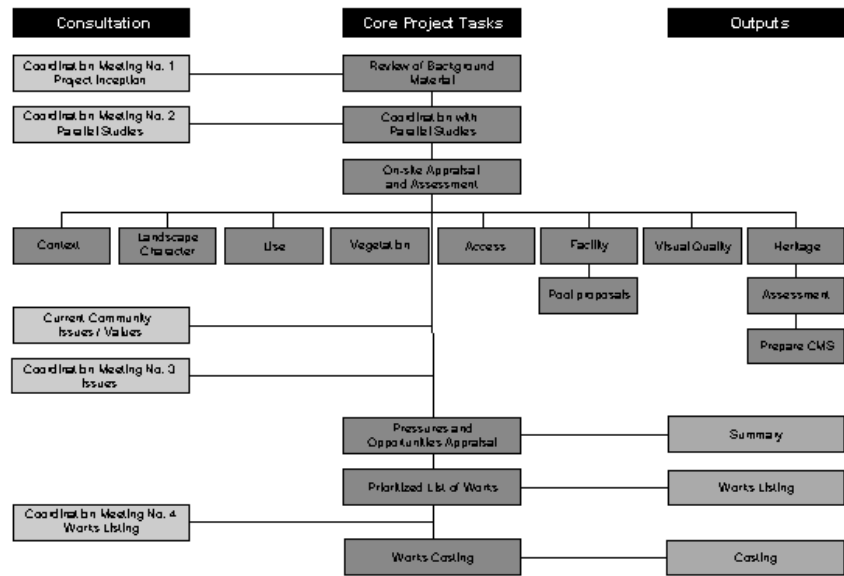
Through a synthesis of the findings of the preceding review and assessment phase with the outcomes of the Community Working Group, a basis for management has been resolved that identifies:

- values and roles of Enmore Park;
- issues and opportunities to be addressed in developing, planning and management strategies; and
- desired outcomes for the Masterplan and plan of management.

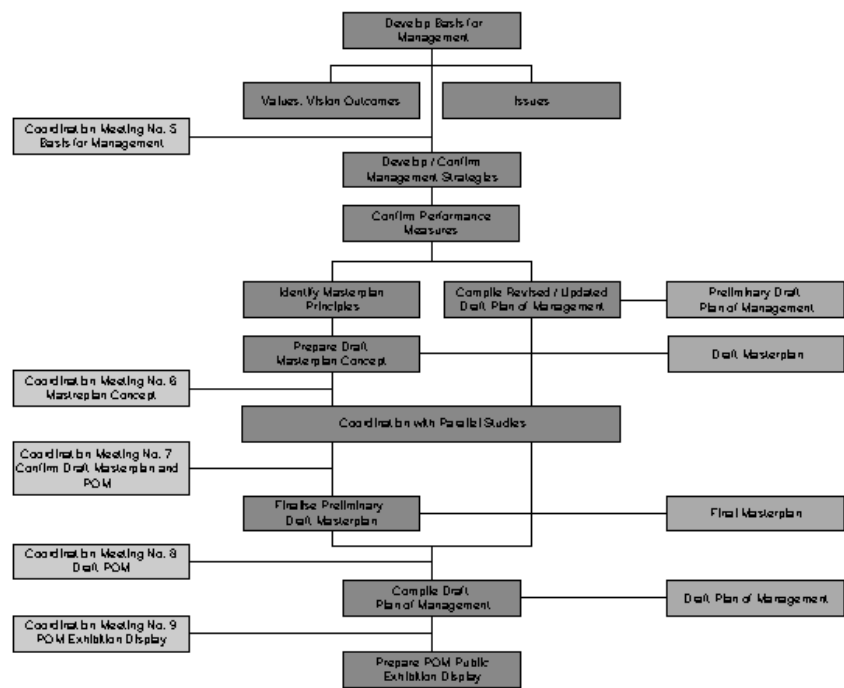
The diagram below outlines the key steps in preparing the plan of management.



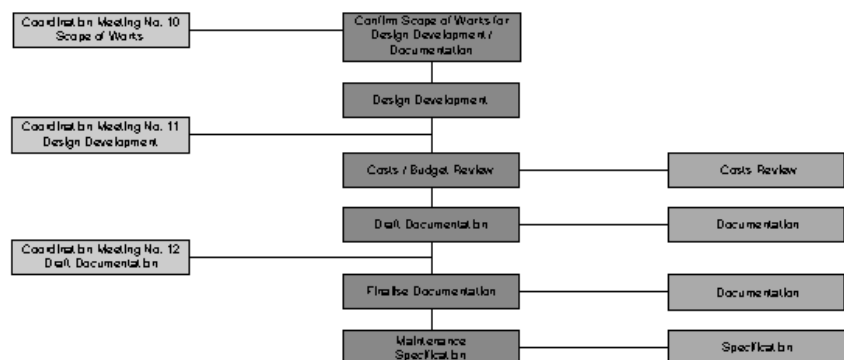
The diagram below outlines the study process for the Enmore Park plan of management including the integration of consultation with the key study phases.



Stage One Landscape Analysis and CMS



Stage Two Masterplan and Plan of Management



Stage Three Design Development and Documentation

2.0 Community values and desired outcomes

Values

Values, as identified in conjunction with the community consultation open day, are the features / qualities of the park that should be protected or enhanced. Desired outcomes (also known as goals and aims) are objectives for the park that provide a basis for decision making.

The values and desired outcomes as listed in the Management Strategy Framework were developed by the study team through a synthesis of the community consultation outcomes and study team investigations as outlined in Section 7.0 Review.

Values are listed in the Framework under key topics (as established in Succeeding with Plans of Management, DLWC and Manidis Roberts) ranging down from higher priority to lower with each topic.

B Historical Overview of Enmore Park

EXECUTIVE SUMMARY

Council wished to ascertain the cultural significance of Enmore Park in order to establish the basis for formulating a comprehensive policy framework for the regular and ongoing management and maintenance of that significance. Accordingly, Mayne-Wilson & Associates, Conservation Landscape Architects, were engaged to provide that advice through the medium of the following Conservation Management Strategy.

The consultants prepared a fully researched history and chronology of the Park, followed by a detailed recording and analysis of the origin and fabric of its contributory elements. An assessment was then made of all aspects of the park's significance, followed by a comparative analysis with other Parks in the LGA and the inner west. All significant contributory fabric and elements of the Park were assessed, and listed in a table. Policies were then formulated for the conservation, management and maintenance of significant Park fabric and spaces.

In order to simplify the identification, ranking and future management of heritage items for future managers, all these elements have been combined into one single table. For each heritage item brief advice has been provided on what the consultants considered desirable action to be taken to manage and conserve it. These actions are not onerous, and most can be carried out in the course of routine park maintenance, as indicated in Table 2.

The greater challenge lies in the future changes – upgrading, redesign, and enhancement – which are being proposed in the landscape master plan prepared by Environmental Partnership NSW, landscape architects. As a result of discussions between that firm and the present consultants, the changes and improvements proposed have taken into account the identified heritage values, and enabled them to be fully protected. Among these are the established layout of the Park, the mature trees that embellish it, and its many but modest sandstone elements.

It should be added that because decisions regarding the swimming pool complex had not been finalized as at the time of completion of this CMS, it has not been addressed.

1.0 Introduction and Purpose

Marrickville Council has decided to review and update the Plan of Management for Enmore Park, involving a review of the site, preparation of a Conservation Management Strategy, and renewal of the master plan and the Plan of management. For the preparation of the Conservation Management Strategy (CMS), Council appointed Mayne-Wilson & Associates, Conservation Landscape Architects, to undertake this task.

The purpose of the CMS was to identify the significant heritage fabric of the Park so that this could be protected and taken into account when the landscape masterplan was being prepared. It would also enable the impacts on the Park from the proposed works on the Swimming Pool to be considered in a broad context. As Council required that a Landscape Analysis of the Park be produced in conjunction with the CMS, Mayne-Wilson & Associates (MWA) have liaised closely with the appointed Landscape Architects, Environmental Partnership, in their formulation of the landscape masterplan.

1.1 The Study Area

The Figure below shows the extent of the Park in the context of the surrounding streets. The original shops are located in the top left hand section of the image.

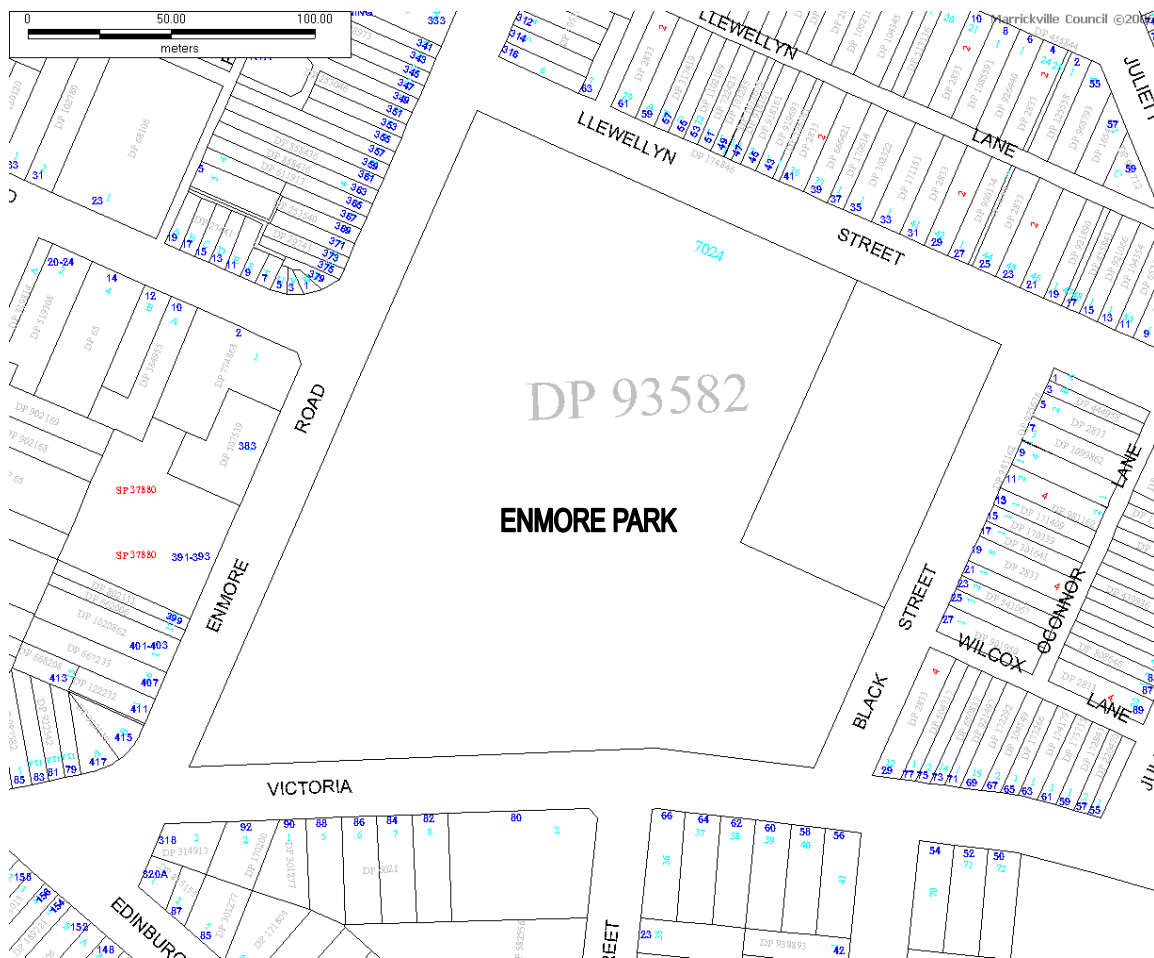


Figure P1 - Enmore Park. Source: Marrickville Council

1.2 Report Structure and Methodology

The report commences with an overview of the history and context of Enmore Park, drawing information provided by Council, the Marrickville Local History Centre, the Mitchell Library, and a previous historical study prepared by Godden Mackay Pty Ltd. This was followed by a site inspection and recording of all elements which appeared to have potential heritage value and contributed to the Park's essential character and significance. These elements, which included the overall Park layout, were then assessed against the historical research – and sometimes stimulated further specific research on them. Photographs of the elements were then placed in a table, with a brief description of their location and origin, followed by a heritage rating and recommended action to conserve or enhance them. These were then used to formulate an overall statement of heritage significance for the Park. This information was then summarized on a State Heritage Inventory Form.

Following that, the CMS identifies Council's approach to, and requirements regarding Enmore Park, and draws attention to the principal elements to be conserved, and those that could be altered to a lesser or greater degree. Exemptions under the Heritage Act are identified, and opportunities for historical interpretation briefly discussed. These findings were then discussed with the Landscape Architects at the early stage of their formulation of the landscape masterplan.

1.3 Authorship

This CMS has been prepared by Warwick Mayne-Wilson, Director of MWA, with assistance from Ari Anderson of his office, who undertook most of the research and data entry.

1.4 Limitations

As the history of the Park has already been substantially researched and written up, there are few limitations to the information we have been able to assemble on the Park's historical development. We have not, however, been able to obtain data from early workbooks or files on the precise date or cost of early work in the Park, since it has not been possible to locate them (presumably because they no longer exist). In particular, we have not been able to obtain images of the original fountain and bandstand in the Park, but hope some may be located in future. Accordingly, we have had to rely on an analysis of early photographs, plans, and especially aerial photographs to obtain approximate dates on which some park elements appeared and (in some cases) disappeared. In some instances, even the dates of some early photographs may be approximate only.

1.5 Acknowledgements

The author would like to thank Natasha Neal, Marrickville Council archivist and Chrys Meader and Glenn Wardman of the Marrickville Local History Centre for their assistance with archival and historical research, and Leigh Trevitt, Landscape Coordinator, Marrickville Council.

2.0 Historical Overview

The land which comprises Enmore Park was the south-west section of Wells’ approximately 35 acre grant at Enmore¹, made prior to 1810². This grant was defined by Victoria Street, Enmore Road, Juliett Street and Edgeware Road and was known as Black’s and later Lewellin’s property in 1875.

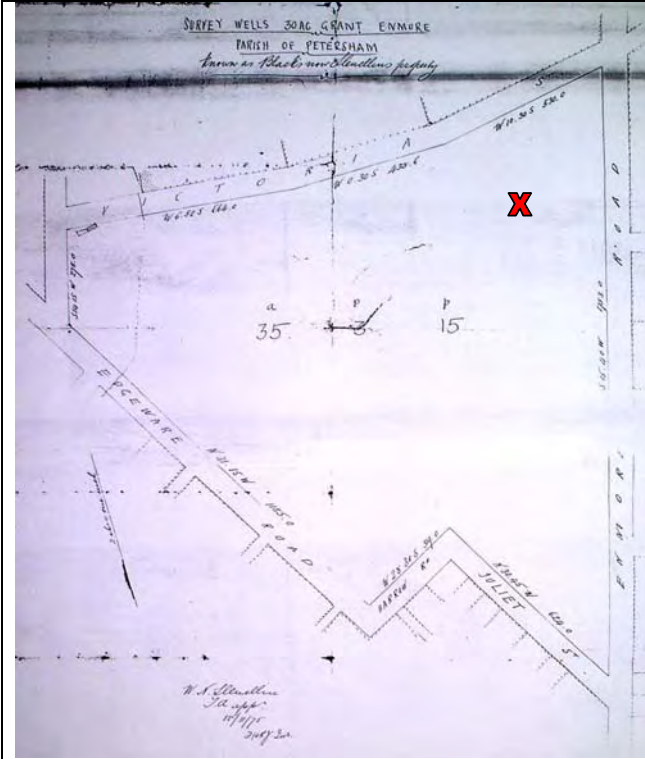


Figure H1 – Wells’ approximately 35 acre grant, with Enmore Road on the right of the plan. The red cross shows the park’s location. Source: Marrickville local history centre (aperture card).



Figure H2 – Undated plan of Wells’ approximately 35 acre grant shown in association with surrounding land holders. Enmore Road is on the right of the plan. The red cross shows the park’s location. Source: Marrickville local history centre (aperture card).

The following account of the early history of Enmore Park is taken from ‘Parks’ section of the 1922 Diamond Jubilee Official Souvenir Marrickville Municipality;

“On the 20th March 1883, Mr Sam Cook addressed a letter to Sir Alexander Stuart, showing that the localities of St. Peters and Marrickville had no park although application had been sent in from these districts in 1879, and parks had been given to other boroughs. A deputation waited on the Colonial Secretary to urge that a piece of land held by the trustees of the late Mr John Black, and bounded by the Enmore and Edgeware Roads and Victoria and Juliett Streets, might be set apart for recreation purposes. Reference was made to a suggestion that 10 acres of this area should be resumed, and it was pointed out that this would be insufficient for recreation purposes, as there were so many schools, brickworks and other places where numbers of men and boys were employed, and parks had been granted to Leichhardt,

¹ Wells Grant 1875 aperture card - maps and plans catalogue – Marrickville local history centre

² Map – page 39 – “Marrickville – Rural outpost to inner city” by Cashman and Meader, 1990.

Wallsend and other municipalities. Public meetings were held to advocate the resumption of the land, but the Government turned a deaf ear, and only 10 acres were resumed. This block of land was vested in trustees on June 5th, 1885. Since then Enmore Park has been neatly fenced and laid out. In the centre there was a fountain of unique design, surrounded by a circular pathway.”

Samuel Cook, referred to above in the Jubilee Souvenir, was the owner of *Frankfort Villa* which lay opposite Enmore Park on Victoria Road. He was also the General Manager of the *Sydney Morning Herald* and *Sydney Mail* from 1888 to 1907. On page 153 of the 1994 publication “Marrickville – People and Places” by Meader, Cashman and Carolan, Cook is described as having ‘one of the most magnificent private gardens it was unequalled in its variety of trees, shrubs and flowers and was described in 1905 by the *Sydney Mail* as one of the largest and most interesting suburban gardens in Sydney’. It would seem that Cook may have been the instigator of the entire public movement for the formation of parks in Marrickville, although more research would need to be carried out on his life to confirm the extent of his involvement with such public lobbying. Meader, Cashman and Carolan conclude on page 163 of “Marrickville – People and Places” that ‘the establishment of this park (Enmore) was the result of pressure exerted by a residents’ lobby group led by Samuel Cook of Frankfort Villa’. Of course Cook may have had financial interests in mind in the promotion of the site for Enmore Park, as it lay opposite his *Frankfort Villa* and grounds, which was put up for subdivision in 1911.

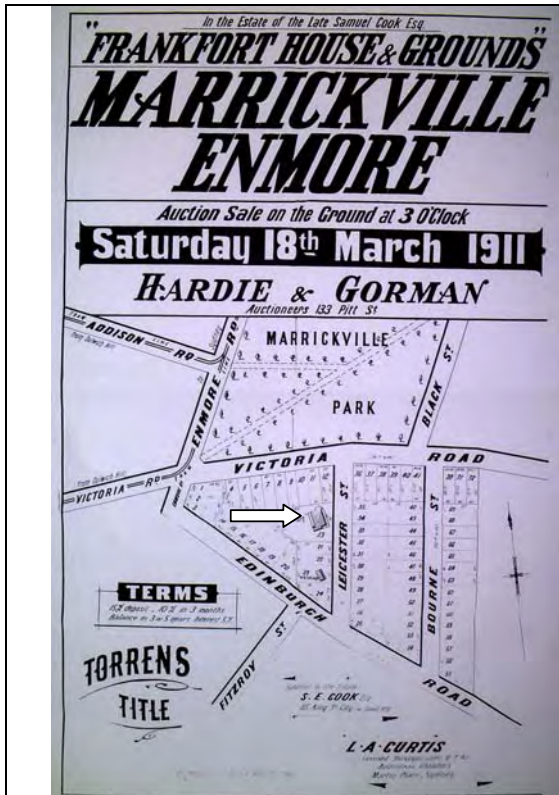


Figure H3 – 1911 subdivision plan for the *Frankfort Estate*, showing Enmore Park (then Marrickville Park) with two paths, one from the Addison Rd entry and one extending NE/SW across the park. This representation of paths may have been indicative only. Source: Marrickville local history centre (aperture card).



Figure H4 – Undated subdivision plan of the *Lewellin Estate* showing Enmore Park referred to as Victoria Park. Note the location of Sam Cooks’ large residence ‘Frankfort’ (arrowed on both Figures). Source: Marrickville local history centre (aperture card).

Enmore Park, first known as Marrickville Park, was the first park to be established in the Municipality of Marrickville. It was officially proclaimed in two sections, on 4th May 1886 and 12th October 1893³. In relation to the sequence of name changes of Enmore Park, there appears to be some degree of inconsistency between historical publications. One volume, the 1936 “A History of the Municipality of Marrickville” to commemorate its seventy-fifth anniversary, suggests that the park was first known as Enmore Park and later Marrickville Park, the reverse of information contained in all other sources viewed by this consultant. The park was rededicated to the Municipality of Marrickville for public recreation by proclamation on 2nd August 1911⁴.

A Sydney Water plan of the park from 1892 shows a broad fountain at the centre of Enmore Park, then referred to as Marrickville Park. This fountain reputedly contained ferns within it, according to a letter from a local resident contained in Council correspondence files from 1926-29 (File No. 54 Council Archives).

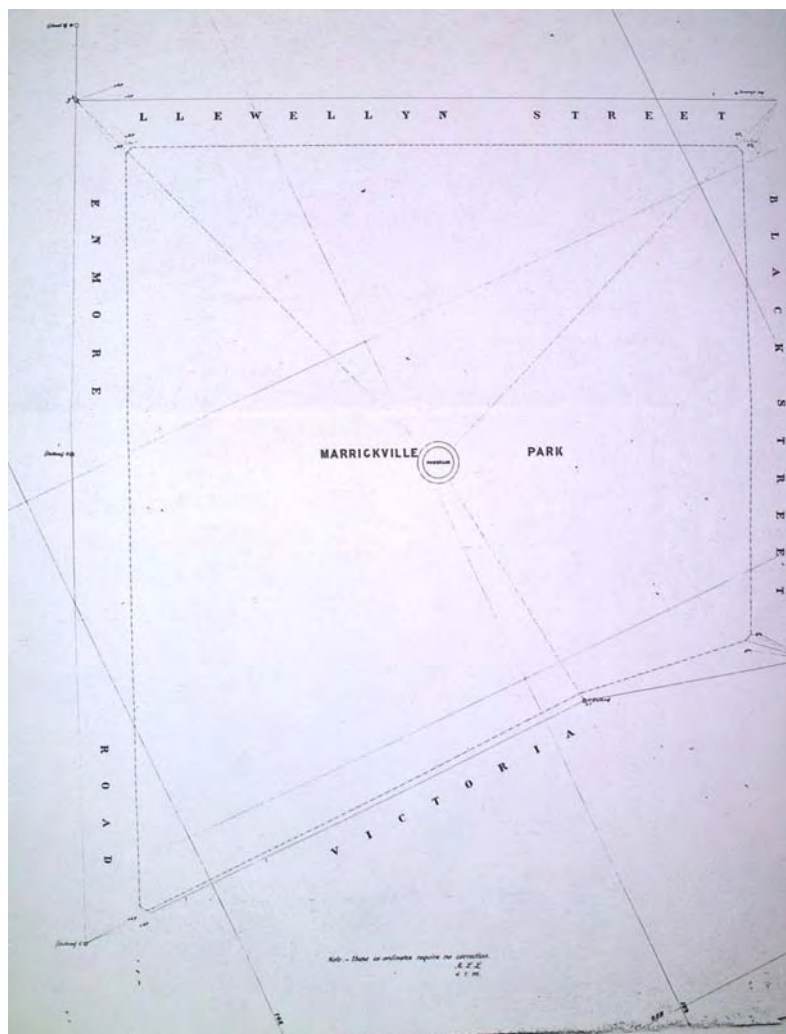


Figure H5 – Sydney Water plan from 1892 shows the boundaries of the park and a fountain which formerly stood at its centre. Source: Marrickville local history centre (aperture card).

³ Enmore Park Enhancement – Proposed Bandstand and Conservation Works 1995 (held by Marrickville Council archives)

⁴ Marrickville general correspondence files 1918-1948, File No. 163

The Mayor's annual minute of 1919 indicates that 'a concrete bandstand has been erected in Marrickville Park....'⁵. However, information in the 1922 Diamond Jubilee suggests that the bandstand was not completed until at least the end of that year;

"This (the fountain) is now being converted into a commodious band-stand, the foundation of which is completed, and the Council hope the stand will be finished during the year. At the present time arrangements are being made to have several drinking fountains placed in different positions in the park. These fountains are badly needed, seeing that since the old fountain was dismantled and replaced by the band-stand, the park has been without a water tap of any kind. Owing to a shortness of funds the Council have not been able to spend any large amount of money in improvements; yet they strained a point and had all paths asphalted at a cost of £280."



Figure H6 Photo c.1912, reproduced in the 1922 Jubilee volume, showing what is likely to have been the original rotunda in the park (at right) just to the north-east of the park's central circle (marked by the palm tree). This rotunda was probably removed when the above mentioned concrete bandstand was built over the location of the former fountain. No photographs of the fountain nor rotunda, however, have yet been obtained. Source: Marrickville local history centre.

Council correspondence from 1923 shows that a formal approach to the Minister of Lands was made in that year by the Council for a variation of the Trust. Council sought approval of the Minister to construct tennis courts or similar active recreation facility in a part of the park which would not interfere with existing patronage. This proposal was further articulated in that year with a scheme proposed to enclose a 3¾ acre sport ground with a picket fence, leaving the remainder for recreation purposes. Correspondence has not been found to confirm the Lands Department's final response on the matter, but it would seem that this delineation within the park did not occur.

It is clear from the Council correspondence files on Enmore Park during the 1920s that there was considerable dismay during that period expressed by members of the local community at the persistent use of the park for active recreation purposes. This use was by both registered and unregistered groups. Numerous local groups made applications to Council during the 1920s for access to the park for community events, including Enmore Public School, the Australian Protestant Orphans' Society and the Marrickville Municipal Band.

⁵ Enmore Park Enhancement – Proposed Bandstand and Conservation Works 1995 (held by Marrickville Council archives)

Various residents' letters in the correspondence files from the 1920s highlight the rundown, barren and neglected state of Enmore Park, drawing attention to old and deteriorated signage and seating. The removal of the original fence around the park in November 1924 is referred to in some letters from that time, as is the effect of horses and cattle being allowed to wander and graze through the park, even prior to the fence removal. Various residents wrote to Council during this period with proposals to construct playgrounds and associated facilities in the park, some even suggesting that its edges could be subdivided for residential development to raise revenue for its proper maintenance.



Figure H7 Photo from c.1922 looking south-east through the park, showing the park's central feature marked by the tall palm and the young Phoenix palms (extending across the photo at centre) planted along the path from Enmore Road. It would seem that the large bandstand was not built by the time this photograph was taken. The arrow shows the perimeter fence around the park.
Source: Marrickville local history centre.

Council letters to local residents in and around 1926 confirm that sole control of the park was transferred to Council around that time and that it was its intent to pursue the option of a formal active recreation area for cricket, football and cycling. By 1927 a cricket pitch (likely to have been a rather informal one) existed in the south-eastern corner of the park, about thirty yards from the road, near the bandstand. From 1927 Council granted permission to several sporting bodies to train on Enmore Park, including the Vicars Waratah Football Club. Movable soccer posts were allowed to be erected in the park in the same year. However, in October 1927, the Council decided, upon review of a design and estimate for a sports area in the park, not to pursue this option and to improve the park along other lines. During the same year it banned the use of the park for training of greyhounds.

It would appear from Council and community correspondence gathered by this consultant that the park's name changed from Marrickville Park to Enmore Park between 1925 and 1927, but it would seem that these names were interchangeable for several decades. The park had also been referred to as Victoria Park on the undated subdivision plan for the Lewellin Estate prepared by J.H. Laycock, Licensed Surveyor.



Figure H8 – Aerial photograph from 1930, showing marked with red crosses those pathways or desire lines through the park which no longer remain. However, the access provided by these removed tracks was retained by new paths laid out in similar locations in subsequent decades. There appears to be no bandstand at the centre of the park at this time. Source: Marrickville Council.

In 1930, Enmore Park was defined by a haphazard line of canopy trees around its street boundaries. Very few trees lay within the body of the park, although the Phoenix palms which once existed along the main path from Enmore Road to the central feature had been planted by that date. During the 1930s, the park seemingly retained its original overall layout with a central circular zone remaining the feature of the site. It is evident that whilst the Council was moving away from authorising public events and sports uses for the park during the late 1920s, the park was being used at that time for other facilities or events. At the time of the 1930 aerial photo, a portion of the park's Enmore Road frontage had a range of small structures located on it, which may have been associated with a circus event of something similar.

Information contained in the 1936 publication "A History of the Municipality of Marrickville" suggests that around that time substantial expansion and improvement works were undertaken to many of the parks within the Marrickville area. Acreages reserved for parks were increased and improvements within existing parks included tree plantings, flower beds and playing grounds. Enmore Park was described in this publication as being '*greatly improved under council's beautification scheme with lawns and gardens. On the north and south-eastern corners of the park the children have not been forgotten as swings, etc., have been erected for their use*'. The publication suggests that in the early 1920s there had only been three parks in the Marrickville area, of which Enmore Park was one.



Figure H9 – Photo from c. early 1940s looking toward the park’s central circle from the south-west corner of the park near the children’s care facility. The circular configuration of island garden beds in the foreground and plantings along the path at right were made as part of the beautification works in the mid 1930s. Some of these garden beds have been retained. Source: Marrickville local history centre.

In 1937, a sum of £500 was allocated towards the construction of two stone entrances to the park and stonework for a tram shelter. These were constructed, partly using relief labour, between 1937 and 1938, the gateways still remaining in their original configuration⁶.



Figure H10 – c. late 1930s or early 1940s, showing the recently built sandstone entry gateway on the corner of Llewellyn Street and Enmore Road. The similar gateway and archway on the corner of Victoria Street and Enmore Road was constructed at the same time. Source: Marrickville local history centre.



Figure H11 – Photo from c. late 1930s of the bus shelter on Enmore Road. The structure appears to have been little changed since that time. However, a path that led to the eastern side of the shelter from within the park, which existed since at least 1942, was removed after 1970. Low sandstone markers remain which identify where that pathway met the paved surrounds of the shelter. Source: Marrickville local history centre.

⁶ Enmore Park Enhancement – Proposed Bandstand and Conservation Works 1995 (held by Marrickville Council archives)



Figure H12 – Photo from c. late 1930s looking east up the main entry pathway from Enmore Road, with the Phoenix palms lining the path. These palms were removed c. early 1950s. No bandstand is apparent at the end of this pathway. Source: Marrickville local history centre.

By 1942, the overall composition of the park was little changed from its configuration in 1930. Aerial photographic evidence suggests that the key paths through the park had been formalised and possibly resurfaced from their state prior to the 1930s upgrading works. Plantings made as part of these improvement works had not become mature enough to appear on the 1942 aerial image. Of most interest from the 1940s period of the park's development were the zig-zaged lines seen located around the park's boundaries. This overview has not confirmed what these elements were, but as they seem to have been removed by 1951, it is likely that they were facilities or features built for WWII purposes.



Figure H13 – Aerial photo from 1942 showing the formalised path network through the park and the zig-zagging elements referred to above. Source: Marrickville Council.

Enmore Park changed its name after 1944 to D.V. Cochrane Park in honour of the Labor alderman and mayor, but after he failed to fall in line with Labor policy, he was expelled from the party and the Council changed the name of the park back to Enmore Park in 1959.



Figure H14 – c. late 1940s or early 1950s, showing the Enmore Road entry to the park. Note that the rows of Phoenix palms which led up to the park's central circle from the late 1910s had been removed and replaced by mixed shrub borders. Source: Marrickville local history centre.

By the early 1950s, the Phoenix palms along the central Enmore Road entry to the park had been removed and replaced by mixed shrubberies, in line with the fashion for mixed shrub borders seen commonly in Sydney park and institutional gardening at that time. Planter bed features and pathway plantings made between the late 1930s and the early 1950s can be seen clearly on the below 1951 aerial photograph, most of these works being carried out near the Enmore Road frontage of the park.



Figure H15 – Aerial photograph from 1951, showing the maturing plantings within the body of the site and the various planter bed zones adjoining Enmore Road. Note especially the circular planter sector (arrowed) near the south-west corner of the park. Source: Marrickville Council.

Several major works occurred in Enmore Park between 1951 and 1970, with the construction of the swimming complex, the use of a large triangular southern quadrant of the park for an as yet unknown facility [oral history should be able to ascertain this] and the construction of the child care building in the park's south-west corner. The path network by this date remained much the same as that which existed prior to 1930; however, the path extending to the park's centre along the southern side of the pool complex was not built by 1970.



Figure H16 – Aerial photograph from 1970. Note that the footprint of the zig-zaging elements seen on the 1942 aerial can still be seen in the south-western corner of the park at this date. (Some portion of them remain identifiable even on current aeriels). Note also that much of the circular arrangement of planter beds near the childcare facility seems to have been downgraded, although the outline of the curved beds is just visible.

Summary: The overall configuration of Enmore Park has remained reasonably constant through its 120 year history. The size of the park has remained as it was proclaimed in 1886 and 1893 and most of the early pathways which existed from at least the 1920s remain in the same alignments today. Most of the garden improvement works carried out in the park have occurred along the Enmore Road side of the site. The eastern and northern sides of the park have historically been open and unplanted zones, likely to have been retained this way until after 1950 to allow for a large active recreation space which was not criss-crossed by paths.

2.1 Historical Timeline

- Pre 1788 The area now known as Enmore Park was an area of native vegetation. Geologically it contains the clay soils derived from the Wianamata Shales. The area was part of the 'Eora' nation and populated by the Cadigal people.
- 1788 Arrival of Europeans and progressive occupation of the Sydney Basin from this time.
- c. 1810 35-acre grant to Wells' of which the southwest section incorporates the land of Enmore Park.
- 1883 Samuel Cook campaigns for park provision with a letter to Sir Alexander Stuart (politician) outlining that the localities of St Peters and Marrickville had no park.
- 1885 10 acres of land resumed from original Wells' grant (now under trustees of John Black) and vested in trustees on June 5th.
- c. 1892 Central fountain constructed.
- 1893 4th May: first section of Marrickville Park (later to be known as Enmore Park) proclaimed.
- 1896 12th October: second section of Marrickville Park (later to be known as Enmore Park) proclaimed.
- 1911 2nd August: park was rededicated to the Municipality of Marrickville for public recreation.
- 1919-1922 Concrete bandstand erected in replacement of central fountain, several drinking fountains installed and paths asphalted.
- 1923 Council formally approaches Minister of Lands for a variation of the Trust. Approval to construct tennis courts or similar active recreation facility was sought. Later that year a proposal to enclose a 3¾-acre sport ground with picket fence was put forward to the Minister. No apparent action on these.
- 1920s Numerous local groups make applications to Council for access to the park for community events. Various letters also highlight the rundown and neglected state of the park during this time.
- 1924 Original fencing around the park removed.
- 1926 Sole control of the park transferred to Council. It appears that Council's intent was to pursue the option of a formal active recreation area for cricket, football and cycling.
- c. 1927 Cricket pitch created in the southeastern corner of the park. Around this time Council also granted permission to several sporting bodies to train on Enmore Park. Movable soccer posts were allowed to be erected.
- 1927 Council decided not to pursue active sports option for the park. Use of the park to train greyhounds was also banned.
- 1925-1927 Park's name changed from Marrickville Park to Enmore Park, however these names were interchangeable for many decades.
- 1930 Park defined by a haphazard line of canopy trees around its street boundaries with few internal trees. Appears park was being used for facilities and events as the 1930 aerial indicates a range of small structures that may have been associated with a circus event or something similar.
- c. 1936 Substantial expansion and improvement works undertaken to many of the parks within the Marrickville area.
- 1937 Funding allocated towards the construction of two stone entrances, and a tram shelter, constructed between 1937-1938 partly using relief labour.
- c. 1942 Park layout remains primarily unchanged. Zig-zagging elements located around the parks boundaries likely to have been facilities or features built for WWII purposes. These were removed by 1951.
- 1944-1959 Park changed its name to D.V. Cochrane Park in honour of the Labor alderman and mayor, however after he failed to fall in line with Labor policy he was expelled from the party.
- 1959 Name of park changed back to Enmore Park.
- 1951-1970 Several major works occurred including the construction of the swimming complex (early 1960's), use of a large triangular area of the site to the south (unknown facility) and the construction of a Library, later a Children's Resource Centre and now a child minding centre.
- c. 1992-4 Various upgrade works undertaken to Park including a new playground, brick paving of the main east-west pathway from Enmore Road, and some tree planting (mostly palms).

3.0 Heritage Significance

3.1 Recognition of the Park as a Heritage Place

The preamble to the Burra Charter summarises the value of heritage places to the community, as follows:

“places of cultural significance enrich people’s lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important as tangible expressions of Australian identity and experience. . . . They tell us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious . . . and must be conserved for present and future generations.”

3.2 Purpose and scope of a Statement of Significance

In the *Burra Charter*, cultural significance is defined as follows:

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural significance is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, *meanings*, records, *related places* and *related objects*.

Places may have a range of values for different individuals or groups.

Understanding significance is crucial to the care of a place of cultural significance. It provides the basis for the development of policy for managing the place, and is reliant upon a thorough understanding of the place itself and what contributes to its significance.

A statement of significance is a formal method used to describe the qualities that make a place important to the community as a whole. The preparation of statement of significance is an accepted method, used by professionals and organisations involved with heritage, to convey the importance of a place⁷. A secondary role is to communicate to people unfamiliar with the place’s importance and to promote clear thinking and a framework for action among those responsible for its conservation.

3.3 Statement of Significance

The significance of the Park is discussed in relation to the criteria adopted by the NSW Heritage Office and set out in its guidelines document *Assessing Heritage Significance* 2001. These have been used in the following assessment, and its criteria are set out below:⁸

3.3.1 NSW Heritage Office criteria for assessment of significance

- Criterion (a):** importance in the course, or pattern, of NSW’s or the local area’s cultural or natural history;
- Criterion (b):** strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of NSW or the local area;
- Criterion (c):** importance in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or the local area;
- Criterion (d):** strong or special association with a particular community or cultural group in NSW or the local area for social, cultural or spiritual reasons;

⁷ The method for assessing significance is described in detail in *Assessing Heritage Significance*, NSW Heritage Office 2001. Whilst the wording of criteria is arranged differently from the Burra Charter, the overall intent is to encompass all aspects of significance.

⁸ NSW Heritage Assessment Criteria, as adopted from April 1999

Criterion (e): potential to yield information that will contribute to an understanding of NSW's or the local area's cultural or natural history;

Criterion (f): possession of uncommon, rare or endangered aspects of the cultural or natural history of NSW or the local area;

Criterion (g): importance in demonstrating the principal characteristics of a class of NSW's or the local area's cultural or natural places or environments.

To be assessed as having heritage significance, an item or place must:

- meet at least one or more of the nature of significance criteria [criteria a, b, c, and d]; and
- retain the integrity of its key attributes.

An item or place may also be ranked according to their heritage significance as having:

- Local Significance
- State Significance

3.3.2 Assessment according to each SHI criterion

Criterion (a): importance in the course, or pattern, of NSW's or the local area's cultural or natural history

	Include		Exclude
	Shows evidence of a significant human activity		Has incidental or unsubstantiated connections with historically important activities or processes
	Is associated with a significant activity or historical phase		Provides evidence of activities or processes that are of dubious historical importance
√	Maintains or shows the continuity of a historical process or activity		Has been so altered that it can no longer provide evidence of a particular association.

Enmore Park has historical significance as one of the early public parks established in the Municipality of Marrickville in the late 1800s. That role has continued, and its size and overall configuration has changed little since its original formation.

Criterion (b): strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of NSW or the local area; [associational value]

	Include		Exclude
	Shows evidence of a significant human occupation	√	Has incidental or unsubstantiated connections with historical important people or events
	Is associated with a significant event, person or group of persons		Provides evidence of people or events that are of dubious historical importance
			Has been so altered that it can no longer provide evidence of a particular association

Enmore Park is associated, to a limited degree, with Samuel Cook, owner of nearby property *Frankfort Villa* and General Manager of the *Sydney Morning Herald* (1888 to 1907). He played a leading role in petitioning the State Government from 1883 to establish public parks in the area.

Criterion (c): importance in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or the local area; [aesthetic value]

	Include		Exclude
	Shows or is associated with creative or technical innovation or achievement	√	Is not a major work by an important designer or artist
	Is the inspiration for a creative or technical innovation or achievement		Has lost its design or technical integrity
	Is aesthetically distinctive		Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded
√	Has landmark qualities		Has only a loose association with a creative or technical achievement
	Exemplifies a particular taste, style or technology		

Enmore Park has a low to moderate degree of aesthetic significance, being a welcome, generous green open space surrounded by dense built form of a working class suburb.

Criterion (d): strong or special association with a particular community or cultural group in NSW or the local area for social, cultural or spiritual reasons; [social value]

	Include		Exclude
√	Is important for its association with an identifiable group		Is only important to the community for amenity reasons
√	Is important to a community's sense of place		Is retained only in preference to a proposed alternative

1
Enmore Park has a high degree of local social significance, having been formed following a broad public movement in the municipality for the creation of public parks. The park has always been well used for passive and informal active recreation and to support community events. Its condition and facilities have been of continuing interest and concern to the local community throughout its history.

Criterion (e): potential to yield information that will contribute to an understanding of NSW's or the local area's cultural or natural history; [scientific value]

	Include		Exclude
	Has the potential to yield new or further substantial scientific and/or archaeological information		The knowledge gained would be irrelevant to research or science, human history or culture
	Is an important benchmark or reference site or type	√	Has little archaeological information or research potential
	Provides evidence of past human cultures that is unavailable elsewhere.		Only contains information that is readily available from another resource or archaeological site

The Park does not satisfy this criterion.

Criterion (f): possession of uncommon, rare or endangered aspects of the cultural or natural history of NSW or the local area;[rarity value]

	Include		Exclude
	Provides evidence of a defunct custom, way or life or process	√	Is not rare
	Demonstrates a process, custom or other human activity that is in danger of being lost		Is numerous but under threat
	Is a scarce example of a particular style, custom or activity esteemed by a community		
	Shows unusually accurate evidence of a significant human activity		
	Is the only example of its type		
	Demonstrates designs or techniques of exceptional interest		
	Shows rare evidence of a significant human activity important to a community		

Although Enmore Park was the first major municipal park established in the area, it is not rare.

Criterion (g): importance in demonstrating the principal characteristics of a class of NSW's or the local area's cultural or natural places or environments.[representative value]

	Include		Exclude
	Is a fine example of its type		Is a poor example of its type
	Has the principal characteristics of an important class or group of items		Does not include or has lost the range of characteristics of a type
√	Has attributes typical of a particular way of life, philosophy, custom, significant process, design, techniques or activity		Does not represent well the characteristics that make up a significant variation of a type
	Is a significant variation to a class of items		
√	Is part of a group which collectively illustrates a representative type		
	Is outstanding because of its setting, condition or size		
	Is outstanding because of its integrity or the esteem in which it is held		

Enmore Park is representative of other sites set aside in the inner west of Sydney for public recreation following public petitioning for recreational open space in the latter part of the 1800s.

Integrity/Intactness. The Park has a moderate to high degree of integrity, with most of the principal built heritage elements on the site being intact. As no overall redesign or significant land remodelling works have been undertaken in the Park, the natural characteristics of the site and its original layout can be experienced and identified.

3.4 Summary Statement of Significance.

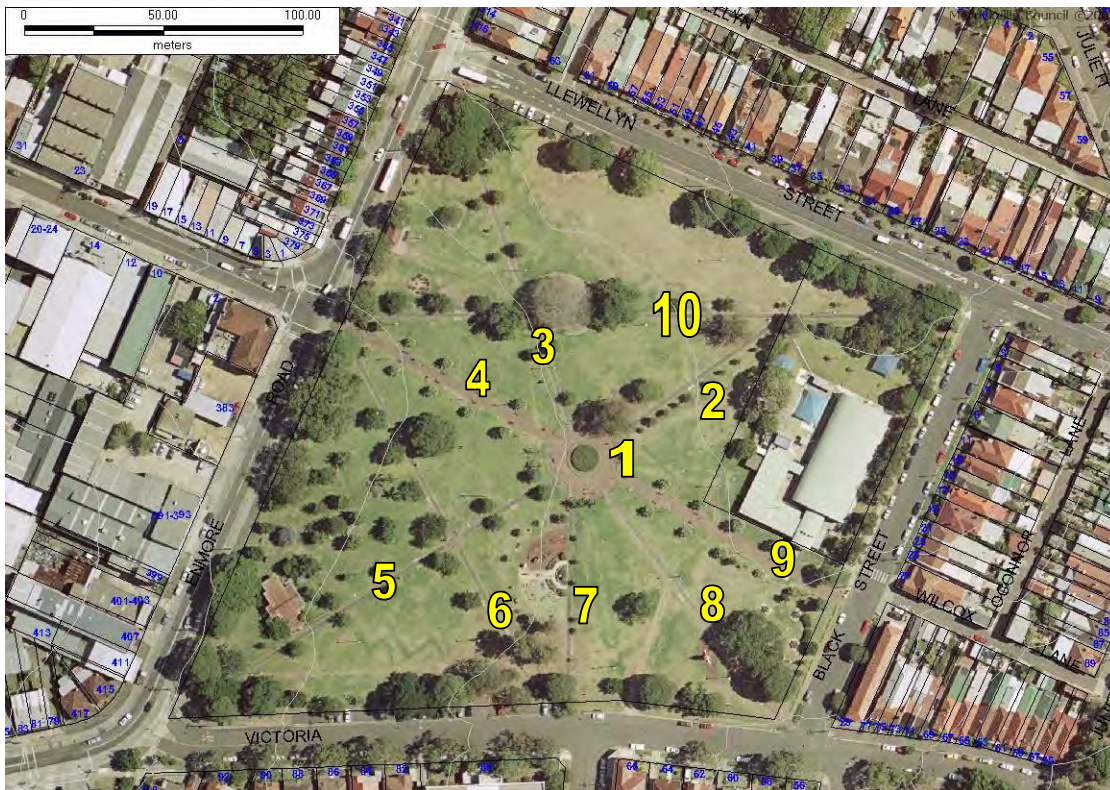
Enmore Park has local historical and social significance as the first public park to be established in the Marrickville area, following a petition from local residents. It is much used and esteemed by the local community, and its original layout and fabric is mostly intact. It is representative of many late Victorian era public parks in the Sydney region created under the impetus of the Public Parks Movement of the 1880s and embellished, possibly through funding under the Unemployment Relief Works, in the early to mid 1930s.

Level of Significance: Enmore Park is of local significance.

For further details, please see the State Heritage Inventory Form at Appendix A.

3.5 Landscape Items of Heritage Significance: Rating and Conservation Actions

PATHS



Key Plan for paths

Heritage ratings

It will be noted that many of the ratings are given values between one and the next higher one. This is because although the item may be ‘high’ in the context of the Park itself, it is not really ‘high’ when compared with others in the wider Sydney metropolitan context. The ‘high’ rating is used here to indicate that this is an important element for **this** Park, and should be retained.

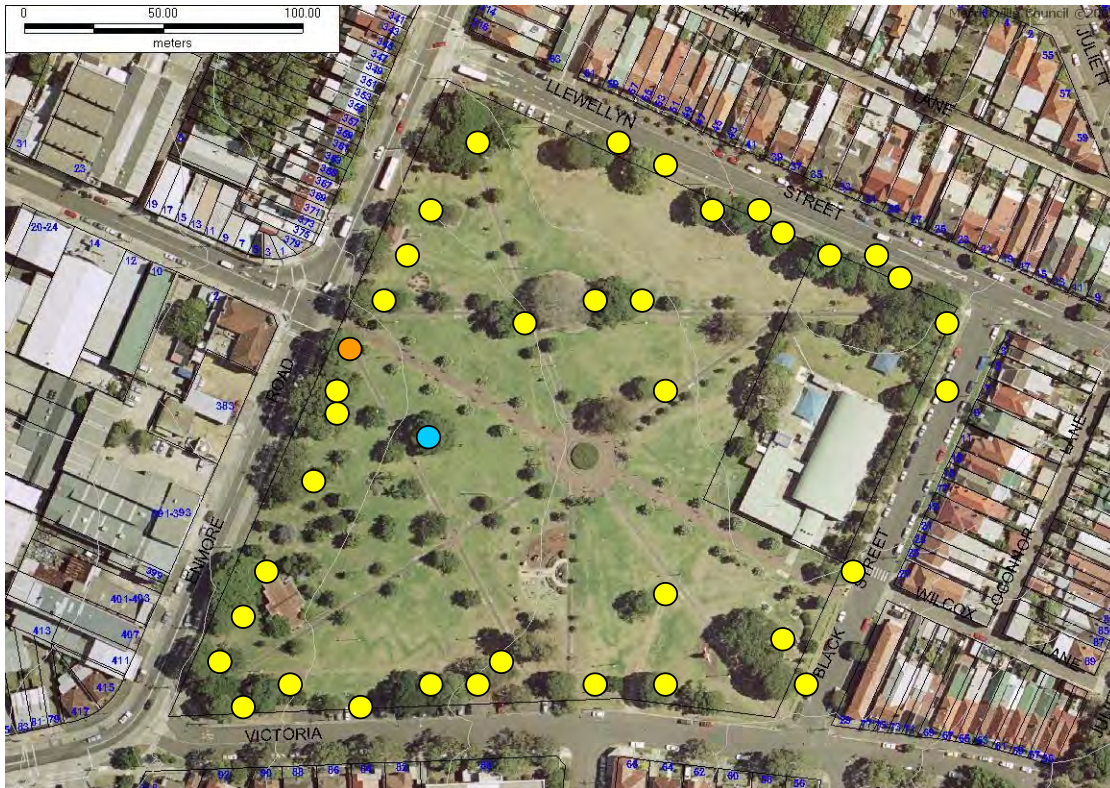
No.	Item and Location / Description of Historic Elements	Photograph of Item	Heritage rating, comment and/or heritage recommendations
1.	<p>Central circular path</p> <p>This circular path around the park's central rondel was an important element of the original design and a key component of the original and existing pathway network.</p> <p>Probably first laid out as a gravel path, it would have been concreted or bitumenised in the upgrading works of the 1930s. This path and several others appear to have been formalized by the time of the 1942 aerial photograph of the site.</p> <p>More recently the path has been paved in brick, as has the main east-west path from Enmore Road to Black Street.</p>		<p>Rating: Moderate to High</p> <p>Path should be retained at its existing width. Brick surface and edging can be retained, but are not themselves significant.</p>
2.	<p>Path from centre to north-east</p> <p>This pathway was built after 1970 following the construction of the pool complex. It was predated by another path which radiated from the same point on the central circle, but which extended directly to the corner of Llewellyn and Black Streets (see 1951 aerial).</p> <p>It was presumably realigned so that the pathway would not be in the way of a security fence around the pool surrounds. Aerial photo evidence suggests that the former path near this location may have never been paved and formalized. Likely re-asphalting in 1994.</p>		<p>Rating: Little</p> <p>Path should be retained as it provides an important pedestrian access from the park's centre to the site's north-eastern corner. Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>
3.	<p>Path from centre to north-west</p> <p>One of the key paths in the original design of the park, it provides access from the centre to the corner of Enmore Rd and Llewellyn St. It has seemingly retained its original width although its likely original gravel surface has been replaced by bitumen.</p> <p>It is one of the few paths (all in the western portion of the park) along which avenue plantings were attempted during the late 1940s. Only some of these specimens have survived.</p> <p>The central planted island on the path appears to not be an original feature.</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Moderate to High</p> <p>Path should be retained as it provides an important and well-used pedestrian access from the park's centre to Enmore Road. Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>

<p>4.</p>	<p>Main path from centre to Enmore Road</p> <p>Likely to be the most heavily used path throughout the history of the park, this brick path would have originally been composed of gravel, which was later surfaced in concrete c.late 1930s.</p> <p>It would have always been the main 'collector' path in the park, which fed people coming from the Enmore Road shopping area onto the paths through the park's eastern half.</p> <p>It would appear that the pathway has been retained at its original width.</p>		<p>Rating: High</p> <p>Path should be retained at its existing width. Brick surface and edging can be retained.</p>
<p>5.</p>	<p>Path from center to south-west</p> <p>One of the key paths in the original design of the park, first seen as a gravel path in a c.1912 photograph near the central rondel. The path also appears on a 1911 subdivision plan for Frankfort House and grounds.</p> <p>It provided access from the corner of Enmore Rd and Victoria Rd to the park's centre. Its historical relevance is identifiable through the construction at its southern end of a stone entry archway in the late 1930s (still existing).</p> <p>It has seemingly retained its original width although its likely original gravel surface has been replaced by bitumen.</p> <p>It is one of only a few paths (all in the western portion of the park) along which avenue plantings were attempted during the late 1940s or early 1950s. Most of these specimens have survived.</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Moderate to High</p> <p>Path should be retained as it provides an important and well-used pedestrian access from the park's centre to Enmore Road. Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>

<p>6.</p>	<p>Path from centre of Victoria Road frontage to Enmore Road</p> <p>Only the south-eastern half of the path (nearest to Victoria Rd) appears on the 1930 aerial.</p> <p>The path is the same width as the other paths through the park (with the exception of the east-west path from Enmore Rd).</p> <p>This path would have originally provided access to Enmore Road and Addison Rd from the vicinity of the former Frankfort House of Samuel Cook.</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Low to Moderate</p> <p>Path should be retained as it provides an important link from Enmore Road to Leicester Street and Victoria Road.</p> <p>Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>
<p>7.</p>	<p>Path from centre to corner of Victoria Rd and Leicester St.</p> <p>This pathway was constructed as part of the late 1930s improvement works. It was predated by two tracks (seen on the 1930 aerial) which led in the same direction, but on different alignments.</p> <p>The path is roughly the same width as the other paths through the park (with the exception of the east-west path from Enmore Rd).</p> <p>Avenue plantings along it are recent and presumably were intended to relate to those plantings along paths in the western half of the park.</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Low to Moderate</p> <p>Path should be retained as it provides a link from the centre to Leicester Street and Victoria Road, and it services the children's playground and sensory garden.</p> <p>Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>
<p>8.</p>	<p>Path from centre to south-east</p> <p>The path appears in a 1922 photograph of the centre of the park and appears to have been one of the key paths formalised and resurfaced between 1930 and 1942.</p> <p>The path seems to have retained its original alignment and proportions and seems to support a significant volume of pedestrian traffic crossing the park toward and from Addison Road.</p> <p>Aerial photographic evidence suggests that avenue plantings were never attempted along this path (as with most others in the eastern half of the park).</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Moderate to High</p> <p>Path should be retained as it provides an important and well-used pedestrian access. Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing.</p>


<p>9.</p>	<p>Path from centre along southern side of pool complex.</p> <p>This path was only constructed after 1970, although its proportions and finish suggest that it was built at the same time as the brick path which runs from the centre to Enmore Rd.</p> <p>The path was predated by a track which came off the same point of the central rondel, but extended slightly further north along Black Street. This earlier path may have existed from the time of the park's original laid out; however, it appears that it was never as highly used as the path which extended from the centre to the corner of Victoria Rd and Black St.</p>		<p>Rating: Little</p> <p>Path should be retained as it provides an important contemporary link to and from Black Street and to the front entry of the pool complex.</p> <p>Resurfacing or narrowing of the path to highlight its lower historical status could be considered, possibly to match the bitumen and concrete kerb finish seen elsewhere in the park. On the other hand, if the pool complex is enlarged, it may need to be bear additional pedestrian traffic, and thus may be retained as it is.</p>
<p>10.</p>	<p>Path extending from Enmore Road to the corner of Llewellyn and Black Streets</p> <p>One of the key paths in the original design of the park. It has seemingly retained its original width although its likely original gravel surface has been replaced by bitumen.</p> <p>Aerial photographic evidence suggests that avenue plantings were never attempted along this path.</p> <p>The central planted island on the path appears to not be an original feature.</p> <p>Likely re-asphalting in 1994.</p>		<p>Rating: Moderate to High</p> <p>Path should be retained as it provides an important and well-used pedestrian access. Concrete kerb edging and bitumen surface are appropriate to the period of path formalisation in the 1930s and 1940s and should be maintained as existing</p>




TREES






Map showing key park plantings. All plantings not identified were made after 1970. (From aerial photo analysis only)

- Trees or groups of trees planted by 1930 Rating: Moderate - High
 - Plantings made between 1930 and 1942 Rating: Moderate
 - Planting made since 1951 Rating: Little - Moderate
- Plantings not marked appear to have been made since 1970 Rating: Little (on case-by-case basis)




No.	Item and Location / Description of Historic Elements	Photograph of Item	Heritage rating, comment and/or heritage recommendations
11.	<p>Fig trees on the corner of Llewellyn and Black Streets</p> <p>The canopies of this grove of Fig trees appears quite substantial on the 1930 aerial photo of the site.</p>		<p>Rating: High (not for later infill plantings)</p> <p>Should be conserved and maintained by a skilled arborist.</p> <p>New plantings along this boundary could be considered between existing plantings to increase the park's boundary definition. Selected plantings should match existing mature species.</p>

<p>11a.</p>	<p>Trees along Llewellyn Street A staggered line of mostly Fig trees along the northern boundary of the park which appear semi-mature on the 1930 site aerial photo.</p>		<p>Rating: Moderate – High Should be conserved and maintained by a skilled arborist.</p>
<p>12</p>	<p>Fig trees on the corner of Llewellyn Street and Enmore Road This grove of Fig trees appears semi-mature on the 1930 site aerial photo. As this was always a key entry to the park, these plantings would have been installed early in the park’s history to define the access point.</p>		<p>Rating: Moderate - High (not for later infill plantings) Should be conserved and maintained by a skilled arborist.</p>
<p>13.</p>	<p>Fig trees and Brush Box along the park’s Enmore Road frontage Some of the Brush Box and Fig plantings along Enmore Road appear as mature trees in photos of this side of the park from the late 1930s. Whilst the plantings form a relatively consistent line along the Enmore Road frontage, it is clear that they were not planted in a formal, consistently spaced alignment.</p>		<p>Rating: Moderate - High (not for later infill plantings) Should be conserved and maintained by a skilled arborist.</p>

<p>14.</p>	<p>Fig trees and Brush Box around the park's south-western corner</p> <p>This grove of trees appears semi-mature on the 1930 site aerial photo. As this was always a key entry and view into the park for people approaching Enmore from the south, these plantings would have been installed early in the park's history to define the access point.</p>		<p>Rating: Moderate - High (not for later infill plantings)</p> <p>Should be conserved and maintained by a skilled arborist.</p>
<p>15.</p>	<p>Fig trees, Brush Box and other species fronting Victoria Road</p> <p>The inconsistently spaced and aligned frontage of trees to Victoria Road contains a mix of species planted throughout the last hundred years.</p> <p>In 1930, the largest of the trees along this side of the park were opposite the home garden of the former <i>Frankfort House</i>.</p>		<p>Rating: Moderate - High (not for later infill plantings)</p> <p>Should be conserved and maintained by a skilled arborist.</p> <p>New plantings along this boundary could be considered between existing plantings to increase the park's boundary definition. Selected plantings should match existing mature species.</p>
<p>16.</p>	<p>Paperbarks along the Black Street boundary</p> <p>The existing row of Melaleucas along the eastern façade of the pool complex were planted after 1970 and have no heritage value.</p>		<p>Rating: None (for plantings adjoining pool complex)</p> <p>New plantings along the southern section of this eastern boundary could be considered between existing plantings to increase the park's boundary definition. Selected plantings should match existing mature species, principally Figs and Brush Box.</p>

<p>17.</p>	<p>Row of Livistona palms extending from Enmore Road to Black Street</p> <p>These palms were only planted in 1994 and have no heritage value.</p> <p>However, the palms between the centre rondel and Enmore Road are representative of the Phoenix palms planted along that path c. late 1910s.</p>		<p>Rating: None</p> <p>Palms should be retained as they are representative of a similar palm planting removed around the late 1940s.</p> <p>The original Phoenix palms were installed to define the main western access into the park. They were no doubt also selected to extend the palm character then defined by the single Bangalow palm (or similar) which stood in the central rondel.</p>
<p>18.</p>	<p>Mature Fig tree and grove in park's south-east corner</p> <p>Planted pre-1930 and originally containing several more specimens (mostly between the remaining plantings and the pool complex – seen on the 1951 and 1970 aerials), these trees have landmark value in views east through the park. They also provide much needed shade over the BBQ area.</p>		<p>Rating: Moderate – High</p> <p>Should be conserved and maintained by a skilled arborist.</p> <p>Additional Fig and Brush Box plantings could be considered around this corner of the Park to better define the park boundary and to provide more shade around the children's rocket structure.</p>
<p>19.</p>	<p>Group of mature trees in the park's northern lawn</p> <p>These three mature trees were planted by 1930 and appear quite large in photos from the late 1930s or early 1940s.</p> <p>It would appear from the 1930 and 1942 aerial photos that these trees were part of an outer, unfinished circle of plantings which were to surround the central rondel. A more complete inner circle of plantings can be seen on the 1942 aerial photo.</p>		<p>Rating: Moderate – High</p> <p>Should be conserved and maintained by a skilled arborist.</p> <p>Additional canopy trees could be planted both within and to define the northern lawn, to increase the amount of available shade.</p>



OTHER ELEMENTS

<p>20.</p>	<p>Light poles</p> <p>Further research would be needed to identify the installation date of the existing period lightpoles in the park, but this may not be warranted.</p> <p>Available historic photos collected to date do not show these lightpoles; however a photograph from the late 1930s or early 1940s seems to indicate that there were different lightpoles in the park at that time.</p>		<p>Rating: Not known</p> <p>Until more is known about their provenance, it is difficult to ascribe a heritage rating to them.</p> <p>They have an Edwardian period style which would have suited the Park in the early 20th century, although they may have been brought in from elsewhere and installed later.</p> <p>It is suggested they be grouped into one precinct of the Park – e.g. near the Enmore Road entrance, and that other, modern lighting be installed in the remainder of the Park.</p>
<p>21.</p>	<p>North-western entry gateway</p> <p>This sandstone gateway from the corner of Llewellyn St and Enmore Rd was built in the late 1930s as part of a substantial upgrading of the park.</p> <p>It appears to have been retained in its original form, although the two blocks at the top of each ‘pillar’ were not present in the photo of the item taken after its completion.</p> <p>The brick paving in front of the element may date back to its construction, when brick edging was seen around this street corner.</p>		<p>Rating: High</p> <p>Retain as existing. Confirm original location of two blocks on the top of the gateway.</p> <p>Repair damaged sections as required and as advised by a conservation architect.</p>
<p>22.</p>	<p>South-western entry archway</p> <p>This sandstone archway from the corner of Enmore Rd and Victoria Rd was built in the late 1930s as part of a substantial upgrading of the park.</p> <p>It appears to have been retained in its original form.</p>		<p>Rating: High</p> <p>Retain as existing. Confirm existing composition reflects original design and construction.</p> <p>Repair damaged sections as required and as advised by a conservation architect.</p>

<p>23.</p>	<p>Crazy-paved sandstone zone – corner of Enmore Road and Victoria Road</p> <p>Likely to have been laid out at the time of the construction of the sandstone archway, this area was probably formed in this crazy-paved configuration to draw people’s attention to the park entry. It is typical of paving of the interwar period.</p>		<p>Rating: Low – Moderate Retain and repair as required.</p>
<p>24.</p>	<p>Enmore Road bus shelter</p> <p>Built as part of the upgrading works on the mid to late 1930s, this substantial shelter appears largely unchanged from its original composition (apart from not containing the long slatted bench seats formerly underneath it).</p> <p>The green benches behind the structure were placed there in subsequent decades.</p> <p>A pathway formerly extended off the building to the existing pyramidal markers east of the structure.</p> <p>The shelter is formed by two ashlar masonry pillars eight courses high at each end between which was a faceted drinking fountain (no longer in use).</p>		<p>Rating: Moderate Retain as existing and repair as required with the advice of a conservation architect.</p> <p>Consider removal of green timber benches along eastern platform behind building and the re-establishment of slatted benches under the roof as in original.</p> 
<p>25.</p>	<p>Former sandstone fountain</p> <p>According to the Godden Mackay Historic Resources Survey 1990 this item is: “A small sandstone fountain, set on an octagonal plinth, built in rough-faced masonry” The fountain shaft is octagonal.....The fountain dates from pre-1958”.</p> <p>Its provenance is not known, but its simple, stripped down style suggests modernist influences, possibly of the late 1920s.</p>		<p>Rating: Moderate Retain and repair as required.</p>

<p>26.</p>	<p>Children’s care facility</p> <p>Built between 1951 and 1970, first as a library then as a Childrens Resource Centre, and now known as a child minding centre.</p>		<p>Rating: None</p> <p>A functional building whose design was influenced by the prevailing Sydney School of architecture of the 1960s.</p> <p>It is for Council to decide, after community consultation, on whether it is appropriate to continue to have this facility located within the Park.</p>
<p>27.</p>	<p>Sandstone-edged planter beds</p> <p>A circular formation of arc-shaped planter beds first seen in a photo of the park taken following the upgrading works of the late 1930s.</p> <p>The formation, with a circular bed set in its centre is first clearly seen on the 1951 aerial photo below</p>  <p>The original sandstone edges have been supplemented by concrete mowing strips which tend to diminish an appreciation of the original fabric.</p>		<p>Rating: Moderate</p> <p>Retain planter beds and replant with species used commonly during the 1930s and 1940s.</p> <p>Remove those shrub and tree plantings which restrict an appreciation of the overall configuration of the formation.</p> <p>Consider a series of evenly spaced seats within or around the zone to reinforce the original design intention and a greater appreciation of it.</p>
<p>28.</p>	<p>Sensory garden and playground</p> <p>The children’s playground (at left) is bounded on its northern side by a sensory garden, which abuts the pathway leading to the central rondel from Victoria Road.</p> <p>The sensory garden has only a few hardy remnants of its original plantings and has probably suffered from children’s play.</p> <p>Neither it nor the playground have historical value</p>		<p>Rating: None</p> <p>These elements are relatively recent (post 1990) and are somewhat transient.</p> <p>They could be instated elsewhere in the Park, in an upgraded form, if desired.</p>

<p>29.</p>	<p>Salvation Army Monument adjacent to Victoria Road</p> <p>This item – a Salvation Army shield surrounded by an oval, brick dwarf wall lies on an artificial mound, created presumably to give it more prominence.</p> <p>It is a memorial to the centenary of the Salvation Army in Australia in 1980 and was presumably laid that year. It is likely it was located in Enmore Park because of its proximity to the nearby Bethesda Home for young country women coming to live in Sydney for the first time.</p>		<p>Rating: Low</p> <p>This item has some social significance, but not directly associated with the Park. Its proximity to the Bethesda Home/Hostel and availability of space in the Park was apparently the justification for its presence here.</p> <p>Whether its continuing presence in the Park is still regarded as important and/or appropriate would be a matter to be determined through careful community consultation.</p> <p>It is noted that the mound distorts the southern boundary of the Park and limits pedestrian movement along it.</p>
<p>30.</p>	<p>Northern stone edged garden beds</p> <p>A circular bed appears to have been in this location for many decades, although its plantings have frequently changed. The stone edging is indicative of that used in earlier periods.</p>		<p>Rating: Low</p> <p>It is worth retaining this feature not only for its long-standing presence but because it provides some focal interest in an otherwise uninteresting, plain space.</p>
<p>31.</p>	<p>Seat hardstands adjoining paths</p> <p>These bench-seat hardstands are characteristic elements along the Park's many pathways.</p>		<p>Rating: None to Low</p> <p>Although they are characteristic elements, a design decision needs to be made whether to incorporate them into future seating plans or to remove them.</p> <p>While bench seating is often appreciated by the elderly, or those with very young children, it is uninviting unless shaded.</p>

<p>32.</p>	<p>Children’s rocket</p> <p>The provenance of this has yet to be established, but it is typical of such elements built following the space race and the moon landing. It possibly dates from the late 1960s or early 1970s, but may have been upgraded since.</p> <p>It stands in splendid isolation away from seating, shade, or other play facilities.</p>		<p>Rating: Low</p> <p>Probably worth retaining as a good example of its type and one that is becoming increasingly rare.</p> <p>It warrants being integrated into a children’s play centre or near to a family barbecue facility.</p>
<p>33.</p>	<p>Central rondel – edging</p> <p>The original stone edging around the central rondel is just visible behind the later concrete ‘kerbing’.</p>		<p>Rating: Low</p> <p>Not particularly significant in itself but for marking the original edge of the rondel throughout perhaps nearly a century.</p> <p>While not an ideal solution aesthetically, this edging ought to be retained for historical interpretation purposes.</p>

4.0 General Statement of Conservation Approach

Council should continue to maintain the Park as an important example of a late 19th century park established in response to petitioning by local residents inspired by the public parks movement of the 1880s. It should respect the Park’s traditional pathway layout and boundary plantings, and its role as a place for relaxing, children’s play and passive recreation.

4.1 Owner’s requirements

Enmore Park is Crown Land, and the steward of it is Marrickville Council as trustee. Council wishes to increase the range and quality of opportunities for recreation, and to retain and enhance the landscape character of the Park that reflects both the locality and history of the Park.

The writers of the 1991 Plan of Management considered there was a need in the district for a large and passive space which was not dominated by active sporting facilities. They noted that Enmore Park has traditionally been a family park, used in various ways for passive recreation such as picnics and relaxing in the sun, and for spontaneous, informal active recreation. They envisaged the role of Enmore Park as being a place of visual variety and interest, which can be enjoyed both from within the Park and from surrounding areas. They also saw it as a place in which children of all ages could come for safe and stimulating play, which catered for people with disabilities, and where people could relax either alone or with groups of friends or family.

4.2 The Items and Fabric to be conserved

From a heritage conservation perspective, it is the pathway layout, the central rondel, the early tree plantings and entry gateways along Enmore Road which have the highest level of significance within Enmore Park, and which warrant conservation. Most of these pathways have existed virtually since the Park was established, principally because they reflect pedestrian desire-lines across it from the several streets that surround or abut the Park at right-angles. While the alignment and paving of some of these pathways has changed a little over the years, most have remained constant, the typical character being a bitumen surface with concrete kerbing.

The central rondel has also existed virtually since the Park's establishment, and although little is left of its early fabric apart from the edging rock (subsequently surrounded by a solid concrete kerb), it should be retained as a central, organizing feature of the pathway system. Its internal contents have changed over the years, and the present ones have no significance. Unfortunately, no photographs have yet been located of either the fountain or subsequent band rotunda said to have been sited there early in the 20th century. The only element of some long-standing was a *Howea* palm planted off centre. (It is worth considering introducing a cluster of these within the rondel as an arresting vertical focal point at the centre of the Park).

The tree plantings clustered at the main entrances at the four corners of the Park are also of long standing (c. 70 years or more), and should be conserved and – where appropriate – reinforced. Plantings along the length of the actual park boundaries is more haphazard and has relatively low significance. It could be standardized into row plantings of appropriate species without much loss of significance.

Other elements of some significance are the two sandstone entrance portals (at each end, off Enmore Road), the small fountain and the bus shelter along Enmore Road, and the circular formation of arc-shaped planter beds in the south-west sector, just north of the Children's Resource Centre.

4.3 Items and Fabric that can be altered

Of the paths, those leading from Black St. to the rondel, and that leading from the corner of Black and Llewellyn Streets to the rondel are more recent in terms of their present alignment, and offer more flexibility for adjustment. The actual paving of the paths (mostly asphalt) is not in itself significant, since it has been periodically renewed, but it is authentic to the type and period of the Park, whereas brick paving is not. Similarly, the concrete kerbing along the edges of the paths is equally authentic, as are the concrete pads for bench seats along them. Assuming it is the intention to retain the essentially late 19th century character of the Park, then these materials should be retained or be used in any additional or enhancing landscape treatments of the Park.

Of the trees, those planted after 1940 generally have less heritage value than those planted prior to that date, while those planted after 1970 have little if any heritage value. The latter can be altered or replaced, although consideration should be given to their present amenity value.

Apart from the rondel, and the circle of curved flower beds just north of the child minding centre, the other flower beds are relatively recent creations and can be altered or removed.

The equipment in the children's play area can also be altered or relocated; however, the rocket should be retained, although it could be relocated – or be surrounded by supplementary play equipment to reinforce that theme.

The swimming pool complex is the subject of a separate study, but there is no present fabric which cannot be altered or removed.

5.0 Exemptions under the Heritage Act

- (a) *Demolition*: The items cited under Policy 4 above may be demolished.
- (b) *Damage or despoil*: No item of heritage significance should be damaged or despoiled.
- (c) *Moving of relics or objects*. With regard to objects, there would be no objection to relocating the rocket or the stone fountain at the entrance to the Park off Enmore Road to another location in the Park. The two sandstone entrance portals and the bus shelter along Enmore Road should not be moved or relocated.
- (d) *Excavation for relics*. As it is not anticipated there would be archaeological items below the surface of the Park, the issue of excavating for, or moving, a relic is not likely to arise.
- (e) *New development*. Any work under policies 4 above and 9 below, and as shown in future landscape master plans.
- (f) *Alterations*. Any work under policies 4 above and 9 below, and as shown in future landscape master plans.
- (g) *Trees and other vegetation*: Trees identified as having heritage significance should be carefully maintained by a skilled arborist until they fall into senescence. At that stage, they may be removed. Trees with no heritage significance may also be removed, although their retention should be considered on amenity or aesthetic grounds under the Tree Preservation Order.

6.0 Archaeological material. Not applicable

7.0 Gaps in existing knowledge about the Park

No details or images have yet been located of the original fountain and bandstand that were installed in the very early years of the Park.

The provenance of the octagonal stone fountain at the entrance to the Park off Enmore Road has also not yet been established; nor has that of the late Victorian/Edwardian lamp posts.

Lack of information about these elements, however, should not be regarded as a reason to alter or remove them, since it is assumed they have some - if low to moderate - significance.

8.0 Distribution of this document

Decisions regarding the distribution of this document are essentially a matter for Marrickville Council. It is assumed that a copy would be provided to Council's heritage planner and/or adviser, and to the landscape projects branch of Council. It could also be made available to the Local History Centre and Council archivist.

As the Park is not of State significance, it is not necessary for this CMS to be deposited in the Heritage Office library, although it could be if desired.

When works contracts are being let, a copy should be made available to the head landscape contractor so that due respect will be given to the recommended treatment for heritage items.

9.0 Public safety

The Park is open to the public at all times and possible risks will have been routinely assessed and dealt with. No new issue of public safety is likely to arise as a consequence of advice or recommendations in this CMS.

10.0 Conservation needs and interpretation requirements

The need to conserve the Park's contributory heritage elements has already been addressed in Policy 3 above. Most of these needs are covered by routine park maintenance.

Whether or not the Park requires interpretation to its users is a matter for Council to decide. If Council wished to draw attention to the 19th century origin of the Park – and thereby explain the reasons for its style and furnishings, there could be advantage in having a few illustrated signs at two or three key access points. These could provide succinct information on the history of the Park, supported by a few historical images. Regrettably, however, no vivid or compelling images have yet been located; nor have significant events been associated with it.

If, however, vandalism or graffiti is considered to be a significant problem, then perhaps a brass plaque set in concrete giving essential historical facts would be sufficient. This could be located either at the Enmore Road main entrance or at the rondel in the centre of the Park.

11.0 Confidential matters

There are no confidential matters to be addressed.

12.0 Review

Given the uncomplicated nature of Enmore Park, it would not appear necessary to replace this CMS with a formal CMP. If that is agreed, the CMS should be reviewed every five years. If not, then a formal CMP should be prepared within the next five years.

13.0 Concluding Remarks

Like other parks in the Marrickville LGA, Enmore Park has evolved slowly over the last 120 years. It has been mostly a park for passive recreation and informal sports and games, as well as a place for holding community events. The swimming pool complex, a comparatively recent addition to the Park, provides the one purpose-built sporting/recreation facility (beyond the routine children's playground), and this is already being considered for review and expansion.

The Park derives its significance mainly from its long period of use and the value attached to it by the local community, rather than from any special qualities. However, it is a welcome, generous green open space in an area of dense built form, an amenity much appreciated and valued by local residents in small houses on tight allotments.

The elements which contribute to its significance comprise hardy, typical fabric found in most parks in the Sydney region, and their management and maintenance requirements are mostly routine. This report has identified those elements which have some significance, and the conservation principles and practices which should be adopted and implemented. They are not onerous, and most can be carried out in the course of routine park maintenance.

Not every group of trees, or single tree, are worthy of being individually listed, but are worthy of retention and need to be protected by over-arching controls. The approach is similar to that for urban conservation areas – in which diverse and recurring features contribute to significance but are not individually suitable for listing, and only a few elements might be individually identified as heritage items within the overall listing.

The greater challenge for Council lies in the extent to which it adopts proposed changes – upgrading, redesign, and enhancement – proposed in the landscape masterplan. To some extent,

this CMP has pointed the way to what might be considered, but it is not a design or masterplan within itself. Fortunately, the changes and improvements proposed by Environmental Partnership take into account the identified heritage values and enable them to be fully protected. Among these are the established layout of the Park, the mature trees that embellish it, and its many but modest sandstone elements.

C Arboricultural Audit and Assessment

Arboricultural Audit and Assessment January 2008



TREE MANAGEMENT CONSULTING ARBORICULTURISTS

**ARBORICULTURAL AUDIT
AND ASSESSMENT**

for

Marrickville Council
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SITE ADDRESS
ENMORE PARK
ENMORE ROAD
MARRICKVILLE NSW

JANUARY 2009



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- APPENDIX B - SULE Categories**
- APPENDIX C - Schedule of Assessed Trees**
- APPENDIX D - Tree Location Plans**

1 INTRODUCTION

- 1.1 This Arboricultural report was commissioned by Ms. Morna Scott, Landscape co-coordinator for, and on behalf of, Marrickville Council.
- 1.2 The subject site is identified as Lot 7 in DP 93582, at Enmore Road, Marrickville and known as Enmore Park. The Local Governing Authority (LGA) is Marrickville Council.

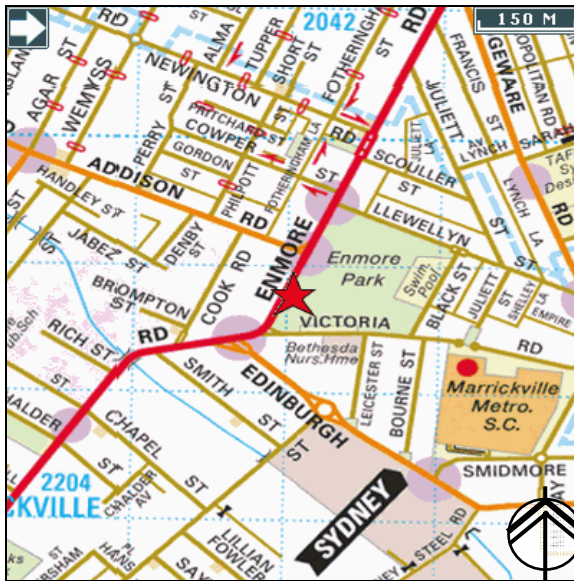


Figure 1

ENMORE PARK LOCATION PLAN

Location of Enmore Park, Marrickville, Sydney, New South Wales.

The red star indicates the location of the subject site. Map not to scale.

Reproduced from Sydway Edition 9, Sydway Publishing Map ref: 74L14 or 294L14 Ausway Group of Companies

- 1.3 The arboricultural audit and assessment component of this document identifies tree species by both botanical and common names, and provides approximate dimensions (height, canopy spread and trunk diameters). The report provides an assessment of the **health, condition and landscape significance** of each tree, and accords each tree a retention value. The report also provides recommendations for tree removals, retention, pruning or further inspections based on their **Safe Useful Life Expectancy (SULE)**, and guidelines for optimal and minimal **Tree Protection Zone (TPZ)**'s.
- 1.4 This arboricultural assessment is not intended to be a comprehensive **risk** or **hazard** assessment; however the report may make recommendations, where appropriate, for further assessment or testing of trees where potential structural problems have been identified, or where below ground investigation may be required.

2 METHODOLOGY

- 2.1** In preparation for this report , ground level visual inspections of the subject trees were undertaken by the authors of this report on 15th, 19th and 30th January, 2009.
- 2.2** Tree heights and canopy spreads were estimated.
Depending on access, size or other constraints, trunk diameters of trees within the subject site were either measured at 1.4 metres above ground level (**DBH**), using a diameter tape, visually estimated, or measured above the **root buttress** (as noted in Appendix C – Schedule of Assessed Trees.)
- 2.3** The trees assessed for this report are numbered from 92 to 250. The remaining ninety-one (91) trees were subject to a separate audit and development impact assessment and report prepared for the proposed re-development of the Annette Kellerman Aquatic centre. An aerial view of the site (Figure2) is on the following page.
- 2.4** Field observations were written down. Photographs were taken with a 1.3mp Sony Cybershot or 10.10mp Canon EOS 100D SLR digital camera.
- 2.5** No **aerial inspections** or woody tissue testing were undertaken as part of this tree assessment.
Information contained in this tree report covers only the trees that were examined and reflects the condition of the trees at the time of inspection.
- 2.6** Care has been taken to obtain all information from reliable sources.
All data has been verified as far as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.
- 2.7** Plans and documents referenced for the preparation of this report include:
- Details and Levels Survey, Sheets 1 & 2 of 2, Ref. No.192/05, Revision 1, dated September 2005, prepared by Craig & Rhodes;
 - Marrickville Council Tree Preservation Order 2007.
- 2.8** The subject trees are shown on marked up copies of the site survey. The plans are attached as Appendix D – Tree Location Plans.



Figure 2
ENMORE PARK – AERIAL VIEW OF SUBJECT AREA
The trees inside the area bounded by the yellow, unbroken line are the subject of this report.

Source: Google Earth 2009 (map not to scale, adapted and marked up by C. Mackenzie).

3 COMMENTS

3.1 Trees That Would Benefit From More Detailed Inspection

3.1.1 A number of trees have been identified as requiring further detailed inspection including aerial inspections and **Resistograph®** testing. Refer to Appendix C – Schedule of Assessed Trees, for those trees identified as requiring these inspections or tests.

3.3.2 Detailed specifications for pruning of large or mature trees should be detailed after aerial inspections are carried out. Aerial inspections should be performed by a climber with an AQF Level 5 in Arboriculture. An elevated work platform (e.g. ‘cherry picker’) can be used by a non-climbing AQF Level 5 arborist to carry out aerial inspections.

Assessment conducted and prepared by:




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APPENDIX A

TERMS AND DEFINITIONS



TERMS AND DEFINITIONS

The following relates to terms or abbreviations that have been used in this report and provides the reader with a detailed explanation of those terms.

Aerial inspection Where the subject tree is climbed by a professional tree worker or arborist specifically to inspect and assess the upper stem and crown of the tree for signs or symptoms of defects, disease, etc.

Age classes

Y	<i>Young</i> refers to a well-established but juvenile tree
SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity and full size
M	<i>Mature</i> refers to a full sized tree with some capacity for further growth
LM	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining

Basal flare The rapid increase in diameter that occurs at the confluence of trunk and root crown, associated with both trunk (stem) and root tissue.

Buttress root A large woody root located at the base of the trunk (the root crown) which is important to the overall stability of the tree due to its contributions to basal flare.

Cambium refers to the layer of cells between the exterior bark and the inner wood which primarily controls cell division, and hence radial expansion of the stem, branches and shoots.

Co-dominant refers to stems or branches equal in size and relative importance.

Compartmentalisation A dynamic defense and protection process in trees to resist the spread of pathogens and decay organisms using existing and new cells as physical and chemically enhanced barriers as a system of four walls.

Condition refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

Crown raise pruning Pruning technique where lower limbs are removed, thereby lifting the overall crown above the ground.

Dead wood refers to any whole limb that no longer contains living tissues (e.g. live leaves and/or bark). Some dead wood is common in a number of tree species.

Decay Process of degradation of woody tissues by fungi or bacteria through decomposition of cellulose and lignin. There are numerous types of decay that affect different types of tissues, spread at different rates and have different affect on both the tree's health and structural integrity.

Defect Any structural weakness or deformity.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height (1.4 metres above ground level)

Dieback Death of growth tips/shoots and partial limbs, generally from tip to base. Dieback is often an indicator of stress and tree health.

End weight The excessive concentration of foliage at the distal ends of branches.

Epicormic Shoots which arise from adventitious or latent buds. These shoots often have a weak point of attachment. They are often a response to stress in the tree.

Epicormic growth/shoots are generally a survival mechanism, often indicating the presence of a current, or past stress event such as fire, pruning, drought, etc.

Excurrent Tree where the trunk is erect, straight and continuous, tapering gradually, with the main axis clear from base to apex, e.g. *Araucaria heterophylla* Norfolk Island Pine.

Hanger Unattached, cut or broken branches that are caught in the canopy.

Hazard refers to anything with the potential to harm health, life or property.

Health refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

Helical Shaped like a spiral or a helix. Especially wood fibres where the growth habit of a tree twists the fibres to resist stress loading from dominant wind flow by aligning fibres with the wind direction.

Inclusion - stem/bark, the pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet. This is normally a genetic fault and potentially a weak point of attachment as the bark obstructs healthy tissue from joining together to strengthen the joint.

Landscape Significance Rating.

The importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit.

- Exceptional – Tree/s of crucial importance as a principal feature of a public place, or are so visually prominent as to be a landmark feature.
- High – prominent tree/s in private gardens or well-frequented public places.
- Moderate – Contributes some amenity to the immediate garden/landscape areas, or to the streetscape.
- Low – Poor, declining or small examples; noxious or undesirable species; little or no visual amenity to public view.

Resistograph® testing A Resistograph® is a specialised machine that measures timber density by drilling a 3mm diameter probe through the wood, simultaneously plotting the results on a graph at full scale.

Retention Value (RV) refers to the retention value of a tree, based on the tree's *Useful Life Expectancy* (ULE) and *Landscape Significance*.

Risk The random or potentially foreseeable possibility of an event causing harm or damage.

Scaffold branch/root A primary structural branch of the crown or primary structural root of the tree.

Selective Pruning The removal of identified branches that are causing a specific problem.

Self corrected Lean which has naturally corrected to a vertical orientation by the development of reaction wood.

Suppressed In crown class, trees which have been overtopped and whose crown development is restricted from above.

Taper Relative change in diameter with length; reflects the ability of the stem or branch to evenly distribute stress along its length.

Topping or heading is a pruning practice that results in removal of terminal growth leaving a cut stub end. Topping causes serious damage to the tree.

Tree Protection Zone (TPZ), generally the minimum distance from the center of the tree trunk where protective fencing or barriers are to be installed to create an exclusion zone. The **TPZ** surrounding a tree aids the tree's ability to cope with disturbances associated with construction works. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death and the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

The methodology adopted by Urban Forestry Australia for determining a tree's TPZ is based on Matheny & Clark's guidelines, as modified from the British Standards Institute 1991. It refers to the optimal *tree protection zones* for trees of 'average to excellent vigour'.

- All calculations for TPZ's using the Matheny and Clark guidelines have been converted to metric figures.
- Trees of poor vigour are generally not considered for retention under this guideline.
- Canopy spreads displayed on the survey are not accurately shown in many cases. Where a TPZ is displayed as a smaller diameter than the crown *dripline*, it is to be given that the TPZ is to be extended to the crown dripline.

SAFE USEFUL LIFE EXPECTANCY (SULE)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. SULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner.

SULE categories are easily verifiable by experienced personnel without great disparity.

A tree's SULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy); then by economics (i.e. cost of maintenance - retaining trees at an excessive management cost is not normally acceptable); and finally, effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population).

SULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short ULE may at present be making a contribution to the landscape, but their value to the local amenity will decrease rapidly towards the end of this period, prior to them being removed for safety or aesthetic reasons.

For details of SULE categories see Appendix B, modified from Barrell 2001.

APPENDIX B
SULE CATEGORIES



Safe Useful Life Expectancy (SULE) CATEGORIES (after Barrell 1996, Updated 01/04/01)

The five categories and their sub-groups are as follows:

1. Long SULE - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. structurally sound trees located in positions that can accommodate future growth
- B. trees which could be made suitable for long term retention by remedial care
- C. trees of special significance which would warrant extraordinary efforts to secure their long term retention

2. Medium SULE - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. trees which may only live from 15 to 40 years
- B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
- C. trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D. trees which could be made suitable for retention in the medium term by remedial care

3. Short SULE - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. trees which may only live from 5 to 15 years
- B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
- C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D. trees which require substantial remediation and are only suitable for retention in the short term

4. Removal - trees which should be removed within the next 5 years

- A. dead, dying, suppressed or declining trees
- B. dangerous trees through instability or recent loss of adjacent trees
- C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- D. damaged trees that are clearly not safe to retain.
- E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
- F. trees which are damaging or may cause damage to existing structures within the next 5 years.
- G. trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
- H. trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5. Small, young or regularly pruned - Trees that can be reliably moved or replaced.

- A. small trees less than 5m in height.
- B. young trees less than 15 years old but over 5m in height.
- C. formal hedges and trees intended for regular pruning to artificially control growth.

APPENDIX C
SCHEDULE OF ASSESSED TREES



SCHEDULE OF ASSESSED TREES

ENMORE PARK, MARRICKVILLE, NSW. JANUARY 2009

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
92	<i>Ficus rubiginosa</i> Port Jackson Fig	6	12	850 *AB	LM - OM	Fair	-	In decline. Sparse canopy. Extensive epicormics throughout. Extensive decay pockets throughout. Concrete in base of stem. Four co-dominant, included stems from 1 metre AGL. Remove large diameter scaffold hanging over car park, with decay and splitting bark near stem junction (remove at junction). Remove deadwood of 30mm or more over parking area. Aerial inspection of scaffold branches recommended. Routine monitoring. Mulch over roots (min. 4.5m radius). Short to medium term retention only.		M		12.8 12.8
93	<i>Lophostemon confertus</i> Brush Box	9	10	550	M	Good	Good	Some small twig dieback . Minor epicormics shoots. Junctions appear sound. Very compacted soils. Mulch root zone (min. 3m radius)	2A	M	H	6.6 5.5
94	<i>Ficus rubiginosa</i> Port Jackson Fig	10	12	850 AB	LM - OM	Fair	-	Sparse canopy. Decay pockets in stem. Old damage to exposed roots. Epicormics throughout. Small twig dieback in upper canopy. Investigate with Resistograph® test to determine structural integrity of stem and extent of decay. Deadwood and monitor. Mulch over roots (min. 5m radius). Probable short term retention.		M		12.8 12.8
95	<i>Ficus rubiginosa</i> Port Jackson Fig	13	15	1300 AB	LM	Good	-	Large old wounds between buttress roots, with resulting reduction in girth. Internal cavities on north side of stem. Large canopy, with large diameter scaffolds. Aerial inspection required to assess integrity of included unions of scaffold branches, possible removal. Ideally reduce canopy loading to reduce stresses on stem, over time. Mulch over roots (min. 6.4m radius). Monitor tree condition.		H		15 15
96	<i>Ficus rubiginosa</i> Port Jackson Fig	5	12	850 AB	LM - OM	Fair	Poor	In decline. Sparse canopy. Small twig dieback. Extensive epicormics throughout scaffolds and on stem. Decay pockets in stem. Low vigour. Short term retention only. Would remove to allow for development of T146 (young Fig).	3D	M	M	12.8 12.8
97	<i>Ficus macrophylla</i> Moreton Bay Fig	7	7	650 AB	OM	Fair	Poor	In decline. Heavily topped in past. Decay pockets throughout. Poor stem and buttress development in relation to diameter (and weight) of scaffolds. Few scaffolds remaining. Monitor tree condition. Mulch root zone (min. 3.5m radius). Short term retention likely.	3D	L	L	9.8 9.8
98	<i>Ficus rubiginosa</i> Port Jackson Fig	10	13	950	M	Good	-	Minor epicormics. Cavity on north side at 1 metre AGL. Extent of decay not known. Investigate with Resistograph® test to determine structural integrity of stem and extent of decay. Aerial inspection. Remove scaffolds with poor attachment, included junctions, especially where they over hang car park. Remove deadwood > 30mm Ø. Mulch root zone (min. 5m radius). Monitor tree condition.		H		11.4 9.5
99	<i>Lophostemon confertus</i> Brush Box	12	11	670	M	Good	Good	Previously topped at 3 metres AGL. Girdled roots. Minor epicormics. Remove deadwood and poorly attached, old, large diameter epicormics. Mulch root zone (min. 3.5m radius). Monitor.	2D	H	H	8 6.7

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
100	<i>Ficus rubiginosa</i> Port Jackson Fig	9	13	800 AB	M	Good	-	Epicormics on stem and near base of stem, possible root crown damage. Possible old cavities in base, could be buttress growth habit but difficult to determine. Highly compacted soil. Large diameter epicormics in canopy. Tree appears stressed, some decline, not obvious why (root crown damage from stem cavities?). Investigate with Resistograph® test to determine structural integrity of rootcrown and extent of decay. Where appropriate, remove crossing, rubbing branches, as wounds are point of entry for decay. Mulch root zone (min. 4m radius). Monitor.		H		9.6 8
101	<i>Ficus rubiginosa</i> Port Jackson Fig	10	18	860 AB	M	Fair	-	Topped at 3 metres AGL, with resultant congested, multi stems, some included junctions. Large decay pocket at 1.5 m AGL, on east side, extent of decay not known. Epicormics throughout, average for age. Aerial inspection. Remove scaffold with decay at 3 metre AGL, and other scaffolds with similar damage. Resistograph® test to determine structural integrity of stem and extent of decay. Mulch root zone (min. 4.5m radius). Monitor.		H		10.3 8.6
102	<i>Ficus rubiginosa</i> Port Jackson Fig	12	13	1050 AB	M	Fair	Poor	Brick wall surrounding services meters embedded in base of buttress. Extensive epicormics on all scaffolds. Large cavity and decay on north side, poor trunk taper on north side, 'hollo' in stem. Signs of soil uplift on S side, leaning over car park. Removal recommended.	4A	H	L	12.6 10.5
103	<i>Lophostemon confertus</i> Brush Box	13	10	780	M	Good	-	Cavity and decay @ base, south side, extends possibly 50% of stem diameter. Topped at 4 metre AGL. Leaning towards street. Vigorous. Resistograph test to determine structural integrity of stem and extent of decay. Mulch root zone (min. 4m radius). Monitor.		H		9.4 7.8
104	<i>Ficus macrophylla</i> Moreton Bay Fig	8	6	570	OM	Fair	Poor	Advanced decline- nearly dead. All scaffolds have been reduced to stubs except one. Remove and replace.	4A	M	L	8.5 6.5
105	<i>Ficus rubiginosa</i> Port Jackson Fig	8	12	920 AB	LM - OM	Poor	Poor	Extensive small and large diameter epicormics. Extensive dieback. Most exposed tree in group, removal would not adversely impact other trees in group. Exposed roots damaged, decay present. Reduce branches to allow for development of adjacent trees, w/view to removal in short term. Mulch root zone (min. 4.5m radius). Monitor.	3D	M	L	13.8 13.8
106	<i>Ficus rubiginosa</i> Port Jackson Fig	9	9 x 13	600 AB	M	Good	Fair	High landscape significance as group, medium as individual specimen. Exposed roots, mower damaged. Small and large diameter epicormics on scaffolds, possibly a result of root damage and stress due to compacted soils. Main scaffolds do not appear to be included at stem junctions. Reduce loading on scaffolds. Remove crossing branches. No more than 10 -15% removal of foliage recommended. Mulch root zone (min. 3m radius). Monitor.	2D	H/M	H	7.2 6
107	<i>Ficus rubiginosa</i> Port Jackson Fig	8	8 x 3	730 AB	OM	Poor	Poor	Advanced decline. Extensive sooty mould. Extensive epicormics. Warty stem growths. History of branch failures and removals. Suppressed, poor form. Dull foliage. Pollarded. Has had large diameter co-dominant stem removed. Remove.	4A	M	L	11 11

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
108	<i>Ficus microcarpa</i> Small-fruited Fig	9	16	970 AB.	M	Fair to Good	-	Dominant tree in group. Extensive, exposed surface roots. Recent pruning of lower branches. Included junction of co-dominant stems, may require cabling. Large decay pocket in stem to east. Good canopy cover, even distribution. Extensive epicormics throughout scaffolds. Investigate requirement for cabling, in regard to potential removal of T107. Remove rubbing branches. Remove deadwood >30mm Ø. Place coarse, free-draining soil between roots (not to exceed 150mm depth). Mulch root zone (min. 5m radius). Monitor.		H		11.6 9.7
109	<i>Ficus rubiginosa</i> Port Jackson Fig	9	10	650	M	Fair	-	Previously topped at 4 - 5 metres AGL, resultant congested multi stems. Two large diameter tear-outs on east side. Minor decay pockets in stem. Minor deadwood and dieback. Minor epicormics. Aerial inspection advised. Remove crossing/rubbing branches. Reduce loading on larger included scaffolds, branch heading north. Highly compacted soil. Mulch root zone (min. 3.5m radius). Monitor.		H/M		7.8 6.5
110	<i>Ficus rubiginosa</i> Port Jackson Fig	7	6	600	OM	Poor	Poor	High landscape significance as group, low as individual specimen. Advanced decline. Heavily topped. Roots cut and damaged. Extensive epicormics. Extensive dieback. Scaffolds reduced to stubs. Highly compacted soil. Remove.	4A	H/L	L	9 9
111	<i>Ficus rubiginosa</i> Port Jackson Fig	10	20	1060 AB	M	Fair	-	A dominant tree in group. Damaged, decayed surface roots. Epicormics throughout canopy, large (older) and small (recent). Epicormics probably a reaction to root damage. Large old wound at base on north side, extent of decay not known. Vertical 'inclusions' in fluted stem, typical of species. Major stem junctions not included. Previous pruning of damaged branches noted. Resistograph® test required to determine extent of decay. If retained remove larger diameter epicormics w/poor attachments. Mulch root zone (min. 5m radius). Monitor.		H		12.7 10.6
112	<i>Ficus rubiginosa</i> Port Jackson Fig	9	10	900 AB	LM	Poor	-	Very compacted soil, located next to bus stop. Extensive epicormics on stem and scaffolds, large (older) and small (recent). Some inclusions in junctions of large diameter branches. Previous branch failures noted, have been removed. Root system appears to be limited due to compaction of soils, and may be insufficient to support tree. Tree is showing signs of decline and failures - may be best managed by gradual reduction of larger included branches, with view to safety, and only short term retention of tree. Aerial inspection. Resistograph® test required to determine extent of decay. If retained remove larger diameter epicormics w/poor attachments. Mulch root zone (min. 4.5m radius). Monitor.		H		13.5 13.5
113	<i>Lophostemon confertus</i> Brush Box	11	8 x 10	600	M	Good	Fair	Previously topped at 3m AGL, resulting branches not too congested at regrowth point. Roots growing over kerb edge of bus shelter area. Exposed roots, mower damaged. Compacted soils. Soil level under tree is higher than that of surrounding pavement, would ideally mulch under tree but it will wash off - raise kerb? If this is an option, do not cut root growing on kerb. Manage epicormics. Monitor.	2D	H	H	7.2 6
114	<i>Lophostemon confertus</i> Brush Box	11	9	450	M	Good	Fair to Good	Bolt in tree holding signs. Previously topped, not too congested, junctions appear sound. Medium amount of epicormics. Soil very compacted. Line clearance on Enmore Road side due. Reduced root system due to location in raised garden area, poor trunk basal flare to northwest. As above. Manage epicormics. Monitor.	2D	H	H	5.4 4.5

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
115	<i>Lophostemon confertus</i> Brush Box	9	9	400	M	Fair	Poor to Fair	Large root mass at base. Some deadwood and dieback. Previously topped at 4 metres AGL. Sparse canopy. Where possible mulch root zone (min. 2m radius). Monitor.	2D	M	M	4.8 4
116	<i>Lophostemon confertus</i> Brush Box	15	13	750	M	Good	Fair	Poor trunk basal flare. Old topping at 3 metres AGL, congested on Enmore Road side (west). Branch junctions not included, although some junctions are poorly attached epicormics. Remove some branches from congested area to west to reduce potential for failure. Where possible mulch root zone (min. 2m radius). Monitor.	2A	H	H	9 7.5
117	<i>Ulmus parvifolia</i> Chinese Elm	6	11	220	SM	Good	Fair to Good	Poor trunk flare on west side. Form otherwise good. Remove crossing/rubbing branches. Mulch over roots to alleviate soil compaction and root damage. Monitor.	2D	M	M	2.2 2
118	<i>Ulmus parvifolia</i> Chinese Elm	6	11	300	SM	Good	Fair to Good	Recently pruned. Sparser canopy than others in group. Some small epicormics in scaffolds, possibly caused by girdled roots, stress. Leaning but self-corrected. Mulch over roots to alleviate soil compaction and root damage. Monitor.	2D	M	M	3 3
119	<i>Ulmus parvifolia</i> Chinese Elm	5	9	220	SM	Good	Good	No obvious problems. Mulch over roots to alleviate soil compaction and root damage.	2A	M	M	2.2 2
120	<i>Lophostemon confertus</i> Brush Box	7	4 - 5	190	SM	Fair to Good	Fair to Good	Some fungal spots on leaves. Poor trunk taper at base on western side. Exposed, mower-damaged roots. Compacted soil. Has had some lower branches 'ripped off' flush (vandals), possible decay entry points. Clean cut wounds where possible. Raise crown to avoid future damage. Mulch over roots to alleviate soil compaction and root damage. Monitor.	2A	M	H	2 2
121	<i>Lophostemon confertus</i> Brush Box	6	4	150	SM	Good	Good	Terminal intact. Good trunk flare at base. Some damaged/torn lower branches, with dieback. Raise crown to avoid future damage. Cut torn branches to bark collar. Mulch over roots to alleviate soil compaction and root damage.	2A	M	H	2 2
122	<i>Washingtonia filifera</i> American Cotton Palm	6	5	550	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3.5 3.5
123	<i>Washingtonia filifera</i> American Cotton Palm	5	4	500	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3 3
124	<i>Washingtonia filifera</i> American Cotton Palm	6	5	550	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3.5 3.5
125	<i>Washingtonia filifera</i> American Cotton Palm	6	5	550	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3.5 3.5

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
126	<i>Washingtonia filifera</i> American Cotton Palm	2	2	400	SM	Good	Good	Probably a replacement palm. No special problems visibly apparent at time of inspection.	1A	M	H	2 2
127	<i>Washingtonia filifera</i> American Cotton Palm	5.5	4	550	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3 3
128	<i>Washingtonia filifera</i> American Cotton Palm	6	5	600	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3.5 3.5
129	<i>Washingtonia filifera</i> American Cotton Palm	6	5	600	M	Good	Good	High landscape significance as avenue, medium as individual specimen. No special problems visibly apparent at time of inspection.	1A	H/M	H	3.5 3.5
130	<i>Quercus palustris</i> Pin Oak	6	6	200	EM	Good	Fair to Good	Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage.	1B	M	H	2.4 2
131	<i>Quercus palustris</i> Pin Oak	8	8	240	EM	Good	Fair to Good	Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage.	1B	M	H	2.8 2.4
132	<i>Quercus palustris</i> Pin Oak	6	6	190	EM	Good	Fair to Good	Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage.	1B	M	H	2.2 2
133	<i>Quercus palustris</i> Pin Oak	8	8	240	EM	Good	Fair to Good	Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Co-dominant stems at 2.5 metres AGL, junction is included. Remove smaller co-dominant stem to allow for development of better form of dominant stem. Mulch over roots to alleviate soil compaction and root damage. After 1 year thin crown by 20% to relieve congestion. Remove rubbing branches.	1B	M	H	2.8 2.4
134	<i>Quercus palustris</i> Pin Oak	6	5	170	EM	Good	Fair to Good	Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Co-dominant stems at 2.5 metres AGL, junction is not included. Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage.	1B	M	H	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
135	<i>Quercus palustris</i> Pin Oak	8	7 - 8	300	EM	Good	Fair	<p>Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now.</p> <p>Remove smaller co-dominant stem to allow for development of better form of dominant stem.</p> <p>Mulch over roots to alleviate soil compaction and root damage.</p> <p>After 1 year thin crown by 20% to relieve congestion. Remove rubbing branches.</p> <p>Mulch over roots to alleviate soil compaction and root damage.</p>	1B	M	H	3 3
136	<i>Quercus palustris</i> Pin Oak	7	6	190	EM	Good	Good	<p>Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Co-dominant stems at 2.5 metres AGL, junction is not included.</p> <p>Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches.</p> <p>Mulch over roots to alleviate soil compaction and root damage.</p>	1B	M	H	2.3 2
137	<i>Ficus rubiginosa</i> Port Jackson Fig	10	14	700 - 800	M	Good	-	<p>Vigorous epicormics throughout, especially in lower canopy. Some inclusions, rubbing branches, remove branch to avoid. Cavities on west side stem and in scaffolds. Some twig dieback, indicator of possible root crown problems? Roots lifting pavement.</p> <p>Aerial inspection recommended to assess cavities. Detail inspection of cavities to determine need for Resistograph® testing. Remove large diameter (>50mm) deadwood, remove deadwood.</p> <p>Mulch root zone (min. 3.5m radius). Monitor.</p>		H		9 7.5
138	<i>Ficus rubiginosa</i> Port Jackson Fig	10	19	*970 AB	LM	Fair	-	<p>Sparse canopy. Some crossing, rubbing branches. Small tip dieback. Some large diameter deadwood. Small diameter epicormics throughout. Stressed, some decline.</p> <p>Aerial inspection required in upper canopy of inclusions at stem/branch junctions, and also large diameter, crossing, upper scaffolds. Remove crossing branches and deadwood > 30mmØ. Mulch root zone (min. 4.5m radius). Monitor.</p>		H		14.5 14.5
139	<i>Eucalyptus bicostata</i> Eurabbie	12	16	740	M	Fair to Good	-	<p>Some large and small diameter epicormics, remove any large diameter epicormics with poor attachment. Some small and large diameter dieback. Bracket fungi on old stub. Stressed, poor species selection for this environment. Decay in scaffold at 4 metres AGL. Probable short term retention only.</p> <p>Aerial inspection. Remove any deadwood >25mmØ over paths, >50mm remaining areas.</p> <p>Mulch root zone (min. 4.m radius where possible). Monitor.</p>		H		8.9 7.4
140	<i>Lophostemon confertus</i> Brush Box	8	9	420	M	Good	Good	<p>Unusual form and habit, good specimen. No obvious structural problems. Some small tip dieback. Slight lean. Exposed roots.</p> <p>Remove any deadwood >40mmØ. Mulch root zone (min. 2m radius). Monitor.</p>	1A	M	H	5 4.2
141	<i>Eucalyptus bicostata</i> Eurabbie	10	11	700	M	Fair to Poor	Poor	<p>In decline. Bark blackened with excessive kino. Severe borer infestation. Stressed, poor species selection for this environment. Large sections of bark splitting off, fissures to heartwood, disorganised tissue. Extensive epicormics, tip and small branch dieback, deadwood. Short term retention only.</p> <p>Remove any deadwood >25mmØ over paths, >50mm remaining areas.</p>	4A	M	L	10.5 10.5

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
142	<i>Ficus watkinsiana</i> Strangler Fig	4.5	7	300	SM	Good	Fair	Exposed roots, mower damaged, a point of entry for decay. Extensive inclusions in stem and branch junctions. Some root girdling, poor trunk taper on north side. Not a good candidate for long term retention Remove lowest scaffold, included junction. Judicious thinning required to reduce congestion and likelihood of future failure. Mulch root zone (min. 2m radius or to extent of surface root system). Monitor.	2D	M	M	3 3
143	<i>Ficus watkinsiana</i> Strangler Fig	4.5	7	230	SM	Good	Fair	Exposed roots, mower damaged, a point of entry for decay. Congested roots, extensive damage. Good canopy structure. Long term success if roots are protected and if they compartmentalise the existing damage. Mulch root zone (min. 2m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	M	H	3 2.5
144	<i>Ficus watkinsiana</i> Strangler Fig	3	1.5	130	Y	Good	Fair	Some trimmer damage around base of stem. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L	H	2 2
145	<i>Ficus watkinsiana</i> Strangler Fig	3	1.5	100	Y	Good	Fair	Some trimmer damage around base of stem. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L	H	2 2
146	<i>Ficus watkinsiana</i> Strangler Fig	3.5	2	110	Y	Good	Good	Not too much mechanical damage. Mulch root zone (min. 1.5m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L	H	2 2
147	<i>Ficus watkinsiana</i> Strangler Fig	3.5	2	100	Y	Good	Fair	Ringbarked 50% of stem diameter by trimmer. The extent of this damage may set the tree back in development and health and it may not develop a structurally sound supporting root system on the damaged side. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor for wound sealing or decay.	2D	L	M	2 2
148	<i>Ficus watkinsiana</i> Strangler Fig	3	1	80	Y	Fair	Fair	Ringbarked > 50% of stem diameter by trimmer Suppressed form and development. The extent of the damage has set the tree back in development and health and it is unlikely to be a candidate for safe long term retention. Remove and replace. If retained mulch root zone (min. 1m radius or to extent of surface root system). Monitor for wound sealing or decay.	2C	L	L	2 2
148A	<i>Ficus watkinsiana</i> Strangler Fig	3	4	160	Y	Good	Fair	Damaged stem at base. Very large surface root to northeast. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor stem damage for wound sealing or decay.	1B	L	M	2 2
149	<i>Ficus watkinsiana</i> Strangler Fig	5	4	170	Y	Good	Poor	Extensive damage to exposed roots and around base of tree from trimmers. Borer damage. Poor trunk taper . Decay pocket at 2 metre AGL. Inclusions & unbalanced scaffold distribution. If retained, selective pruning required to reduce branch structure problems. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor for wound sealing or decay.	2C	L - M	L	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
150	<i>Ficus watkinsiana</i> Strangler Fig	5	3 - 4	150	Y	Good	Fair	Damage to exposed roots and around base of tree from trimmer and mower. Mulch root zone (min. 1.5m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L - M	H	2 2
151	<i>Ficus watkinsiana</i> Strangler Fig	3	1.5	130	Y	Good	Fair	Damage to exposed roots and around base of tree from trimmer and mower. Mulch root zone (min. 1.5m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L - M	H	2 2
152	<i>Ficus watkinsiana</i> Strangler Fig	4.5	4	130	Y	God	Fair	Damage to exposed roots and around base of tree from trimmer and mower. Mulch root zone (min. 1.5m radius or to extent of surface root system). Monitor for wound sealing or decay.	1A	L - M	H	2 2
153	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	5	3	150	M	Fair	Fair	Trimmer damaged at base (cut into stem), will be a weak point over time. Mower damaged stem. Stressed, exposed situation not ideal for the species. (Perhaps remove and replace with <i>Washingtonia filifera?</i>). Mulch over roots to alleviate soil compaction and root damage, and prevent need for trimmer.	3D	L	L	2.5 2.5
154	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	5	3	150	M	Fair	Fair	Trimmer damaged at base (cut into stem), will be a weak point over time. Mower damaged stem. Stressed, exposed situation not ideal for the species. (Perhaps remove and replace with <i>Washingtonia filifera?</i>). Mulch over roots to alleviate soil compaction and root damage, and prevent need for trimmer.	3D	L	L	2.5 2.5
155	<i>Melaleuca linariifolia</i> Flax Leaf Paperbark	7 - 7.5	4	320	M	Fair to Good	Fair to Good	Inclusions typical of species. Minor small branch deadwood to lower canopy. Some yellowing and dieback of upper crown. Monitor inclusions for signs of weakness.	2A	L	L	3 3
156	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	8, 6	4, 3	260, 160	M	Fair	Fair	Two trunks. Minor trimmer damaged at base. Stressed, exposed situation not ideal for the species. (Perhaps remove and replace with <i>Washingtonia filifera?</i>). Mulch over roots to alleviate soil compaction and root damage, and prevent need for trimmer.	3D	L	L	3 3
157	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7, 4	4, 3	190, 120	M	Fair	Fair	Two trunks. Trimmer damaged at base (cut into stem). Stressed, exposed situation not ideal for the species. (perhaps remove and replace with <i>Washingtonia filifera?</i>). Mulch over roots to alleviate soil compaction and root damage, and prevent need for trimmer.	3D	L	L	3 3
158	<i>Lophostemon confertus</i> Brush Box	15	13	800	M	Good	-	Exposed, damaged roots. Previously topped at 3 metres AGL. Very compacted soils, elevated location in relation to surrounding paving and path - would ideally mulch under but this may prove difficult as mulch may wash away, perhaps build up height of kerb? Will require pruning to clear Enmore Rd power lines soon. Inclusion in junction of large scaffold but to remove would remove 25% of canopy, may be too big an impact. Tree on slight lean, canopy weighted to northeast. Detailed investigation of branch inclusion. May require aerial inspection of attachment. Minor deadwood, remove. Where possible mulch root zone (min. 3.5m radius). Monitor.		H		9.6 8

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
159	<i>Lophostemon confertus</i> Brush Box	10	11	550	M	Fair	Fair to Good	Poor trunk flare at base of stem. Previously pollarded at 3 metres AGL. Large root 'mass' above ground level. Form suppressed by adjacent Fig, T229. Extensive deadwood and dieback, but vigorous canopy. Leaning at 30° to vertical, towards Enmore Rd., with poor trunk flare at base on that side (west). Remove deadwood >30mmØ over path. Mulch root zone (min. 2.5m radius where possible). Monitor lean and root plate.	2D	M	H	6.6 5.5
160	<i>Ulmus parvifolia</i> Chinese Elm	6	7	150	SM	Good	Good	Good form development will be compromised (suppressed) by canopy of adjacent Fig, T229. Minor dieback, probably from overshadowing of Fig. No obvious structural problems, unions not included. Exposed roots. Remove or reduce branch of Fig overhanging this Elm. Add some coarse free draining soil (depth less than 150mm) and mulch over roots to alleviate soil compaction and root damage.	2A	L	H	2 2
161	<i>Ulmus parvifolia</i> Chinese Elm	8	8	300	SM	Good	Good	Minor twiggy deadwood in crown interior. No special structural problems noted. Mulch over roots to alleviate soil compaction.	2A	L	H	3 2
162	<i>Ulmus parvifolia</i> Chinese Elm	9	11	320	SM	Good	Good	Small diameter deadwood in interior of canopy (<25mm diameter). Previously pruned with some blunt saw cuts noted. , Remediate/trim cuts with sharp handsaw or secateurs as required. Mulch over roots to alleviate soil compaction.	2A	L	H	3 2
163	<i>Ulmus parvifolia</i> Chinese Elm	6	7.5	200	SM	Good	Fair to Good	Welded branch to east at 2.5 metres AGL. Remove smaller of welded branches. Mulch over roots to alleviate soil compaction.	2D	L	H	2 2
164	<i>Ulmus parvifolia</i> Chinese Elm	8.5	11	350	SM	Fair to Good	Good	Some epicormics in lower/mid crown area. Some resulting from pruning and possible past dieback. Minor deadwood to interior of canopy (<25mm Ø). Very minor tip dieback noted. Mulch over roots to alleviate soil compaction.	2A	L	H	3 2
165	<i>Ulmus parvifolia</i> Chinese Elm	6	8	200	SM	Good	Fair to Good	Poorly angled branch to east with crushing of cambium at attachment. Crown raised to 2.5 metres AGL. Remove or reduce branch with bad angle/attachment. Mulch over roots to alleviate soil compaction.	2D	L	H	2 2
166	<i>Ulmus parvifolia</i> Chinese Elm	7	8	250	SM	Good	Good	No significant defects noted. Crown raised to 2.5 - 3 metres. Mulch over roots to alleviate soil compaction.	2A	L	H	2 2
167	<i>Ulmus parvifolia</i> Chinese Elm	6.5	6	180	SM	Good	Good	No significant defects noted. Crown raised to 2.5 metres. Mulch over roots to alleviate soil compaction.	2A	L	H	2 2
168	<i>Ulmus parvifolia</i> Chinese Elm	3.5	4.5	100	Y	Good	Good	Poorly pruned to east. No significant defects noted. Compacted, bare soils in root zone. Mulch over roots to alleviate soil compaction.	2A	L	H	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
169	<i>Quercus palustris</i> Pin Oak	12	7	250	EM	Good	Fair to Good	Pin Oaks as avenue have medium landscape significance, low as individuals. Suppressed to southeast by T165. Co-dominant leaders at 4 metres AGL. Congested branch arrangement obscuring union of leaders. Thin crown by 20% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage. Re-inspect union of double leaders after pruning. Mulch over roots to alleviate soil compaction.	1A	L/M	H	2.5 2.5
170	<i>Quercus palustris</i> Pin Oak	9	6	200	EM	Good	Good	Crown raised to 3 metres AGL. No significant defects. Mulch over roots to alleviate soil compaction.	1A	L/M	H	2 2
171	<i>Quercus palustris</i> Pin Oak	8	7	200	EM	Good	Good	Recently crown raised . Slight stem sweep at 1.8 metres AGL, to south. No significant defects. Mulch over roots to alleviate soil compaction.	1A	L/M	H	2 2
172	<i>Quercus palustris</i> Pin Oak	7	7	200	EM	Good	Fair	Co-dominant , included stems @ 1.7m AGL.. Minor small branch deadwood. Remove smaller stem (NE side) to encourage excurrent form. Mulch over roots to alleviate soil compaction.	1B	L/M	H	2 2
173	<i>Quercus palustris</i> Pin Oak	8	8	200	EM	Good	Good	Crown raised recently. Typical form and structure. Previously pruned with some blunt saw cuts. Remediate/trim cuts with sharp handsaw or secateurs as required. Mulch over roots to alleviate soil compaction.	1A	L/M	H	2 2
174	<i>Quercus palustris</i> Pin Oak	11	8	260	SM	Fair to Good	Fair to Good	Congested branch arrangement. Small, rubbing branches. Co-dominant leaders at 5 metres AGL to west. Recently crown lifted to 2.5 metres AGL. Remove western leader to encourage excurrent form. Mulch over roots to alleviate soil compaction. After 1 year thin crown by 20% to relieve congestion. Remove rubbing branches.	1B	L/M	H	2.6 2
175	<i>Quercus palustris</i> Pin Oak	9	7	200	EM	Good	Good	Co-dominant stems at 2.2 metres AGL. Recently crown raised. Some poor cutting, including cuts behind branch collar, wounding. No significant defects. Mulch over roots to alleviate soil compaction.	1A	L/M	H	2 2
176	<i>Podocarpus elatus</i> Plum Pine	8	6	320	SM	Good	-	Heavily in fruit. Well balanced, symmetrical crown. Co-dominant leaders at 2.5 metres AGL. Some small branch inclusions in upper crown. Minor small rubbing branches, Aerial inspection of inner crown branch attachments required. Mulch over roots to alleviate soil compaction.		L		3.2 2
177	<i>Podocarpus elatus</i> Plum Pine	10	5.5	400 @ 500 AGL	SM	Fair to Good	Fair to Good	Poor extension growth to foliage from north side. Co-dominant at 1.4 metres AGL. Damage to large surface roots (exposed). Poorly pruned behind branch collars in the past, with resultant old wounds. Active wound closure. Mulch over roots to alleviate soil compaction.	2D	L	M	3.6 3.6
178	<i>Podocarpus elatus</i> Plum Pine	9	7	450 @ 500 AGL	SM	Fair to Good	Fair to Good	Co-dominant at 1 and 1.6 metres AGL. Included union. Foliage a little yellow, upper crown thinner than typical. Mulch over roots to alleviate soil compaction. Monitor stem inclusions.	2D	L	M	4 4

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
179	<i>Podocarpus elatus</i> Plum Pine	6 - 7	5.5	270	SM	Fair to Good	Fair	Very minor tip dieback. Co-dominant to 1.8 metres AGL. Upper crown a little thin. Past failures noted. Re-inspect branch attachments, Mulch over roots to alleviate soil compaction.	2D	L	M	2.4 2.4
180	<i>Podocarpus elatus</i> Plum Pine	7 - 8	4.5	300 @ 1000 AGL	SM	Fair to Good	Fair to Good	Slightly yellow foliage, upper crown slightly thinner than typical. Balanced crown. Co-dominant at 1.2 metres AGL, partial inclusion. Mulch over roots to alleviate soil compaction. Monitor stem inclusion.	2D	L	M	2.7 2.7
181	<i>Syagrus romanzoffianum</i> Cocos Palm	10	6	300	SM	Good	Good	No significant defects. Exempt from protection under Tree Preservation Order.				
182	<i>Syagrus romanzoffianum</i> Cocos Palm	10	6	250	SM	Good	Good	No significant defects. Exempt from protection under Tree Preservation Order. Trim dead fronds - not over high use area.				
183	<i>Quercus palustris</i> Pin Oak	9 - 10	7	300	SM	Good	-	Stem wounds to north side base and at 1.1 metre AGL south side. Co-dominant stems, included union at 3 metres AGL. Crown lifted to 3 - 3.5 metres AGL. Crowded branches. Remove smaller of included stems to encourage excurrent form, or re-inspect and consider cabling of stems. Mulch over roots to alleviate soil compaction. After 1 year thin crown by 20% to relieve congestion. Remove rubbing branches.		L/M		2.7 2.7
184	<i>Quercus palustris</i> Pin Oak	8	8	280	SM	Good	Good	Included branch removed over path. Crown raised to 3 metres AGL. Crowded branch architecture. Thin crown by 20% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage. Manage epicormic growth of previously removed stem. Mulch over roots to alleviate soil compaction.	1B	L/M	H	2.5 2.5
185	<i>Quercus palustris</i> Pin Oak	9	7.5	280	SM	Good	Good	Crowded branch architecture. No significant defects noted. Mulch over roots to alleviate soil compaction.	1A	M	H	2.5 2.5
186	<i>Quercus palustris</i> Pin Oak	8 - 9	8	240	SM	Good	Good	Co-dominant at 2 metres AGL, sound union. Congested scaffolds, very short intermodal distance between scaffolds, which in time will cause problems with overcrowding and poor air circulation - better to reduce in number now. Thin crown by 20% to 30% to relieve congestion. Remove rubbing branches. Mulch over roots to alleviate soil compaction and root damage.	1B	M	H	2.1 2.1
187	Not present											
188	<i>Fraxinus griffithii</i> Evergreen Ash	5	3	150 @ 600 AGL	SM	Fair	Fair	Co-dominant at 1 metre AGL. Dry, drooping foliage. In flower. Poorly pruned with branch tears - vandalism? Blackening of small branches - sooty mould? Mulch over roots to alleviate soil compaction.	3B	L	L	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
189	<i>Fraxinus griffithii</i> Evergreen Ash	3.5 - 4	3	150 @ 600 AGL	SM	Good	Fair	Low branch tears - vandalism? Base wounded from trimmers. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3B	L	L	2 2
190	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	6 - 7	4	210	SM	Good	Fair to Good	Damaged branches to south and southwest - vandalism? Remove low branch to east at 2.2 metres AGL. Mulch over roots to alleviate soil compaction.	3A	M	M	2 2
191	<i>Eucalyptus scoparia</i> Wallangarra White Gum	13 - 14	7.5	400	M	Good	-	Bark discolouration, cracking at old pruning site to southeast at 4 - 4.5 metres AGL. Base wounded from trimmers. Minor tip dieback, especially on southeast side. Minor deadwood <30mm diameter. Aerial inspection required to check suspicious area as noted above. High use area – remove deadwood >20mmØ. Mulch root zone (min. 2m radius where possible).		M		4.8 4
192	<i>Eucalyptus scoparia</i> Wallangarra White Gum	20 - 22	12	650	M	Fair	-	Some branch decline to south-southeast and north. Deadwood to 100mm diameter over path. Epicormics to lower stem. Significant damage to surface exposed roots. Epicormics to base west side. Short retention only. Aerial inspection required. If retained all deadwood > 20mmØ to be removed. General clean up of crown. Mulch root zone (min. 3.5m radius where possible).		H		9/7 6.5
193	<i>Eucalyptus scoparia</i> Wallangarra White Gum	17	9	460	M	Fair	Poor	Significant helical split from 1.2 metres west side around tree to 3 metres northwest side. Notable tip dieback and small branch dieback. Some deadwood up to 30mm diameter over path. Damaged primary roots. Significant stem damage - remove tree.	4A	M	M	6.9 4.6
194	<i>Tristaniopsis laurina</i> Water Gum	3	2	80, 70, 60	Y	Good	Fair to Poor	Epicormics at base where trimmer damaged. Three stems co-dominant at 1 metre AGL, with included unions. Poor long term candidate for retention. Growth stunted. Poor basal flare, probably due to ringbarking. Mulch over roots to alleviate soil compaction and prevent mechanical damage. Monitor defects with possible managing of tree height/width to reduce risk.	3D	L	L	2 2
195	<i>Tristaniopsis laurina</i> Water Gum	4	2.5	120	Y	Good	Poor	Girdled roots, damage at root crown. Very congested, six included stems at 2 metres AGL. Would remove and replant with new specimen with better form. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3D	L	L	2 2
196	<i>Tristaniopsis laurina</i> Water Gum	4	3	130	Y	Good	Fair	Inclusions, some borer in old wound at 1 metre AGL. Exposed roots and mower damage. M Consider removal of smaller included co-dominant stems at 2 metres AGL. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3D	L	L	2 2
197	<i>Tristaniopsis laurina</i> Water Gum	3	2	100, 60	Y	Fair	Poor	Mower damage and wound at 1.5 metre AGL. Extensive damage - vandals? - torn branches, decay pockets, bark removed, borer. Included co-dominant stems at 600mm AGL. Epicormics below wound at 1.5 metre AGL. Would remove and replant with new specimen, or maintain as small tree. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3D	L	L	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
198	<i>Tristaniopsis laurina</i> Water Gum	3	2	90, 40	Y	Good	Fair	Girdled root, mower damage, trimmer damage/ringbarked to 50% of base. Included co-dominant. Would remove and replant with new specimen, or maintain as small tree. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3D	L	L	2 2
199	<i>Tristaniopsis laurina</i> Water Gum	2.5	1	60	Y	Fair	Poor	Girdled root, damaged at base, wounds, set back of development. Would recommend remove and replant with new specimen. Mulch over roots to alleviate soil compaction and prevent mechanical damage.	3D	L	L	2 2
200	<i>Tristaniopsis laurina</i> Water Gum	6	7	100 - 180 @500 AGL	M	Good	Fair	In garden bed. Extensive epicormics at base, have been cut. Three co-dominant stems at ground level, all included. Restricted by kerb and path (700mm bed width). May become hazardous with age - maintain as small tree. Mulch over roots to alleviate soil compaction and prevent mechanical damage	3D	L	L	2 2
201	<i>Ficus rubiginosa</i> Port Jackson Fig	9	11	650 AB	OM	Fair	-	Large cavity under stem at ground level - buttresses extend over cavity. Declining, extensive epicormics and small diameter dieback throughout. Sparse canopy. Reasonable amenity, but structural integrity at base should be investigated to enable decision of retention. Extent of decay should be investigated with Resistograph® test. Mulch over roots to alleviate soil compaction. Monitor.	-	M	-	9.7 6.5
202	<i>Lophostemon confertus</i> Brush Box	15	14	920	M	Good	Good	Old pollarding at 3 metres AGL. Junctions appear sound. Mower damage to exposed roots. Minor tip dieback. Typical shade-out deadwood in lower canopy. Remove any deadwood >30mmØ over parking area. Mulch root zone (min. 4.5m radius where possible).	3A	H	H	11 9.2
203	<i>Ficus macrophylla</i> Moreton Bay Fig	9	12	650 AB	M - OM	Fair	Fair to Poor	Tending to overmaturity. Has had substantial branch reduction in past. Deadwood to 80mm diameter to south. Epicormics on scaffolds due to increased light. Exposed roots, damaged. Remove deadwood >30mm over capping area, and 50mmØ in remaining areas. Mulch over roots to alleviate soil compaction. Mulch root zone (min. 3m radius where possible). Monitor and manage for short term retention only.	3D	M	M	9.7 6.5
204	<i>Lophostemon confertus</i> Brush Box	13	11	500	M	Good	Good	Small diameter dieback, typical. Deadwood to 40mm diameter. Remove deadwood. Mulch root zone (min. 2m radius where possible).	2A	M	M	6 5
205	<i>Ficus watkinsiana</i> Strangler Fig	4	5	140	SM	Good	Good	Some tear-outs of lower branches. No special problems noted. Mulch root zone (min. 1m radius or to extent of surface root system).	1A	L	H	2 2
206	<i>Ficus watkinsiana</i> Strangler Fig	5	8	230	SM	Good	Fair to Good	No inclusions noted. Exposed roots, damaged. Some roots kinked. Remove crossing, rubbing branches. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor to ensure sufficient distribution of structural buttress root development.	1B	L	H	2 2
207	<i>Ficus watkinsiana</i> Strangler Fig	6.5	7	210	SM	Good	Fair to Good	Extensive surface root system. Significant damage by mower. Pushing corner piece of kerb out of alignment. Wounds to underside of branches to southwest over path. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor roots.	1B	L	H	2 2

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Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
208	<i>Lophostemon confertus</i> Brush Box	12 - 13	10	720	M	Fair	Fair to Good	Notable tip decline and small branch dieback. Deadwood to 70mm diameter over paths. Previously lopped at 3 - 4 metre AGL. Small stem wound to east. No significant defects. Remove deadwood >20mmØ over paths. Mulch root zone (min. 3m radius where possible).	2D	H	3	8.6 7.2
209	<i>Lophostemon confertus</i> Brush Box	7	7	450	SM	Poor	Fair	Previously lopped at 4 metres AGL. Significant decline of crown, especially to west, and of upper crown. High amount of deadwood up to 100mm diameter. Probably only short term retention. Remove deadwood >25mmØ. Mulch root zone (min. 2m radius where possible).	3D	L	L	4.5 4
210	<i>Eucalyptus bicostata</i> Eurabbie	16	12	650	M	Fair to Good	Poor	Lack of basal flare - probably filled when mound built. Distinct lean to north. High % epicormics to lower scaffolds (as response to fill?). No major deadwood noted. Only upper branches have self corrected . Tree was probably fairly mature when lean developed. Tree possibly suffered partial failure from root rot, or roots severed when plaque and fill installed? Remove tree	4A	M	L	7.8 6.5
211	<i>Corymbia torelliana</i> Cadaghi	16	8	400	SM	Fair to Good	Fair	Suppressed to southeast by T210. Upper crown thin with some tip dieback noted. Poorly formed branches at 4 metres AGL. Minor amount of small diameter deadwood. Reduce branch to north (end weight). Mulch root zone (min. 2m radius where possible). Monitor.	2D	L	L	3.6 4
212	<i>Corymbia torelliana</i> Cadaghi	13	7	300	SM	Good	Good	Somewhat suppressed to west, less so to east. Typical bark creasing and branch attachment. Small diameter branch failures noted. Minor branch wounds. Very minor amount of deadwood <40mm diameter. Remove deadwood >25mmØ. Mulch root zone (min. 1.5m radius where possible).	2A	L	L	2.7 3
213	<i>Lophostemon confertus</i> Brush Box	16	12	900	M	Poor	-	Very thin crown. Significant dieback of tips and small branches. Strong, vertical branch habit - topped at 4 metres in past. High deadwood but <80mm diameter. Old wounds to stem, and at least 2 buttress roots. Closer inspection required. Area of decay in stem to south-southeast requires Resistograph testing to ascertain extent and structural integrity. Remove deadwood > 30mmØ over parking areas. Mulch root zone (min. 4.5m radius where possible).	-	H	-	10.8 9
214	<i>Ficus rubiginosa</i> Port Jackson Fig	16 - 17	17	1250 AB	M	Good	-	Minor tip dieback, mainly to lower branches. Several old branch failures. Short stubs of deadwood <100mm diameter over grass area. Old damage to surface roots. Long, heavy lateral scaffolds to north and east but good taper. Some decay in large pruning wounds to south-southeast. Some cracking of concrete kerb adjacent to tree. Aerial inspection. Remove <i>Celtis</i> and <i>Schefflera</i> tree seedlings in stem crotches - check for decay in crotches. Remove deadwood over grass areas. Mulch root zone (min. 6m radius where possible).	-	H	-	15 12.5
215	<i>Lophostemon confertus</i> Brush Box	9.5	7	450 @ 1000 AGL	SM	Fair	Fair	Tip and small branch decline, especially to north. Previous topping of branches at 3 metres AGL. Deadwood to 30mm diameter over cars. Minor surface roots. No significant defects. Remove deadwood over parking areas. Mulch root zone (min. 2m radius where possible).	2D	L	M	4 4

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216	<i>Harpephyllum caffrum</i> Kaffir Plum	4	7	350 AB	SM	Good	Fair	Co-dominant stems at 1.2 metres AGL. Extensive surface root system extends to T234 to west, crossing over fig roots. Significant girdling and crushing of roots to north. Consider removing and replacing. If retained mulch root zone (min. 2m radius where possible). Monitor root development.	2B	L	L	3.1 3.1
217	<i>Ficus rubiginosa</i> Port Jackson Fig	15	13	1300 AB	LM	Fair to Poor	-	Large basal decay on southwest side. Extensive tip and small branch decline. Upper crown yellowing. Co-dominant at 1.2 metres AGL. Prolific epicormics on all branches and scaffolds. Moderate deadwood 10 - 50mm diameter. Aerial inspection for canopy structure. Resistograph test required to determine extent of decay and structural integrity. Remove deadwood >30mmØ. Mulch root zone (min. 5.5m radius where possible).	-	H	-	15 13
218	<i>Ficus rubiginosa</i> Port Jackson Fig	10	12	450, 600	M	Good	-	Massive surface roots extending 8 - 9 metres to south, and around T219. Co-dominant at 1 metre AGL. Decay pocket between point of bifurcation. Decay extending into roots. Minor tip dieback. Crown suppressed to south by T219. Some poorly formed branches in crown. Minor amount of deadwood <80mm diameter. Surface roots damaged by mowers. Aerial inspection for canopy structure. Resistograph test required to determine extent of decay and structural integrity. Remove deadwood >30mmØ. Mulch root zone to extent of surface root system where possible.	-	H	-	15 10.5
219	<i>Lophostemon confertus</i> Brush Box	14	12	700	M	Good	Fair to Good	Minor tip dieback. Deadwood to 60mm diameter, mainly lower crown. Large fig root restricting west side of root crown. Minor diameter surface roots. Previously topped at 4 metres AGL. Remove deadwood >25mmØ. Mulch root zone (min. 3.5m radius where possible). Monitor root development.	2D	H	H	8.4 7
220	<i>Ficus rubiginosa</i> Port Jackson Fig	14	8	750 AB	M	Fair	Fair	Very suppressed, narrow crown - most crown located to southwest, overhanging entrance. Sparse canopy. Tip dieback noted. No major deadwood noted. Epicormics to mid stem and scaffolds. Dry, compacted soils. Mulch root zone (min. 3.5m radius where possible). Monitor root development.	3D	M	M	9 7.5
221	<i>Ficus rubiginosa</i> Port Jackson Fig	13	12	1100 AB	LM	Poor	Poor	Co-dominant at 1.1 metre AGL. Extensive dieback to whole crown. Deadwood >100mm diameter over main path. Small, yellowing leaves, sparse crown. Removal in short term. Remove and replace. If retained, remove all deadwood, all areas. Mulch root zone (min. 5m radius where possible). Monitor.	4A	H	M	15 11
222	<i>Glochidion ferdinandi</i> Cheese Tree	6.5	3	110	SM	Good	Good	Co-dominant leaders at 3 metres AGL. No significant defects. Remove smaller, north included stem. Mulch root zone (min. 1m radius where possible).	2D	L	4	2 2
223	<i>Lophostemon confertus</i> Brush Box	15	11	900	M	Good	Fair to Good	Lopped at 4 - 5 metres AGL. Deadwood >80mm diameter over seating, bus stop. Some deadwood in crown interior. Remove deadwood >20mmØ over seating/bus stop, paths. Mulch root zone (min. 4m radius where possible). Monitor.	3A	H	H	10.8 9

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
224	<i>Lophostemon confertus</i> Brush Box	9	8	400	SM	Good	Fair	Minor twiggy dieback. Overtopped, and suppressed by T223. Lopped at 4 - 5 metres AGL. Remove deadwood >20mmØ over paths. Mulch root zone (min. 2m radius where possible). Monitor.	2D	L	M	3.6 3.6
225	<i>Lophostemon confertus</i> Brush Box	15	10	720	M	Good	Fair to Good	Previously topped between 4 - 6 metres AGL. Deadwood to 50mm diameter over public path/nature strip. Very minor tip dieback noted. Remove deadwood >20mmØ over paths. Mulch root zone (min.3.5m radius where possible).	3A	H	H	8.6 7.2
226	<i>Ficus obliqua</i> Small-leaved Fig	13	9	1350 AB	LM	Good	-	Extensive root system under pavement, many kick points resulting from lifting of path into park. Mower damage. Several crossing/rubbing or defective branches/attachments. Heavily pruned in the past. 150mm diameter branch with weak attachment over park to southeast at 3.5 - 4 metres AGL. Proliferation of epicormics in mid crown and scaffolds to east - response to increased light? Co-dominant stems at 400mm AGL. Aerial inspection required. Consider reducing or removing SE branch to relieve branch endweight . Mulch root zone (min.6m radius where possible). Monitor.	-	H	-	15 13.5
227	<i>Ficus macrophylla</i> Moreton Bay Fig	15	13	1140 AB	M	Fair to Good	-	Stem cavity on south side at 1 metre AGL, extends at least 500mm back across diameter of stem, and down below ground level. Cavities on west side at ground level, and at 1.2 and 2 metres AGL, and on southwest side at 3 metres AGL. Fire damage in decay sections. Large dead branch 100mm diameter to south. Three-stemmed at 2.5 metres AGL. Past removal of large diameter branches. Minor tip dieback. Epicormics to scaffolds and secondary branches. Likely short term retention. Resistograph test required. If retained, mulch root zone (min.6m radius where possible).	-	H	-	15 11.5
228	<i>Lophostemon confertus</i> Brush Box	12	10	550	SM	Good	-	Previously topped at 3.5 - 4 metres AGL. Minor twiggy dieback. Dieback to small branches to 50mm diameter in upper crown on north side. Inclusions on north side at cluster of upright branches. Suppressed to south by T227. Aerial inspection of branch cluster/ inclusions over seating area. Mulch root zone (min.3m radius where possible). Monitor.	-	M	-	6.6 5.5
229	<i>Ficus macrophylla</i> Moreton Bay Fig	18	25	1800 AB	LM	Fair to Good	-	Some small tip and small branch dieback, mainly to west. Large old surface roots (5 metres) scalped by mowers. Deadwood >100mm diameter near to, and over, Enmore Road public path. Aerial inspection. Remove deadwood >25mm over path. Mulch root zone (min.8m radius where possible). Monitor.	-	H	-	15 15
230	<i>Ficus watkinsiana</i> Strangler Fig	4.5	7	250	SM	Good	Fair	Welded branches to west. Extensive surface roots, damaged by mowers. Torn branches to west. Extensive trimmer damage at base. Remove small crossing branches on N side at 2m AGL. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1A	L	4	2 2
231	<i>Ficus watkinsiana</i> Strangler Fig	7	7	260	SM	Good	Fair	Extensive mower damage to surface roots 2 - 3 metres southeast of base. Shading out of small interior branches. Small dead branch to west < 40mm diameter. Remove dead branch to W. Mulch root zone (min. 1m radius or to extent of surface root system).	1A	L	4	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
232	<i>Ficus watkinsiana</i> Strangler Fig	4.5	6	250	SM	Fair to Good	Good	Mower damage to surface roots. Slightly dull, droopy foliage - drought stress? Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1A	L	5	2 2
233	<i>Ficus watkinsiana</i> Strangler Fig	5.5	7	250	SM	Good	Good	Mower damage to surface roots. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1A	L	5	2 2
234	<i>Ficus watkinsiana</i> Strangler Fig	4	4	160	Y	Good	Good	Some small broken branches. Extensive surface roots to east. Several crossing surface roots. No significant defects. Roots deflected at base to southwest. Mower damage to roots. Clean up stubs, trim tears. Check for girdling roots. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1B	L	4	2 2
235	<i>Ficus watkinsiana</i> Strangler Fig	3.5	2	100	Y	Fair	Fair to Good	Basal wounding by trimmers. Small branch dieback. Large surface root to west, damaged by mowers. No significant defects. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1A	L	4	2 2
236	<i>Ficus watkinsiana</i> Strangler Fig	3.5	3.5	100	Y	Fair to Good	Good	Basal wounding by trimmers. Minor amount small branch dieback. Wound on stem on south side at 1.5 metre AGL with ants present - possible decay forming. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor for signs of decay.	1B	L	4	2 2
237	<i>Ficus watkinsiana</i> Strangler Fig	4.5	6	220	Y	Good	Good	Damage to underside of lowest branches - ganger mowers? Small branch tear outs - vandals? Surface roots. No visible root development to southwest. Discourage use of ride on mowers beneath canopy of tree. Thin out branch cluster on southeast side at 1.7 metres AGL. Mulch root zone (min. 1m radius or to extent of surface root system). Monitor.	1B	L	4	2 2
238	<i>Melia azedarach</i> 5 x White Cedar	6 - 10	9	50 - 200	Y to SM	Good	Fair	Group of five young trees, planted close to building. Southeast tree with basal co-dominant, included stems. Pruned away from building. Tree to west leaning out from others. Branch borers, some small branch failures. Consider removal of group.	3B	L	3	2 2
239	<i>Melaleuca bracteata</i> Honey Myrtle	6	6	300 @ 400 AGL	SM	Good	Fair	Pruned away from building. Co-dominant at 500mm AGL. Inspection limited – inside fence of Baby Health Centre. Monitor, or future removal and possible replacement. Any future development of building area unlikely to retain these due to proximity to structure. Not significant tree – could be replaced in the future without impact on amenity.	3C	L	3	2.7 2.7
240	<i>Callistemon viminalis</i> 1 x Weeping Bottlebrush <i>Melaleuca bracteata</i> 1 x Honey Myrtle	4 - 4.5	7	200 at base	SM	Good	Fair to Good	<i>Callistemon</i> with 3 stems near base, included. Inspection limited – inside fence of Baby Health Centre. Monitor, or future removal and possible replacement. Any future development of building area unlikely to retain these due to proximity to structure. Not significant trees – could be replaced in the future without impact on amenity.	3C	L	3	2 2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS


Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
241	<i>Callistemon viminalis</i> 1 x Weeping Bottlebrush <i>Melaleuca bracteata</i> 1 x Honey Myrtle <i>Sapium sebiferum</i> 1 x Chinese Tallowwood	7 - 8	4 - 5	200 – 250 @ base	SM	Fair to Good	Fair to Good	Inclusions noted in <i>Melaleuca</i> and <i>Callistemon</i> . <i>Sapium</i> has deadwood to interior of crown. Monitor, or future removal and possible replacement. Not significant trees – could be replaced in the future without impact on amenity.	3C	L	3	2 2
242	<i>Pistachia chinensis</i> 2 x Chinese Pistachio <i>Elaeocarpus reticulatus</i> 2 x Blueberry Ash	4 - 13	8	150 - 400 @ base	SM - M	Fair to Good	Fair to Good	Central tree large, mature <i>Elaeocarpus</i> (Blueberry Ash). Co-dominant at 200 and 500 AGL. Upper crown thin. Smaller trees with slight branch damage to Blueberry Ash at E end of garden. Clean up damaged branches. Monitor.	3C	L	3	4.8 4
243	<i>Acacia baileyana</i> Cootamundra Wattle	6	7	300 @ 300 AGL	OM	Poor	Poor	Declining. Significant dieback and deadwood. Remove and replace.	4A	L	1	4.5 3
244	<i>Fraxinus excelsior</i> 'Aurea' Golden Ash	5	3	150 @ 1m AGL	SM	Good	Fair to Good	Very crowded branch architecture. No significant defects. Thin crown by 10 – 15%.	2C	L	4	2 2
245	<i>Araucaria heterophylla</i> Norfolk Island Pine	22	6.5	380	SM	Good	Good	No significant defects. Mulch root zone (min. 2m radius where possible). Monitor.	1A	M	5	3.4 3.4
246	<i>Elaeocarpus reticulatus</i> 4 x Blueberry Ash	6 - 8	9	140 - 300 @ base	SM	Fair to Good	Good	Largest tree with upper crown decline. No significant defects. General clean up of any deadwood.	3C	L	4	2.7 2.7
247	<i>Elaeocarpus reticulatus</i> 2 x Blueberry Ash <i>Gleditsia triacanthos</i> 1 x Honey Locust	6 - 13	8 - 9	120 – 400 @ base	SM - M	Good	Fair to Good	<i>Gleditsia</i> co-dominant with included junctions at 1 metre AGL. Blueberry Ash (larger, in centre), co-dominant, welded inclusion at base. Blueberry Ash (smaller), leans out from others. Consider removal of <i>Gleditsia</i> . Monitor health and condition of remaining trees in group.	3C	L	3	4.8 4
248	<i>Araucaria heterophylla</i> Norfolk Island Pine	12	7.5	280	SM	Good	Good	Basal wound to south. No significant defects. Mulch root zone (min. 2m radius where possible). Monitor.	1A	L	4	2.5 2.5


Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	*SULE	*LSR	*RV	*TPZ Opt. & Min.
249	<i>Ficus rubiginosa</i> Port Jackson Fig	13	16	900	M	Fair to Good	Fair	Some dieback in upper crown. Old root damage – mowers. Deadwood >100mmØ to N/NW side. Decay in branch over park seat. Hanger in crown to S, over/above seat. Badly damaged branch lower W side. Remove deadwood >25mm. Reduce branch with decayed section overhanging seating. Mulch root zone (min. 4m radius where possible).	2D	H	4	10.8 9
250	Not present.											

KEY

ARBORICULTURAL ASSESSMENT

 Trees to be retained. Individual trees (as noted) may benefit from Crown Maintenance pruning as defined in Australian Standard 4373-2007 Pruning of Amenity Trees.

 Trees that require specific attention and/or further investigation of identified defects.

 Trees recommended for removal due to poor health and/or condition.

AB - refers to the approximate diameter of a tree stem, measured immediately above the root buttress.

AGL - above ground level.

*H refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

*Sp refers to the approximate spread in metres, of branches/canopy of a tree.

*DBH refers to the approximate diameter of tree stem at breast height i.e. 1.4 metres above ground (unless otherwise noted), and expressed in millimetres.

Age Refer to Appendix A -Terms and Definitions for more detail.

*H refers to the tree's vigour (health) as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

*C refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils, etc.) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy, but in poor condition.

*SULE refers to the estimated Safe Useful Life Expectancy of a tree. Refer to Appendix A -Terms and Definitions for more detail.

Note: Where further investigation or testing of trees is required, a SULE cannot be accorded to those trees until these investigations have taken place.

*LSR refers to the Landscape Significance Rating of a tree, considering the importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit.

- o Exceptional (E) – Tree/s of crucial importance as a principal feature of a public place, or are so visually prominent as to be a landmark feature.
- o High (H) – prominent tree/s in private gardens or well-frequented public places.
- o Moderate (M) – Contributes some amenity to the immediate garden/landscape areas, or to the streetscape.
- o Low (L) – Poor, declining or small examples; noxious or undesirable species; little or no visual amenity to public view.

***RV** refers to the retention value of a tree, based on the tree's Safe Useful Life Expectancy (SULE) *and* Landscape Significance.

The RV is given as a subjective value as follows:

Low (L) – The tree is dead, declining, and hazardous and has little or no amenity value.

Medium (M) – Generally, the tree has a medium to high LSR and medium to short SULE.

High (H) – Generally, the tree has a high LSR and medium to long term SULE, or the tree has a moderate to low LSR, no significant defects but a long term SULE.

Note: Where further investigation or testing of trees is required, a retention value cannot be accorded to those trees until these investigations have taken place.

***TPZ** refers to the optimal *tree protection zones* for trees of 'average to excellent vigour'. It is based on Matheny & Clark's guidelines, as modified from the British Standards Institute 1991.

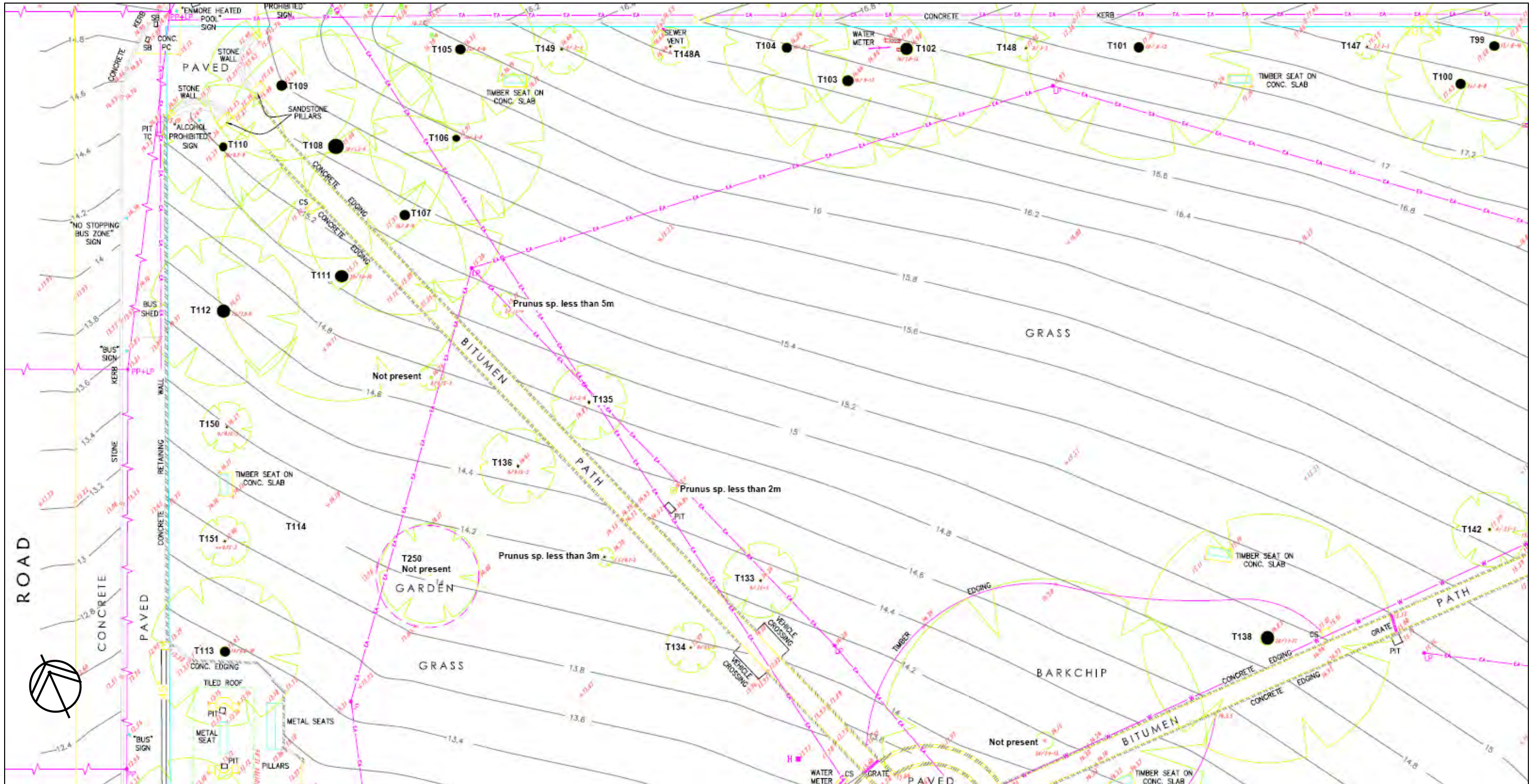
Refer to Appendix A - Terms and Definitions for more detail.

Note:

- o All figures refer to a radial offset in metres, measured from the centre of the tree's trunk.
- o The optimal TPZ is calculated using the Matheny and Clark guidelines and converted to metric figures.
- o The minimum TPZ is calculated by using 10 times the tree DBH (excepting late-overmature of low vigour trees where the optimum TPZ only is to be used).
- o Trees of poor vigour are generally not considered for retention under this guideline.
- o Canopy spreads displayed on the survey are not accurately shown in many cases. Where a TPZ is displayed as a smaller diameter than the crown dripline, it is to be given that the TPZ is to be extended to the canopy dripline.
- o The minimum TPZ for a tree will not be less than 2 metres or greater than 15 metres.
- o Palms will have a TPZ of 1 metre outside the crown dripline.

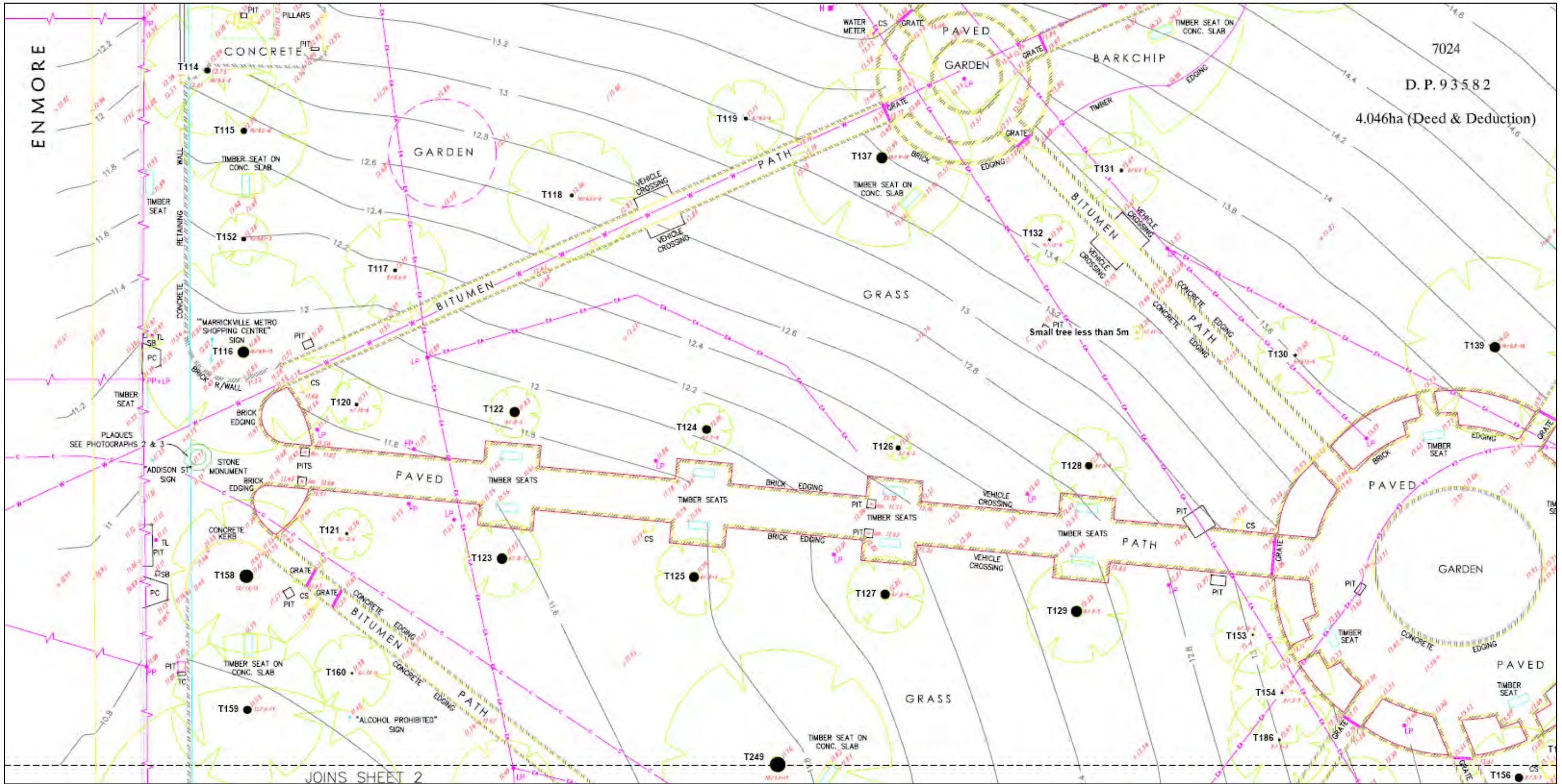
APPENDIX D
TREE LOCATION PLANS





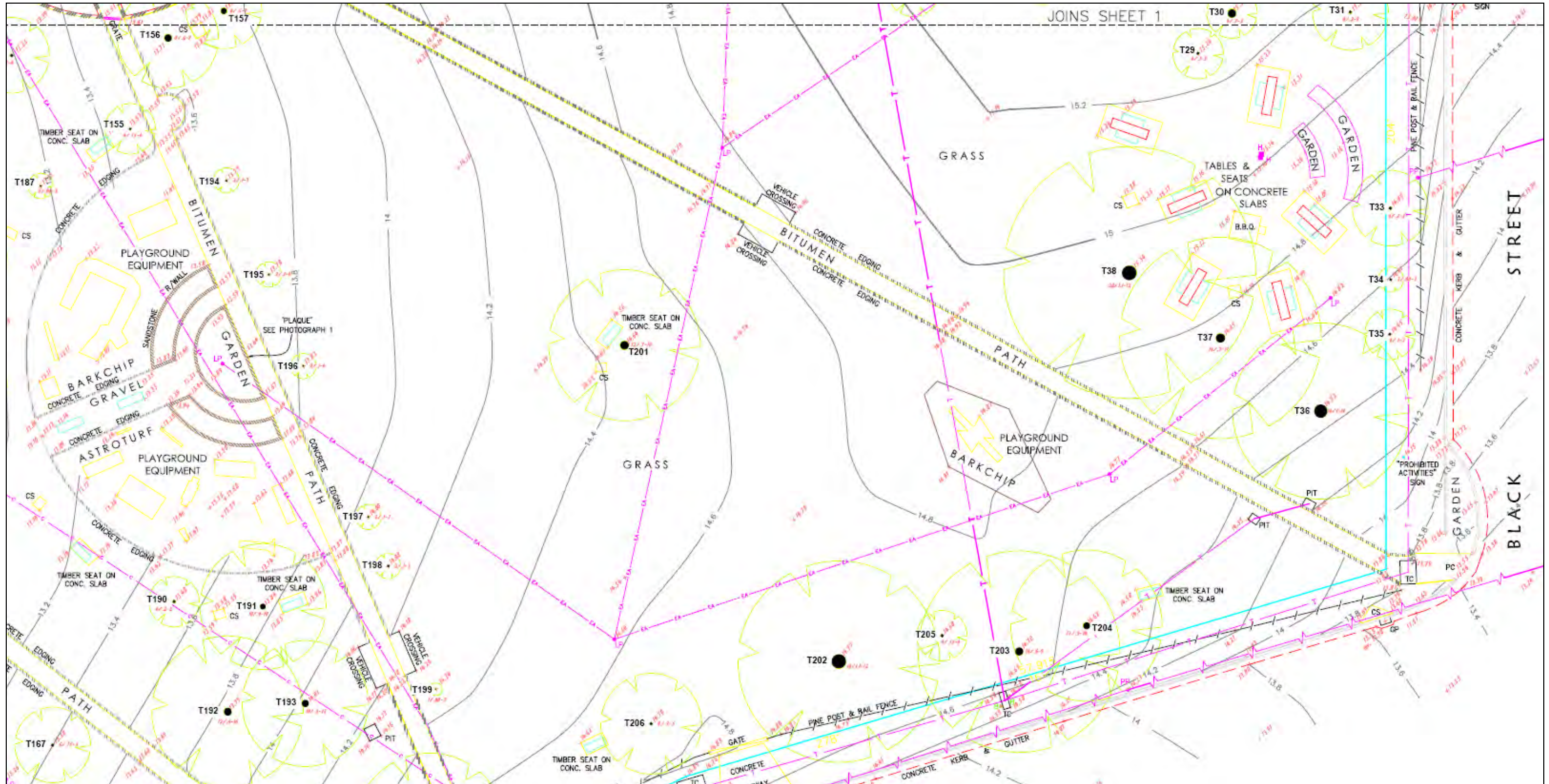
TREE LOCATION PLAN (PART)

Not to scale - refer to marked up copy of Sheet 1 of Detail Survey by Craig & Rhodes emailed 20/02/09 with this Arboricultural Assessment.



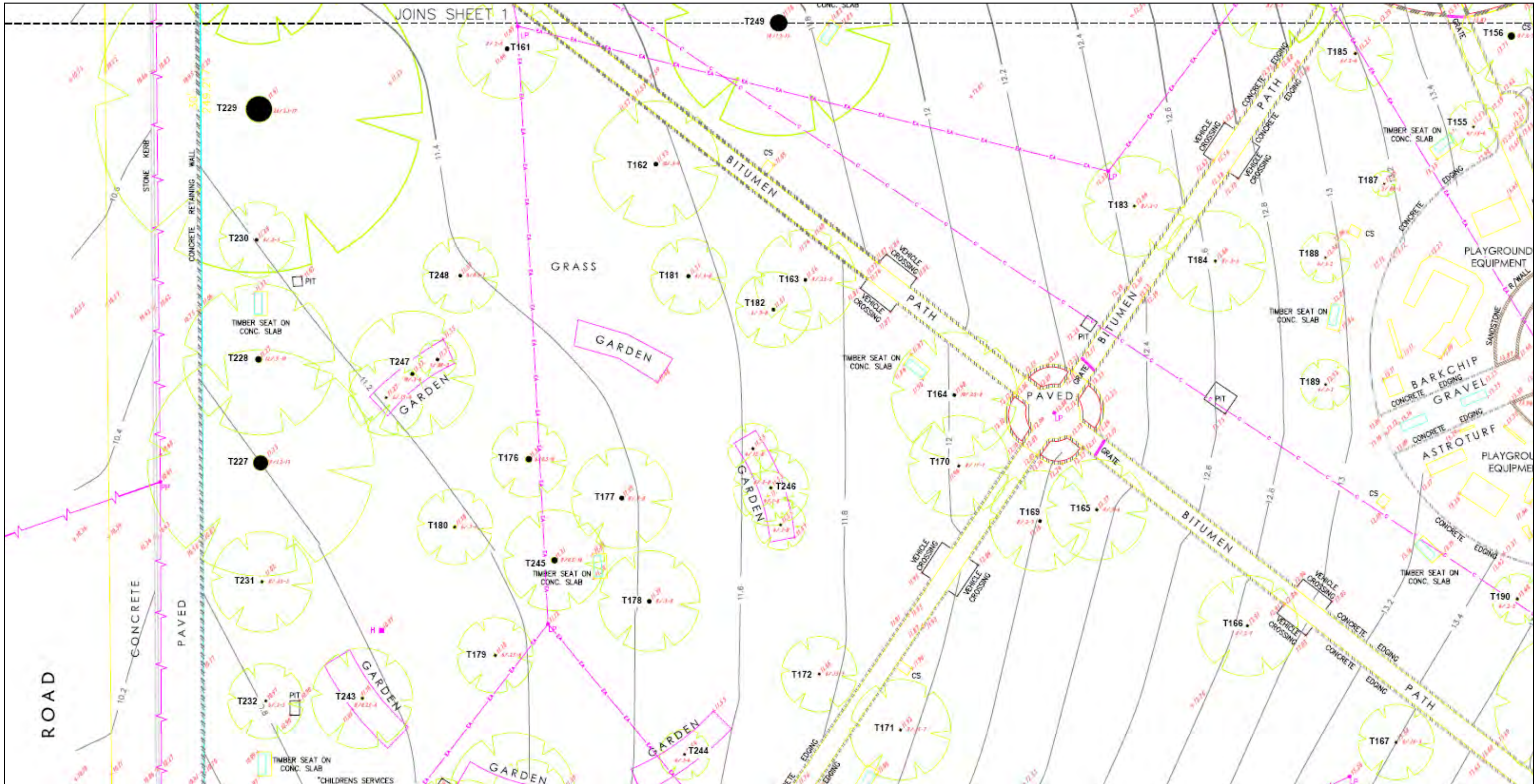
TREE LOCATION PLAN (PART)

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TREE LOCATION PLAN (PART)

Not to scale - refer to marked up copy of Sheet 2 of Detail Survey by Craig & Rhodes emailed 20/02/09 with this Arboricultural Assessment.



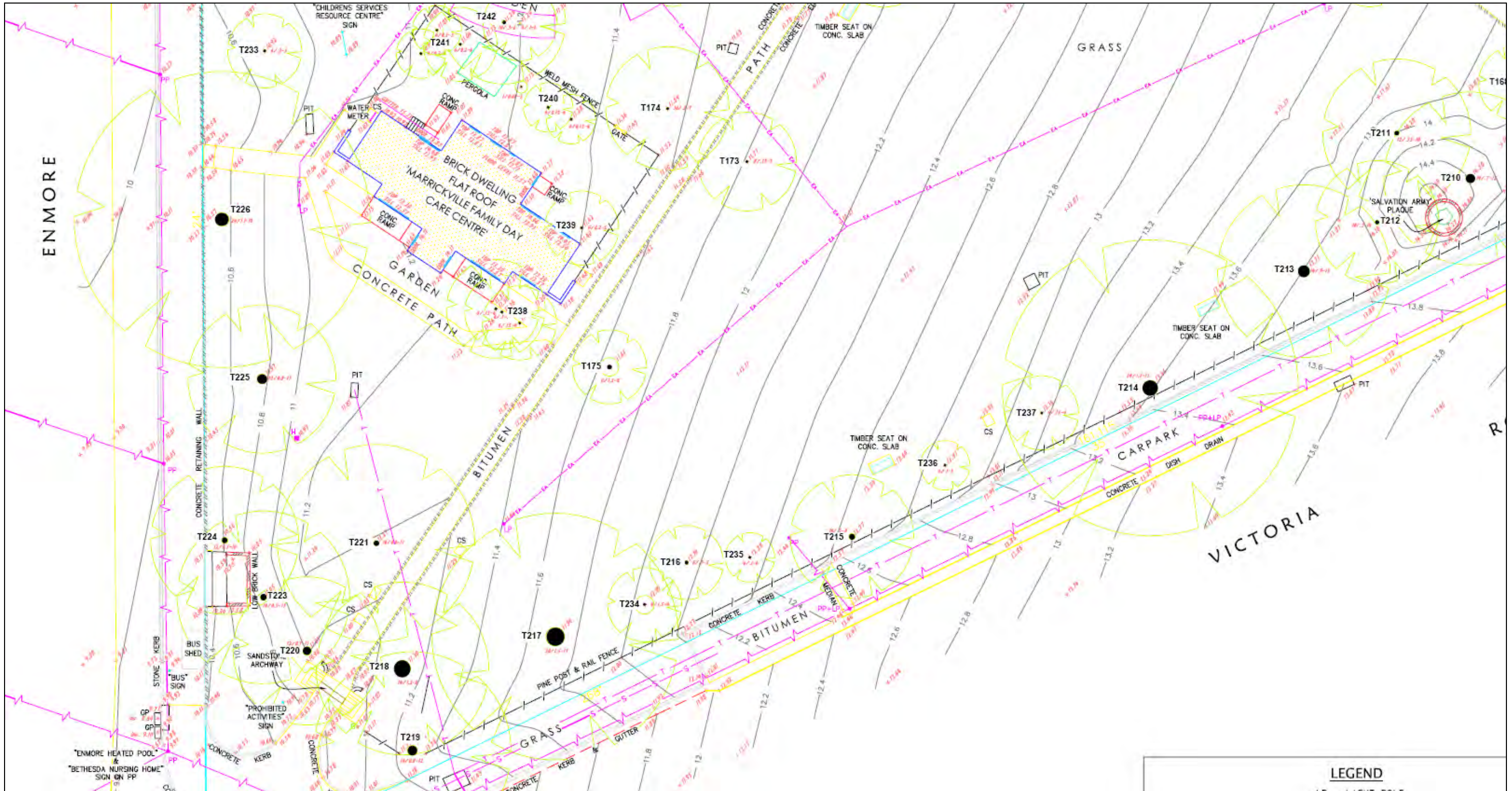
TREE LOCATION PLAN (PART)

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C Arboricultural Audit and Assessment

Arboricultural Audit and Impact Assessment

February 2009



TREE MANAGEMENT CONSULTING ARBORICULTURISTS

**ARBORICULTURAL AUDIT
AND
DEVELOPMENT IMPACT ASSESSMENT**

for

Marrickville Council
2 – 14 Fisher Street
PETERSHAM NSW 2049

SITE ADDRESS
ANNETTE KELLERMAN AQUATIC CENTRE
ENMORE PARK
ENMORE ROAD
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FEBRUARY 2009



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APPENDIX A - Terms and Definitions

APPENDIX B - SULE Categories

APPENDIX C - Schedule of Assessed Trees

APPENDIX D - Tree Retention and Removal Plans

1 INTRODUCTION

- 1.1 This Arboricultural report was commissioned by Mr. William Blunt, Executive Manager Major Projects for, and on behalf of, Marrickville Council.
- 1.2 The subject site is identified as Lot 7 in DP 93582, at Enmore Road, Marrickville and known as Enmore Park. The Local Governing Authority (LGA) is Marrickville Council.

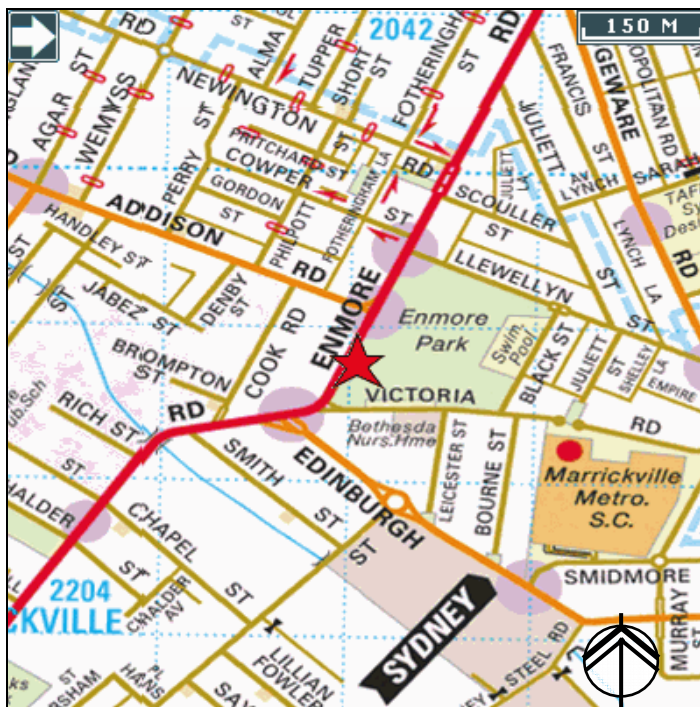


Figure 1

ENMORE PARK LOCATION PLAN

Location of Enmore Park, Marrickville, Sydney, New South Wales.

The red star indicates the location of the subject site. Map not to scale.

Reproduced with permission of Ausway Group of Companies Sydney Edition 9, Sydway Publishing Map ref: 74L14 or 294L14

- 1.3 The arboricultural audit and assessment component of this document identifies tree species by both botanical and common names, and provides approximate dimensions (height, canopy spread and trunk diameters). The report provides an assessment of the *health*, *condition* and *landscape significance* of each tree, and accords each tree a retention value. The report also provides recommendations for tree removals, retention or further inspections based on their *Safe Useful Life Expectancy* (SULE), and guidelines for optimal *Tree Protection Zone* (TPZ)'s.
- 1.4 This arboricultural assessment is not intended to be a comprehensive *risk* or *hazard* assessment; however the report may make recommendations, where appropriate, for further assessment or testing of trees where potential structural problems have been identified, or where below ground investigation may be required.

- 1.7 The Development Impact component of this report assesses any identified or potential impacts that the proposed development may have on the subject trees. This report provides specific tree management and protection measures, and identifies trees that require further detailed arboricultural attention.
- 1.8 Information contained in this Arboricultural Assessment covers only the trees that were examined, and reflects the condition of those trees at the time of inspection. The area subject to the arboriculturist assessment and development impact report is a portion of the existing Enmore Park and Annette Kellerman Aquatic centre, as shown in Figure 2.

Care has been taken to obtain all information from reliable sources.

All data has been verified as far as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.



Figure 2
ENMORE PARK - LOCATION OF SUBJECT AREA
The trees within the area bounded by the yellow, unbroken line are the subject of this report.

2 METHODOLOGY

- 2.1** In preparation for this report, limited ground level *visual tree assessments* (Mattheck 1994) were undertaken by the authors of this report on 3rd January, 2008.
- 2.2** In January and February 2009, meetings were undertaken with representatives of Council to discuss issues relating to tree retention, pruning and the location of the proposed aquatic centre
- 2.3** Tree heights and canopy spreads were estimated.
Depending on access, size or other constraints, trunk diameters of trees within the subject site were either measured at 1.4 metres above ground level (*DBH*), using a standard metal tape, or visually estimated (as noted in Appendix C – Schedule of Assessed Trees).
- 2.4** Field observations were written down. Photographs were taken with a 1.3mp Sony Cybershot digital camera, and a Canon EOS 10mp SLR digital camera.
- 2.5** No *aerial inspections* or woody tissue testing were undertaken as part of this tree assessment.
Information contained in this tree report covers only the trees that were examined and reflects the condition of the trees at the time of inspection.
- 2.6** Plans and documents referenced for the preparation of this report include:
- Details and Levels Survey, Sheets 1 & 2 of 2, Ref. No.192/05, Revision 1, dated September 2005, prepared by Craig & Rhodes;
 - Microsoft PowerPoint - Meeting/Presentation for Annette Kellerman Aquatic Centre re-development, dated 12/12/07, prepared by Suters & Prior Cheney.
 - Concept drawings and documentation, dated January 2009, prepared by Suters Architects Pty Ltd.
 - Marrickville Council Tree Preservation Order 2007.
- 2.7** The trees are shown on a marked up copy of the site survey. The plans are attached as Appendix D – Tree Retention and Removal Plans.

3 ARBORICULTURAL ASSESSMENT

3.1 Brief Description of Existing Trees

3.1.1 The most significant, and what would be termed 'landmark' plantings, are those of the large *Ficus macrophylla* (Moreton Bay Fig) and *Ficus rubiginosa* (Port Jackson Fig) trees at the northeast and southeast corners of the area that is subject of this assessment.

Most of these trees were present in 1943, as noted on slide 7 of the Annette Kellerman Aquatic Centre power point documentation.

3.1.2 The plantings along the east boundary, facing Black Street, consist mainly of large, mature *Melaleuca quinquenervia* (Broad-leaved Paperbark), and a few mature Brush Boxes. Although these trees are not individually significant, or part of the original park planting, as a row of trees they provide substantial landscape screening and visual reduction of the current building and pool facilities, between the park and the street.



Plate 1

Although most of these trees are not individually significant, as a row of trees they contribute substantially to the landscape character of the street.

- 3.1.3 Two young *Corymbia citriodora* (Lemon-scented Gum), growing within the aquatic centre grounds, are considered to be significant, both in terms of their landscape value, and their current health and condition. The trees, whilst not broad and dense as a Fig tree, are some of the tallest trees on the site, and therefore are visually prominent from several aspects.
- 3.1.4 A young avenue of nine (9) *Washingtonia filifera* (American Cotton Palm) extend from the Black Street side access, to the circular path at the centre of the park. The palms do not meet the physical criteria identifying them as protected under the Tree Preservation Order however, as they have potential to remain for many years, they are considered to have a moderate to high retention value, which would increase as they mature. The visual impact and amenity of this avenue planting could be reinforced with additional palm plantings as they are currently widely spaced apart.
- 3.1.5 There are several small tree and shrub plantings dotted around the remainder of the assessment area. Many of these plantings do not meet the physical criteria identifying them as protected under the Tree Preservation Order, although the plantings along the northeast link path inside the site have the potential to become an attractive row of trees as they mature. The *Syagrus romanzoffiana* (Queen Palm), commonly referred to as the Cocos Palm, is well represented in the site. This species is exempt from protection under the Tree Preservation Order, and is considered undesirable for its ability to seed prolifically, vigorous growth, and low amenity value.



Plates 2 and 3

The tree height and crown spread of these two Lemon –scented Gums identifies these as significant park trees.

3.2 Trees Identified as Removable Due to Poor Health and/or Condition

3.2.1 Of the ninety-one (91) trees within the subject area, four (4) are recommended for removal, based on factors such as poor or declining health and/or condition, inhospitable conditions or poor locations which increases the risk of part, or *whole tree failure* (refer to Appendix C for more details).

3.2.2 Tree 3 is a semi-mature *Lophostemon confertus* (Brush Box), growing near the path at the northeast corner of Llewellyn and Black Streets. The tree is healthy and vigorous, but has a poorly developed branch structure, which presents an increasing risk of branch failure as it matures.



Plate 4

Three branches (actually secondary stems) arise at the same point of attachment to the main stem of the tree. The bark is *included*, and there are noticeable seams (arrowed).

The *cambium* is being squeezed, and often dies as a result. As the tree grows, and the girths of these secondary stems expand, there is an increasing risk one or more of these stems may be pushed out, and fail.

This tree is located next to the footpath at the northeast corner of the park.

3.2.3 Tree 26 is an immature *Liriodendron tulipifera* (Tulip Tree), in good health but with a very poorly formed crown, due to past branch failures. The failing branch was possibly the result of vandalism. Allowing the tree to remain and mature is inviting increased risk of branch failures from poorly formed or attached shoots.

3.2.4 Tree 64 is a semi-mature *Melaleuca armillaris* (Bracelet Honey Myrtle), of fair health and poor condition due to a highly competitive location where other trees are suppressing its growth.

3.2.5 Tree 71 is an over-mature *Acacia binervia* (Coast Myall), which is still in good health, and relatively good condition. The dimensions of the tree are representative of a specimen at its ultimate mature size. Whilst the tree does not appear to present an immediate risk, the generally short lived nature of many of the *Acacia* genus, combined with a stem and crown leaning to the north over an existing path, identifies this tree as having a higher than normal risk of failure.



Plate 5

The above Coast Myall (silvery foliage) is a healthy specimen, with moderate landscape significance. However, the trees weight is over a public path and, given its maturity and short life span, is considered a high risk tree.

3.3 Trees Requiring Further Detailed Inspection

3.3.1 A number of trees have been identified as requiring further detailed inspection, or specific pruning works. Refer to Appendix C – Schedule of Assessed Trees, for more detail.

4 DEVELOPMENT IMPACT ASSESSMENT

4.1 Trees to be Removed

4.1.1 There are several small trees and shrubs that would be removed to accommodate the proposal. The majority of these meet the criteria identifying them as exempt from protection under the Tree Preservation Order, and are not individually addressed in this report. These trees to be removed are identified in Appendix C – Schedule of Assessed Trees.

4.1.2 Trees 14 and 16

These very small trees, *Elaeocarpus reticulatus* (Blueberry Ash) and *Melaleuca linariifolia* (Snow-in –summer), are part of a young row planting along the bitumen path to the west of the existing aquatic centre. The majority of trees in this row are exempt from protection under Marrickville Council's Tree Preservation Order. Trees 14 and 16 are within this row of trees to be replaced as part of the overall landscape master plan.

4.1.3 Trees 39, 40, 41 and 42

The proposed entry paths from Black Street to the proposed aquatic centre, and changes to existing levels well inside the root zones of these trees would result in tree decline and instability. Retention of Tree 40, a Broad-leaved Paperbark, could be possible subject to future detailed assessment, advice and modification of the front entry at construction stage.

4.1.4 Tree 59

This Brush Box is well inside the location of the driveway for servicing the proposed plant room. This location for the driveway is logical as it would allow direct access to the plant room, and avoids impacts on the majority of the Paperbarks facing the street.

4.1.5 Tree 60

This Broad-leaved paperbark will have excavation on two sides, at less than the tree's optimal Tree Protection Zone. The tree is unlikely to tolerate the significant loss of roots and would be removed to accommodate the service driveway.

4.1.6 Trees 82 and 85

These are two Lemon-scented Gums located well inside the footprint of the proposed aquatic centre. The retention of these trees would have placed considerable constraints on the building design, and on the retention of the Paperbarks facing Black Street.

4.2 **Impacts of Proposed Development on Trees to be Retained**

4.2.1 The potential impacts of the proposed development have been assessed using the January 2009 concept plans for the new proposed Annette Kellerman Aquatic Centre.

4.2.2 Trees 1, 2, 3, 4, 6, 8, 21, 23, 25, 28, 29, 30, 31 are generally all well clear of the proposal. Tree protection devices would be required to many of these trees to ensure they are not affected by any development activities.

4.2.3 Tree 5

This is an over mature *Ficus macrophylla* (Moreton Bay Fig), which is declining in health and condition. The proposed excavation will be approximately 11.5 metres from the tree, although batter of the cut and subsequent landscaping will be about 2 metres closer to the tree. Although this is an incursion into the 13.5 metre *Tree Protection Zone*, reduction of this setback by one third is acceptable and unlikely to adversely affect the tree. Given the poor health of the tree, it is likely it would be replaced in the future in any case.

4.2.4 Tree 7

This tree is a *Ficus rubiginosa* (Port Jackson Fig), also suffering declining vigour and condition. This tree has a calculated optimal TPZ of 11 metres radius from the centre of the tree's stem. The proposed excavation, including a batter of approximately 2 metres beyond the cut, would be around 10 metres from the tree. Provide appropriate protection measures are maintained during the works, no adverse impact on the trees vigour is expected. No pruning of the tree is required for the building clearance.

4.2.5 Trees 20, 22, 24 and 27

These are four (4) young *Washingtonia filifera* (American Cotton Palm), located within the development footprint. These palms can be readily transplanted and be relocated to the positions shown on the concept park master plan by Environmental Partnership (NSW).

4.2.6 Tree 32

The detail of the concept plans is insufficient to determine the extent of level changes near this tree. What is clear is that proposed bitumen and brick paving affect the entire TPZ of the tree, and may result in the decline of the tree over time.

4.2.7 Tree 36, 37 and 38.

This trtes consist of one large Brush Box, and two large Moreton Bay Fig trees. Currently, there are tables and seating beneath the trees. The proposal includes new seating on concrete slabs and a barbecue area beneath the canopies of the figs, and paving around the root zone of the Brush Box.

Although the proposed structures beneath the figs are isolated and would unlikely result in unacceptable loss of non-woody roots, there is potential for damage to woody anchor roots within a 5 metre radius of the trees, i.e. the *Structural Root Zone* (SRZ). The final locations of the concrete pads, barbecues, and laying of any underground services in these areas will need to be subject to further assessment prior to finalising the design.

The needs of the trees must also be considered, in that any exposed surface roots and a large area of the root zone must be protected from damage and soil compaction. Foot traffic results in considerable compressive forces on the soil surface, affecting the oxygen availability to roots and the ability for roots to penetrate the soil profile.

Proposed brick paving around the root zone of the mature Brush Box is unlikely to benefit the tree. Consideration will need to be given to modifying the design to avoid covering the majority of the root zone with a paved surface.

4.2.8 Trees 41, 43, 44, 46, 50, 52, 54, 55, 57 and 58

These are a row of ten (10) *Melaleuca quinquenervia* (Broad-leaved Paperbark) growing adjacent to Black Street.

○ T41

This tree cannot be retained. See 4.1.3, page 10 for details.

○ Trees 43, 44, 46, 50, 52, 54, 55, 57 and 58.

An average 3 metre SRZ applies to these trees. After some consultation on the matter, the excavation has been moved back to this 3 metre setback. The building wall has been moved to 4 metres to avoid heavy pruning of the trees.

Provided the root zones and above ground parts of the trees are protected during the works, and cultural practices such as application of root hormones for rapid root regeneration, and irrigation is applied during and post construction, the trees are not expected to be adversely affected.

Removal of existing structures close to these trees, such as pavements, tanks and barbecues will need to be carried out by hand under the supervision of an arboriculturist to ensure no unnecessary root loss or damage occurs.

4.2.9 Tree 63.

This semi-mature *Eucalyptus botryoides* (Bangalay), would be approximately 6 metres from the proposed excavation batter, which is outside the tree's optimal 5 metre Tree Protection Zone. The tree has a high crown and pruning of the tree for building clearance is not required.

5 CONCLUSIONS

The arboricultural assessment identifies four (4) of the existing ninety-one (91) assessed site trees are declining in health and/or condition. These would be removed regardless of the proposed site development.

The assessment also identifies significant trees which require further detailed inspection to determine the extent of defects or other identified problems with tree health and structure.

There are many trees that are not protected under the Tree Preservation and Order or, are of low landscape significance or retention value. These trees could be replaced with more appropriate plantings at the landscaping stage of works. Approximately thirty-six (36) such trees have been identified and removal is supportable for future landscaping, or where these trees place constraints on the proposed development.

Two Lemon-scented Gums are to be removed, and although they are visually significant, they are not part of the original tree plantings. It is unlikely these could be retained without significant design changes to the proposal.

A review of the proposed development reveals the row of trees facing Black Street can be retained, subject to relatively minor modifications to the design, and specific protection measures designed to reduce construction impacts on the trees.

The proposed paving and other structures in the vicinity of a large Brush Box and two Moreton Bay Figs requires detailed assessment and design modifications to ensure the long term viability of the trees.

6 RECOMMENDATIONS

6.1 Tree Removal

6.1.1 Removal of trees within the, or close to the footprint are to be removed as indicated in the Schedule of Assessed Trees – Appendix C. Other trees identified for removal (e.g. exempt from protection under Tree Preservation Order or of low landscape value), are to be removed at the discretion of the Council in conjunction with advice from the project landscape architect.

6.2 Specific Recommendations

6.2.1 Refer to the 'comments' column in the *Schedule of Assessed Trees - Appendix C*, for details of recommendations of works to trees.

6.2.3 Pruning of the trees is to be carried out in accordance with Australian Standard 4373-2007 *Pruning of Amenity Trees*, and in liaison with an Australian Qualification Framework Level 5 (AQF5) arboriculturist.

6.2.4 Trees 37 and 38

Final locations and construction methods for proposed barbecue and concrete slabs or other structures within the TPZ of Trees 37 and 38 are to be assessed and approved by an AQF5 arboriculturist, prior to any works undertaken beneath the trees.

The arboriculturist is to provide specific protection advice, prior to any works commencing inside the TPZ of the trees.

6.2.5 Tree 36

Proposed paving within the TPZ of Tree 36 is to be either deleted, or subject to further detailed assessment and design to ensure the existing ground within the root zone is not subject to level changes, and adequate air and water movement is available to the tree roots.

The arboriculturist is to provide specific protection advice, prior to any works commencing inside the TPZ of the trees.

6.2.6 Trees 43, 44, 46, 50, 52, 54, 55, 57, 58

- The roofline of the proposed building is to be reduced to approximately 500mm width, where it would require excessive pruning of the trees. This is to be determined prior to finalising construction drawings.
- All works within 4 metres of the trees are to be supervised by an AQF 5 arboriculturist. This includes demolition of existing tanks, barbecues, underground and above ground utilities.
- Protection of these trees is to be in accordance with Figure 1, below.
Note: If any foot traffic is proposed over the mulched areas, timber planks or other similar sturdy material is to be placed and secured on top of the mulch. This timber walkway is to be maintained for the duration of construction.
- No machinery is to be used within the mulched areas.

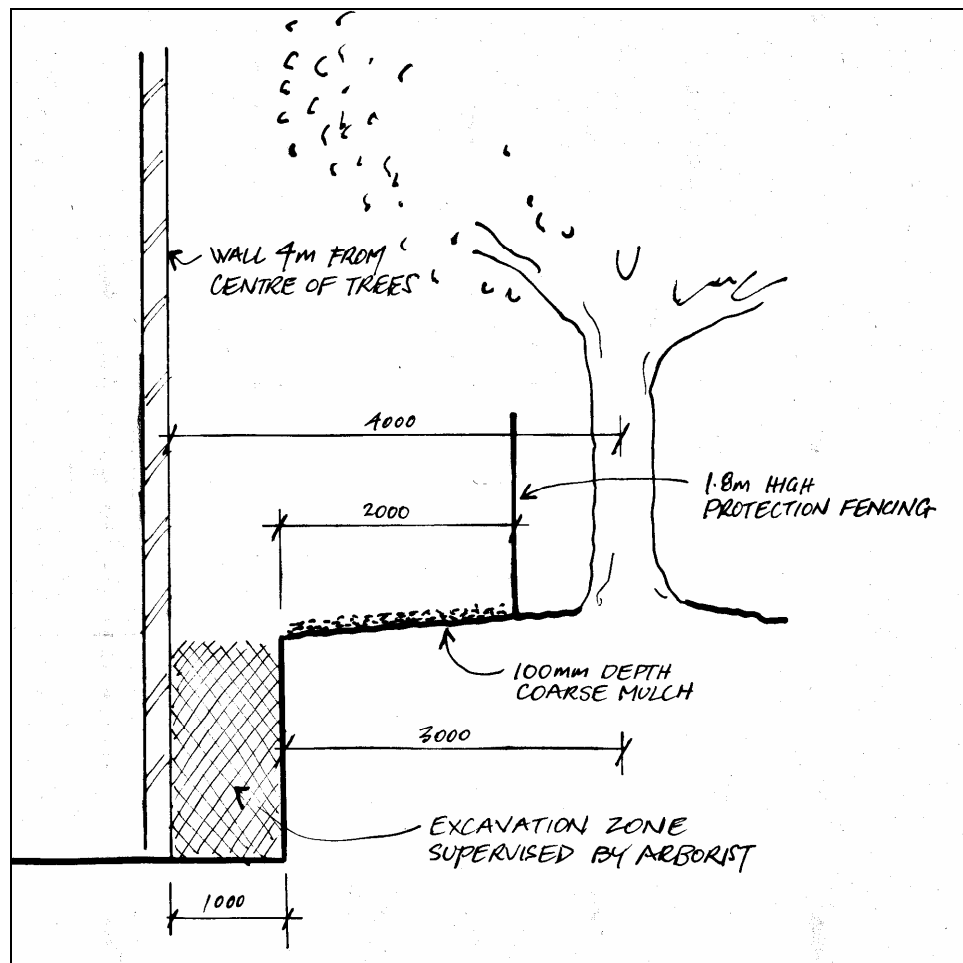


Figure 1 Protection of root zone, and arboriculturist supervision required for works adjacent to Paperbarks along the Black Street frontage of the subject site.

6.3 Tree Protection Zones and Minimising Impacts on Trees to be Retained

- 6.3.1 The Tree Protection Zone (TPZ) is to be in accordance with the following:
- Protection devices may include mulching, tree guards and other devices other than fencing.
 - TPZ must be in place prior to any site works commencing, including clearing, demolition or grading.
 - The most appropriate fencing for TPZ is 1.8m chainlink with 50mm metal pole supports. During installation care must be taken to avoid damage to significant roots. The practicality of providing this fencing on this site must be addressed by the arboriculturist.
 - Locate large primary roots by careful removal of soil within the fencing area. **Do not drive any posts or pickets into tree roots.** Replace soil back over tree roots.
 - It is recommended that the arboriculturist provide written certification that the TPZ is installed and will satisfy tree protection requirements.
 - Nothing should occur inside the TPZ, so therefore all access to personnel and machinery, storage of fuel, chemicals, cement or site sheds is prohibited.
 - Signage should explain exclusion from the area defined by TPZ and carry a contact name for access or advice.
 - The TPZ cannot be removed, altered, or relocated without the project arborists' prior assessment and approval.
 - Excavations within the TPZ of any tree to be retained shall be avoided wherever possible.
 - Excavations for foundations and pavement sub-grade within the TPZ of any tree to be retained shall be undertaken by hand or using an Air.spade® device to locate and expose roots along the perimeter of the foundation or pavement prior to any mechanical excavation.
 - All care shall be undertaken to preserve root systems intact and undamaged. Any roots less than 50mm in diameter shall be cleanly severed with clean sharp pruning implements at the face of the excavation.
 - The root zone in the vicinity of the excavation shall be kept moist following excavation for the duration of construction to minimise stress on the tree.
 - Where large woody roots (greater than 50mm diameter) are encountered during excavations, further advice from a qualified arborist shall be sought prior to severance.
 - Where necessary, (to avoid severing large woody roots) consideration should be given to the installation of an elevated structure (e.g. pier and beam footing, suspended slab or floor on piers, cantilevered slab, etc) in preference to structures requiring a deep edge beam or continuous perimeter strip footing. The beam section of any pier and beam footing should be placed above grade to avoid excavation within the TPZ.
 - For masonry walls or fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (e.g. steel or timber pickets, lattice etc) fixed to pillars.

6.3.2 Underground Services

- All proposed stormwater lines and other underground services should be located as far away as practicable, or suspended beneath the floor of the building where possible, to avoid excavation within the TPZ of trees to be retained.
- For underground services, where the incursion to the Root Zone is less than 20% of the total TPZ, a chain trenching device may be used. A backhoe or skid steer loader is unacceptable due to the potential for excessive compaction and root damage.
- Where large woody roots (greater than 50mm in diameter) are encountered during excavation or trenching, these shall be retained intact wherever possible (e.g. by sub-surface boring beneath roots or re-routing the service etc).
- Excavations required for underground services within the TPZ of any tree to be retained should only be undertaken by sub-surface boring. The Invert Level of the conduit, plus the conduit diameter, must be lower than the estimated root zone depth as specified. This will depend on the soil conditions at the site. Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by the arborist to determine continued health and stability of the subject tree.
- If trees show signs of stress or deterioration, remedial action shall be taken to improve the health and vigour of the subject tree(s) in accordance with best practice arboricultural principles.

6.3.4 Pavements

- Pavements should be avoided within the TPZ of trees to be retained where possible.
- Proposed paved areas within the TPZ of trees to be retained should be placed above grade to minimise excavations within the root zone and avoid root severance and damage.

6.3.5 Fill Material

- Placement of fill material within the TPZ of trees to be retained should be avoided where possible. Where placement of fill cannot be avoided, the material should be a coarse, gap graded material such as 20 — 50mm crushed basalt or equivalent to provide some aeration to the root zone. Note that roadbase or crushed sandstone or other material containing a high percentage of fines is unacceptable for this purpose. The fill material should be consolidated with a non-vibrating roller to minimise compaction of the underlying soil.
- A permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. No fill material should be placed in direct contact with the trunk.

6.3.6 Demolition Works within Tree Protection Zones

- Demolition of pathways and paved areas within the TPZ of trees to be retained shall be undertaken under the supervision of the Site Arborist.
- The pavement surface and sub-base shall be stripped-off either by hand, or in layers of no greater than 50mm thick using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise soil disturbance.
- The machine shall work within the footprint of the existing pathway to avoid compaction of the adjacent soil.
- The final layer of sub-base material shall be removed using hand tools were required to avoid compaction of the underlying soil profile and damage to woody roots.
- Following removal of the pavement surface and sub-base, clean, friable topsoil shall be used to fill in the excavated area and bring flush with surrounding levels. Soil shall only be imported and spread when the underlying soil conditions are dry to avoid compaction of the soil profile.
- Demolition of low masonry walls within the TPZ of trees to be retained shall be undertaken under the supervision of the Site Arborist. The walls shall be demolished using equipment on the street side of the wall. Care shall be taken to avoid the root systems, trunks and lower branches of trees in the vicinity of the existing walls.

6.3.7 Canopy & Root Pruning

- Removal of any deadwood from the trees is recommended prior to project commencement.
- A minimum amount of live material should be removed from trees so they have maximum photosynthetic ability to develop new roots to adapt to new conditions.
- Pruning to lift or reduce the crown of any tree must be carried out by a qualified tree worker or arboriculturist, to ensure the works are not performed by untrained contractors.
- All pruning work required shall be carried out in accordance with Australian Standard No 4373-2007— Pruning of Amenity Trees.
- All pruning work shall be carried out by a qualified and experienced arborist or tree surgeon in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- Care shall be taken when operating cranes, drilling rigs and similar equipment near trees to avoid damage to tree canopies (foliage and branches). Under no circumstances shall branches be torn-off by construction equipment. Where there is potential conflict between tree canopy and construction activities, the advice of the Site Arborist must be sought.
- Where root pruning is required, roots shall be severed with clean, sharp pruning implements and retained in a moist condition during the construction phase using Hessian material or mulch where practical.

- Severed roots shall be treated with a suitable root growth hormone containing the active constituents Indol-3-yl-Butric Acid (IBA) and I-Naphthylacetic Acid to stimulate rapid regeneration of the root system.

6.3.8 Tree Removal

- Tree removal work shall be carried out by an experienced tree surgeon in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- Care shall be taken to avoid damage to other trees during the felling operation.
- Stumps shall be grubbed-out where required using a mechanical stump grinder without damage to the root system of other trees. Where trees to be removed are in close proximity to trees to be retained, consideration should be given to cutting the stump close to ground level and retaining the root crown intact.
- Stumps within the TPZ of other trees to be retained should not be removed using excavation equipment or similar.

6.3.9 Landscaping within tree root zones.

- The level of introduced planting media into any proposed landscaped areas within the Tree Protection Zone (TPZ), is not to be greater than 75mm depth, and be of a coarse, sandy material to avoid development of soil layers that may impede water infiltration.
- Container size of proposed plants within the TPZ of trees should be determined prior to purchase of plants. This is to identify planting locations, and container size of plants at the time of planting. Otherwise, any proposed landscaping within the TPZ must consist of tubestock only. This is required to ensure that damage to tree roots and excessive root loss or disturbance is avoided.
- Mattocks and similar digging instruments must not be used within the TPZ of the trees. Planting holes should be dug carefully by hand with a garden trowel, or similar small tool.

6.3.10 Stockpiling and location of site sheds

- As it is likely there will be materials brought onto the site, an area must be nominated by the arboriculturist for the stockpiling of materials and site sheds.
- It is advised that any areas of proposed stockpiling over soil or tree root zones must be covered with thick, coarse mulch, placement of wooden pallets over the mulch, covering of the pallets with a tarpaulin (or similar), and the placement of materials on top of this device, would be acceptable.
- Do not locate stockpile areas inside TPZ's if possible. Consult an arboriculturist for advice.

6.3.11 Other

- No washing or rinsing of tools or other equipment, preparation of any mortars, cement mixing, or brick cutting is to occur within 8 metres upslope of any palms or trees to be retained.
- Regular monitoring of the trees during development works for unforeseen changes or decline will help maintain the trees in a healthy state.

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APPENDIX A

TERMS AND DEFINITIONS



TERMS AND DEFINITIONS

The following relates to terms or abbreviations that have been used in this report and provides the reader with a detailed explanation of those terms.

Aerial inspection Where the subject tree is climbed by a professional tree worker or arborist specifically to inspect and assess the upper stem and crown of the tree for signs or symptoms of defects, disease, etc.

Age classes

- I** *Immature* refers to a well-established but juvenile tree
- SM** *Semi-mature* refers to a tree at growth stages between immaturity and full size
- M** *Mature* refers to a full sized tree with some capacity for further growth
- OM** *Over-mature* refers to a tree about to enter decline or already declining

Cambium refers to the layer of cells between the exterior bark and the inner wood which primarily controls cell division, and hence radial expansion of the stem, branches and shoots.

Canopy dripline defined by an imaginary line drawn from the outer edge of the canopy vertically to the ground below.

Cluster describes a group of branches or stems arising from the same point on a larger branch or stem.

Co-dominant refers to stems or branches equal in size and relative importance.

Condition refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

Crown raise pruning Pruning technique where lower limbs are removed, thereby lifting the overall crown above the ground.

Dead wood refers to any whole limb that no longer contains living tissues (e.g. live leaves and/or bark). Some dead wood is common in a number of tree species.

Decay Process of degradation of woody tissues by fungi or bacteria through decomposition of cellulose and lignin. There are numerous types of decay that affect different types of tissues, spread at different rates and have different affect on both the tree's health and structural integrity.

Defect Any structural weakness or deformity.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height (1.4 metres above ground level)

Dieback Death of growth tips/shoots and partial limbs, generally from tip to base. Die back is often an indicator of stress and tree health

Epicormic Shoots which arise from adventitious or latent buds. These shoots often have a weak point of attachment. They are often a response to stress in the tree. Epicormic growth/shoots are generally a survival mechanism, often indicating the presence of a current, or past stress event such as fire, pruning, drought, etc.

Footprint refers to the area occupied by structures including dwellings, driveways and paths.

Hanger Unattached, cut or broken branches that are caught in the canopy.

Hazard refers to anything with the potential to harm health, life or property.

Health refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

Inclusion - stem/bark, the pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet. This is normally a genetic fault and potentially a weak point of attachment as the bark obstructs healthy tissue from joining together to strengthen the joint.

Landscape Significance Rating.

The importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit.

- **Exceptional** – Tree/s of crucial importance as a principal feature of a public place, or are so visually prominent as to be a landmark feature.
- **High** – prominent tree/s in private gardens or well-frequented public places.
- **Moderate** – Contributes some amenity to the immediate garden/landscape areas, or to the streetscape.
- **Low** – Poor, declining or small examples; noxious or undesirable species; little or no visual amenity to public view.

Resistograph® testing A Resistograph® is a specialised machine that measures timber density by drilling a 3mm diameter probe through the wood, simultaneously plotting the results on a graph at full scale.

SAFE USEFUL LIFE EXPECTANCY (SULE)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. SULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner.

SULE categories are easily verifiable by experienced personnel without great disparity.

A tree's SULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy); then by economics (i.e. cost of maintenance - retaining trees at an excessive management cost is not normally acceptable); and finally, effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population).

SULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short SULE may at present be making a contribution to the landscape, but their value to the local amenity will decrease rapidly towards the end of this period, prior to them being removed for safety or aesthetic reasons.

For details of SULE categories see Appendix B, adapted from Barrell 1996.

Structural Root Zone (SRZ) refers to the critical area required to maintain stability of the tree. Only thorough investigation into the location of structural roots within this area can identify whether any minor incursions into this protection zone are feasible.

Suppressed In crown class, trees which have been overtopped and whose crown development is restricted from above.

Topping or heading is a pruning practice that results in removal of terminal growth leaving a cut stub end. Topping causes serious damage to the tree.

Tree Protection Zone (TPZ), generally the minimum distance from the center of the tree trunk where protective fencing or barriers are to be installed to create an exclusion zone.

The TPZ surrounding a tree aids the tree's ability to cope with disturbances associated with construction works. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death and the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the Tree Protection Zone (TPZ).

Visual Tree Assessment (VTA) a procedure of defect analysis developed by Mattheck and Breloer (1994), that uses the growth response and form of trees to detect defects.

Whole Tree Failure Where a tree fails at the roots, or at the root crown (where the roots and stem of the tree meet).

APPENDIX B
SULE CATEGORIES



Safe Useful Life Expectancy (SULE) CATEGORIES (after Barrell 1996, Updated 01/04/01)

The five categories and their sub-groups are as follows:

1. Long SULE - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. structurally sound trees located in positions that can accommodate future growth
- B. trees which could be made suitable for long term retention by remedial care
- C. trees of special significance which would warrant extraordinary efforts to secure their long term retention

2. Medium SULE - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. trees which may only live from 15 to 40 years
- B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
- C. trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D. trees which could be made suitable for retention in the medium term by remedial care

3. Short SULE - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:

- A. trees which may only live from 5 to 15 years
- B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
- C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
- D. trees which require substantial remediation and are only suitable for retention in the short term

4. Removal - trees which should be removed within the next 5 years

- A. dead, dying, suppressed or declining trees
- B. dangerous trees through instability or recent loss of adjacent trees
- C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- D. damaged trees that are clearly not safe to retain.
- E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
- F. trees which are damaging or may cause damage to existing structures within the next 5 years.
- G. trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
- H. trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5. Small, young or regularly pruned - Trees that can be reliably moved or replaced.

- A. small trees less than 5m in height.
- B. young trees less than 15 years old but over 5m in height.
- C. formal hedges and trees intended for regular pruning to artificially control growth.

APPENDIX C
SCHEDULE OF ASSESSED TREES



SCHEDULE OF ASSESSED TREES

ENMORE PARK, MARRICKVILLE, NSW. JANUARY 2008

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
1	<i>Ficus rubiginosa</i> Port Jackson Fig	12	16	1400 ARF	LM	Fair	Fair	Co-dominant stems @ 800mm. Crown is thinning, some past large branch failures noted with decay pockets. Some inclusions of epicormics, typical of species. Recent utility works on the east side of tree has damaged branches, torn bark and branches. There is a minor amount of deadwood. There are exposed roots with mechanical damage from mowers. Roots are noted at least 6m west of tree. There is a path approximately 3.5m south of tree. Soil is compacted with roots under kerb, into car park area to dish drain. Prune to clean up damage, old stubs and deadwood of 30mm diameter and up.	2A	H	H	15
2	<i>Ficus rubiginosa</i> Port Jackson Fig	13	16	720	LM	Fair	Fair	Included stem to north, crown is thinning with previous failures noted. Some small diameter deadwood noted, no major deadwood. Some tip dieback predominately in the upper and southern side of crown. Reduce weight by reduction of branch cluster, approximately 4m north of centre of tree.	2A	H	H	11
3	<i>Lophostemon confertus</i> Brush Box	9	4.5	300	SM	Good	Fair-Poor	Slight stem sweep to the north, stem cluster (of three stems) at 1.5m above ground level. There is significant inclusion of subordinate stems. Borer exit holes and wounds to the south facing stems. Increment strips on north side of stem. Soil compacted. Remove and replace.	2B	M	L	2
4	<i>Ficus macrophylla</i> Moreton Bay Fig	6	6	180	I	Good	Good	Woody root damage by mowers, and trimmer damage to root crown. Provide mulched area to protect root crown from trimmer damage.	1B	L-M	H	1.6
5	<i>Ficus macrophylla</i> Moreton Bay Fig	10.5	11	900	OM	Poor	Poor	Extensive mower damage to woody surface roots. Trimmer damage to bark. Significant dieback and deadwood in crown, particularly over footpath and car park. Obvious death and loss of substantial stem in the east direction, cavity extent not known. Epicormic growth forming along scaffold branches. Reduce and monitor.	3D	M-H	M	13.5
6	<i>Ficus rubiginosa</i> Port Jackson Fig	11	9	500	M	Good	Fair-Good	Proliferations of epicormic growth up stem into crown. Branch from Tree 7 growing into crown. Minor deadwood and tip dieback. Small branch failures noted. Woody roots damaged by mowers and trimmers. Remove deadwood over 15mm diameter over seating.	2D	M	M	6
7	<i>Ficus rubiginosa</i> Port Jackson Fig	13	12	900	OM	Fair-Poor	Fair-Poor	Significant branch and tip dieback to north/northwest direction of crown. Deadwood and hanger near footpaths, has a slight lean to north/northwest. Co-dominant stems @ at 1.2m above ground level. Cavities noted below root crown on north and south western of stem, extent not known. Notable past branch failures. Remove deadwood and hangers. Reduce lateral branch growing into Tree 6 crown, and monitor cavity.	3D	H	H	11

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
8	<i>Ficus rubiginosa</i> Port Jackson Fig	12	12	750	LM	Fair	Fair	Co-dominant stems @ 1.6m above ground level, with eastern stem previously removed. Several dead/decayed pockets may need further investigation. Compacted soils, woody roots damaged by mowers and trimmers. Mainly twiggy dieback through crown, upper crown has decay pockets and rubbing branches. Requires more detailed inspection, possible <i>Resistograph</i> testing, and possible pruning for reduction.	3D	H	H	11
9	<i>Melaleuca linariifolia</i> Snow-in-summer	4	2	3 x 100	I	Good	Fair	Basal wound due to mowers and trimmers. Compacted soils. Several stem and branch inclusions typical of species. Exempt from protection under Tree Preservation Order. Monitor growth, development.	5A	L	L	2
10	<i>Elaeocarpus reticulatus</i> Blueberry Ash	4	2	100	I	Good	Fair	Mechanical damage to base of stem. Exempt from protection under Tree Preservation and Management Order.	5A	L	L	2
11	<i>Melaleuca linariifolia</i> Snow-in-summer	4	2.5	110	I	Fair-Good	Fair-Good	Affected by sooty mould, branches torn by vandals on south/southeast side of tree. Mechanical damage to base of stem. Exempt from protection under Tree Preservation Order. Pruning/clean up torn branches.	5A	L	L	2
12	<i>Elaeocarpus reticulatus</i> Blueberry Ash	3	3	90	I	Fair	Fair	Mechanical damage to base of stem, dieback of apex in crown, branch torn out on north side. Exempt from protection under Tree Preservation Order. Pruning/clean up torn branches.	5A	L	L	2
13	<i>Melaleuca linariifolia</i> Snow-in-summer	4	4	200	I	Fair	Poor	Many torn and broken branches. Covered in sooty mould. Inclusions of branches typical of species. Mechanical damage to base of stem. Exempt from protection under Tree Preservation Order. Pruning/clean up torn branches.	5A	L	L	2
14	<i>Elaeocarpus reticulatus</i> Blueberry Ash	5.2	5	100	I	Good	Good	Mechanical damage to base of stem, basal stem wound.	5B	L	L	0.5
15	<i>Melaleuca linariifolia</i> Snow-in-summer	4.5	4	180	I	Good	Fair-Good	Mechanical damage to base of stem, sooty mould present. Torn branches and typical included and crossing branches. Twiggy deadwood, soil compacted. Exempt from protection under Tree Preservation Order. Pruning/clean up torn branches.	5A	L	L	2
16	<i>Melaleuca linariifolia</i> Snow-in-summer	5.5	5	220	I	Good	Fair-Good	Mechanical damage to base of stem, twiggy deadwood, branch inclusions typical of species. <i>Crown raise pruning.</i>	5B	L	L	1
17	<i>Elaeocarpus reticulatus</i> Blueberry Ash	3	3	80	I	Good	Good	Mechanical damage to base of stem, torn branches. Exempt from protection under Tree Preservation Order. Pruning/clean up torn branches.	5A	L	L	2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
18	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	4.5	2	110	I	Fair	Fair-Good	Sooty mould present, stem has lean and deep crack. Mechanical damage to base of stem was originally two stems now is only one. Exempt from protection under Tree Preservation Order.	3A	L	L	2
19	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	5	4	2 x 160	I	Good-Fair	Fair-Good	Two stems at ground level. Mechanical damage to base of stem. Remove old fronds.	5A	L	L	3
20	<i>Washingtonia filifera</i> American Cotton Palm	6	5	520	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage. Relocate palm.	1A	M	H	3.5
21	<i>Washingtonia filifera</i> American Cotton Palm	6	5	520	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage.	1A	M	H	3.5
22	<i>Washingtonia filifera</i> American Cotton Palm	6	5	510	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage. Relocate palm.	1A	M	H	3.5
23	<i>Washingtonia filifera</i> American Cotton Palm	6.5	5	510	SM	Good	Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage.	1A	M	H	3.5
24	<i>Washingtonia filifera</i> American Cotton Palm	9	5	560	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage. Relocate palm.	1A	M	H	3.5
25	<i>Washingtonia filifera</i> American Cotton Palm	7	5	520	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage.	1A	M	H	3.5
26	<i>Liriodendron tulipifera</i> Tulip Tree	6.5	4	110	I	Good	Poor	Co-dominant stems @ 2m above ground level, with smaller upright branch having previous failure. Remedial pruning not an option as this will leave a poorly formed branch as leader. Removal recommended.	4C	L	L	2
27	<i>Washingtonia filifera</i> American Cotton Palm	9	5	580	SM	Good	Fair-Good	Extensive mechanical damage to base of stem. Mulch around base to reduce trimmer damage. Relocate palm.	1A	M	H	3.5
28	<i>Washingtonia filifera</i> American Cotton Palm	4	4	350	I	Good	Fair	Extensive mechanical damage to base of stem. Has lean to the north. Mulch around base to reduce trimmer damage. Uplift fronds.	5A	L	H	3.5
29	<i>Liquidambar</i> sp.	7	4	110	I	Good	Fair-Good	Basal stem damage noted, possible inclusion on branches growing toward pathway. Has lean in northern direction and minor, shallow roots girdling. Mechanical damage to base of stem. Probably <i>L.styraciflua</i> , although could be seedling variation, or uncharacteristic specimen of <i>L.orientalis</i> . Exhibits leaf characteristics of both species. Pruning/removal poorly formed/attached branches.	2D	L	L	2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
30	<i>Washingtonia filifera</i> American Cotton Palm	5.5	5	500	SM	Fair-Good	Fair-Good	Has lean to north. Mechanical damage to base of stem. Mulch around base to reduce trimmer damage and clean up old fronds.	1A	M	H	3
31	<i>Lophostemon confertus</i> Brush Box	9	6	240	I	Good	Good	Good specimen, minor uplift possible.	1A	M	H	2
32	<i>Lophostemon confertus</i> Brush Box	12	12	450	SM	Fair-Good	Fair	Large exposed damaged primary roots. Basal stem wound, tip dieback and deadwood in canopy. Leans over pathway to north/west. Large deadwood 120mmØ. Probably previously topped at 5-6m above ground. Deadwood and monitor.	2D	M	H	4
33	<i>Ficus macrophylla</i> Moreton Bay Fig	6	10	210	I	Good	Good	Primary roots exposed, crossing and damaged with decay noted. Crown raise pruning to reduce risk of vandalism, and to increase visibility.	5B	L	H	2
34	<i>Lophostemon confertus</i> Brush Box	7	3	100	I	Good	Fair-Good	Mechanical damage to base of stem, broken and torn branches. Pruning/clean up torn branches.	5B	L	M	2
35	<i>Ficus macrophylla</i> Moreton Bay Fig	5.5	6	110	I	Good	Good	Mechanical damage to base of stem. Some exposed roots and branch inclusions. Pruning/clean up poorly formed/attached branches.	5B	L	H	2
36	<i>Lophostemon confertus</i> Brush Box	14	18	860	LM	Good	Fair-Good	Tip dieback and twiggy deadwood. Stem cluster @2.2m above ground level, into about eight (8) upright stems (indication of being topped previously). Possible inclusions due to stem cluster. Damaged exposed woody primary roots. No large diameter deadwood noted. Mulch over roots.	2D	H	H	10
37	<i>Ficus macrophylla</i> Moreton Bay Fig	13	18	520	M-LM	Fair-Good	Fair	Very large, exposed, damaged primary roots. Prolific epicormic growth on branches and upper stem, some minor deadwood. Wounds on branches and stem with decay pockets noted. Fig psyllids present. Fig psyllid control measures, mulch.	2D	H	H	8
38	<i>Ficus macrophylla</i> Moreton Bay Fig	14	24	850	M-LM	Fair-Good	Fair-Good	Very large, exposed, damaged primary roots. Some epicormic growth on branches and upper stem. Minor deadwood and tip dieback. Wounds on branches and stem with decay pockets noted. Fig psyllids present. Fig psyllid control measures, mulch.	2D	H	H	13
39	<i>Callistemon salignus</i> Willow Bottlebrush	9	4	220	M	Fair	Fair	<i>Sooty mould</i> noted on north/east scaffold and small branches. Basal shoots and stem wounds. Deadwood to 100mm diameter. Crown to west suppressed by neighboring trees. Poorly pruned, stubs present. Clean up stubs.	3D	L	L	2.5
40	<i>Callistemon viminalis</i> Weeping Bottlebrush	6	3.5	2 x 100	M	Good	Fair-Poor	Twisted, included stems at ground level, mechanical damage to base of stem. Poorly pruned with stubs and epicormic growth. Clean up stubs, general pruning to clean up.	3A	L	M	2

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
41	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	13	7	400	SM	Good	Fair	Co-dominant and included stems @ 1.6m above ground level. Significant branch removals for power lines and fence. Inclusions to scaffold branches. Possible reduction of upper crown to reduce weight over path.	2D	H	M	3.6
42	<i>Callistemon viminalis</i> Weeping Bottlebrush	4.5	5	90, 2 x 120	M	Good	Fair	Stem cluster (3 stems) at 0.9m above ground level. Poorly pruned with stubs left. Beneath crown of neighboring trees.	5A	L	L	2.5
43	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	15	9	750	M	Good	Fair	Large stem to east removed for fence. Poorly 'lopped' with resulting live wood producing mature epicormic growth. Typically included stems and branches, concrete slab less than 1m to the west. Monitorscaffold branch and epicormic growth over path.	2D	H	M	6.7
44	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	13	8	220, 2 x 300	M	Good	Fair-Good	Typically included stems and branches, Co-dominant stems @ 1.2m and 1.4m above ground level. Concrete slab and BBQ less than 1m to the west. Large branches removed over fence/path, some stubs remain with epicormic growth forming. Clean up stubs. Monitor.	2D	H	M	3.4
45	<i>Callistemon viminalis</i> Weeping Bottlebrush	2.5	4	8 x 25 - 80	SM	Good	Fair	Shrubby, wide habit. Previously cut to near ground level.	5A	L	L	2
46	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	15	5	260, 400	M	Good	Fair	Co-dominant stems @ 1.1 and 1.3m above ground level. Woody surface root to 3m west, mower damaged. Has typical inclusions for species.	2D	H	M	4.2
47	<i>Syagrus romanzoffiana</i> Queen Palm	10	6	300	SM	Good	Good	No special problems visibly apparent at time of inspection. Exempt from protection under Tree Preservation Order.	1A	L	L	4
48	<i>Syagrus romanzoffiana</i> Queen Palm	7	6	260	SM	Good	Good	No special problems visibly apparent at time of inspection. Exempt from protection under Tree Preservation Order.	1A	L	L	4
49	<i>Syagrus romanzoffiana</i> Queen Palm	5	4	120	SM	Good	Good	No special problems visibly apparent at time of inspection. Exempt from protection under Tree Preservation Order.	1A	L	L	3
50	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	12	6	200, 300	SM	Good	Fair-Good	Co-dominant stems @ 0.6m and 1.8m above ground level.	2D	H	M	3.6
51	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	5	110, 120	M	Good	Fair-Good	Co-dominant stems @ 1m above ground level and included. Poorly pruned with stub remaining.	5A	L	L	2
52	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	14	6	500	SM	Fair-Good	Fair-Good	Damaged surface roots to 2.5m to the west. Compacted soil, some tip dieback noted in upper and eastern crown. Typical inclusions.	2D	H	M	4.5

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
53	<i>Callistemon salignus</i> Willow Bottlebrush							Dead. Fruiting body of fungus noted.	4A	-	L	-
54	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	12	10	300, 2x400	M	Good	Fair	Damaged woody surface root 2m to south/west. Typical stem and branch inclusions. Co-dominant stems @ 0.6 and 1.4m above ground level. Poorly pruned near base to west with epicormic growth, and deadwood stubs remaining. Trim stubs.	2D	H	M	4.5
55	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	14	8	3x300, 400	M	Good	Fair	Stem cluster @ 1m above ground level, typically included. Massive buttress root to south/west. Damaged exposed surface roots. Monitors stem cluster and inclusions.	2D	H	M	4.9
56	<i>Callistemon salignus</i> Willow Bottlebrush	11	5.5	2 x 200	SM	Good	Fair	Co-dominant and included stems @ 0.7m above ground level. Swollen root crown, possibly due to root girdling. Typical inclusions, poorly pruned with stubs. Suppressed between two trees.	3D	M	L	3.5
57	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	13	7	320, 500	M	Good	Fair	Large, exposed, damaged surface roots. Small crossing roots. South/east stem poorly pruned and rests on fence. Possibly remove poorly pruned branch on fence and reduce inclusions by removing some stems.	2D	H	M	5.5
58	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	11	6	2x220, 3x240	SM	Good	Fair	Co-dominant and included stems. Large, exposed damaged surface roots. Vandalised at base (small fires lit). Monitor inclusions.	2D	H	M	4.5
59	<i>Lophostemon confertus</i> Brush Box	12	13	420	M	Good	Good	Large, exposed damaged surface roots, typical deadwood for species. Dead wooding.	1A	M	H	8
60	<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	10	8	2x400 @ 600m AGL	SM- M	Good	Fair	Co-dominant and included stems @ .2m above ground level. Several uprights included deadwood present and epicormic growth developing at lower removed limb wound.	2D	M	M	5.4
61	<i>Callistemon viminalis</i> Weeping Bottlebrush	6	10	230 ARF	M	Good	Fair- Good	Deadwood and poorly pruned branches.	5A	L	L	2.5
62	Not present											
63	<i>Eucalyptus botryoides</i> Bangalay	10.5	14	310	M	Good	Fair- Good	Epicormic growth developed on upper branches. Deadwood to 300mm in diameter. Failure noted 100mm in diameter on lowest branch. Lace lerp affected.	2D	M	H	5
64	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	5	3	70	SM	Fair	Poor	Suppressed by tree 63, poorly formed. Broken and dead branches.	4A	L	L	0.5

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
65	<i>Eucalyptus botryoides</i> Bangalay	6	7	180	I	Fair	Fair	Suppressed by tree 63, deadwood to 20mm in diameter. Poor form – asymmetrical crown.	4A	L	L	2
66	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	7	4	100, 140	SM	Good	Fair-Good	Typical dead lower branches for species. Co-dominant stems @ 500mm above ground level, suppressed by T63.	3C	L	L	2
67	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	7.5	4	80, 110	SM	Good	Fair-Good	Co-dominant included stems @ ground level. Deadwood up to 50mm in diameter. Typical lower deadwood for species. Some torn branches.	3C	L	L	2
68	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	8	4	200 ARF	SM	Good	Fair-Good	Typical lower deadwood for species.	3C	L	L	2
69	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	8	6	120 / 110	SM	Good	Fair-Good	Typical lower deadwood for species. Co-dominant included stem @ .2m above ground level.	3C	L	L	2
70	<i>Photinia</i> sp. Photinia							Exempt from protection under Tree Preservation Order.	5A			
71	<i>Acacia binervia</i> Coast Myall	9	16	420 @ 600 AGL	M - OM	Good	Fair	Lots of twiggy deadwood, poorly pruned branches with several included stems. Leans to north. Remove.	4E	M	L	6
72	<i>Syagrus romanzoffiana</i> Cocos Palm	5	4	180	I	Good	Good	Exempt from protection under Tree Preservation Order.				
73	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	3	120 ARF	M	Good	Good	Some included stems, twiggy deadwood.	5A	L	L	1.5
74	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	7	4.5	110, 2x140	M	Good	Fair-Good	Co-dominant included stems @ .1m above ground level. Twiggy deadwood.	2A	L	L	2
75	<i>Photinia</i> sp. Photinia	4	6	Multi	M	Good	Fair-Good	No special problems visibly apparent at time of inspection. Exempt from protection under Tree Preservation Order.	5A			
76	<i>Grevillea</i> sp.	3.5	7	120 @ 1m AGL	M	Good	Good	Poorly pruned, long weighted branches hitting ground. Exempt from protection under Tree Preservation Order.	5A			
77	<i>Syagrus romanzoffiana</i> Queen Palm							Dead				
78	<i>Syagrus romanzoffiana</i> Queen Palm							Exempt from protection under Tree Preservation Order.				

URBAN FORESTRY AUSTRALIA - TREE MANAGEMENT & CONSULTING ARBORICULTURISTS

Tree No.	Botanic & Common Name	*Hht (m)	*Sp (m)	*DBH (mm)	Age	*H	*C	Comments	SULE	*Land sig.	*RV	*TPZ
79	<i>Syagrus romanzoffiana</i> Queen Palm							Exempt from protection under Tree Preservation Order.				
80	<i>Syagrus romanzoffiana</i> Queen Palm	3	2	120	I			Exempt from protection under Tree Preservation Order.				
81	<i>Callistemon viminalis</i> Weeping Bottlebrush	4	4	220 AGL	SM	Good	Good	Exempt from protection under Tree Preservation Order.	5A			
81A	<i>Callistemon viminalis</i> Weeping Bottlebrush	4	4	200 AGL	SM	Good	Good	Exempt from protection under Tree Preservation Order.	5A			
82	<i>Corymbia citriodora</i> Lemon-scented Gum	16	15	340	SM - M	Good	Good	Small diameter deadwood (to 15-20mm).	1A	H	H	5
83	<i>Syagrus romanzoffiana</i> Queen Palm	5	4	160	SM	Good	Fair- Good	Exempt from protection under Tree Preservation Order.				
84	<i>Syagrus romanzoffiana</i> Queen Palm	4	5	200	SM	Good	Good	Exempt from protection under Tree Preservation Order.				
85	<i>Corymbia citriodora</i> Lemon-scented Gum	17	14	340	SM - M	Good	Good	Small diameter deadwood (to 15mm). Crown looking slightly thin, some minor twiggy deadwood and tip dieback.	1A	H	H	5
86	<i>Syagrus romanzoffiana</i> Queen Palm	5.5	4	220	SM	Good	Fair- Good	Exempt from protection under Tree Preservation Order.				
87	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	6	6	280 ARF	M	Good	Good	Twiggy deadwood.	5B	L	M	3.5
88	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	5	160 ARF	M	Good	Good	Twiggy deadwood.	5B	L	M	2
89	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	5	160 ARF	M	Good	Good	Twiggy deadwood.	5B	L	M	2
90	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	5	160 ARF	M	Good	Good	Twiggy deadwood.	5B	L	M	2
91	<i>Melaleuca armillaris</i> Bracelet Honeymyrtle	6	6	280 ARF	M	Good	Good	Twiggy deadwood.	5B	L	M	3.5

KEY

ARBORICULTURAL ASSESSMENT



Trees to be retained. No special problems visibly apparent at time of inspection.



Trees that require specific attention and/or further investigation of identified defects.



Trees recommended for removal due to poor health and/or condition.

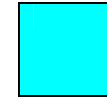
DEVELOPMENT IMPACT ASSESSMENT



Trees within or too close to the footprint of the proposed development. To be removed.



Trees exempt from protection under the TPO or, of low significance and could be readily removed and replaced. To be removed.



Significant trees, or trees of moderate to high retention value, which are potentially affected by the proposal.

NOTES

AGL – Above Ground Level

ARF- refers to the approximate diameter of a tree stem, immediately above the root flare.

***H** refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

***Sp** refers to the approximate spread in metres, of branches/canopy of a tree.

***DBH** refers to the approximate diameter of tree stem at breast height i.e. 1.4 metres above ground (unless otherwise noted), and expressed in millimetres.

***SULE** refers to the estimated Safe Useful Life Expectancy of a tree. Refer to Appendix A -Terms and Definitions for more detail.

***H** refers to the tree's vigour (health) as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

***C** refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils, etc.) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy, but in poor condition.

***Land sig.** refers to the Landscape Significance Rating of a tree, considering the importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit.

- o Exceptional – Tree/s of crucial importance as a principal feature of a public place, or are so visually prominent as to be a landmark feature.
- o High – prominent tree/s in private gardens or well-frequented public places.
- o Moderate – Contributes some amenity to the immediate garden/landscape areas, or to the streetscape.
- o Low – Poor, declining or small examples; noxious or undesirable species; little or no visual amenity to public view.

***RV** refers to the retention value of a tree, based on the tree's Safe Useful Life Expectancy (SULE) *and* Landscape Significance.

***TPZ** refers to the optimal *tree protection zones* for trees of 'average to excellent vigour'. It is based on Matheny & Clark's guidelines, as modified from the British Standards Institute 1991.

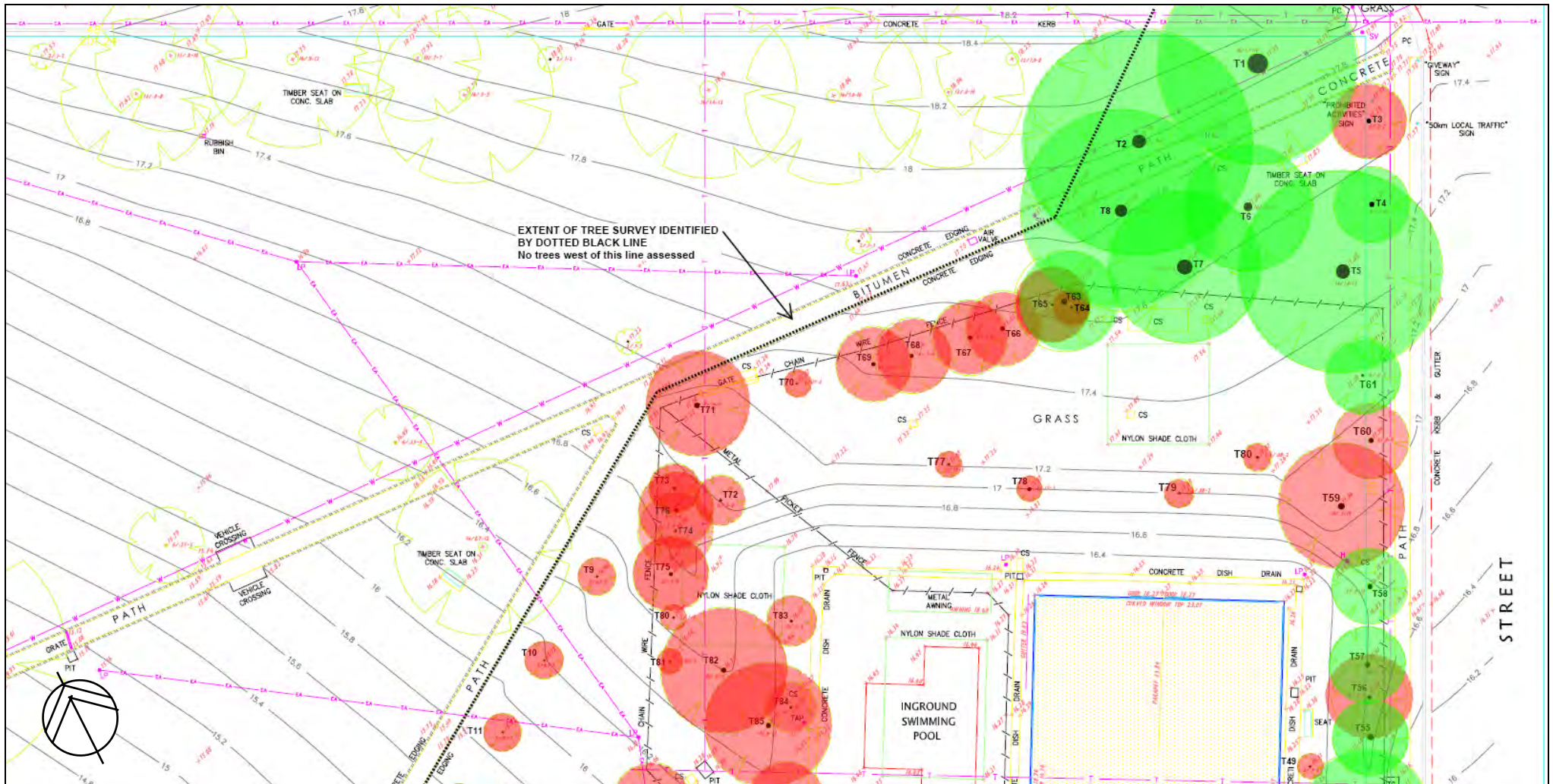
Refer to Appendix A - Terms and Definitions for more detail.

- o All calculations for TPZ's using the Matheny and Clark guidelines have been converted to metric figures.
- o Trees of poor vigour are generally not considered for retention under this guideline.
- o Canopy spreads displayed on the survey are not accurately shown in many cases. Where a TPZ is displayed as a smaller diameter than the crown dripline, it is to be given that the TPZ is to be extended to the *canopy dripline*.

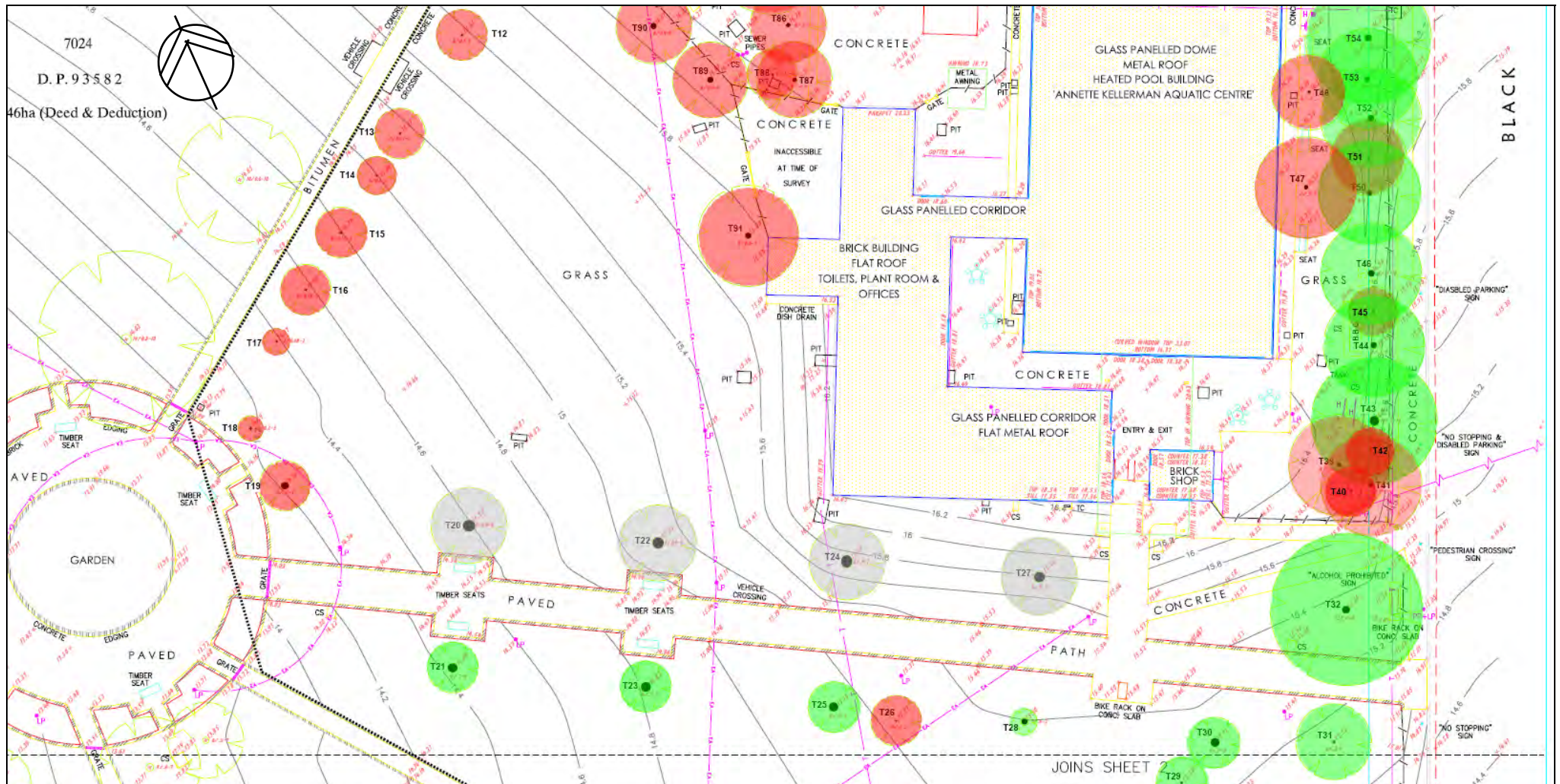
APPENDIX D

TREE REMOVAL AND RETENTION PLANS

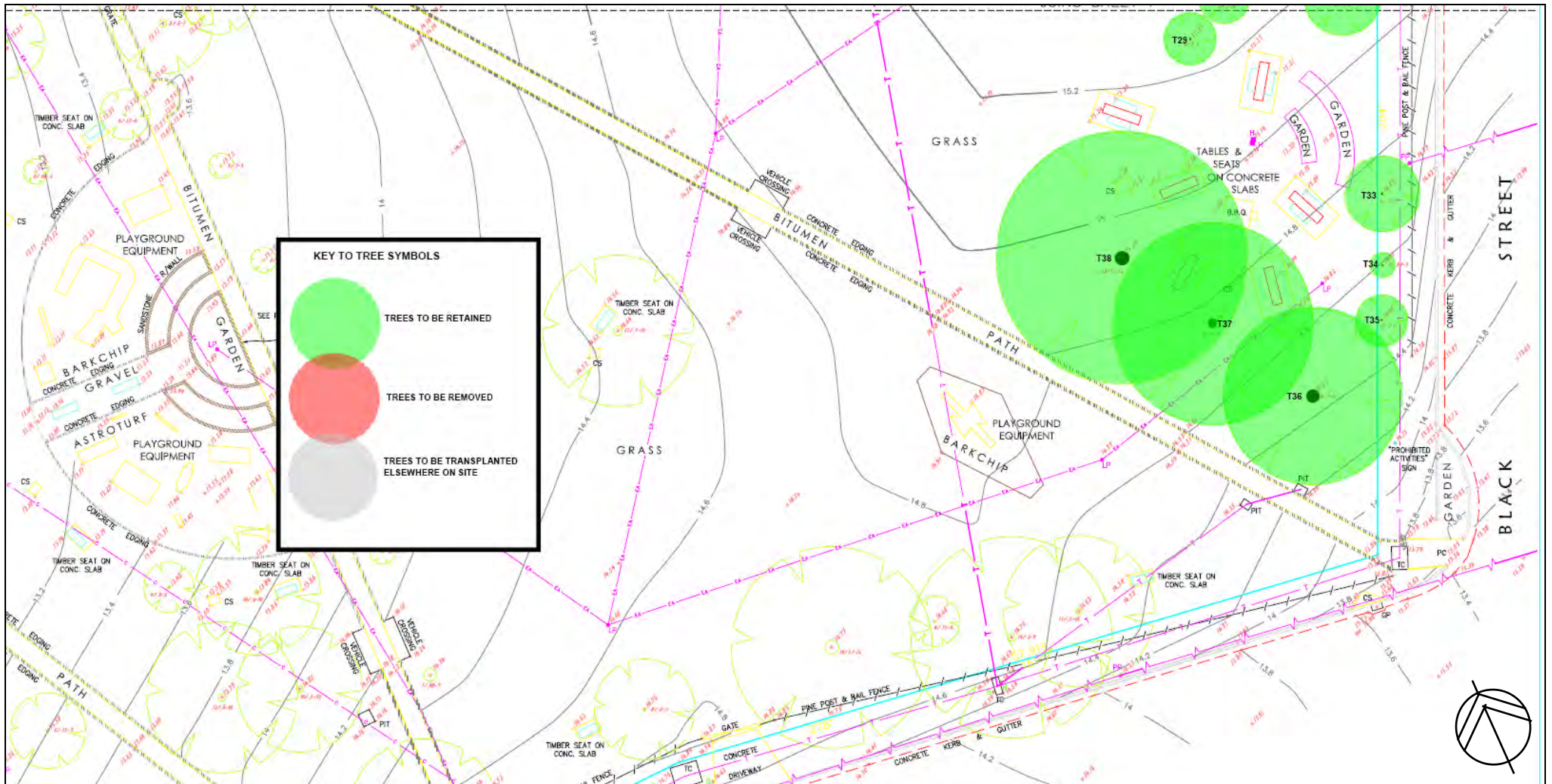




TREE REMOVAL AND RETENTION - PLAN AA not to scale



TREE REMOVAL AND RETENTION - PLAN AB not to scale



TREE REMOVAL AND RETENTION - PLAN AC not to scale

D Public exhibition

This section describes the outcomes of the 42 day public exhibition period for the plan of management as required by the Crown Lands Act 1989. Identified are major comments raised by the community and relevant authorities on the draft Plan of Management. Comments will be analysed below and are actioned in the final plan of management as listed.

Public Exhibition - Summary of Responses

Summary of support for draft Plan of Management and Masterplan

No	Position	No of submissions
1	SUPPORT THE DRAFT PLAN OF MANAGEMENT AND MASTERPLAN	4
2	DO NOT SUPPORT THE DRAFT PLAN OF MANAGEMENT AND MASTERPLAN	6
3	NOT SPECIFIED	5
	Submissions that did not specify their overall opinion generally focused on a single issue without defining specific support for the draft Plan of Management.	

List of issues raised by submissions

No	Issue	No of comments
A	DOG OFF-LEASH AREA	
A.1	Potential creation of a dog off-leash area within Enmore Park	11
B	NATIVE PLANT SPECIES	
B.1	Use of native tree and shrub planting to encourage native wildlife in Enmore Park	1
C	PARK RULES	
C.1	Increase in permissible activities within Enmore Park	1
D	SHADE	
D.1	Provision of shade across the park	1
E	TOILETS	
E.1	Provision of public toilet adjoining the playground	1
F	FENCED PLAY AREA	
F.1	Fencing to children's play area	1

Public Exhibition - Discussion of Issues & Proposed Actions

A DOG OFF-LEASH AREA

A.1 Potential creation of a dog off-leash area within Enmore Park

Issue

The majority of submissions received (11 of the 15 received) related to potential creation of a dog off-leash area within Enmore Park. This included an internal submission from Council's Monitoring Services section. Provision of an off-leash area would be a significant change to the existing use of the park, with current provisions allowing for on-leash dog use only.

Discussion

Council was advised at its April 2009 Technical Services Committee Meeting (Item PR 6 Dogs in Parks - Issues Paper) that a draft Dogs in Parks Strategy was being prepared. The report made the following comments regarding dogs in Enmore Park:

The Strategy will propose that dogs are on-leash at all times in Enmore Park and excluded from within 10 metres of playground, picnic/BBQ areas, proposed swimming pool cafe and the pool entrance. There have been requests for off-leash use of the park over a number of years. These are not supported for the following reasons:

- *proposed upgrading works to the swimming pool (including cafe), playground and picnic/BBQ areas are likely to attract additional users to an already popular and well used park;*
- *the park is currently unfenced and surrounded by roads on all sides;*
- *the heritage values of the park would be diminished if internal fencing were installed to define an off-leash area and no natural separation of spaces exists that would provide a suitable area within the park for off-leash activities;*
- *the existing park infrastructure, including garden beds and lawn areas are likely to be damaged by off-leash dog activities; and*
- *the park is close to existing off-leash facilities at Enmore TAFE Park.*

The draft Plan of Management for Enmore Park included a detailed review of the park which considered that the issues identified within the draft Dogs on Parks Strategy remain valid and as such proposed to maintain the current situation at Enmore Park which is for on-leash dog use only. The draft Plan of Management also notes that there remain difficulties with the turf coverage across the park due to soil compaction. It is anticipated that designation of a dog off-leash area may further compound these issues.

Previous consultation undertaken for the Enmore Park Playspace and Surrounds Concept Design (Item PR16 Technical Services Committee Meeting 14 July 2009) also identified some community concern relating to the interaction of dogs with other park users in particular children, with suggestions that the playground area should be fenced to eliminate conflict between playground users and dogs using the park. It is a requirement of the Companion Animals Act that dogs are not permitted within 10 metres of children's play areas. The impact to Enmore Park in fencing the playground is seen as significant, both visually and functionally. The cost of fencing is also significant.

Recommendation

1. It is recommended that a process of community consultation be undertaken to obtain further input into the provision of a dog off-leash area. It is suggested that this consultation should form part of the review and completion of the Dogs in Parks strategy and encompass the range of park users from all of Council's parks to provide an LGA wide approach to provision of off-leash areas. This would aim to ensure equitable provision of off-leash facilities to meet the recreation needs of the broader Marrickville community, while also considering the specific needs at Enmore Park.

It is also noted that the review of the Dogs in Parks Strategy, and potential creation of any new off-leash area must also consider the ongoing maintenance requirements. This will include provision of dog waste facilities, suitability of lighting, as well as ongoing review and upgrade of surfacing as a result of intensive wear and tear in these areas.

B NATIVE PLANT SPECIES**B.1 Use of native tree and shrub planting to encourage native wildlife in Enmore Park****Issue**

One suggestion was made that new plantings within Enmore Park should integrate native tree and bush planting to encourage native wildlife

Discussion

The draft Plan of Management outlines the use of a combination of native and exotic plant species to respond to the existing landscape character of the park. It also provides for use of hardy plant species that require minimal maintenance while still providing the ornamental appearance to the park's formal garden bed areas.

Recommendation

1. No additional action recommended.

C PARK RULES**C.1 Increase in permissible activities within Enmore Park****Issue**

One comment was received that suggested that ball games, cycling and off-leash dog use should be permissible across the park.

Discussion

The draft PoM suggests that ball games should be permissible to the northern open grassed area. This area is relatively open and can accommodate low key ball games without significant impact on other park users. Cycle access is provided and allowed through the park to routes as designated in Council's bicycle plan, encouraging this as a local route for low speed use through the park to ensure the safety of other park users.

Recommendation

1. No additional action recommended.

D SHADE**D.1 Provision of shade across the park****Issue**

One comment was received in regards to provision of shade across the park.

Discussion

A new shade structure is being provided to the new playground (currently under construction). The Plan of Management also recommends a Vegetation Management Plan be developed. This would include a program and approach to ongoing replacement and infill tree planting to maintain existing tree plantings within the park ensuring the character of the park is retained as well as shade provision

Recommendation

1. Development of Vegetation Management Plan in accordance with Plan of Management.

E TOILETS**E.1 Provision of public toilet adjoining the playground****Issue**

One comment was received in regards to provision of public toilet facilities adjoining the playground.

Discussion

A public toilet facility is to be provided within the upgrade of the Annette Kellerman Aquatic Centre. This facility will be located near the new café area and available to all park users. It is intended that the toilet will be open during café hours.

Recommendation

1. No additional action recommended.

F FENCED PLAY AREA

F.1 Fencing to children's play area

Issue

One comment was received that suggested the childrens play area should be fenced off.

Discussion

Fencing is provided along the adjoining pathway to provide separation from path and playground users. The impact to Enmore Park in fencing off the playground is seen as significant, both visually and functionally and is not considered necessary. The cost of fencing is also significant.

Recommendation

1. No additional action recommended.

E Lighting Appraisal

19 August 2009
L116Y01

Enmore Park Lighting Review

I have been asked to carry out a lighting review of the existing public lighting in Enmore Park. I inspected the park by day on 5th March 2009 and by night on 22nd April 2009.

GENERAL REQUIREMENTS FOR LIGHTING OF PARKS

Parks or sections of parks can be lit for different purposes. The reason for the lighting will tend to determine the nature of the lighting.

The main reasons that parks are lit are:

- For safe movement of people through the park
- To extend the usage of the park by encouraging people to use the park at night.
- To discourage antisocial behaviour in the park at night
- To make the park appear attractive at night
- To improve the safety within the park.

Some of the reasons can be conflicting.

There is an Australian Standard that addresses the lighting of public spaces, including parks. The Standard is AS1158.3.1- Lighting for roads and public spaces Part 3.1: Pedestrian area (category P) lighting. The standard is not mandatory but would be a bench mark for justifying the adequacy of the lighting within the park.

It is not necessary to light a park or to light all the routes through a park, however if people are expected to either access areas within the park at night or cross the park then it is reasonable to expect that the path is lit. If a path is lit it is then probably reasonable to expect that the path is light to meet the relevant category of the Australian Standard.

The Standard recommends light technical parameters for different categories of lighting based on:

- The function of the space or area
- The level of night usage of the space
- The risk of crime
- The desire to increase the prestige of the space.

The standard recommends illumination levels in the horizontal and vertical plane, uniformity of illuminance and a limit to the spill light into the sky. Illuminance is a measure of the amount of light that falls on a point and is generally measured in lux.

Because the Standard addresses a variety of security and prestige aspects as well as safe movement, the lighting levels that are recommended are often much higher than those required to safely walk along a path. In some conditions the recommended illuminance level for a park path can be nearly 10 times that of a footpath in an adjacent street. The task of safely walking on a path in a park is no more difficult than walking along the path in the street,

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but the security requirement may be higher due to limited natural surveillance.

Lighting in parks and public spaces generally has a requirement for vertical illuminance 1500mm above the ground. This is designed to illuminate people's faces so that a person can identify a potential attacker and possibly make evasive action before they are too close.

Lighting alone does not create a safe environment nor does it directly reduce the level of crime. Lighting affects crime by increasing the likelihood of the crime being observed. The main deterrent effect is encouraging people into the space.

The standard is basically a safety standard and compliance with the standard will not automatically create a comfortable or pleasant environment nor create the best seeing conditions. This means that although the lighting may meet the safety requirements it may not encourage the use of the park at night. The presence of people is generally the best security measure in a public space.

The important aspects in making the lighting of a park successful are additional to the requirements of the standard. These are:

Colour rendering – This is the ability of the light source to accurately render colours. If light sources have a limited spectral range of colours then they cannot accurately reveal the colours of the objects. Poor colour rendering light sources like high pressure sodium, low pressure sodium and mercury vapour make the environment look drab and colourless and render skin tones so that people look unwell.

Colour rendering is classified by Colour Rendering Index (CRI). The maximum is 100. There is no reason why a modern lighting installation should use a light with a colour rendering index less than 80. The high pressure sodium currently used in the park has a CRI of around 30 and the mercury vapour around 50.

Colour Appearance – This is the colour that the light appears. There is no direct correlation between colour rendering and colour appearance. Colour appearance is generally referred to by colour temperature, which is the colour that a heated object appears at that temperature. This is measured in absolute temperature, degrees Kelvin.

For example a colour temperature of 2700K is a very warm, reddish light, whereas a colour temperature of 6000K is very white to the point of appearing blue.

To create a comfortable night environment the colour temperature needs to be in the 2700K to 3500K range.

Glare - Glare is the relationship between the brightness of the light source and the background. In external lighting installations glare is more significant as the background is virtually black.

A glaring light source prevents people from seeing past the fitting so that their field of view is limited to the area within the lights. The effect is claustrophobic and reduces the feeling of safety for the person as they cannot tell if there is someone just beyond the lights.



The photo on the left shows a path with high colour rendering lamps with good glare control while the installation on the right uses poor colour rendering lamps with louvers to provide some glare control. Note that you can see the person at the end of the path on the left. The left installation also uses less than half the energy of the installation on the right.

My experience is that irrespective of the compliance with the Standard a park will not be successful unless the lighting has good colour rendering, warm appearance and minimal glare. If not, people may still walk though the park but they will not use the park.

EXISTING LIGHTING

The park currently has several lighting systems.

Posttop Fittings

The central circle in the park and the main use pseudo historic lanterns. These were made by Edwards Lighting Engineers, a foundry in Ballart and would probably date from the 1970s. The fittings have obscure glass and low colour rendering, high pressure sodium lamps. The fittings are glaring and inefficient because the majority of the light goes into the sky. These fittings would not meet the upward light limitations of AS/NZS1158.



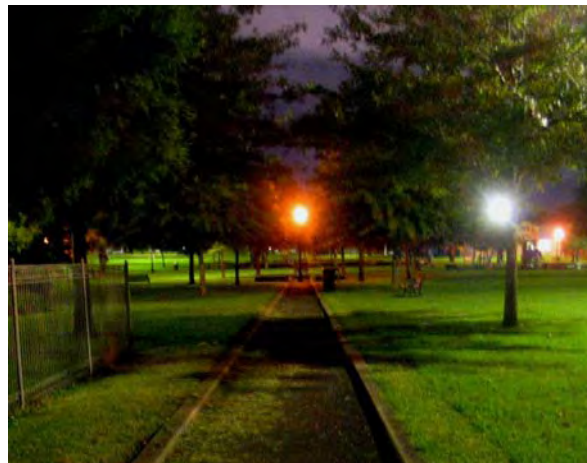
Note the glare and the poor visibility surrounding the path. These fittings do not have EnergyAustralia numbers and therefore are probably privately owned by the council.

This path appeared to be the principal route through the path at night, linking the houses on the eastern side of the park with the bus stop.

High Mast Fittings

There are a number of high mast fittings throughout the park. These are GEC 'Parkway' fittings and have been a relatively standard fitting used by EnergyAustralia to light parks.

The fittings are generally scattered through the open grass and do not follow the paths. The fittings are typically around 8 metres high and use mercury vapour lamps. Although they have a solid top to limit the spill light into the sky they have very little optical control. As a result only around 20% of the light reaches the ground. In addition the mercury vapour lamps are poor colour rendering and are one of the least efficient lamps on the market today. They have effectively been banned by the Building Code of Australia for the external lighting of buildings.



Because the lights are away from the paths and relatively high they actually cast shadows on the paths so that some of the sections of path were the darkest part of the park. The lighting increases the intensity of the shadows in the paths.

Floodlighting on the Southern boundary of the park

There are a few floodlights on the southern edge of Park. These may have been initially installed for events, but it now seems to be used to exercise dogs at night.

LIGHTING PHILOSOPHY

The Australian Standard AS/NZS 1158.3 makes recommendations based on the level of traffic, to risk of crime and to requirement to enhance prestige. The lights can be used to encourage people to use some paths and to make some paths less attractive.

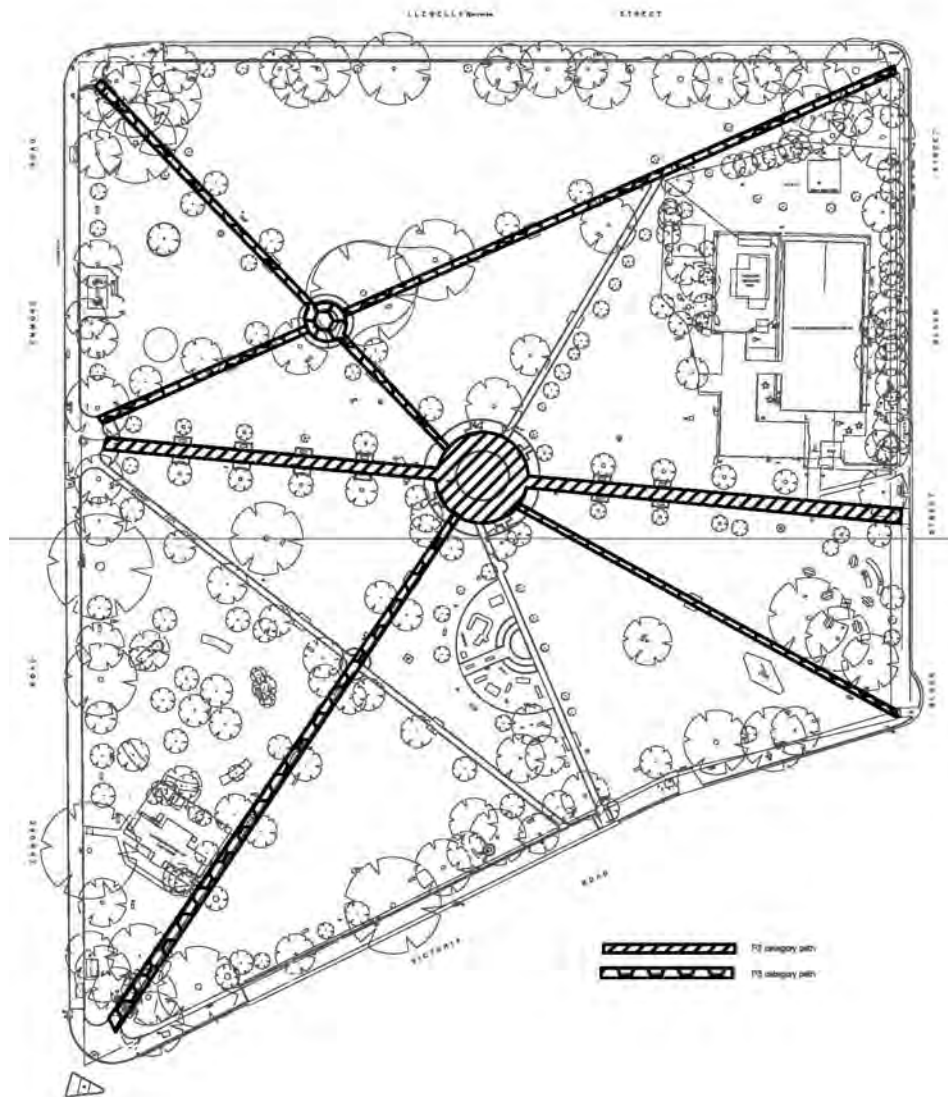
There is no necessity to light every path, but if a path is lit it should be lit to the appropriate category in the standard.

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We do not believe that it is necessary to light open grass as it will encourage people to use the paths and if the paths are adequate lit, anybody on the grass will be seen in silhouette.

Drawing 1 indicates our recommendations for primary and secondary routes.

Note that these are only proposed routes as the council will have a better knowledge of the usage patterns of the paths at night.



Drawings 1
Proposed Path Categories

Appendix A is an excerpt from AS/NZS 1158 showing the recommend category of lighting for different combinations of usage, risk of crime and prestige.

Appendix B indicates the recommended lighting parameters for each Category.

We believe that the primary routes should be lit to Category P2 and the secondary paths to P3.

Lighting Equipment

Light Fittings

To achieve the glare and efficiency requirements the lights should be a full cut-off fitting. This is a fitting with a flat horizontal glass that emits no light in or above the horizontal plane. There are many fittings on the market that have this performance. Appendix C includes a typical selection.

As the vertical illuminance becomes the critical design criteria, the higher the pole the wider the spacing that can be achieved. Pole heights between 4.5 and 6 metres are the norm, however a 6 metre pole may prove too high in close proximity to tree canopies.

Light Source

There are four light sources that should be considered:

- Fluorescent
- Metal Halide
- Cosmopolis
- LEDs (Light Emitting Diodes)

Each has their relative advantages and disadvantages.

The energy performance of a light source is expressed as the efficacy, the light emitted (lumens) divided by the power (Watts) consumed.

Table 1 gives a comparative performance for each lamp.

Light Source	Efficacy Including control gear	Colour Rendering	Average Life hours
Compact Fluorescent	62	>80	10,000
Metal Halide	87	>85	10,000
LEDs	25 to 70	60 to 90	Up to 50,000
Cosmopolis	103	66	20,000

Fluorescent Lamps

Many fluorescent lamps are temperature sensitive and their light output reduces significantly in low ambient temperatures. In addition the efficiency of a reflector system and light fitting is affected by the relative size of light source with respect to the reflector. The larger the source, the less efficient the luminaire and the less the optical control. Fluorescent lamps represent a large source.

Metal Halide Lamps

Metal Halide is a very efficient light and due to its size gives excellent optical control and efficiency.

LED (Light Emitting Diodes)

LED lights are being offered as a high efficacy, low maintenance option. LED technology is advancing at a very fast rate. There are a few reasons why we believe that it is too early to use them as an external general light source.

It should be noted that an LED is not a lamp but an electronic component. If is not manufactured like a lamp and has different characteristics to those we commonly associate with lamps.

LEDs are very temperature sensitive. Elevation of the junction temperature within the LED reduces the efficacy of the LED and the life. The efficacy of the LEDs are normally quoted at a cold junction temperature. In practice the performance is considerably lower. An LED that is quoted at 80 lumens per Watt may only achieve 50 lumens per Watt or less when enclosed in a light fitting. In comparison a metal halide lamp is approximately 95 lumens per Watt.

LEDs are mass produced and then sorted according to colour, efficacy and other characteristics. This is called 'binning'. To achieve good colour consistency then the bins need to be sub divided. This is called fine binning. Once an LED is installed on a circuit board its bin information is generally lost. If an LED fails prematurely it is virtually impossible to get an LED from the same bin. In addition due to the light output depreciation of the existing LEDs with age and the advancements in the new LEDs, the replacement LED will be much brighter than the other LEDs.

LED light fittings generally improve their efficiency by designing a very sharp cut-off at the edge of the distribution. As a result there is very little light off the edge of the path. Although this formally complies with the recommendations of AS/NZS 1158 I believe that when the standard was written there was an assumed spill of the light distribution onto the area adjacent to the path. People feel more comfortable where there is some light in the surrounding area.

There is a wide variety of quality and performance in LEDs depending on where they are manufactured, the technology level of the manufacturer and the binning policy.

The cost of an LED light for equivalent lumens is generally around 4 to 5 times the equivalent metal halide fitting.

Cosmopolis

Cosmopolis is a hybrid lamp that has been developed by Philips as a compromise between the colour performance of metal halide lamps and the efficiency and life of a high pressure sodium lamp. It is principally designed for minor roads and is not available in a small enough lumen package to efficiently light paths without excessively high poles.

Although the colour performance is better than high pressure sodium it still falls short of metal halide and is probably not adequate for a comfortable night time environment. The lamp has only one supplier.

Power Supplies

Our recent experience is that any alterations to the lighting of a park will result in Energy Australia requiring the lighting to be removed from their streetlighting circuits and converted to a metered private installation owned and maintained by the council.

RECOMMENDATIONS

- i. That all the existing lighting be removed
- ii. That the paths nominated be lit to Category P2 and P3 as indicated.
- iii. That the light source be a ceramic arc tube metal halide lamp in a full cut off post top fitting mounted at approximately 4.5 metres.

Appendix A

**TABLE 2.2
LIGHTING CATEGORIES FOR PATHWAYS (INCLUDING CYCLEWAYS)**

1	2	3	4	5	6
Type of pathway		Selection criteria ^{a, b)}			Applicable lighting subcategory
General description	Basic operating characteristics	Pedestrian/cycle activity	Risk of crime ^{f)}	Need to enhance prestige	
Pedestrian or cycle orientated pathway, e.g. footpaths, including those along local roads ^{d)} and arterial roads ^{e)} , walkways, lanes, park paths, cycleways	Pedestrian/cycle traffic only	N/A	High	N/A	P1 ^{c)}
		High	Medium	High	P2 ^{c)}
		Medium	Low	Medium	P3
		Low	Low	N/A	P4

- ^{a)} The selection criteria of Columns 3 to 5 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the pathway will determine the applicable lighting subcategory.
- ^{b)} Refer to Appendix C for guidance on choosing the applicable level of each selection criteria for the environment and purpose of a lighting scheme.
- ^{c)} Where there are vertical surfaces of high reflectance (e.g. light coloured walls bordering on an alleyway) alongside the pathway, the next lower lighting subcategory may be selected.
- ^{d)} Where the footpath is along a local road and subcategory P1 or P2 is selected, the light technical parameters for that subcategory only apply to the formed footpath. Where subcategory P3 or P4 is selected, the light technical parameters apply to the whole road reserve width, including the footpath.
- ^{e)} Footpaths associated with arterial roads are deemed not to require separate lighting provided that—
 - (i) the road is lit to at least the applicable level of Category V lighting complying with AS/NZS 1158.1.1; and
 - (ii) the footpath is unshaded, e.g. there are no substantially continuous building awnings, and the footpath is contiguous with the roadway.
 If the footpath is shaded, or is separated from the roadway by an extensive nature strip or a service road, it shall be provided with lighting to at least subcategory P4.
- ^{f)} The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

Appendix B

TABLE 2.6
VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE
LUMINAIRE TYPES FOR ROADS IN LOCAL AREAS AND FOR PATHWAYS

1	2	3	4	5	6
Lighting subcategory	Light technical parameters				Permissible luminaire type (see Table 2.10)
	Average horizontal illuminance ^{a,b)} (\bar{E}_h) lux	Point horizontal illuminance ^{a,b)} (E_{ph}) lux	Illuminance (horizontal) uniformity ^{c)} Cat. P (U_{E2})	Point vertical illuminance ^{a,b)} (E_{pv}) lux	
P1	7	2	10	2	Type 4 where part of a road reserve or Types 2, 3, 4 or 6 elsewhere
P2	3.5	0.7	10	0.7	
P3 ^{e)}	1.75	0.3	10	0.3 ^{d)}	
P4 ^{e)}	0.85	0.14	10	N/A	
P5 ^{e)}	0.5	0.07	10	N/A	

Appendix C



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