

GEORGE KENDALL RIVERSIDE PARK

MASTER PLAN

ADOPTED BY COUNCIL 27 FEBRUARY 2012





Adopted by Council 27 February 2012

prepared for
Parramatta City Council



prepared by



Pod Landscape Architecture
and
Urban Bushland Management Ecological Consultants

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Master Plan Outline

George Kendall Riverside Park is a large open space, approximately 27 hectares, located along the northern side of the Parramatta River in Ermington. The park's location along the Parramatta River foreshore and strategic link across the river to Sydney Olympic Park enhances its regional significance.

The master plan for George Kendall Riverside Park outlines the future vision of the park as a unique and regionally important recreation destination interwoven with a resilient and diverse ecology. It will have a strong sense of place that is engaging, contemporary and culturally relevant, building on the existing physical qualities of the park.

The vision is to create an unique and valued riverside park that optimises the potential of its rich layers of history, its unique setting, and its intriguing topography, as well as satisfying a wide variety of social and recreational opportunities. The sporting and recreation uses will be embedded into the park and provide a diverse range of structured and informal recreation opportunities, catering for increasing recreation demand.

The park will have a strong ecological framework contributing to the important local and regional ecological values. Vegetation patterns in the park will evolve over time to offer greater diversity in ecological habitat and landscape types.

Significance of Context

The local and regional context of George Kendall Riverside Park is critical to the significance, potential uses and development of the park.

The park is located on the northern foreshore of the Parramatta River. As such, it forms part of a linear network of parks and recreation trails along the river. The recreation uses and visual character of each individual park contributes to the adjacent open spaces to form a greater whole.

Similarly, the estuarine ecological system of the Parramatta River unites the parklands and built environments together. In this regard, the George Kendall Riverside Park forms a vital link in the habitat and ecological values of the River and Harbour.

Community Objectives

The local community hold a number of key objectives for the park including:

- Providing amenity in the park for everyday use;
- Increasing shade and planting in the park;
- Improving facilities such as seating, toilets and picnic facilities;
- Improving play facilities for a wide range of ages;
- Increasing accessibility throughout the park.

Key Design Objectives for the Park

The park is valued as a retreat and recreation opportunity for an increasingly urbanised community. It offers experiences not available within smaller parks, and this is further strengthened by connection to the Parramatta River corridor and Sydney Olympic Park open space networks. Retaining and developing these values relies on a significant portion of the park remaining unstructured. At the same time, there is clear community demand for improved landscape quality, sports facilities, aesthetic, ecological and amenity values.

The following design principles have been developed during the course of the master planning process.

Native Urban Parkland

Create a green parkland setting with a mix of trees, woodlands, shrublands and grasslands, incorporating ornamental specimen plantings in a native framework that enhances the ecological values of the park

Re-connect the Past and Present with the Future

Recognise, interpret and integrate the historical layers that have shaped George Kendall Riverside Park, including its natural and river heritage

Reveal the Unique Riverside Setting

Recognise and integrate the unique contextual relationship between the park and the river by maximising view opportunities. Create discreet links to the water edge to provide greater access to and from the river

Topography / Landform

Utilise landform to create a diverse topography in the park, creating lookouts within and out of the park to the river and to the city, and providing shelter from winds and deeper soils for planting.

Social and Recreational Facilities

Develop flexible park facilities that cater for a range of social and recreation uses providing for a diversity of ages, abilities, social groups and individuals.

Sporting Park

Enhance the quality and functioning of the sports facilities in the park to provide for a range of organised sports activities.

Public Art

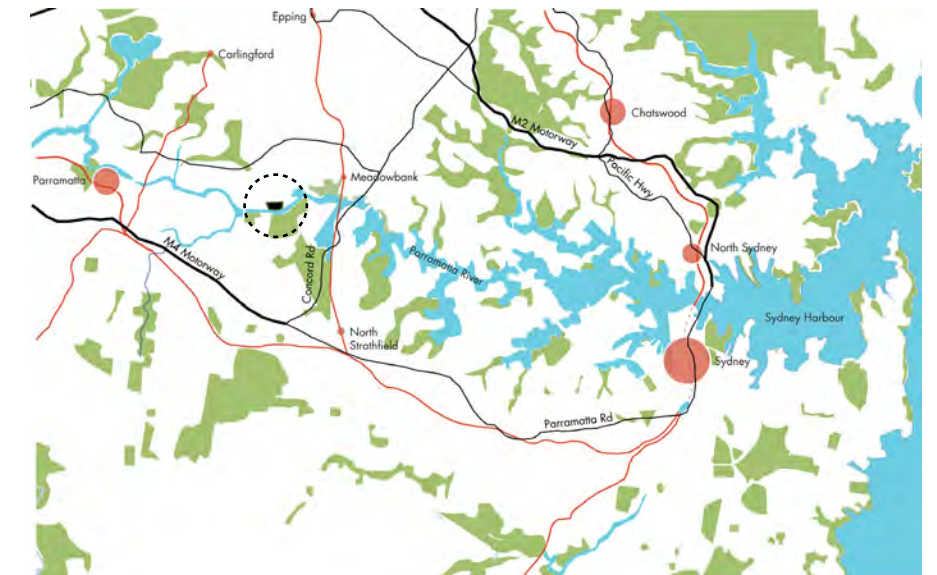
Integrate art and interpretation of site into the landscape and incorporate creative and artistic expression throughout the site.

Safe and Accessible Park

Create a park that is accessible and safe for visitors of all ages. Maximise links with adjacent parklands and surrounding neighbourhoods and create opportunities for active and passive surveillance.

A Sustainable Design

Create a sustainable design that recognises and incorporates best practice in ESD, maintenance and management, including potential re-use of stormwater.



GKRP in context of the Parramatta River



GKRP in local context of the Parramatta River

1.1 Overview

This master plan undertaken by the Parramatta City Council provides a vision and a working plan for the development of George Kendall Riverside Park.

The park is one of the largest within the Parramatta Local Government Area. It provides a number of recreation and sporting facilities including baseball diamonds, cricket pitch, soccer fields, tennis courts and basketball courts, however still retains large areas of undeveloped open space. The Parramatta Valley Cycleway, a regional trail between Parramatta and Sydney CBD, runs through the park. The park also includes two small children's playgrounds, car parking, picnic facilities, barbecues, amenities and a small meeting room.

The park consists of both Community Land managed by Parramatta City Council under the Local Government Act 1993 and Crown Land under the care, control and management of Council as a Reserve Trustee. A large proportion of the park has been reconstructed over a former garbage landfill site which operated between 1970 and 1979. Remediation and capping works have continued at the site since the closure of the tip. There is strong community interest and involvement in the maintenance and development of the park through an active volunteer bushcare group/ park committee.

1.2 Purpose of the Master Plan

The plan establishes strategies for the future development of the park, outlining planning, design and management issues, considerations and opportunities. The master plan:

- Provides a clear vision for the park
- Provides guidance on the type, form and phasing of park improvements and development within the defined areas
- Provides a strong framework to enable ongoing park development to occur over time
- Plans for park development that can occur in a realistic and achievable manner and be implemented in stages,
- Assists the public in understanding the future character of the park,

As the park will be developed in stages over time, the master plan needs to retain a degree of flexibility. The gradual transformation of the park and ability for the plan to cater for that change is key to the master planning approach.

1.3 Content of the Report

This report describes the issues and processes undertaken to create the Master Plan design and provides guiding principles and objectives for the next stage of the design process and implementation. The report includes the following sections

Executive Summary

This section describes a vision for the park's future, and includes community objectives and key principles that have guided the park design.

1. Introduction

Describes the context of the site, a description of the master plan and community consultation process.

2. Site Planning

Provides a review and a detailed analysis of the existing landscape and current uses, and outlines issues that inform the planning and design of the park.

3. Master Plan

Describes the overall design concept and its precincts in detail.

4. Strategies

Outlines key strategies for planting and soil works, furniture and structures.

5. Implementation

Outlines staging for implementation and associated costings.

1.4 Consultation

The objective of the community consultation process was to facilitate a dialogue between Parramatta City Council and the public on the existing condition and future development of George Kendall Riverside Park. To obtain a wide variety of community perspectives, Parramatta City Council and the consultant team developed separate consultation methods for local residents, sporting organisations and other key stakeholders.

Local Residents

Consultation with local residents was undertaken during a community open day held at the park on Friday 5th of November 2010. As part of the open day, members of the public were invited to comment on an exhibition of display panels, to fill in a survey and take part in general discussions concerning the current and future management of the park.

Respondents view George Kendall Riverside Park as a valuable open-space asset and family-friendly environment within the local area. They tend to use the park frequently, spending between 30 minutes and 2 hours in the park per visit. Respondents would like to see the park continue to be used for recreational activities; particularly children's play, organised sports and passive recreation. In relation to this, respondents were particularly concerned about the provision and maintenance of park facilities, including provision of amenities, the upgrade and/or provision of play equipment and sporting facilities.

Sports Groups

Feedback from sporting organisations was sought through a survey distributed to the clubs associated with the park.

Respondents felt that the park was highly desirable and valued as a sporting destination. Current responses indicated a degree of dissatisfaction with the provision of facilities and the maintenance of sports fields in the park. The improvement of general amenities such as shaded areas, toilets and parking were commonly mentioned, followed by the improvement of drainage and levelling of playing fields.

Key Stakeholders

Key stakeholders were consulted in a meeting between the consultant design team and a representative of George Kendall Bushcare Group on 24th October 2010. Sydney Olympic Park Authority have been in contact with the project group and were consulted as a key stakeholder during the development of the plan.

Public Exhibition

The draft master plan was exhibited at the end of 2010. Submissions were received from the public and taken into account in the finalisation of the master plan.



Community open day



2.1 Context

Adjacent Land Uses

The park is located in Ermington, a suburb of predominantly low-density residential housing, with several schools, parks and a small shopping centre.

The first stage of a medium density residential development has recently been completed immediately west of the park at the former Naval Storage Depot. The increased adjacent residential population will increase the need to develop facilities in the park. An industrial area is located at the north east edge of the Park. Beyond this is the suburb of Meadowbank and a major shopping area at West Ryde. Sydney Olympic Park, located across the Parramatta River is a large regional recreation destination.

Recreation

The Parramatta River provides the focus for a recreational and access network that links Parramatta to the harbour and Sydney CBD. Each parcel of open space along the river, including George Kendall Riverside Park, contributes to the overall functioning and importance of the network.

The foreshores of the Parramatta River are a regional draw-card for informal recreation due to the linear recreation trails and the scenic amenity provided by the river. The parkland network extends across the river into Millennium Parklands, with nearby bridge connections at Silverwater Rd to the West and at John Whitton Bridge, Meadowbank to the east.

The formalised sports uses in the park are a major regional attractor, and contributes to the mosaic of sports fields provided in the locality. The location along the foreshore contributes to the amenity of the sports fields, however is not the rationale for their location in the park.

Ecology

The ecological context contains two main components. Firstly, the Parramatta River has a significant estuarine ecology, including mangrove communities. Secondly, across the river in Sydney Olympic Park's Millennium Parklands, extensive rehabilitation of vegetation areas offers important large-scale habitat in close proximity to the park. Bird-life, in particular, migrates between the two parklands.

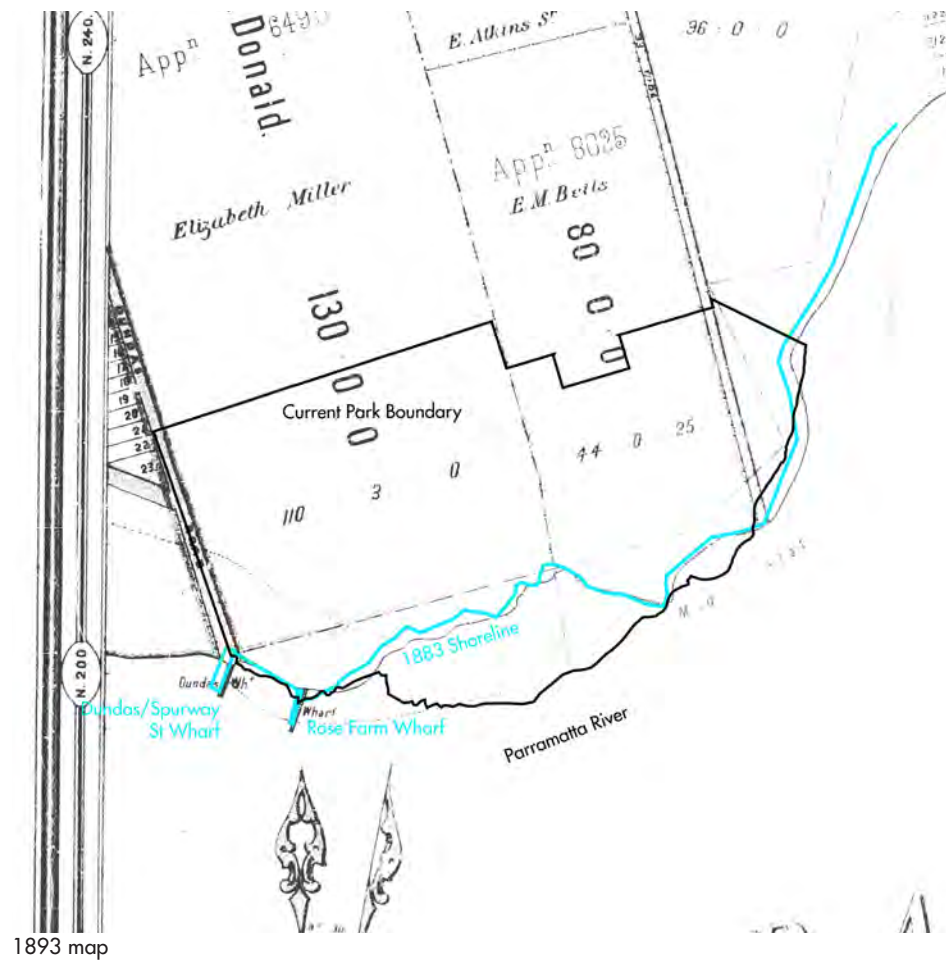
Connectivity

The park is disconnected from frequent and direct public transport links. The nearest train stations, Meadowbank and West Ryde, are 2.5km from the park. A low frequency bus route (524) runs along Boronia St, 200 metres from the park, and higher frequency buses run on Victoria Rd.

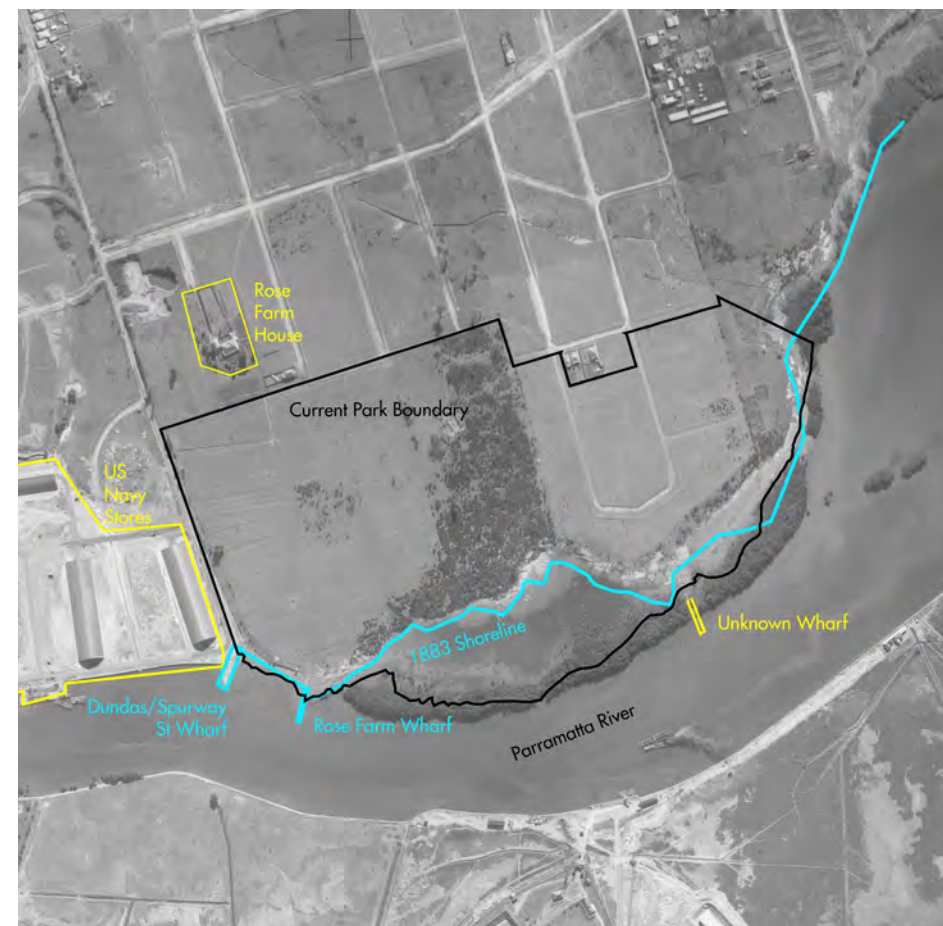
The road network around the park is discontinuous, and contains numerous cul-de-sacs making it difficult to circumnavigate the park by driving. The streets to the park have a direct connection to Victoria Rd, with two streets at either end of the park having signalised intersections.

Streets along the north lead straight into the park facilitating good local pedestrian access.

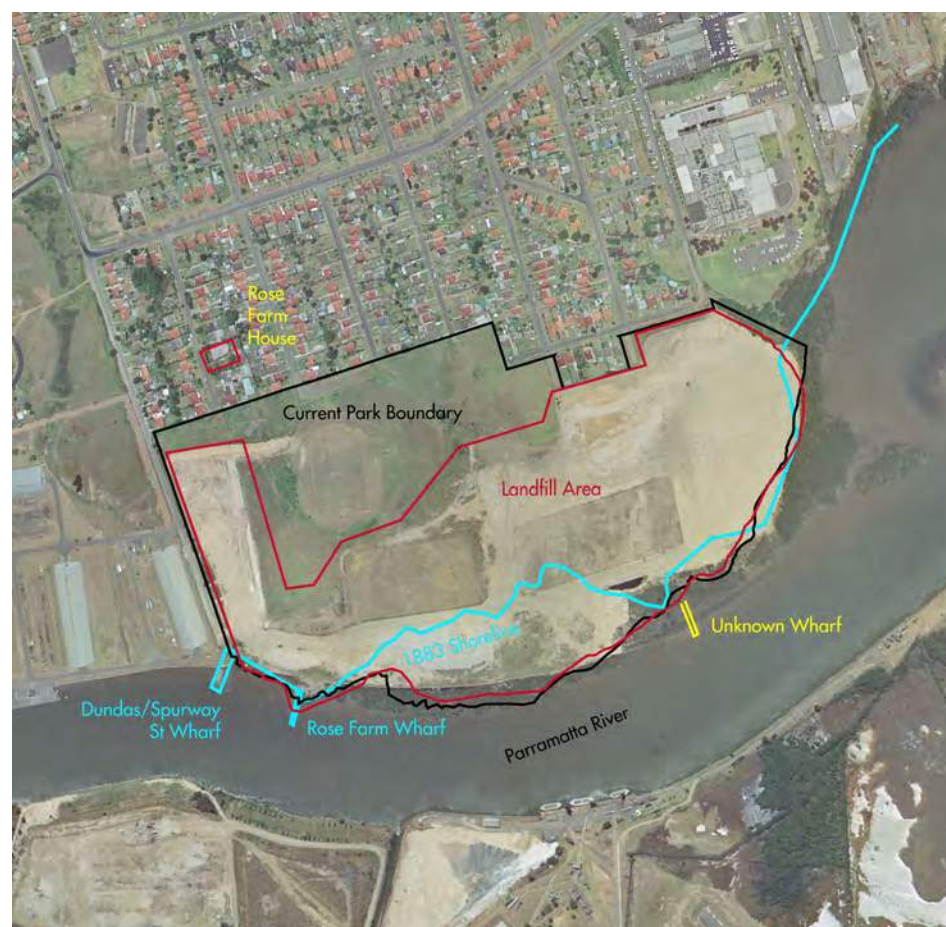
The Parramatta Valley Cycleway runs through the park, providing an important connection to the network of riverside parks. Expanding and enhancing connections to the Parramatta Valley Cycleway will increase recreation use.



1893 map



Aerial 1943



Aerial 1978



Aerial 2009

2.2 History

Aboriginal

Aboriginal occupation of the Sydney area dates from at least 20,000 years ago. Four occupation sites have been registered within a 2km radius of the park; three open camp sites to the north along Subiaco Creek and one open midden site at the eastern edge of the park within private property. It is likely that extensive modification has removed any evidence of Aboriginal occupation within the park.

Colonial

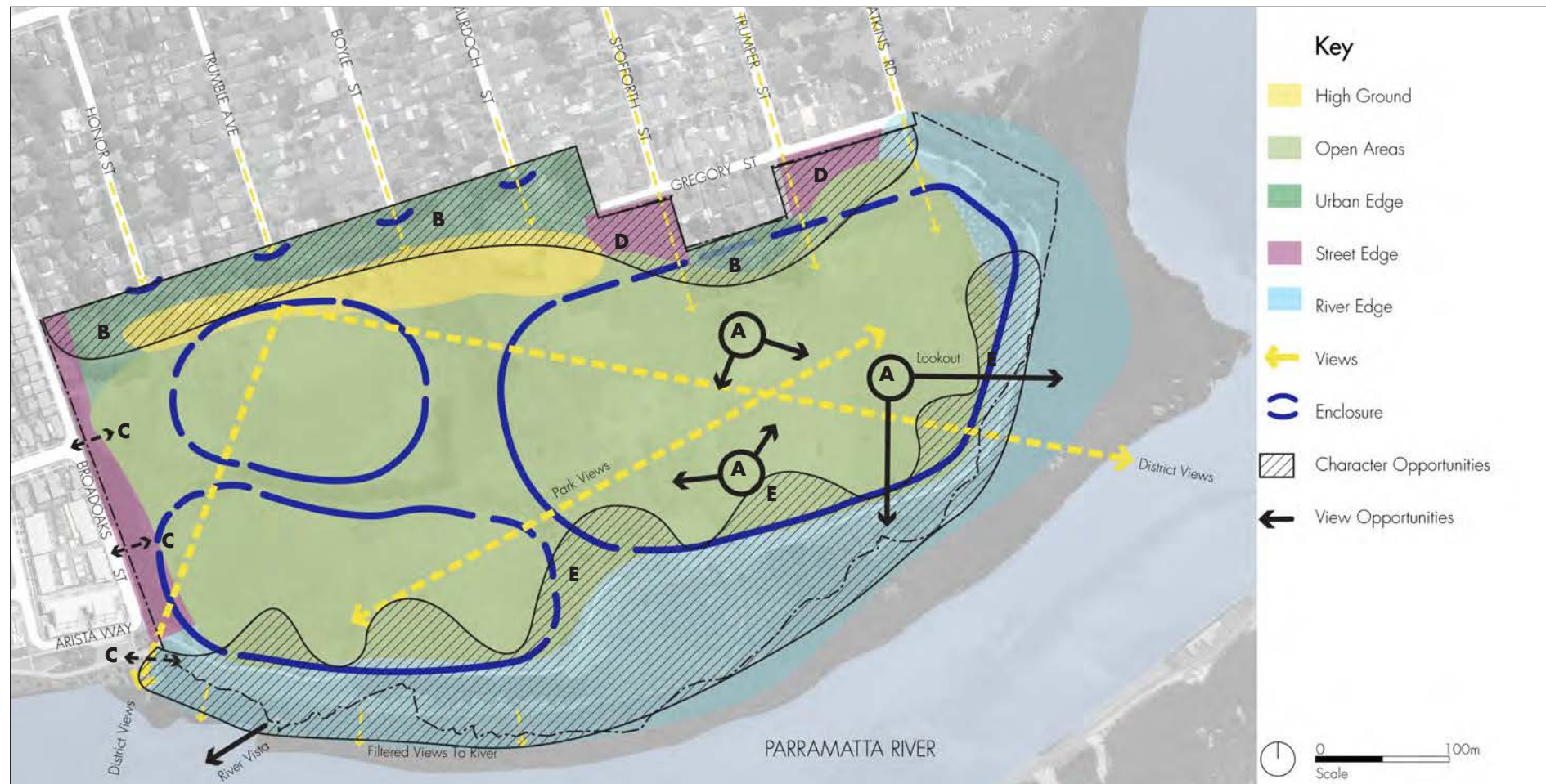
Colonial history of the area emerged when Governor Phillip granted eight marines land along the Parramatta River in 1792. The current park site was part of Alexander McDonald's grant. McDonald built a cottage and established a farm in 1820. During this time the area became an important agricultural resource for Sydney, with the Parramatta River providing the major transport link. In 1877 McDonald's cottage was known as 'Rose Farm House', and included an orchard, orangery, paddocks and a private wharf ('Rose Farm Wharf'), constructed from double stone with earth infill. Rose Farm Cottage can still be found at 17-19 Honor St, though there is no evidence of the former farm. The remnants of Rose Farm Wharf can be found on the river bank of the park, near the signal station, 100m east of the former public wharf at Dundas St/Spurway St Wharf. Rose Farm House (#295), Rose Farm Wharf (#0461) and Dundas St/Spurway St Wharf are all listed heritage items in the Parramatta LEP.

20th Century

Industrial and residential development of the areas agricultural land commenced in the 1920s, but was halted by the depression of 1930's. In 1943 the Ermington Naval Storage Depot was built by the United States Navy. After WWII development resumed and a number of reserves were gazetted in Ermington/Rydalmere Municipality. Many, including George Kendall Reserve, (later Riverside Park) were named after Aldermen. Between 1970 and 1979 parts of the park were used as a municipal landfill.

Actions

- Reveal the site's role as part of an Aboriginal landscape through interpretation and artwork. Any work of this kind should be done in full consultation with relevant Aboriginal community organisations.
- Reveal aspects of former Colonial landscape, including specific links to remnant of Rose Farm Cottage and the importance of river transport.



District Views - GKR



Suburban edge along northern boundary - GKR



View to water from historic wharf site - GKR

2.3 Character + Views

The existing park is characterised by open and expansive views within the park. There are limited views of the broader landscape or to the river adjacent from within the park due to the enframing mangroves. Views to the city and to the river are gained from the upper slopes of the north western area of the park. There is potential to diversify the spatial quality of the park to create interest, as well as potential to create additional viewing and vantage points.

Actions

Views

- Retain views into the park provided down streets running perpendicular to Victoria Road.
- Provide access to high areas in the northern part of the park which offer views of the river, to the city, Sydney Olympic Park, and the Shell refinery.
- Enhance access to key areas along the southern and eastern edges of the park where the river can be viewed through the mangroves.
- Create informal lookouts in the south eastern areas of the park with city and river views. (A)

Open Areas

- Maintain the feeling of spaciousness achieved through the overall large park size and large expanses of grass.
- Create definition to open areas within the park.
- Maintain key view lines within the park to retain the sense of the large park expanse and define with landform and planting.

High Ground

- Encourage uses in elevated park areas with established shade trees, picnic areas, playground, wide regional views. These areas are well connected to the local streets and residential areas.

River Edge

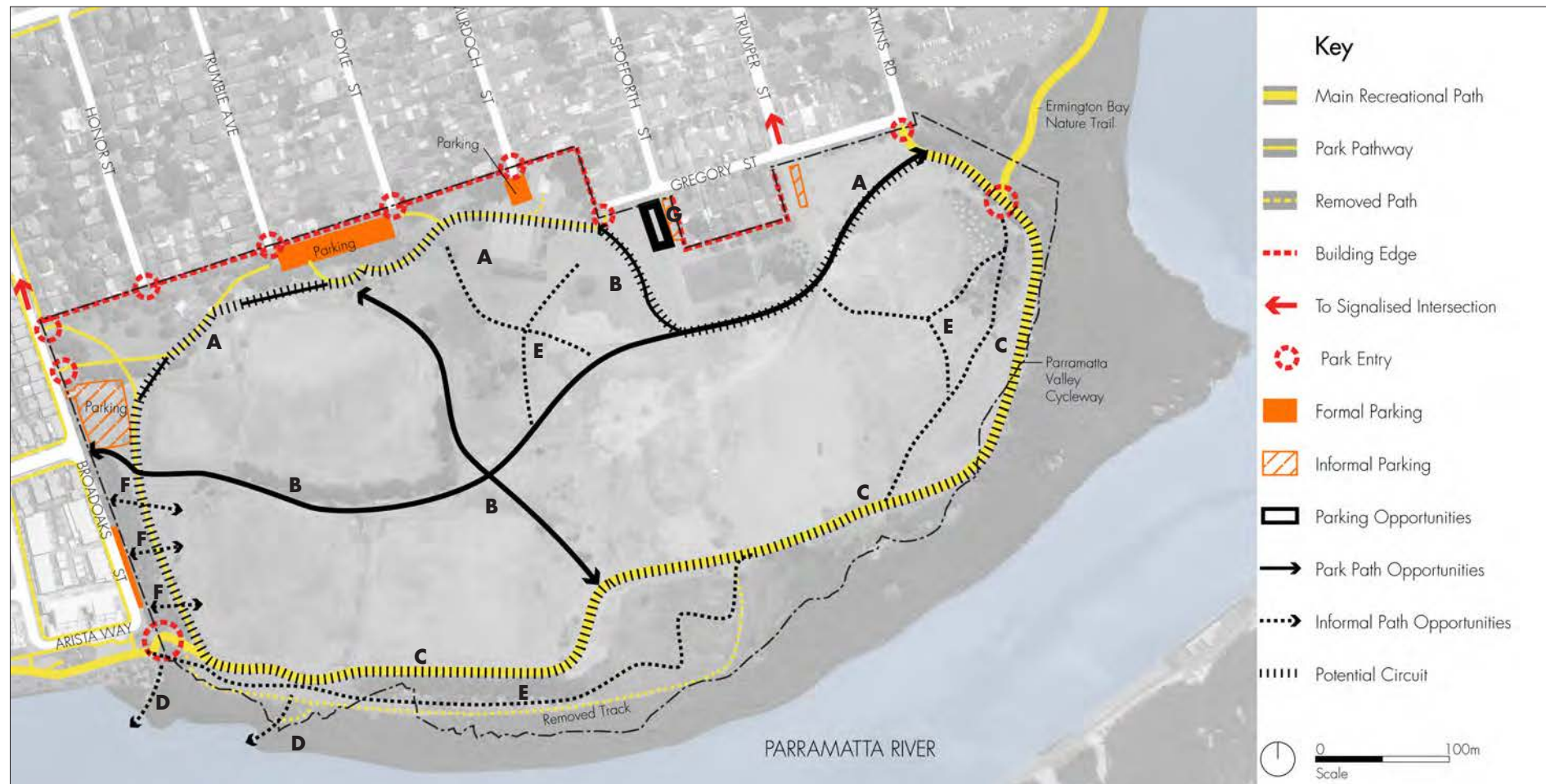
- Diversify the experience along the Parramatta Valley Cycleway running between dense mangroves and open spaces along the southern and eastern edges of the park. (E)

Street Edge

- Provide definition and enclosure to the Gregory Street edge with increased tree planting. (D)
- Create openings along Broadboks Street edge to allow views and access into the park. (C)

Built Edges

- Increase tree planting behind the residential properties backing on to the park to enhance buffer and separation whilst allowing filtered views into the park for passive surveillance. (B)



2.4 Circulation + Access

The existing pathways are focussed in the north and western areas of the park. There is potential for the pathway network to increase permeability throughout the park, connect facilities, provide access to a range of environmental experiences, and create a range of park circuits.

The main shared path through the park is the Parramatta Valley Cycleway (PVC) which runs along the river edge beside mangroves and grass areas. The PVC links the park to a network of open spaces east - west along the river. The new Ermington Bay Nature Trail enhances the accessibility to areas east of the park.

A series of minor paths run through the north and west edges of the park, connecting to existing facilities and car parking.

Actions

Main Recreational Paths

- Diversify the experience along the PVC with shade and planting. (C)
- Provide rest areas and amenities such as seating and water access.

Park Pathways

- Expand and diversify the path network throughout the park to access facilities and create links.
- Create internal circuits and loop paths. (A)
- Increase accessibility through the central and north eastern areas of the park. (B)
- Connect to the river edge at the historic wharf location. (D)

Informal Pathways

- Develop semi-defined informal pathways as secondary alternate routes linking to park pathways and access through regeneration areas. (E)
- Create informal paths to provide visitors (particularly walkers and joggers) with a more diverse recreation experience.

Entrances

- Define park entries along the northern edge of the park at the termination of the north-south streets.
- Define park entries at the east and west corners of the park connecting to the PVC.
- Increase minor entries into the park along Broadboks St to enhance park permeability to the street. (F)

Street Frontage

- Develop street frontages to allow visual connection and ease of access into the park, whilst maintaining a strong boundary to the park edge.
- Strengthen the park boundary along Gregory Street with tree planting.
- Increase permeability to the Broadboks Street frontage.

Parking

- Maintain existing formal car parking areas.
- Maintain existing informal car parking in the park off Broadboks Street.
- Increase pathway connections to the surrounding streets to maximise effectiveness of on street car parking.
- Develop formal and informal car parking off Gregory Street to cater for future development of additional sporting facilities. (G)



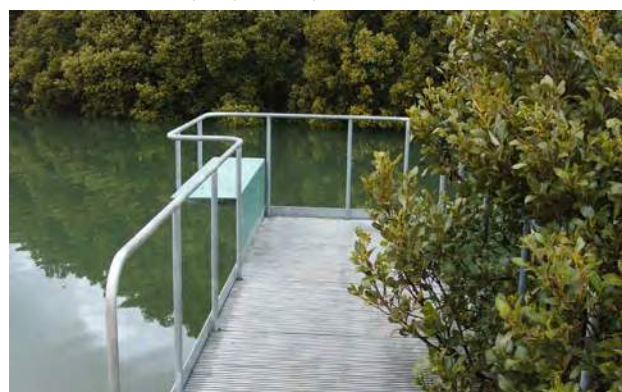
Parramatta Valley Cycleway - GKR



Park pathway - GKR



Desire line - GKR



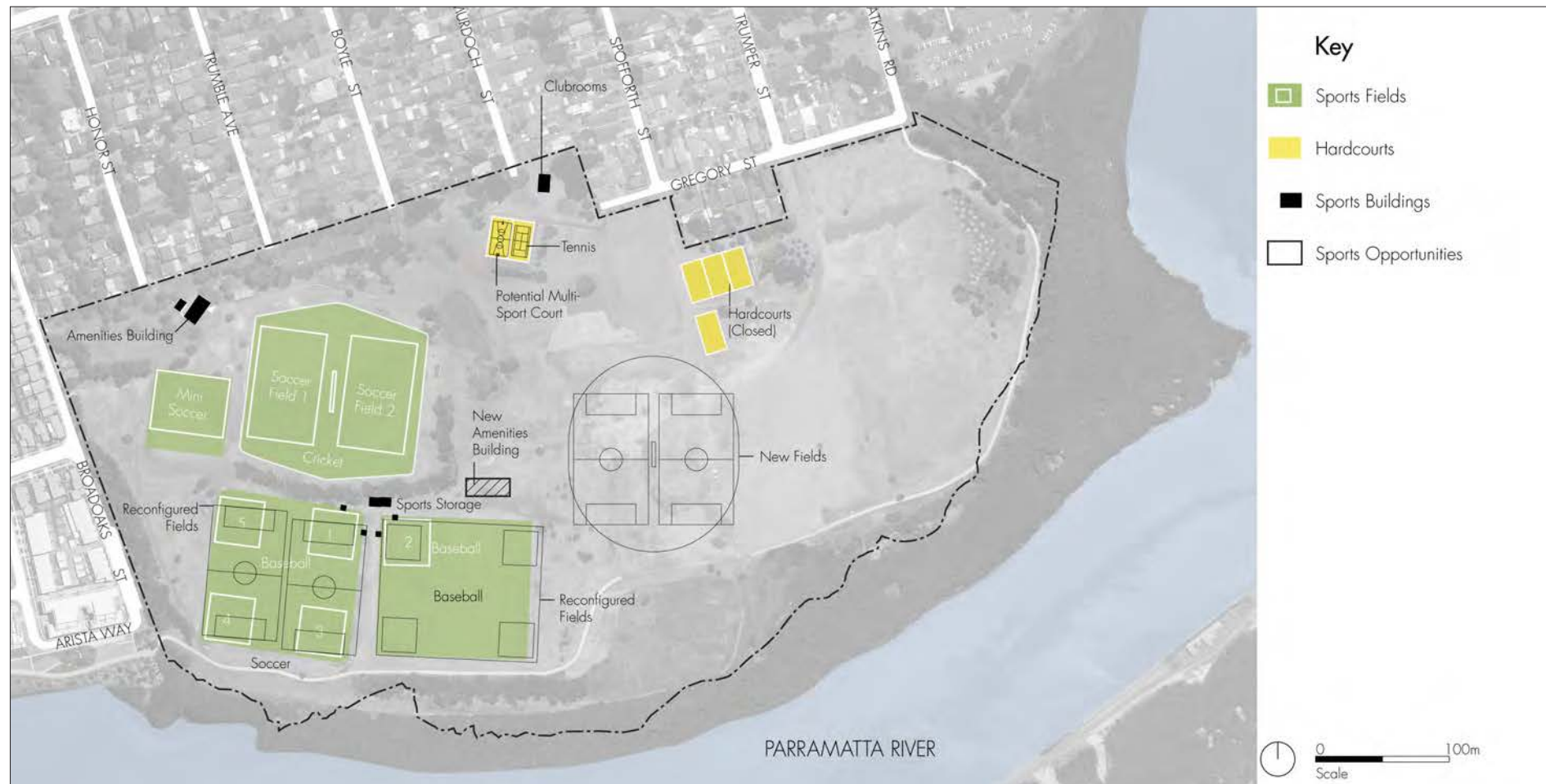
Precedent: River access - Sydney Olympic Park



Precedent: Informal path - Dorset Recreation



Precedent: Informal step connections



2.5 Sports

Sporting uses are the main regional attraction for the park and existing sports facilities are highly valued. Balancing existing and proposed sports use with other site qualities and informal uses of the park is a key issue.

Sports fields in the western half of the park are well used by organised and informal sports groups.

Landfill related subsidence has resulted in permanent closure of the existing basketball and netball courts to organised sports use.

Actions

Sports Fields

- Maintain existing upper western fields with lighting for cricket oval and soccer use.
- Maintain smaller upper western field for mini soccer and training.
- Rearrange use of the lower fields to allow soccer use in lower western fields.
- Consolidate the baseball diamonds into the lower central field.
- Generally improve drainage and field quality in lower fields to cater for increased and diverse use.
- Develop a new sports field in the central park area as a cricket oval and soccer fields.
- Expansion of sporting uses on the lower and central areas in the park will lead to increased demand for additional storage, changing rooms, increased parking and access paths.
- Investigate the provision of new toilets, storage and changing rooms in an accessible, central area of the park.

Hardcourts

- Remove hardcourts from landfill subsidence areas.
- Develop multi use courts in a central and accessible area of the park, in proximity to the main playground.

Tennis Courts / Clubrooms

- Redevelop courts as one multi use basketball / netball court and one fenced tennis court.
- Tennis court to be free and open to the public. Potential for keypad access to be reviewed by Council.
- Retain club room used by community group.



Upper cricket field - GKRP



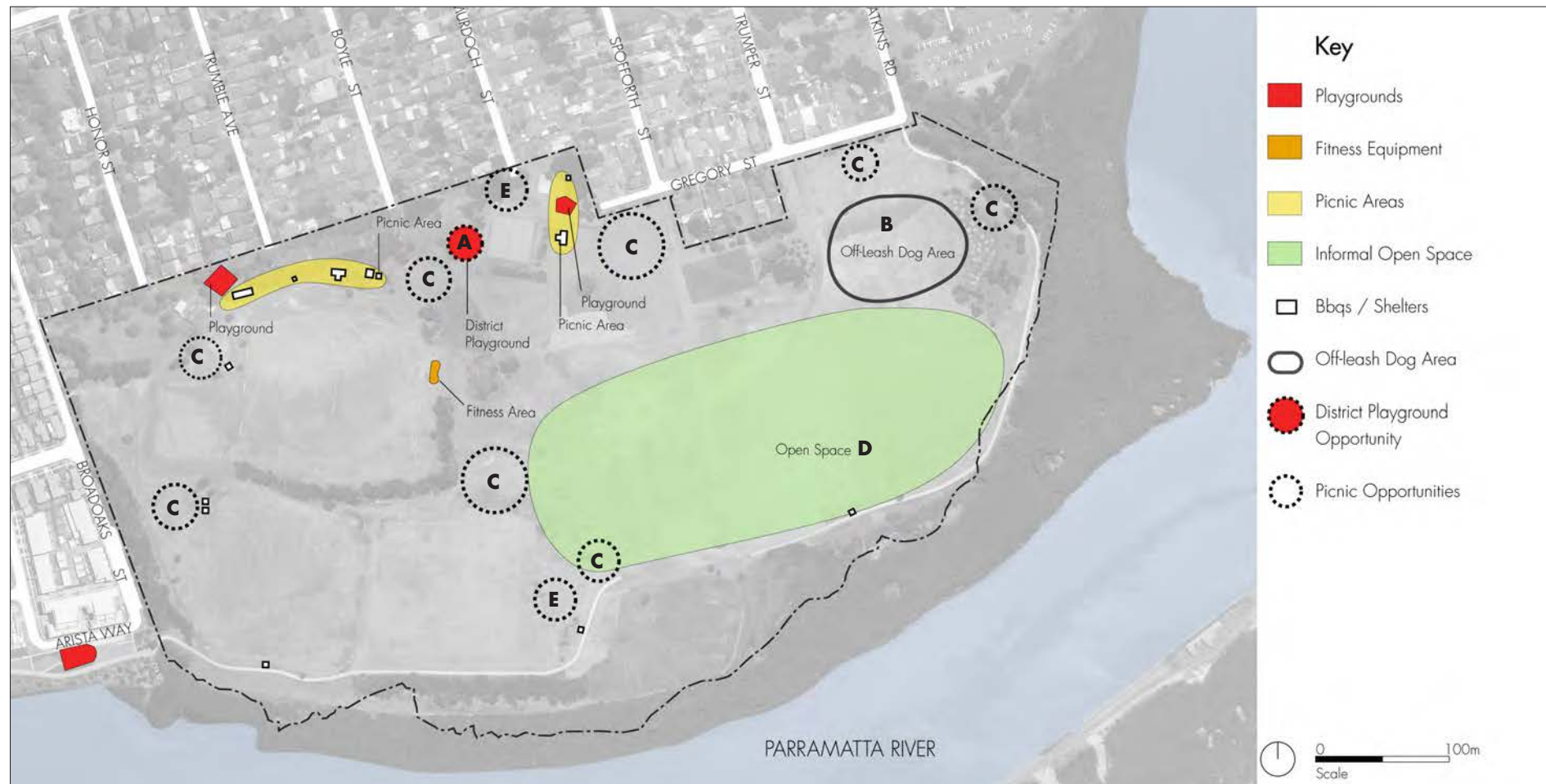
Baseball field - GKRP



Tennis courts - GKRP



Precedent: Multi-sport courts - Ryde Park



2.6 Recreation

The Park has some important recreation facilities and spaces that support diverse recreation use. There is significant scope to extend and connect facilities to expand recreation use in the park.

Actions

Playgrounds

- Develop a centrally located, large district playground for use by groups visiting the park for sports events as well as groups using informal and picnic facilities in the park. (A)
- Create multi use courts adjacent to the proposed play area to expand informal recreation provision and cater for a diverse range of ages.
- Decommission existing small playgrounds at end of Murdoch St and Trumble Ave following development of large district playground.

Dog Exercise

- Maintain on leash dog exercise throughout the park.
- A fenced off leash dog exercise area has been created in the eastern area of the park. (B)

Picnic Areas

- Retain the upper level western picnic area which is focused on the upper sports field and amenities building.
- Retain the central picnic and BBQ areas which provide access to informal recreation areas and connect to the proposed district playground.
- Develop new larger picnic shelters in the vicinity of the district playground to cater for larger group gatherings.
- Create new areas of shaded seating at nodes within the park to offer a diversity in seating and picnic areas. (C)

Cycling/Jogging/Walking

- Develop internal circuit shared paths to increase opportunities for cycling, walking and jogging within the park.
- Increase shade and diversity along pathways.

Fitness

- Retain the fitness equipment located near the centre of the park and increase access and shade to the facility.
- Develop other fitness stations in proximity with circuit shared paths. (E)

Informal Recreation

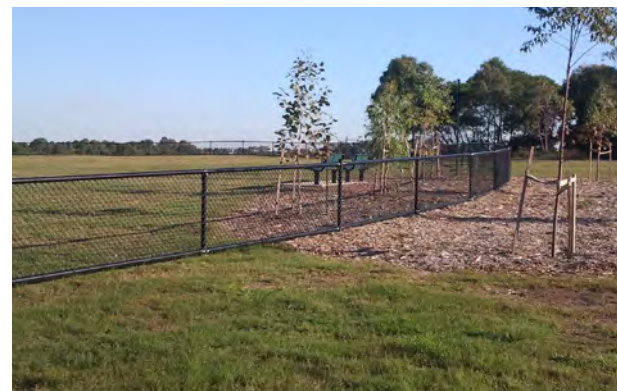
- Retain large open grass spaces in the eastern areas, to provide opportunities for informal recreation. (D)
- Create definition and shade with tree planting to enhance visual quality and useability of the informal areas.
- Enhance park quality and facilities such as shade and seating at the edges of the park which are most accessible from streets.



Picnic area - GKRP



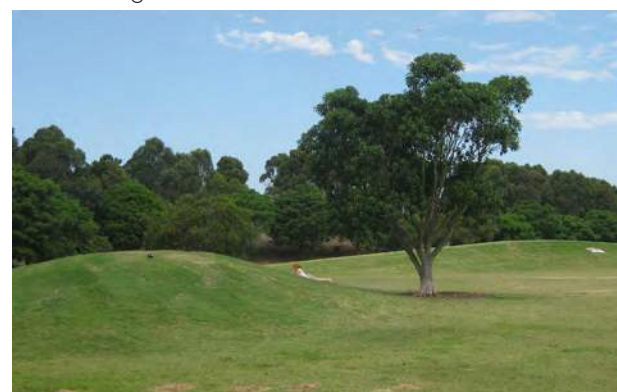
Recreation Path - GKRP



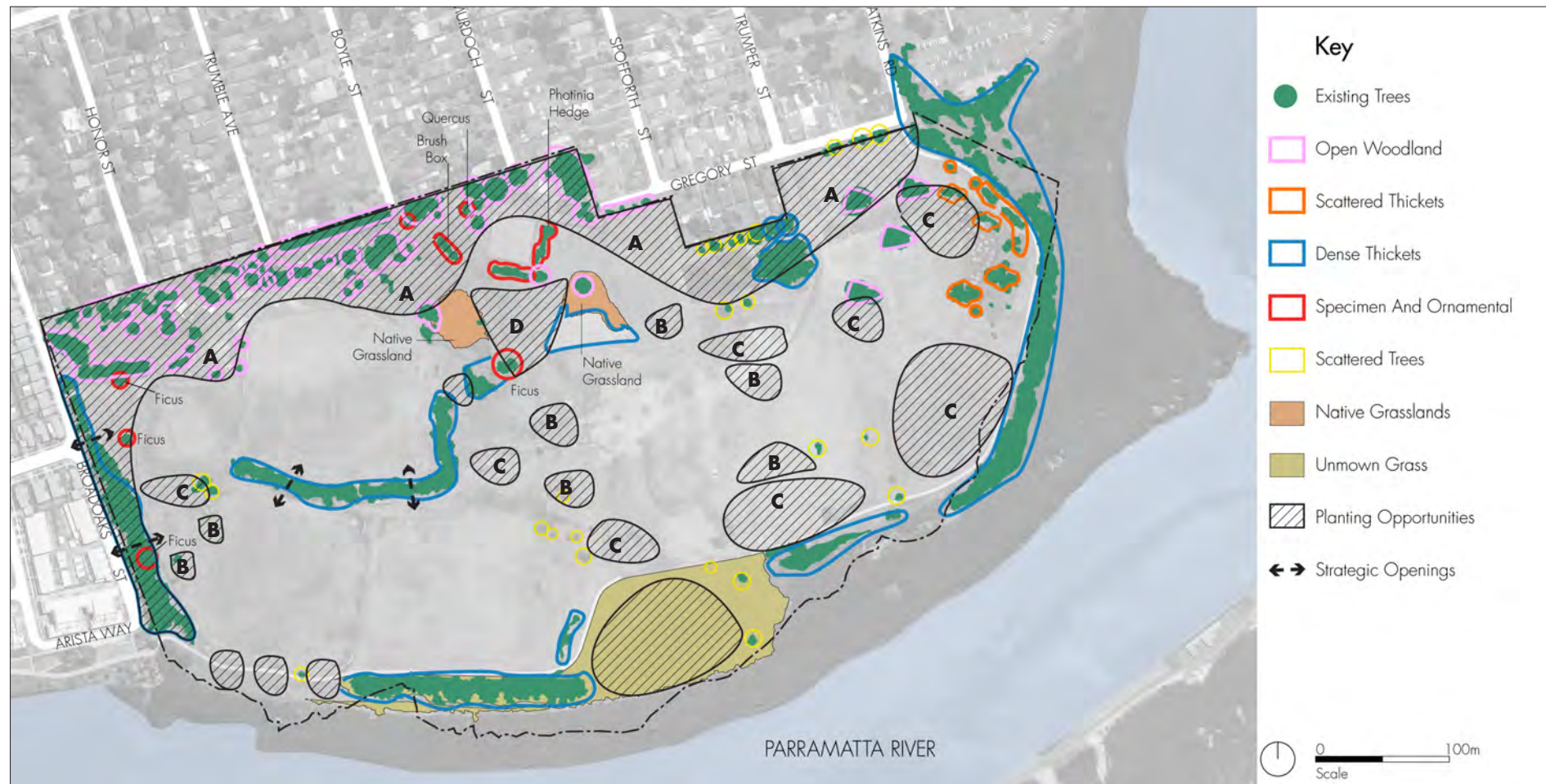
Fenced dog off-leash area - GKRP



Precedent: Shaded path - Cooks River



Precedent: Open space definition - Sydney Park



2.7 Planting

The park has a range of planting types with a dominance of native species. The most significant planting areas within the park are the established trees in northern areas, and along some of the western and eastern edges.

Issues of soil quality, soil profiles and gas leakage, resulting from past landfill operations, have limited the success of planting over much of the park area. Management of these issues and implementation of soil improvement and filling will be essential to any future planting strategies.

The ecological values of the different planting areas, as well as the mangrove and saltmarsh areas on the foreshores of the park, are covered in the section 2.8: *Ecology*.

Actions

Open Woodlands

- Retain tall eucalypts and other trees forming an open woodland along the northern edge of the park. The success of these trees is due to their location on natural soils outside of the landfill area.
- Expand tree planting in the northern areas of the park to filter the residential and street edges of the park and to provide informal shaded seating and picnic areas. (A)
- Develop new areas of woodland within the park utilising the soil filling and amelioration strategies outlined in *Section 4.2*. (C)
- Develop planting along pathways in the park to increase shade and amenity of the network.

Dense Thickets

- Retain dense thickets of young trees, mid level shrubs and ground covers which provide spatial enclosure in the park and habitat areas.
- Create strategic openings within larger thicket groups to create vistas through the park.
- Develop new areas of shrubland within the park utilising the soil filling and amelioration strategies outlined in *Section 2.8*.

Scattered Thickets

- Retain groups of Casuarinas in the eastern areas of the park which are generally tolerant of poor soil conditions.
- Develop planting of Casuarina and Melaleuca species clusters within the park in areas which have limited ability for soil filling and amelioration.

Specimen Trees and Ornamental Planting

- Specimen trees, mostly non-indigenous Figs and Brush Box, occur in the western half of the park as individuals or partial rows. These are important visual landmarks, provide valuable shade to open lawn areas and add structure to the park.
- Develop groups or scatterings of larger ornamental trees in the park to provide shade to seating and sports viewing areas. (B)

Native Grasslands

- Retain existing native grasslands which are occurring on natural soil as they contribute to the ecological diversity in the park.
- Expand the native grasslands within the park on natural soils. (D)
- Develop a mosaic of 'no mow' grasslands within the park to allow the native grasslands to establish over time.



Established trees along northern edge - GGRP



Native grassland - GGRP



Precedent: No - mow grassland - Prince Alfred Park



Mangroves - GKRP



Saltmarsh - GKRP



Acacia myrtifolia - GKRP

2.8 Ecology

Mangrove

Mangrove vegetation occurs in stretches along the shores of the Parramatta River and extends along the park margins of GKRP. Mangroves are protected under the Fisheries Management Act 1994, and support many species of fish and aquatic invertebrates. They also provide valuable feeding resources for a range of aquatic birds, including the White-faced Heron and White-bellied Sea Eagle. Controlled access to the mangroves will be enhanced through the new Ermington Bay Nature Trail being constructed on the eastern edge of the park.

Saltmarsh

Saltmarsh communities which support the threatened species *Wilsonia backhousei*, occur sporadically as small remnants, located behind the mangroves lining the riverbanks. Both the Saltmarsh community and *Wilsonia backhousei* are identified and protected under the NSW Threatened Species Conservation (TSC) Act 1995. Saltmarsh is an important habitat for the endangered White-fronted Chat, which frequent other local saltmarsh areas and have been sighted in the park. Saltmarsh along the Parramatta River and in the park itself has been significantly reduced through modified shorelines. The park's remaining saltmarsh areas are threatened by incursion from Mangroves, woody weeds, and by future sea level rise.

Rehabilitation

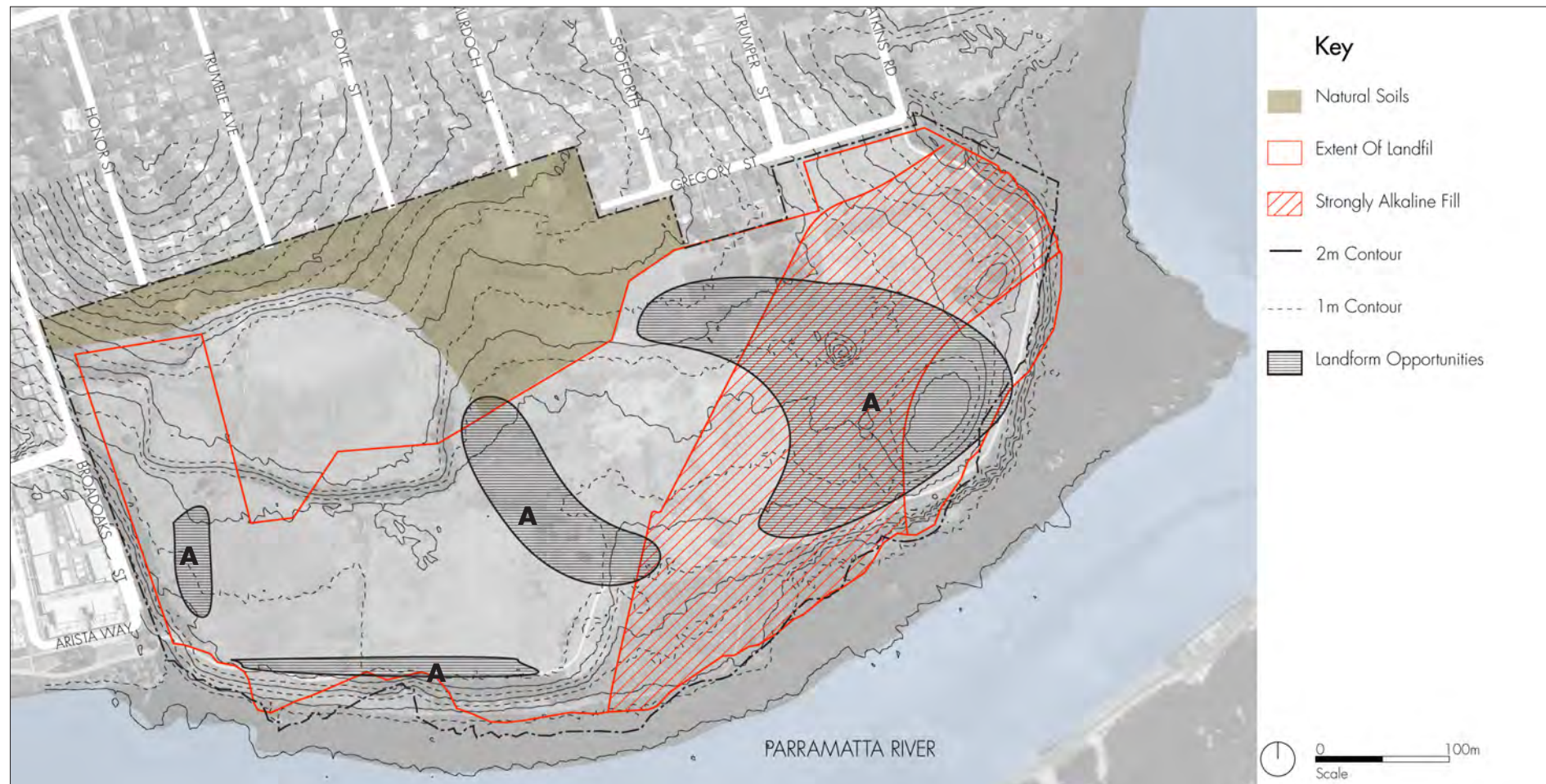
There are three areas of regenerating native vegetation located towards the centre of the Park: two areas of native *Themeda australis* grassland and one patch of *Acacia myrtifolia*. These 'natural' areas provide habitat for urban-tolerant native fauna, including small mammals, reptiles, invertebrates and small birds. The park's only remnant tree is located in the eastern-most bush regeneration area. It is assumed that vegetation in these small, naturally regenerating areas has originated from material held in the soil seed bank, although the stand of *Acacia myrtifolia* is not normally associated with the underlying geology, and may be the result of imported fill. Specialist bush regeneration contractors maintain these areas for Parramatta City Council, in coordination with the George Kendall Bushcare Group.

Revegetation

Isolated planted areas of predominantly native species are located within the park edges and comprise of a combination of groundcovers, shrubs and small trees. This type of mixed planting provides habitat for small terrestrial mammals, reptiles, foraging and nesting birds, and arboreal mammals.

Actions

- Establish corridors to connect the ecological areas. (A)
- Revegetation techniques on landfill areas to be undertaken in consideration of soil capability and amelioration requirements.
- Recognise the ecological value in the underutilised open grassland areas of the park and develop a strategy for maintaining grasslands as sport and recreation use increases.
- Expand native regeneration areas on natural soils which have the most potential to for rehabilitation and expansion.
- Consolidate and expand the two native grassland rehabilitation areas, to provide greater resilience and reduce edge effect.



2.9 Landform + Soils

Landform

Historic photographs suggest the original landform was a shallow gradient across the Park, from a high point in the northwest corner down to the river edge, with a natural drainage line through the centre of the park. After 1943 the upper sports field was formed by cut and fill. Landfill operations raised levels across large areas of the park and created steep slopes along most of the west, south and east Park edges. Some of this filled area has since been levelled into the lower playing fields and mini-soccer field.

Natural Soils

Existing 'natural' soil, of the residual Lucas Heights Soil Landscape, covers some of the northern part of the park. The most established planting in the park occurs in existing natural soil. Landform across the existing soil is characterised by shallow gradients from a high point in the northwest corner, with a natural drainage line through the centre. The emergence of native grass in revegetation areas suggests that natural ground is still present in some areas of the park. In general, the areas of natural soils provide best growing conditions as evident by largest trees.

Landfill Areas

The majority of the park contains municipal landfill, covered in a predominantly clay capping layer, generally without topsoil. Much of this landfill is either strongly acidic or strongly alkaline. There is also evidence of landfill gas leaks and land subsidence. All of these factors combine to make planting difficult in landfill affected areas. Landform across the landfill affected areas is predominantly a combination of level terraces, used as sports fields, and steep slopes, though much of the eastern section is gently undulating ground.

Site wide soil testing has been used to determine a site strategy for the ongoing development of planting in the park in conjunction with strategic soil amelioration and filling. Refer *Section 4.1*.

Actions

- Retain all existing natural soil profile where possible.
- Undertake site specific soil testing to areas as they are being prepared for planting.
- Develop new filling areas to create deeper soil profiles for larger planting areas where required. Utilise the filling to generate areas of enclosure, prospect and informal spectator seating. (A)



Steep slopes along river edge of landfill - GKR



Flat sports fields over landfill - GKR



Dead tree: possibly landfill gas leak - GKR



2.10 Hydrology + Micro Climate

Hydrology

The effective park stormwater catchment extends up towards Boronia Street, with stormwater draining down the streets and into the park. Peak stormwater flow from Trumble Ave is causing erosion on steep banks within the park.

Within the park, the stormwater drains centrally with the overland flow path originating at Boyle St and runs south-east, discharging into the Parramatta River. A stormwater pipe system runs along this alignment.

The western edge of the park drains to Broad Oaks Street, and the eastern edge of the park drains across into the River.

Landfill capping reduces permeability of the existing soils. Ponding and poor drainage is evident within central and flatter areas of the park.

Micro-Climate

The majority of the park is exposed to both cool east/south-east and hot north-west winds.

Woodland tree planting in the north edge of the park and at the north eastern corner creates areas of shaded and sheltered micro-climate. Mangroves along the river edge, dense thickets in the central and western areas of the park provide some additional shelter. The majority of the central and eastern areas are open and exposed.

Actions

Hydrology

- Improve drainage in lower areas of the park to enhance usability of grassed areas and fields.
- Improve water quality entering the Parramatta River.
- Utilise the existing overland flow path to detain water and establish water filtration wetlands and raingardens.
- Develop a wetland system to enhance biodiversity in the park. (A)
- Investigate the potential reuse of captured and filtered water for park amenities and irrigation.
- Address erosion occurring in northern areas of the park by dispersing or capturing stormwater overflow at the car park.

Micro-Climate

- Increase large scale tree planting in the park to establish shaded areas.
- Utilise landform and planting to create areas sheltered to winds throughout the park.



Ponding over landfill - GKR



Precedent: Constructed wetland - Sydney Olympic Park

3.1 Master Plan Overview

The design for the park develops the unique site character and transforms this with a new overlay of ecological function and diversity of spaces for recreation and sporting use. The master plan presents a variety of spatial experiences that contain formal and active uses as well as flexible and informal uses. The diversity of spaces and experiences give the park an inherent interest which will ensure it becomes a destination in its own right.

The design for George Kendall Riverside Park has developed from:

- An understanding and evaluation of existing site conditions and outlining key directions arising from these.
- The incorporation of community desires for the park.
- An understanding of the park in context regarding ecology frameworks, recreation and sports uses and understanding how the park contributes to the river corridor network of open space.
- Establishing a design that is realistic, achievable and can be implemented progressively over time.
- Understanding that the demands on the park are likely to change over time, so the master plan must provide a strong framework, but can be flexible.
- The desire to make a distinctive and memorable landscape.



Montage of pathway within 'no mow' grasslands on mounded landform looking to south-west.



Montage of central precinct looking to south-west over the new sports oval and new pathway.





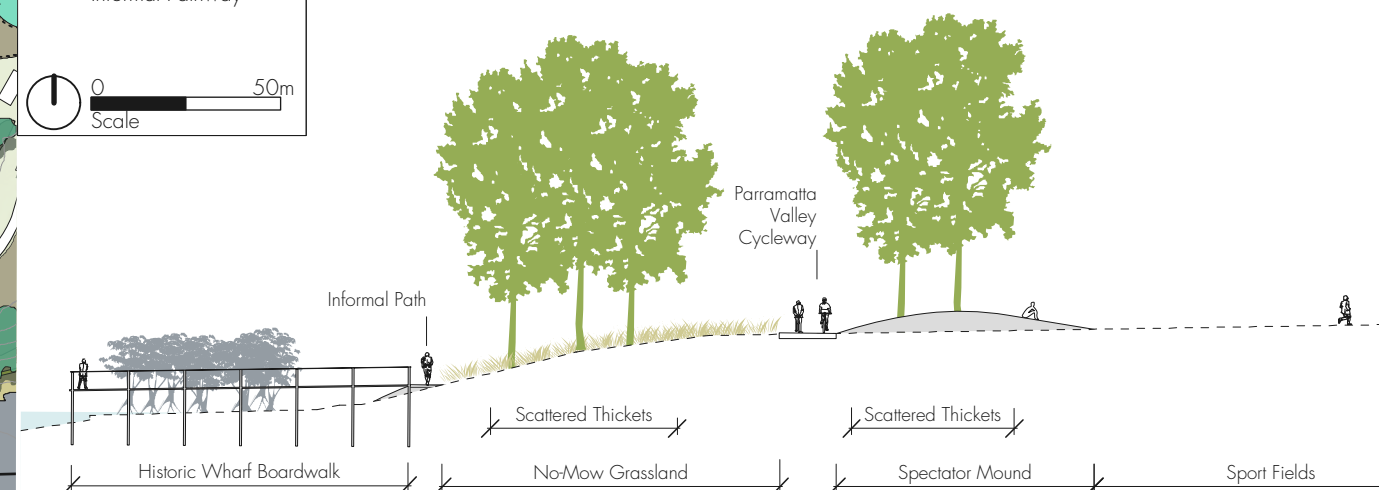
3.2 Western Precinct

The western precinct of the park is the focus for active and organised recreation. The Masterplan's main aims in this precinct are to:

- Increase pedestrian access to Broadoaks street.
- Create links to the Parramatta River, historic elements, and important ecologies.
- Connect, reconfigure and enhance sporting use.
- Connect and expand recreational use.
- Connect ecological areas and increase habitat diversity.

Features of the plan include:

1. East-west path connecting Broadoaks Street to the central park and north-south path.
2. Informal paths connecting to Broadoaks Street.
3. Boardwalk access to historic wharf remnants, saltmarsh and river views.
4. Informal path along river edge.
5. No-mow grassland connecting and expanding habitat areas
6. Tree canopy expanded to shade path and link habitat areas.
7. Shade trees and informal seating mounds around sports fields.
8. Shade tree planting in informal parking area.
9. Proposed amenities building.
10. Baseball fields consolidated and two new soccer fields added.
11. Open picnic settings and ornamental copse planting.
12. Additional paths strengthening park circuit.
13. Drainage works to address stormwater flow.



Section AA



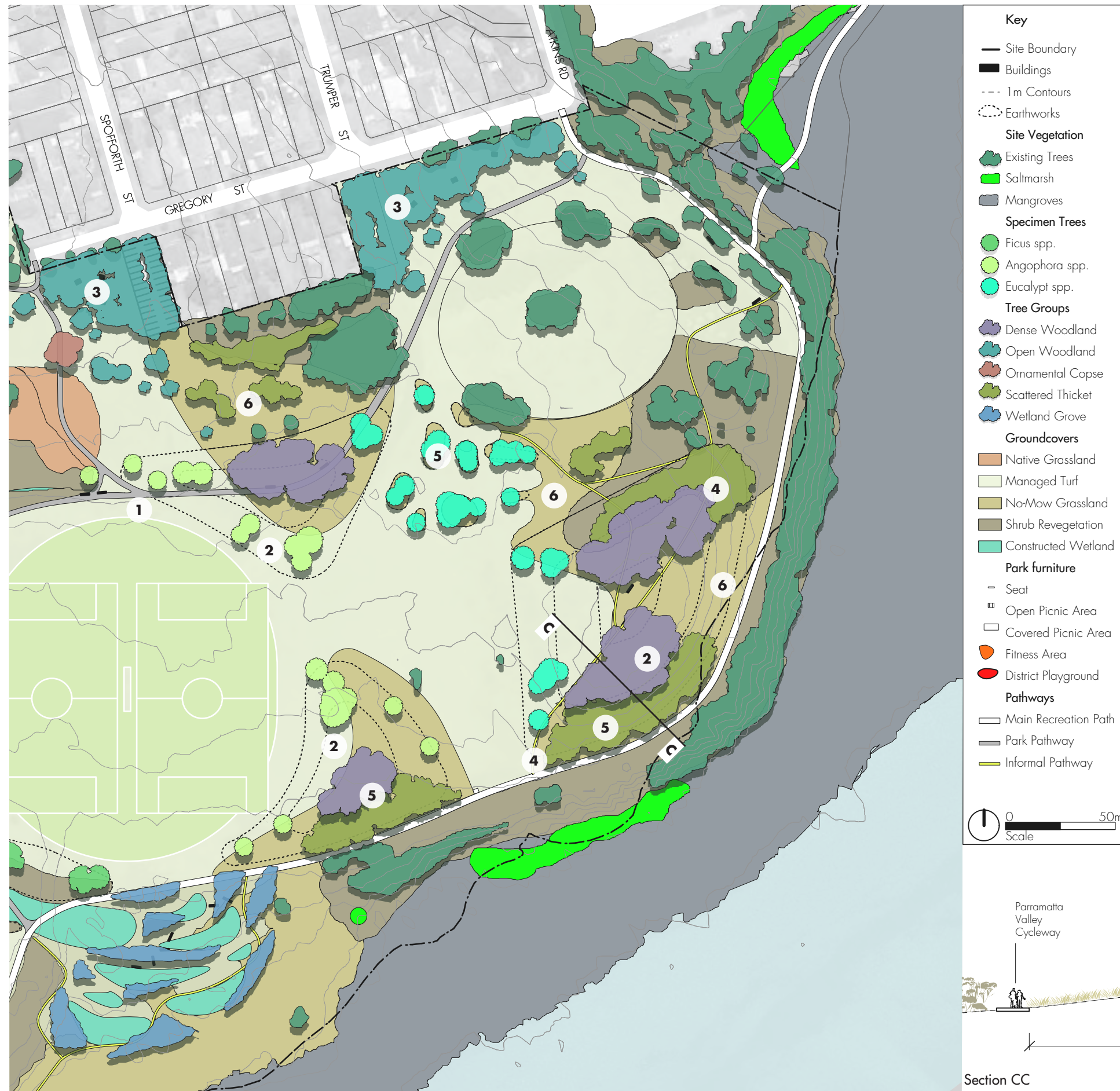
3.3 Central Precinct

The central precinct will become a hub for both recreation and ecology in the park. The design for this area aims to

- Connect major north-south and east-west recreational movements.
- Create recreational links to important ecologies.
- Combine and expand play facilities.
- Expand and enhance sporting use.
- Harvest, filter and treat stormwater.
- Connect ecological areas and increase habitat diversity.
- Diversify and enhance the experience of sport and recreation users.

Features of the plan include:

1. Central north-south pathway connecting the park's northern edge with the east-west link and the Parramatta Valley Cycleway.
2. Chain of constructed wetlands capturing stormwater.
3. Native grassland expanded and connected, with informal pathways provided for access.
4. District playground with shade tree planting.
5. Tennis courts adapted to a multi-use sports court and one tennis court.
6. Additional picnic areas addressing sport and play areas.
7. Additional cricket/soccer field framed with spectator mounds.
8. Ornamental planting.
9. Expanded and formalised parking at Gregory st.
10. Proposed amenities building centrally located to park and sports uses.
11. Wetland grove shading informal seating and wetland interpretation.
12. Drainage works to address stormwater flow.
13. Fitness station area.



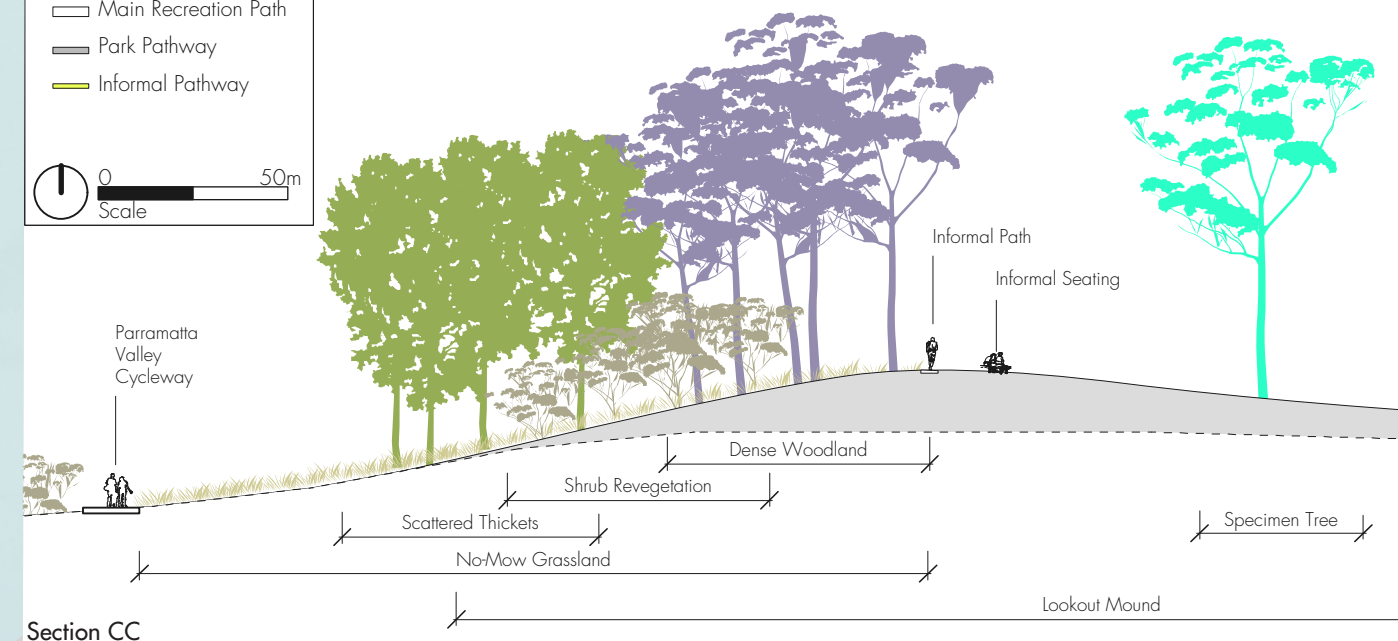
3.4 Eastern Precinct

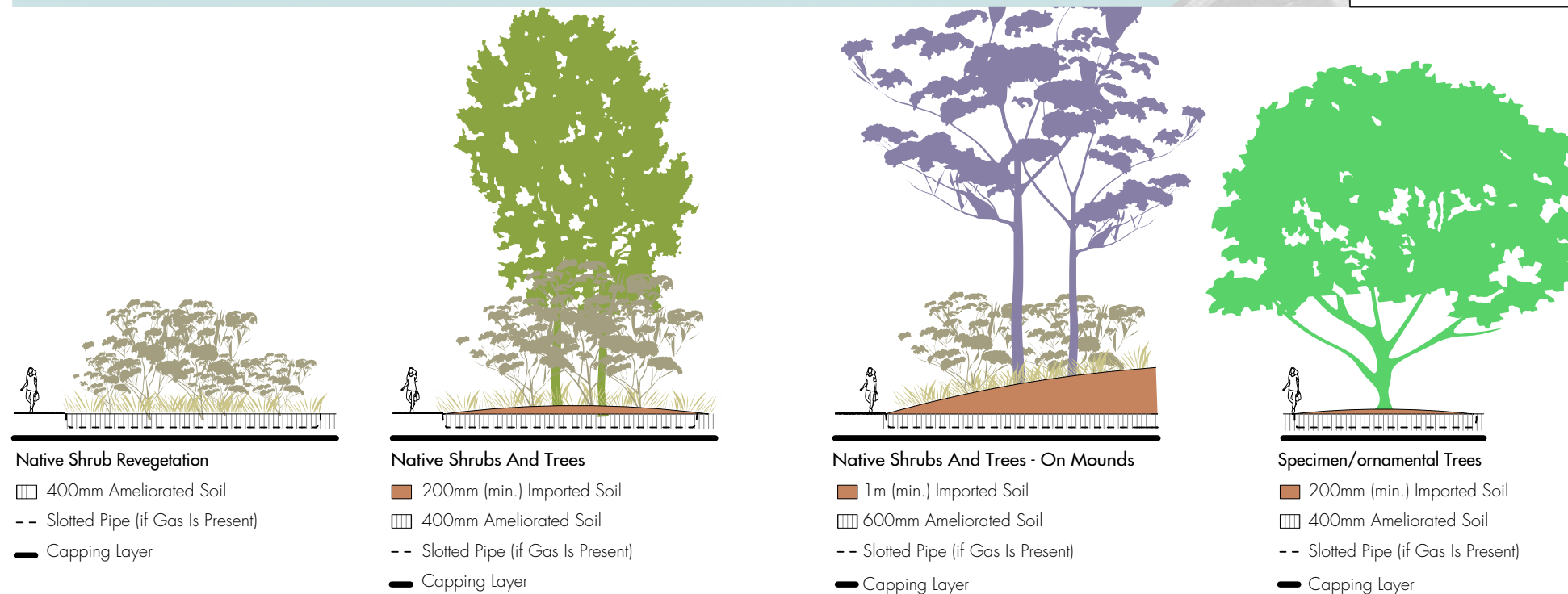
The eastern precinct of the park is focused on informal recreation, large-scale landform and planting. The design for this area aims to

- Link Ermington Bay Nature Trail with northern park facilities.
- Create enclosure to and enhance informal open space.
- Use landform and planting to create a unique park experience.
- Connect ecological areas and increase habitat diversity.
- Define park edge along Gregory St.

Features of the plan include:

1. East-west path connecting to north eastern park area.
2. Large scale mounds frame informal open space, provide views, and allow substantial tree planting over landfill.
3. Open woodland planting along Gregory St defines park edge while maintaining views into the park and providing shade to new open picnic areas.
4. Informal pathways offer alternative journey through vegetation to the lookout.
5. Undulating landscape of small-scale landforms encourage informal recreation and picnic activity.
6. Large areas of assorted vegetation areas expand and connect habitats.





4.1 Soil Strategy

The park's soils have been investigated and a strategic approach developed to guide future planting and earthworks. To date, poor soil conditions have been a severe constraint to successful planting in the park. The following strategy has been developed with Sydney Environmental and Soil Laboratory, who undertook general soil testing. (Refer *Soil Report Appendix*). Additional localised testing should be undertaken to ensure successful planting.

Soil Conditions in Landfill Areas

Former landfill areas have had poor planting performance due to waterlogging, poor drainage, inadequate soil profiles and a lack of topsoil. Planting can be improved in these areas by importing soil and/or ameliorating the existing soil.

Importing Soil

Importing soil involves 'ripping' site soil to a depth of 300mm (to ensure groundwater integration), laying a minimum 200mm thickness of imported soil, supplementing imported soil with site-specific ameliorants (eg. compost, lime, gypsum and sulphur), applying fertiliser, and mulching.

Ameliorating Soil

Ameliorating site soils involves 'ripping' site soil to a depth of 300mm, applying site-specific ameliorants (eg. compost, lime, gypsum and sulphur), applying fertiliser, and mulching.

Alkaline Soils

A significant area in the eastern area of the park has strongly alkaline soils. It is not feasible to reduce alkalinity levels in the soil due to the excessive costs this would involve. Strategies for planting in high alkaline soils include:

- selecting plants that are tolerant of alkaline soils
- creating deeper mounds with imported soil to allow flexibility in planting selection (see Earthworks heading below)

Landfill Gas

Areas of the site with less capping depth have evidence of gas leaking through the soil profile. This has resulted in poor plant performance and plant deaths. Where gas is suspected, new planting areas should have a slotted pipe buried into the soil, with ends brought to the surface to allow gas to escape.

Earthworks

Earth mounds, between one and three metres high, are proposed as part of the soil strategy. These mounds will be constructed using imported soil from development sites in the Parramatta LGA. These mounds have been designed to enhance sporting and recreational use of the park and ensure the success of substantial tree planting on the adverse soils described above. Due to the large volume of fill required, the higher mounds may require a phased construction, with temporary grassing applied between each phase of filling.



4.2 Planting Strategy

The planting strategy responds to the soil conditions, potential for soil amelioration, improvement of park amenity including shade and character, as well as enhancement of ecological values and diversity.

Planting and Vegetation Rehabilitation on Natural Soils

Northern areas of the park generally have natural soil conditions which are better and more amenable for establishing planting due to the inherent quality of soil structure. Existing vegetation patterns in these areas, including rehabilitating native grasslands and stands of mature trees, will be expanded and diversified to increase ecological diversity and park amenity. Planting types include:

- Specimen trees
- Open woodlands
- Ornamental groves
- Native grasslands

Planting and Revegetation in Landfill Areas

Most of the park is former landfill, with highly modified and poor quality soils. Planting in landfill areas will require specific soil amelioration and/or imported soil. Although it is not feasible to recreate or rehabilitate natural vegetation communities, it is still desirable and achievable to create areas of vegetation that offer habitat value and contribute to native vegetation patterns. Planting types include:

- Specimen trees
- Dense woodland
- Open woodland
- Wetland groves
- 'No mow' grasslands
- Shrub revegetation
- Constructed wetlands

Planting in Alkaline Soils

Indigenous Sydney vegetation is generally intolerant of alkaline conditions and will be difficult to establish in highly alkaline areas of the park. To provide cohesion in the planting strategy, alkaline tolerant planting species have been added to most of the planting types proposed.

Phasing of the Planting Strategy

It is recommended that the planting strategy be undertaken in phases, due to the resources it will require, in particular for soil improvement.

The first phase of planting should focus on the establishment of the 'No Mow' grasslands in areas that are not planned for future filling or modifications.

The first phase also establishes planting and rehabilitation in areas of natural soil in the northern areas of the park. Isolated specimen trees can be planted in pockets of ameliorated and filled soil within the landscape.

The future phases of planting will then develop the planting diversity and structure within the grasslands by ameliorating areas of soil to allow larger planting types. Areas of mounding to create deeper soil profiles will allow growth of larger planting types.

Refer Section 5.0 Implementation.

4.3 Planting Types

Planting types for the park have been developed in response to the need for developing areas of planting types that require specific soil depths or amelioration techniques or tolerate certain soil conditions.

Within the following lists, the term 'native' refers to plant species originating in Australia. Plants indigenous to the area around the park have been noted with the abbreviation (I). Plants tolerant of mildly alkaline soils have been noted with the abbreviation (A).

Native Grasslands

Continue rehabilitated grassland planting from areas of soil seed stock. Enhance biodiversity with various native grass species.

Species to include:

<i>Austrodanthonia</i> spp. (A) (I)	Wallaby Grasses
<i>Austrostipa bigeniculata</i> (A)	Kneed Spear Grass
<i>Bothriochloa macra</i> (A)	Redleg Grass
<i>Dichelachne crinita</i>	Plume Grass
<i>Elymus scaber</i>	Wheat Grass
<i>Microlaena stipoides</i> (I)	Weeping Meadow Grass
<i>Themeda australis</i> (A) (I)	Kangaroo Grass

'No Mow' Grasslands

Develop Belts of native grasses combined with stoloniferous turf to develop low maintenance grass typology. These are to be implemented over a staged process to complement existing rehabilitated grasslands.

The grasslands will require some amelioration of the site soils depending on depths and quality of existing soil. The amelioration through additives and cultivation is expected to be fairly minimal.

Species to include:

Native Grasses	
<i>Austrostipa bigeniculata</i> (A)	Kneed Spear Grass
<i>Austrostipa pubescens</i> (A) (I)	Tall Spear Grass
<i>Bothriochloa macra</i> (A)	Redleg Grass
<i>Carex appressa</i>	Tall Sedge
<i>Echinopogon caespitosus</i> (I)	Tufted Hedgehog Grass
<i>Imperata cylindrica</i> (A) (I)	Blady Grass
<i>Themeda australis</i> (A) (I)	Kangaroo Grass
Turf	
<i>Cynodon dactylon</i> (A)	Couch
<i>Zoysia macrantha</i> 'Nara'	



Austrodanthonia spp.



Bothriochloa macra



Dichelachne crinita



Elymus scaber



Austrostipa bigeniculata



Austrostipa pubescens



Carex appressa



Imperata cylindrica

*Acacia fimbriata**Bursaria spinosa**Hakea sericea*

Shrub Revegetation - Native Species

Shrub species can be planted in collaboration with woodland species or developed on its own. Multi-stemmed shrubs provide structure and density that can underplanted with a low understorey of mixed grasses. The shrub planting grows less than 6m height.

Amelioration of site soil will require additives and cultivation of the soil, with a gas pipe recommended within the subsoil.

Species to include:

<i>Acacia linifolia</i> (A) (I)	White Sally Wattle
<i>Acacia fimbriata</i> (A)	Golden Wattle
<i>Banksia spinulosa</i> (A) (I)	Hairpin Banksia
<i>Bursaria spinosa</i>	Sweet Bursaria
<i>Callistemon linearis</i> (A) (I)	Narrow Leaved Bottlebrush
<i>Callistemon rigidus</i> (A) (I)	Stiff Bottlebrush
<i>Hakea sericea</i> (I)	Silky Hakea

*Angophora floribunda**Corymbia maculata**Eucalyptus punctata*

Dense Woodland - Native Species

Develop woodland character with a mixture of tree species up to 15m height, low shrubs and understorey grasses. Predominantly *Angophora*, *Corymbia* and *Eucalypt* spp. with tall branching species to maintain site-surveillance and complement existing tree species. Low scrub provides denser habitat for fauna, especially small birds.

Amelioration to achieve this canopy height will require a minimum of 200mm of topsoil in addition to the amelioration of site soils as described previously.

Where soils are of very poor quality or lacking depth, or are extremely alkaline, then additional mounding of up to 2m depth would be required.

Species to include:

<i>Angophora floribunda</i> (A) (I)	Rough - Barked Apple
<i>Corymbia eximia</i> (A) (I)	Yellow Bloodwood
<i>Corymbia maculata</i> (A) (I)	Spotted Gum
<i>Eucalyptus piperita</i> (A) (I)	Sydney Peppermint
<i>Eucalyptus punctata</i> (I)	Grey Gum

*Alectryon excelsus**Eucalyptus racemosa**Harpullia pendula*

Open Woodland - Native Species

Develop areas with high branching canopy trees arranged irregularly for shade to recreation areas and informal parking opportunities. These can be clumps of evergreen rainforest species mixed with Eucalyptus species to provide seasonal interest and colour.

Species to include:

<i>Alectryon excelsus</i>	Titoki
<i>Eucalyptus racemosa</i> (I)	Scribbly Gum
<i>Corymbia maculata</i> (A) (I)	Spotted Gum
<i>Harpullia pendula</i>	Tulipwood

*Allocasuarina littoralis**Casuarina cunninghamiana**Casuarina glauca*

Scattered Thickets - Native Species

Scattered thickets of casuarinas species have been successful in areas of the park with limited soil depths, waterlogging and poor quality topsoil. Expand scattered thickets, in areas where additional filling is not feasible, to provide shade to pathways and provide canopy habitat.

Species to include:

<i>Allocasuarina littoralis</i> (I)	Black She Oak
<i>Casuarina glauca</i> (A)	Swamp She Oak
<i>Casuarina cunninghamiana</i> (A)	River She Oak

*Corymbia citriodora**Ficus microcarpa var hillii**Ficus obliqua*

Specimen Trees - Native Species

Large trees should be selected that are tough, long lived, tolerant of varied soil conditions and will offer significant scale and shade to the park.

Amelioration to achieve this canopy height will require a minimum of 200mm of topsoil in addition to the amelioration of site soils and regular fertilizing as described previously.

Continue single existing stands of indigenous *Angophora* tolerant of poor soil conditions and providing necessary shade.

Angophora floribunda (A) Rough - barked Apple

Develop scattered stands of *Corymbia* tolerant of localised alkaline soils. Tolerates exposed positions and poor shallow soils. Species providing all year round shade and elegant branch structure.

Corymbia citriodora (A) Lemon - scented Gum

Eucalyptus saligna (I) Sydney Blue Gum

Continue specimen planting of *Ficus* to provide shaded areas tolerating poor soils. Vary heights of *Ficus* species to develop variety of heights. Large *F.benjaminna* to provide dense shade canopies, clustered groves of smaller *F.obliqua* to provide localised shade.

Ficus microcarpa var hillii Hill's Fig

Ficus obliqua Small Leaved Fig

Ornamental Grove - Exotic Species

Develop formal group copse plantings of deciduous exotic trees. Species of heritage and local significance include *Araucaria* and *Pyrus*. Opportunities for large plantings and groves providing dense summer shade and winter sun.

Fraxinus 'Raywood' (A) Claret Ash

Fraxinus excelsior 'Aurea' (A) Golden Ash

Liquidambar styraciflua (A) Liquidambar

Pyrus calleryana Callery Pear

*Fraxinus* 'Raywood'*Liquidambar styraciflua**Pyrus calleryana*

*Baumea juncea**Juncus kraussii**Juncus usitatus*

Constructed Wetlands - Native Species

Species to benefit from local stormwater inundation to improve water quality. Species tolerant of freshwater inundation as well as periods of drought. Shrubs and grasses are low to the ground to maintain surveillance across site.

<i>Baumea juncea</i>	Bare twigrush
<i>Cyperus exaltatus</i>	Giant Sedge
<i>Halosarcia pergranulata</i>	Blackseed Samphire
<i>Juncus kraussii</i>	Sea Rush
<i>Juncus usitatus</i>	Soft Tussock Rush
<i>Samolus repens</i>	Creeping Brookweed
<i>Sarcocornia quinqueflora</i>	Beaded Glasswort

*Banksia robur**Melaleuca ericifolia**Melaleuca quinquenervia**Tristaniopsis laurina*

Wetlands Grove - Native Species

Multi-stemmed shrubs and trees to be planted in association with wetlands tolerating stormwater runoff and periods of drought. Trees and shrubs providing structure and shade to picnic areas.

Species include:

<i>Banksia robur</i>	Swamp Banksia
<i>Melaleuca ericifolia</i>	Swamp Paperbark
<i>Melaleuca quinquenervia</i>	Broad - Leaved Paperbark
<i>Tristaniopsis laurina</i>	Water Gum



No - mow grassland - Prince Alfred Park



No - mow grassland - Centennial Park

4.4 'No Mow' Grasslands

The purpose of the 'no mow' grasslands is to provide longer grasslands as habitat for foraging birds and other animals, increase plant diversity within the park and reducing intensive maintenance requirements of turf. It is common in larger parks such as Centennial Park in Sydney to develop a 'mosaic' approach to mowing and maintaining grass, where high use areas are mown regularly and other less intensively used areas are mown less frequently.

The proposed 'no mow' grasslands in George Kendall Riverside Park combine existing turf areas with native grass planting of local provenance. By retaining existing turf, weed invasion can be significantly reduced by minimising exposed soil. It is also possible to use native grass hybrids such as Zoysia 'Nara' as the new turf for lesser used embankments and interplant into this.

Methodology

'No mow' grasslands can be implemented over a staged process, initially trialled and tested before carrying out on a large scale. Indigenous grass species are to be used for the 'no mow' grasslands to complement the existing rehabilitated grasslands, as well as tolerating the existing soil and environmental conditions which are evident on site. A brief methodology is listed below:

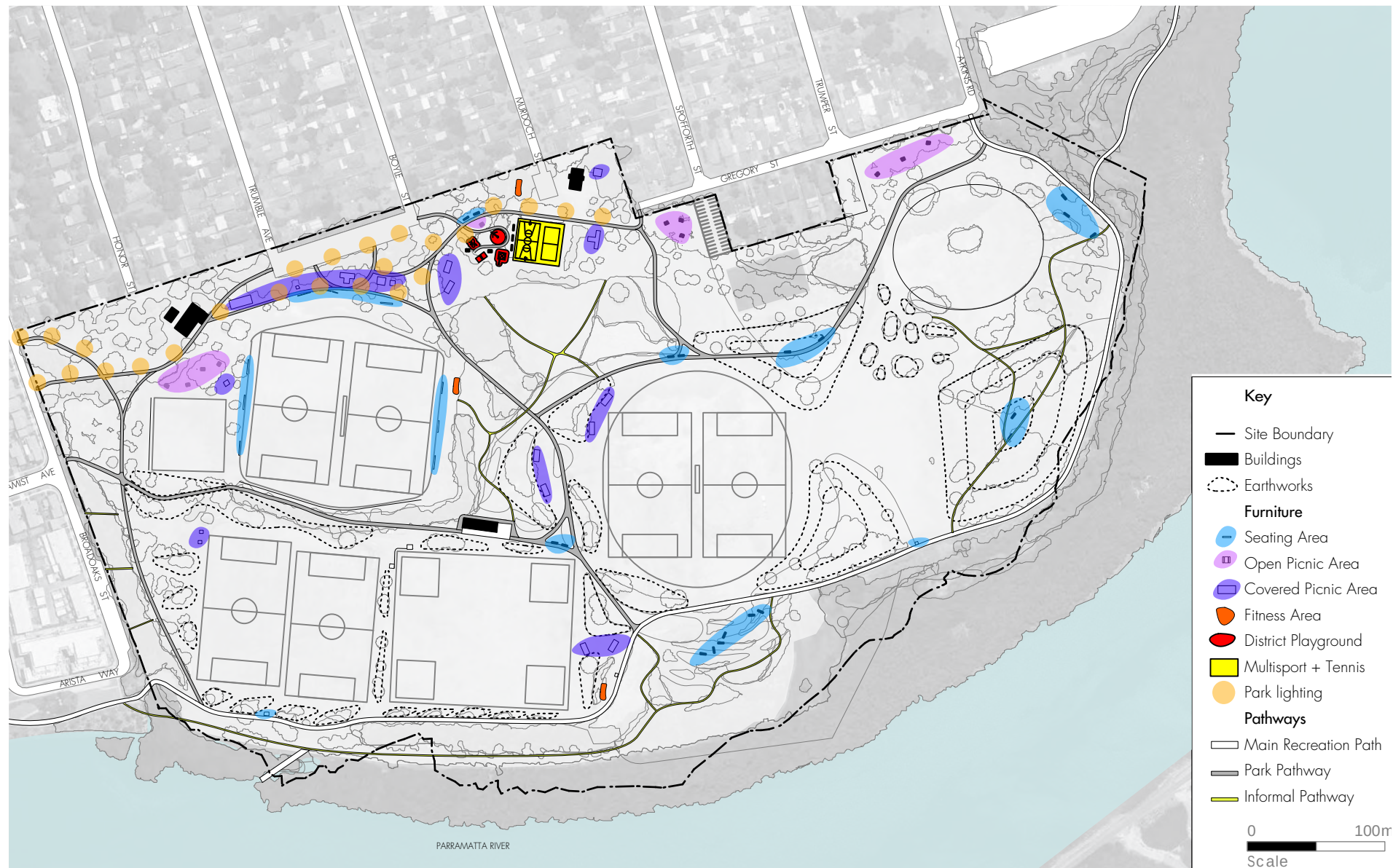
- Retain selected areas of existing couch species or develop new areas of grass mixes.
- 1-3 year stage – plant establishment period. Plant native grasses within the determined area. Allow tubestock of native grass specie e.g. *Themeda australis* to colonise, grow, flower, and seed in the topsoil. Weed management requires implementation.
- 3-5 year stage – species diversity. Progressively introduce other native grass species to increase species diversity of all local provenance, of up to 10 different species

During these stages, mowing or slashing is to be conducted biannually, as well as careful monitoring of weed management, particularly during the plant establishment period. Refer to *Appendix 6, No-Mow Grasslands Background Information*.

Outcomes

The 'no mow' grasslands provide the opportunity to improve the ecology and habitat in George Kendall Riverside Park. Future measures of this scheme could be combined with planting understorey, mid-stratum and canopy plant species as noted in the masterplan to further increase the biodiversity of flora and fauna.

After successful establishment of the 'no mow' grasslands, it has the capability to provide an adequate groundcover where ongoing planting and maintenance decreases and may almost be eliminated through emergence as a self-sustaining plant community.



4.5 Built Infrastructure

Park infrastructure is to be developed to support access and movement, informal recreation opportunities and sporting uses throughout the park. The plans and diagram in this report outlines an approach to distribution and location of items. For the purposes of this document built infrastructure includes:

- Pathways
- Seating
- Picnic Areas
- Signage
- Public Art
- Buildings
- Lighting
- Playgrounds

Existing Use and Built Infrastructure

North-west areas support high levels of sport/play/picnic use and contain a range of built infrastructure including; picnic areas, seating, and a park pathway network connecting sport fields, playgrounds, parking and park entrances.

South-east areas support cycling/walking/jogging and other informal recreation uses. Built infrastructure in this area includes; a major shared path and a scattering of small sheltered seating areas.

Connecting, Coordinating and Expanding Built Infrastructure

Built infrastructure will be expanded through the eastern areas of the park as it develops. Park furniture and elements should be consolidated and standardised to establish a cohesive range of built elements.



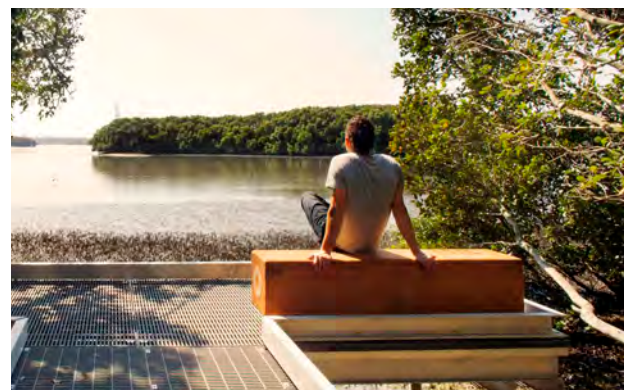
Parramatta Valley Cycleway - GKR



Park pathway - GKR

Precedent: Dorset Rec. Res., Melbourne
Stabilised gravel pathPrecedent:
Informal step connectionsPrecedent: Sydney Olympic Park
River lookout

Covered seating - GKR

Precedent: PCC standard park seat
Gossi Park Courtyard SeatPrecedent: Ermington Bay Nature Trail
informal timber seatPrecedent:
terrace seats

Pathways

Parramatta Valley Cycleway

The Parramatta Valley Cycleway (PVC) is a shared use 3.0m wide concrete pathway that allows a high volume and wide variety of use along the river edge of the park.

Park Pathways

A network of wide asphalt pathways cater for a wide variety of recreational users to destinations in the park.

- Create new pathways to better connect existing and planned facilities
- Upgrade to 2.5m wide to provide circuits for higher volumes of walkers/joggers/cyclists

Informal Pathways

Informal paths contribute to the overall path network and provide users with an alternate journey.

- Create 1-1.2m wide stabilised gravel paths for walkers/joggers through revegetation areas and along the river edge.

Boardwalks

Boardwalks provide access through sensitive environments such as water edges and bushland areas.

- Provide boardwalk at historic wharf /saltmarsh area

Seating

Park Seating

Park seats provide a traditional park seating experience to users of diverse physical abilities.

- Increase park seating along planned circuit paths with PCC standard park seats. Refer to PPC furniture manual for type.

Informal Seating

Informal seating provides site-responsive, short-stay, seating to individuals or small groups of diverse ages.

- Create an informal seating type for the park using robust and site-responsive materials.
- Locate on informal pathways under shade
- Integrate interpretation signage or small artworks with informal seating where possible

Sports Seating

Aluminium sports benches provide spectator seating around sports facilities in the park.

- Replace sports benches with standard park benches or seating terraces.

Covered Seating

Seats with small shelters and bike racks are located along the PVC, providing users with valuable shade.

- Augment shade with tree planting around existing covered seating



Existing curved shelter with single picnic setting - GKR



Open picnic area - GKR



Precedent

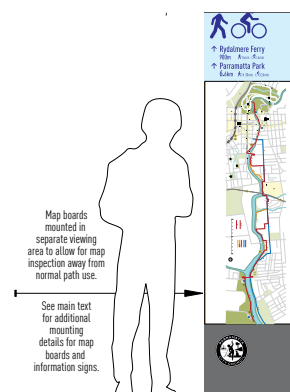
Larger picnic shelter with multiple picnic settings



Entry signage - GKR



Interpretive signage - GKR

Precedent:
PCC Route Map ColumnPrecedent: Castle Hill Heritage Park
Interpretive signage with informal seating

Picnic Settings

Covered Picnic Areas

Existing covered picnic areas in the north of the park provide sheltered gathering spaces for large and small groups, with views of sports fields and the wider area. Facilities include; several types of large and small shelters, picnic settings and bbqs.

- Create new covered picnic areas, with large shelters and multiple picnic settings, near the proposed sports field / district playground.
- Incorporate bike racks, orientation signage and bubblers into new and existing areas.
- Standardise shelters to curved roof type over time. Refer to PPC furniture manual for type.

Open Picnic Areas

The park's open picnic areas provides a gathering area for small and large groups in a park setting of open grass and mature shade trees.

- Create new open picnic areas near existing or proposed trees to ensure adequate shade.

Signage

Wayfinding Signage

Wayfinding signage informs users of facilities in the park and destinations in the surrounding area.

- Locate PCC Route Map Columns at the park's east and west entrances; where the Parramatta Valley Cycleway enters the Park
- Route Map Columns to identify facilities in the park (amenities, sports ground, regulations) and locations and distances to surrounding destinations (Parramatta Valley Cycleway, other parks along the river, train stations, ferry stops, bus stops) - refer PCC Draft River Signage Manual

Interpretation Signage

Interpretation signage informs users of park's cultural and ecological values.

- Retain ecological interpretation and develop new themes as; history and natural processes of the Parramatta River, the history of the park, regional and local Aboriginal history - refer Interpreting Parramatta (Draft Interpretation Framework).
- Replace all existing interpretation signage with a type that is robust and clear, and could be combined with small scale artworks or informal seating.

Entry Signage

Entry signage announces the park to users.

- provide entry signage at all major park entrances



Existing small artwork by Henryk Topolnicki - GKR



Existing large artwork by - Melanie El Mir, GKR



Precedent: Yarra River, City of Melbourne
Large artworks in highly visible location



Precedent: Christo and Jeanne-Claude, NY
Temporary artwork



Clubrooms - GKR



Amenities Building and Sports Storage - GKR



Precedent - Cockatoo Island
Amenities building with shade structure

Public Art

Large Artworks

Large artworks contribute to the identity and cultural capital of the park, the river corridor and Parramatta LGA.

- Refurbish the area around the existing large artwork by Melanie El Mir at the north-west entrance.
- Locate in highly visible places and scale to engage high-speed passersby in the park, river users and occupants of the opposite river bank.
- Use robust materials that respond to the characteristics of the park.

Small Artworks

Small artworks offer intimate cultural engagement with park users.

- Locate near pathways and consider combining with informal seating
- Consider locating near sites of cultural or ecological significance and combining with interpretation signage.
- Use robust materials that respond to the characteristics of the park.

Temporary Artworks

Temporary artworks add dynamic unpredictable qualities to parks.

- Construct of impermanent materials with minor impact on park planting and other built infrastructure.

Buildings

Club Rooms

The clubrooms building is used once a month by the George Kendall Bush Care Group.

- Consider redevelopment as restroom facility for proposed district playground, but retain meeting space for community groups.

Existing Amenities and Storage

The existing amenities building, with adjacent storage building, is located north-west of the upper sports field. The amenities building is opened for sporting use on Saturdays and includes the following facilities; toilets, changing rooms and a kiosk.

- Retain current use.

Proposed Amenities Building

A large amenities building is to provide facilities for existing and proposed sport use.

- Respond to prominent location in park with simple and elegant structure using robust materials.
- Incorporate shade for park users.
- Incorporate storage area for sports groups.

Storage Sheds

Several small storage buildings are located near the lower baseball fields.

- Relocate storage to new amenities building and remove sheds.



Fitness Area - GKR



Eastern Playground - GKR



Western Playground - GKR

Precedent: Doyle Ground
Static fitness station

Sports Lighting At Tennis Courts - GKR



Security Lighting At Amenities Building - GKR

Play and Fitness Areas

Existing Playgrounds

Two small playgrounds are located in the northern section of the park.

- Decommission existing playgrounds, salvage equipment.

District Playground

A large district playground will be built adjacent to the proposed multi-use sports courts at the existing tennis courts.

- Increase shade tree planting in and around playground, see planting strategy for types.
- Include park benches and open picnic settings in the playground and covered picnic areas nearby.
- Maintain open play area to ensure ease of access to multi-sport courts and picnic areas.

Fitness Areas

- Replace the park's existing fitness areas with a low maintenance type when it expires.
- Provide two additional low maintenance fitness areas.

Park Lighting

Sports Lighting

Sports lighting is used for nighttime sporting use of the park. Existing sports lighting consists of two sets of flood lights, one servicing the upper cricket/soccer fields and one servicing the disused tennis courts. The latter are not currently used.

- Retain lighting at existing sports fields but do not expand to other existing or proposed fields.
- Investigate condition of lighting at former tennis courts and consider refurbishment as part of multi-sport reuse of these courts.

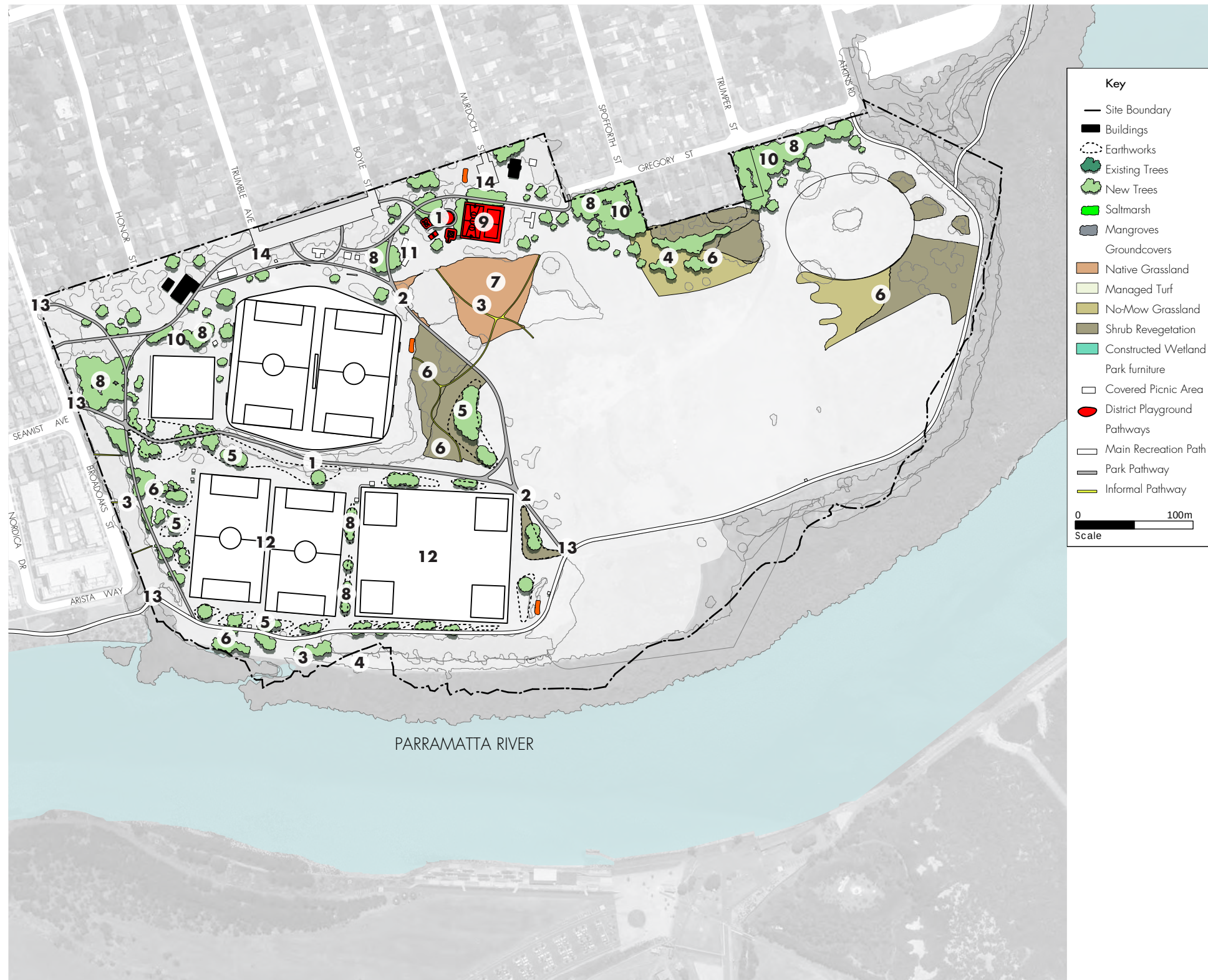
Security Lighting

Security lighting, designed to discourage anti-social behaviour, is fixed to existing park buildings; spotlights at the clubrooms and neon strips on the existing amenities buildings.

- consolidate security lighting.
- consider including security lighting on proposed amenities building.

Park Lighting

- Provide lighting to pathways connecting lit activities and associated parking using standard PCC park lights. Refer to PPC furniture manual for type.
- Potential to only use park lighting when sports lighting is in use.



5.1 Phase One (0 - 5 years)

The first phase of works is focused on the renewal and improvement of sports and recreation areas in the northern and western areas of the park. The first phase will also include the expansion and diversification of planting, including the establishment of no-mow grasslands, in areas of the park where no earthworks are planned.

1.	District playground	\$300,000
2.	North-south and east-west connecting paths	\$210,000
3.	Informal path connections	\$60,000
4.	Demolition of existing hardcourts and paths	\$25,300
5.	Earthworks for spectator mounds*	\$257,400
6.	Native tree, shrub and 'no-mow' grassland	\$60,000
7.	Native grassland expansion	\$44,500
8.	Advanced tree planting	\$150,000
9.	Tennis courts adapted to one multi-use sports court and one tennis court.	\$73,000
10.	New picnic areas	\$60,000
11.	Seating	\$12,500
12.	Reconfigured and recondition sports fields	\$1,000,000
13.	Signage	\$20,000
14.	Drainage improvement works	\$150,000

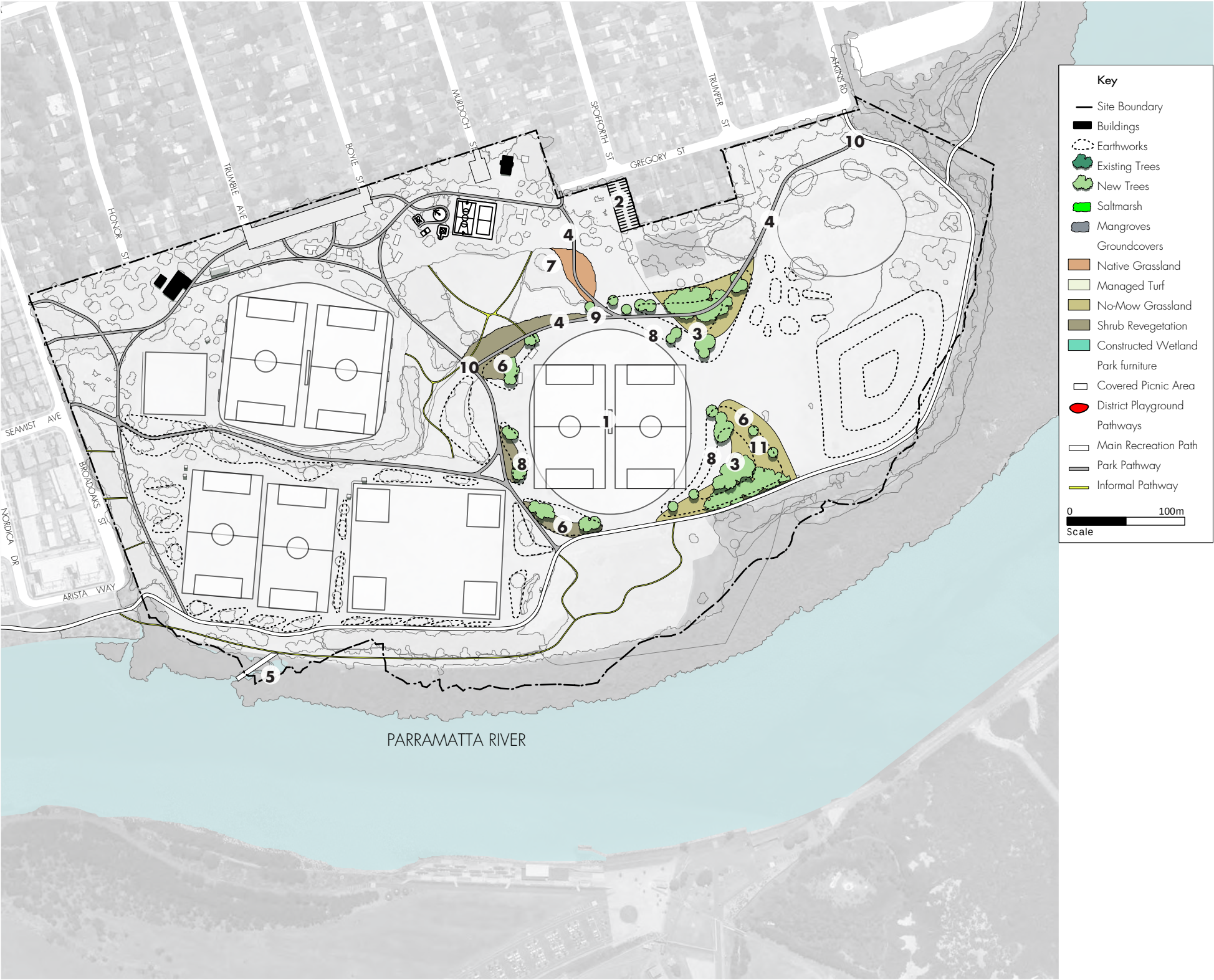
*Cost will reduce significantly if Council can source free fill.

5.2 Phase Two (5-10 years)

The second phase of works is focused on the central and eastern areas of the park. This includes large scale earth mounding and assorted planting. New pathways link through the eastern park area. The new central sports field and related additional parking on Gregory st is established in this phase.

1.	New sports field in center of park	\$1,000,000
2.	Expanded hardstand parking at Gregory st	\$56,800
3.	Earthworks for large scale earth mounds*	\$420,000
4.	East-west connecting paths	\$144,000
5.	Boardwalk link to historic wharf and river views	\$80,000
6.	Native tree, shrub and 'no-mow' grassland	\$150,000
7.	Native grassland expansion	\$3,000
8.	Advanced tree planting	\$19,500
9.	Park seating	\$5,000
10.	Wayfinding signage	\$5,000
11.	Large artwork	\$100,000

*Cost will reduce significantly if Council can source free fill.





5.3 Phase Three (10 years +)

The final phase further develops the earth mounding and planting through the central and eastern areas of the park. A series of constructed wetlands can be added to harvest and treat stormwater in the center of the park. A centrally located amenities building will provide enhanced facilities for expanding sporting use.

1.	Centrally located amenities building	\$800,000
2.	Constructed wetland system	\$840,000
3.	Earthworks for large and small earth mounds*	\$300,000
4.	Informal pathways	\$144,000
5.	Native tree, shrub and 'no-mow' grassland	\$200,000
6.	Advanced tree planting	\$26,600
7.	New picnic areas	\$120,000
8.	Park seating	\$5,000
9.	Interpretation signage	\$5,000

*Cost will reduce significantly if Council can source free fill.

6.1 Conclusion

This Master Plan document has been prepared with the aim of providing a robust and flexible plan to guide the future of George Kendall Riverside Park. The document is intended to guide future decisions on planning and development including remediation strategies, soil works and planting.

The priority of the actions proposed in the staged implementation need to be reviewed and developed over time as the needs of the community change.

2.2 History

Powell, C., 1986, *A river revived: the Parramatta*, New South Wales University Press

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2.7 Planting

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Native Seeds 2011, *Native grasses for revegetation*, viewed 27 April 2011, <www.nativeseeds.com.au/categories.asp?cID=75>.

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Unknown author, 1989, *Growing Native Grasses in Urban Parks, ECOS: Towards a Sustainable Future*, CSIRO Publishing

2.9 Landform and Soils

Chapman & Murphy, 1989, *The Soil Landscape of the Sydney: 1:100 000 Sheet*, Soil Conservation Service of NSW

2.10 Hydrology And Climate

Cardno Lawson Treloar, 2008, *Parramatta River Estuary Data Compilation and Review Study*, Bureau Of Meteorology, Austrlaian Government