

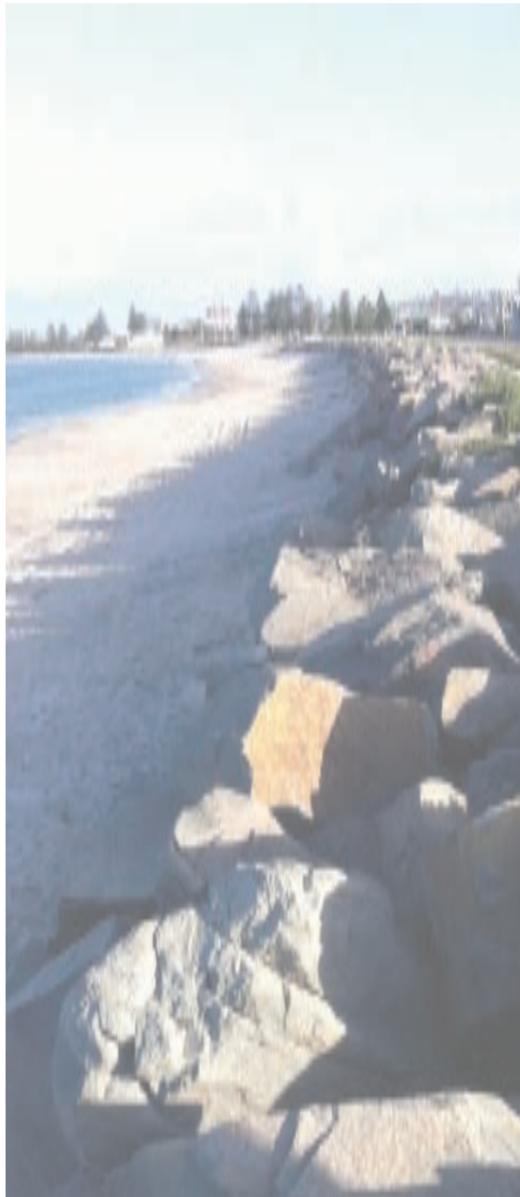
# South Stockton Reserves

## Public Domain Plan



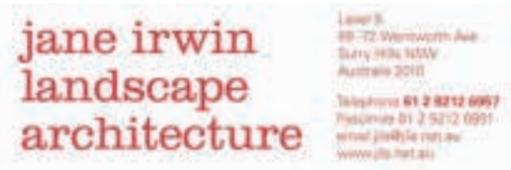
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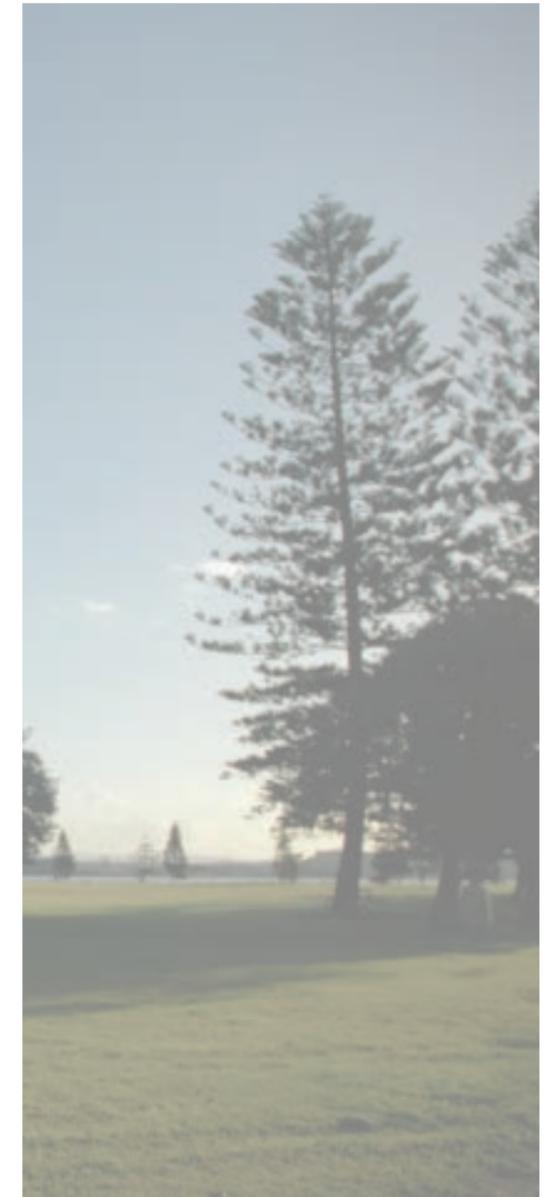
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## 1.0 INTRODUCTION



View from Ballast Ground towards industry

### 1.1 SOUTH STOCKTON RESERVES

The study area focuses on the three southern most parts of Stockton, encompassing Pitt Street Reserve, Griffith Park and Ballast Ground.

The study area is bounded by Stockton Tourist Park on the eastern side to the north, Pitt Street to the west, Hunter Street and Wharf Crescent to the North of the Griffith Park, and up to Hereford Street at the northern end of Ballast Ground.

### 1.2 PURPOSE OF REPORT

The Public Domain Plan follows on from the Newcastle Coastal Revitalisation Strategy from 2010 which set out strategic directions for coastal public domain from Merewether to Stockton. The South Stockton Reserves Public Domain Plan has been commissioned by Newcastle City Council to build on the recommendations of the Revitalisation Strategy, and provide a framework for public domain improvements, and to investigate possible expansion of commercial activities in the public lands and facilities at the southern end of the Stockton Peninsula.

### 1.3 STRUCTURE

The public domain manual is broken into four sections - The first three sections outline the principles and site analysis that underpin the design. Section 4, the Public Domain Plan breaks the plan down into key areas with additional information for each on traffic, architectural and landscape elements.

- Section 1 - Introduction
- Section 2 - Project Principles
- Section 3 - Analysis and Strategic Overview
- Section 4 - Public Domain Plan

Additional appendices cover historical research, traffic analysis and additional design elements and analysis.

### 1.4 RELATED DOCUMENTS

The following documents have been referred to in preparation of this plan, and should be used to supplement this plan with more specific or technical information where necessary.

- Newcastle Coastal Revitalisation Strategy, 2010, Urbis
- Newcastle Local Environment Plan (LEP) 2003, Newcastle City Council
- Newcastle City Centre LEP, 2008, Newcastle City Council
- Newcastle Draft LEP, 2011, Newcastle City Council
- Newcastle Recreation Plan, 2008, Newcastle City Council
- Newcastle Development Control Plan, 2005, Newcastle City Council
- Newcastle Coastline Management Study, 2003, Newcastle City Council
- Coastal Dune Management - A Manual for Coastal Dune Management and Rehabilitation Techniques, 2001 Department of Land and Water Conservation
- Newcastle Coastal Planning Guideline: Adapting to Sea Level Rise, August 2010, Department of Planning
- Environmentally Friendly Seawalls Guidelines (Dpt OEH document) referenced
- Hunter Estuary Management Plan
- Western Sydney's Water Sensitive Urban Design Guidelines
- Street Tree Master Plan



Site boundary

## 2.0 PROJECT PRINCIPLES

### 2.1 THE SITE

The South Stockton Reserves wrap around the southern end of Stockton Peninsula, forming a green transition zone between the water and built areas. Varying in exposure and character the reserves are made up of a number of distinct areas intersected at points by streets terminating at the water.

Pitt Street Reserve forms the eastern exposed flank of the peninsula bordered by the Pacific Ocean, its undulating forms tied to its composition of sand dunes.

Griffith Park lies at the southern end of the peninsula facing Newcastle. The main commercial strip, Mitchell Street, bisects the park and terminates at the ferry terminal.

Ballast Ground comprises the western side of the peninsula. Protected from the brunt of coastal weather, it faces the existing port and the Hunter River.

Due to its coastal amenity and short distance to Newcastle CBD, Stockton draws a diverse mix of people both as residents and visitors. Areas of activity include the northern breakwater 'ship wreck walk', Stockton swimming pool and adjacent skate park, Lion park and playground, Stockton ferry terminal, Punt Road playground, and the community gardens in Ballast Ground.

Stockton's flat topography and consistent street grid facilitate a range of views. Mitchell and Dunbar streets direct views back towards Newcastle, Hereford, Monmouth and other east-west streets connect views from river to sea, and within the reserves key views are presented towards Nobby's Head, Newcastle CBD, Carrington and the port.

The reclaimed lands of Griffith Park and Ballast Ground have disconnected the urban framework of the suburb from the waters edge, and from the former wharf activity which defined its past use. Old street alignments have been lost within the reserves undermining the connection of the suburb to water. The main street Mitchell, and the east-west streets of King and Monmouth are key in linking pieces of the public domain and serve to connect and unify the reserves.

Exposure and the poor soil of ballast fill are some of the issues facing vegetation and tree

planting within the reserves. Provision of shade and protection from the interventions remain key concerns. The dunes of Pitt Street Reserve have been degraded by various interventions over time and are now almost invisible under a layer of turf. Vehicle use, pedestrian access paths, carparks and erosion are the main factors contributing to the reduced value of the dunes.

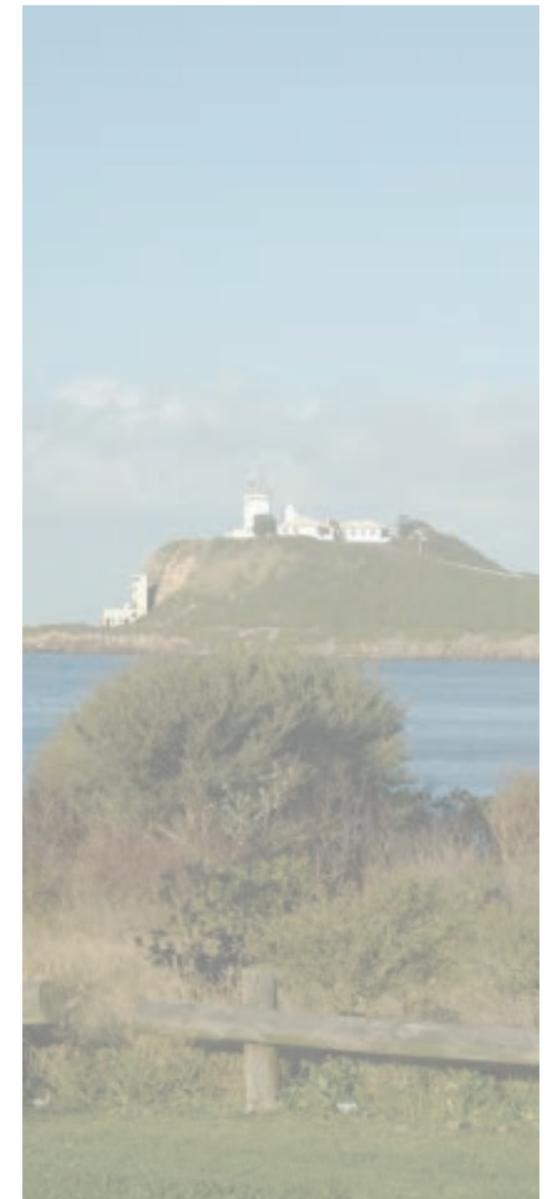
Pitt Street Reserve and Griffith Park both function as sites for events at different times of the year. Most significant of these events is the New Years Eve fireworks viewing which sees the reserves filled by large numbers of people and vehicles. The resilience of the reserves in the face of this level of use needs to be investigated to form strategies for structured use during events.

### 2.2 THE PUBLIC DOMAIN

The public domain is generally considered to be the land that is in public ownership and freely accessible to the public. At Stockton the public domain is made up of the crown reserves, streets, parking areas, pedestrian and cycle routes, parks and vegetated landscape spaces, swimming pools, skate parks, playgrounds and associated amenities.

It is essential that all elements of the public domain are considered together. Measures to control traffic should be balanced with pedestrian comfort and convenience, the geometry of streets, and the desired future character of South Stockton Reserves. The PDP aims to maximise amenity for all users of the public domain, and to upgrade the image of the locale while retaining and enhancing the characteristics that form the precinct's identity.

The principles set out in this section provide a design framework for the public domain of South Stockton Reserves. These principles underpin the strategies and improvements outlined in Section 3.



View from Pitt Street Reserve towards Nobby's Head



Newcastle Harbour looking towards Stockton



Open spaces and views towards Newcastle



Foreshore Ballast



Little Beach



Mangrove regeneration

### 2.3 IDENTITY

The character of Stockton is primarily fixed by its topography and exposed natural setting; the beach, river and ocean. Views of the port, city and coastline are unfolded across broad open settings. Man-made structures like the reclaimed land and breakwalls extend this experience of vista and vast space.

Design of the public domain can recognise and enhance this character of coast, river and open unending vistas, by reinforcing and framing these views and reflecting the unique conditions of the landscape in the public domain. Colours, artworks, and furniture should be secondary to the view, and built to respond to the erosive forces of the sea and wind.

- Maintain ocean, city and river views from the public domain
- Careful consideration of planted and interpretation elements.
- Continue revegetation program to restore coastal ecosystems
- Use materials that weather well, and that fit with the muted colour palette of the coastal environment.

Stockton has a history of use and development reflected in physical remnants: street layouts, reserve shapes and edges. Streets forecast plans for tramlines and accommodated rail links for the coal industry. The northern breakwall absorbed the accumulated history of ship wrecks and maritime use in and around Stockton, while the reserves themselves contain the traces of earthquakes and building rubble brought in as ballast on ships from around the world. While much of the foreshore character of Stockton has been altered by land reclamation, traces of the former wharf industry and connections to Newcastle persist in areas like Punt Road.

Although some are buried within past and recent developments these remnants could make a much stronger contribution to the image and character of the area through:

- Interpretation of historic alignments in the configuration of elements and placement of new buildings;
- Referencing the elements in design of the public domain through materials etc; and
- Signage and interpretation.

The reserves contain a range of existing amenity buildings including four toilet blocks, a swimming centre, and simple Scout and Guide halls. These buildings range in age and quality, with some requiring maintenance, additions or alternate locations.

Design of the public domain must understand and reinforce the elements that make Stockton distinctive, but also support the aspirations of residents and visitors. The character of Stockton as a suburb includes low density, fine grain built fabric, containing both larger more enduring public buildings and a diversity of housing, mostly one storey timber cottages. It is important to understand this scale and context to ensure that any new buildings or structures fit with this language of built form.

### 2.4 MATERIAL PALETTE + COLOUR

The character of the built elements of the public domain will be defined, to a large degree, by the materials used in its construction. The built elements, in turn, reinforce the character and quality of Stockton reserves as a whole. The quality and colour of materials can tie the constructed elements to the dominant elements of the coastal environment. Existing natural features give clues to the desired material character – stone, sand, and coastal vegetation. Materials are robust, but softened from salt and wind, and colours are muted, soft, washed out.

Stockton holds a rich material history through its origins as a heavily forested sand peninsula to more recent functions of shipyards, wharves and other maritime uses. In choosing materials for the public domain both the natural and cultural history of the site can be represented. Wharf timbers, hardy coastal native plants, and heavy rock ballast all tie back to the natural history and past uses.

- Use materials that reference the character of the natural coastal environment.
- Materials should be robust, plain and durable.
- The colour palette should respect the dominant landscape character, the blue-grey of the Hunter river, the rich grey, brown and red of the sea wall ballast, and the pale parchment colour of sand, worn concrete and sandstone.



## 2.5 LANDFORM + VIEWS

Landform helps to shape the physical identity and spatial quality of the public domain. Design of the public domain should seek to enhance the patterns that respond to landform, and to retain or open up significant views. The locations for tree planting, for example, should consider retention of views that may characterise a particular place. Layout and placement of elements can contribute to character by orientation of places to a significant view. Design should also work with the qualities of landform to provide appropriate pedestrian connections and ways through spaces.

- Retain/reveal significant views from the public domain to the water, particularly down streets
- Reinststate the visual connection between Mitchell Street and the foreshore.
- Identify significant views from the public domain, and consider these in the selection and placement of trees and furniture.

## 2.6 CIRCULATION + TRANSPORT

A fundamental principle of public domain design is to encourage walking and cycling as forms of transport. Streets must comfortably accommodate vehicles, cyclists and pedestrians, and reduce conflict between these forms of access. The aim of plans, through design, should be to give priority to pedestrians, to maximise comfort and safety, and make a livable, walkable place.

A cycle path has been created in the study area, along the foreshore; the emphasis of this study is to create safe and convenient links through urban areas to the cycle path and open space.

Use of public transport should be encouraged through ease of access to public transport, and the provision of comfortable waiting areas. At Stockton, the ferry terminal represents a key link between the suburb and the city. Growing demands on commuter parking and separation between vehicles, buses, pedestrians and cyclists require a rethinking of the functioning of the ferry terminal area.

To balance all forms of transport and reduce conflict the plan seeks to:

- Rationalise the layout of vehicular circulation and parking to provide opportunities to enhance and extend pedestrian space while also catering to future demand;
- Identify areas of pedestrian/vehicle/cycle conflict and rectify where possible;
- Provide seating and shelter at bus waiting areas; and
- Provide cycle facilities and a network of designated paths in the public domain to encourage cycling.

Promoting pedestrian amenity is central to design of the public domain. Encouraging pedestrian access reduces car dependency, promotes equal access and increases opportunities for social exchange and community life. Streets and public spaces should be comfortable, safe and engaging places that encourage people to visit and to stay. There should also be shelter, seating and visual delight.

Accessibility for all users is a key element of improved pedestrian amenity. A continuous path of travel should be provided where possible.

Use the opportunity provided by public domain improvements to :

- Provide access to streets, parks and public spaces for all users;
- Eliminate level changes, obstructions and confusing paving patterns as much as possible;
- Provide clear and generous links between high use areas, and improve the relationship of streets to the reserves;
- Create a range of spaces for recreation and for social interaction;
- Improve pedestrian environments and encourage use through pavement widening, tree planting and upgrading of furniture and facilities; and
- Enhance safety and the perception of personal security, and implement the recommendations of CPTED where applicable.
- Enrich the journey along the cycle path by introduction of focal points and a changing environment.



River beaches



Views to Nobby's Head



Views towards Newcastle



Existing cycleway



Erosion of foreshore

## 2.7 ENVIRONMENT + CLIMATE CHANGE

Due to its flat topography and exposure to coastal wind and wave action, Stockton peninsula is vulnerable to rising sea levels, Stockton beach primarily so. Studies into the potential impacts of these environmental changes have highlighted a number of areas within the reserves which are at greater risk. The plan seeks to address these areas through programs of erosion control, dune stabilisation, and revegetation. While the foreshore areas represent a risk with sea level rise they also provide a wonderful amenity through views, access to water and active recreation routes. The plan seeks to balance the existing and short term uses of these areas against the longer term implications of sea level rise and storm surge. Areas targeted for new or improved buildings or structures respond to hazard lines for at risk areas, but also follow simple lines of construction and materials should a gradual retreat be required.

A program of coordinated improvements embodied in the Public Domain Plan offers opportunities for review of the relationship of this place to the local and broad scale natural environment, and for incorporating a more immediate environmental agenda. Design of the public domain should consider water use, pollution, environmentally appropriate use of materials, and the long term potential effects of climate change. Potential measures to mitigate impact include:

- Promotion of public transport, cycling, walking
- Use of materials with low embodied energy
- Re use and recycling of materials
- Capture, filtering and re-use of stormwater
- Focus on long term preservation of the environment and adaptation to climate change conditions

### Water Sensitive Urban Design

Design of streets, parks and small landscape spaces can integrate water sensitive urban design by encompassing and facilitating measures to filter water before it enters waterways or the ocean, and to harvest and reuse water for the public domain.

The potential to integrate water harvesting or filtering will be dependent on topography, and the ability to retrofit or adapt existing storm water systems. At Stockton the relatively flat topography and sand geology mean that water drains freely and is absorbed quickly into the sand bed.

- The reserves offer little potential for stormwater capture or filtration, as water generally is allowed to filter through the existing sand substrate. One opportunity has been identified at Punt Road where a stormwater outlet currently drains into the river.
- Increase in biodiversity, reduction of maintenance and reduction of heat island effect, through long term planting strategies.

## 2.8 PUBLIC ART + HERITAGE INTERPRETATION

Good design in the public domain can reinforce site characteristics and contribute to the identity of a place. Quality street furniture, paving and lighting contribute to quality public domain outcomes and solutions.

Furnishing in the public domain should respond to the scale and character of the place, and the function of each element. There should, however, be a limited range of elements across the study area to promote a uniformity in maintenance practices. A limited palette of materials used in a variety of ways reinforces unity and allows for variation in detail where appropriate. Urban elements should be selected to suit the environment, and complement the character of Stockton.

Public art is an important cultural activity. It aids legibility of place, enlivens the public domain and can define and reveal specific identity.

Public art ranges from the monumental to the temporal and can include:

- Free standing art objects;
- Artist involvement in the design and layout of public parks, squares and forecourts;
- Artist involvement in the design of specific elements of the public domain; and
- Festivals and other cultural events.

Stockton has a local and a regional focus. Public art projects should reflect this in scale, funding and level of provision.

The Public Domain Plan promotes a robust design language, using natural, local and ordinary elements that enhance the coastal character. A generosity of scale is also desired in the public domain, to accommodate a high level of use, and to reflect the open quality of the reserves, water and sky. In line with this thinking, public art would best be integrated into the overall public domain design, as artful design of public spaces, or art integrated with public domain elements. Due to the large scale of the reserves multiple opportunities exist for public art, to enliven key nodes around the cycle route, link with the particular history of the place through heritage interpretation routes, and integrate materials that reflect the character of Stockton.

- Create public art that enhances and contributes to the provision of quality facilities and amenities.
- Public art is encouraged as part of building facades and forecourts, and integrated into the design of public spaces.
- Develop public art that will reflect the local identity, diversity and values of Stockton, and that will promote sites of significant cultural and natural heritage.

## 3.0 ANALYSIS AND STRATEGIC OVERVIEW

### 3.1 REGIONAL CONTEXT

The suburb of Stockton is laid out across a peninsula at the southern end of Stockton Beach where the river joins the sea. Stockton is visually connected to the adjacent suburb of Carrington and the Newcastle CBD, but remains physically isolated across the Hunter River. It is connected to Newcastle directly by passenger ferry and by road via the Teal Street Bridge to the north.

#### Strategy

- Strengthen connections between Stockton and Newcastle through improved commuter facilities at the ferry
- Investigate a series of viewing platforms around the foreshore which highlight the visual connections to the city
- Improve the sense of arrival to the suburb at the ferry terminal.



Regional Connections

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View towards Stockton foreshore from Newcastle



Punt Road vehicle ferry



Stockton ocean baths



Shark net at Little Beach

### 3.2 HISTORIC OVERVIEW

Maritime activities and industry have contributed to Stockton's historic richness and diversity, and a legacy of characterful buildings and foreshore reserves. The accessible foreshore is reinforced with a perimeter edge street of varied alignment over time. More than half of the public spaces in the study area are reclaimed land.

#### Strategy

- Investigate a series of interpretation points around the Reserves with a hierarchy of importance.
- Incorporate the interpretation into signs, walls, paving and structures at the key points in the reserve.
- Reinforce the historic framework of streets and waterfront through interpretation within the reserves and by strengthening and reestablishing the connection of streets to the water.



Pitt Street Reserve looking towards Nobby's Head across dunes



Pitt Street Reserve Colliery



Wharf industry along Stockton Foreshore - Griffith Park

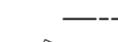


Wharf industry along Stockton Foreshore - Ballast Ground

\* Images courtesy of *Stockton Over the Years*, Ross Craig, 2002, Hunter Photo Bank and State Library of NSW.



**Diagram - Historical Analysis**  
 Demonstrating the evolution of the suburb from 1893 to 1984. Changes include foreshore lines, wharf activities and breakwalls, buildings within the reserves, road reserve provisions and rail lines.

-  dune features 1893 -
-  1924 rail line
-  1893-1924 boat slipway
-  1893 foreshore line
-  1994 features
-  current foreshore line
-  1893 road reserve provision
-  1893 tram line reserve provision
-  1893 features
-  1944 features
-  1915 features
-  1958 features
-  1924 features
-  1961-65 features
-  1932 features
-  1984 features

SCALE 1:5 000 @ A3



### 3.2 FORESHORE LINE

Early breakwaters modified the beach morphology and the reclamation of Ballast Ground expanded the working river frontage. The previously urbane waterfront facing Newcastle was alienated from the river by a final expansive reclamation.

#### Strategy

- Understanding the condition of the reserves as reclaimed land with implications on tree planting, erosion control and sea level rise.
- Part of the heritage interpretation/ history of the site and its past uses is signalled through the extents of reclaimed land
- Investigation into the implications on drainage, contamination and stability of land for structures.
- Implement strategies for dealing with sea level rise including placement of built elements within the reserves.

#### ADAPTING TO SEA LEVEL RISE

According to the NSW Coastal Planning Guideline the following adaptation principles should be considered for any coastal site in relation to sea level rise.

Coastal planning principles: adapting to sea level rise

- Principle 1 – Assess and evaluate coastal risks taking into account the NSW sea level rise planning benchmarks.
- Principle 2 – Advise the public of coastal risks to ensure that informed land use planning and development decision-making can occur.
- Principle 3 – Avoid intensifying land use in coastal risk areas through appropriate strategic and land use planning.
- Principle 4 – Consider options to reduce land use intensity in coastal risk areas where feasible.
- Principle 5 – Minimise the exposure of development to coastal risks.
- Principle 6 – Implement appropriate management responses and adaptation strategies, with consideration for the environmental, social and economic impacts of each option.

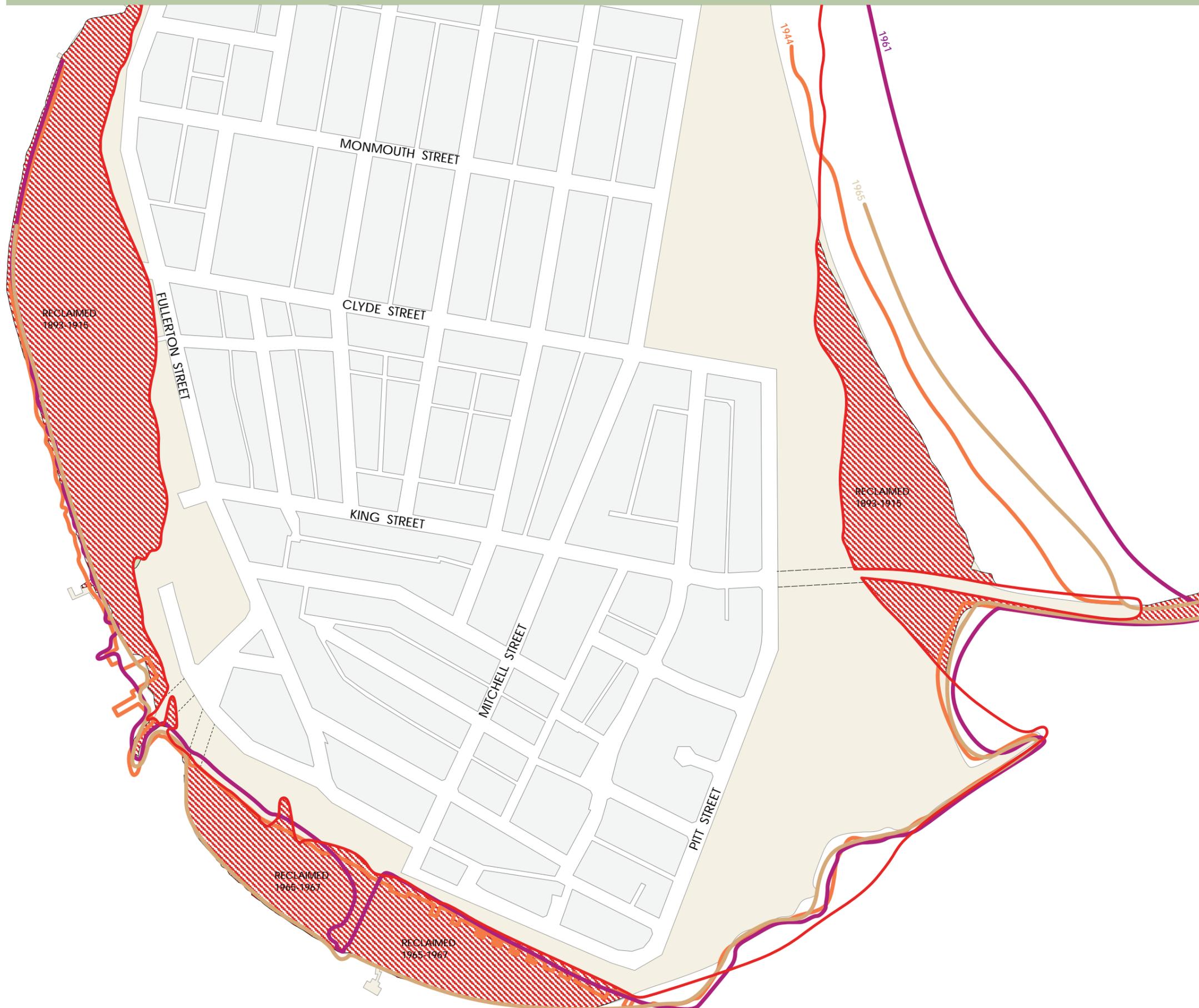
\* Reference - NSW Coastal Planning Guideline: Adapting to Sea Level Rise, August 2010, Department of Planning



Stockton Peninsula before Griffith Park is reclaimed - Aerial 1944



Stockton Peninsula after Griffith Park is reclaimed - Aerial 1984



**Diagram - Foreshore Line Analysis**  
 Demonstrating changes to the foreshore from 1893 to 1965 through wharf uses to reclamation of land. The Stockton reserves lie primarily on reclaimed land.

-  reclaimed land
-  1893
-  1944
-  1961
-  1965

SCALE 1:5 000 @ A3





Mitchell Street



Monmouth Street



King Street



Clyde Street

### 3.3 STREET DESIGN

Stockton's street design stemmed from two phases of development of suburb, the first being the private town layout and the second being the later subdivision. The private town saw streets laid out according to topography and access to the water and with a distinct pattern of streets and lanes laid out on a grid aligned with the water front along Hunter Street and Wharf Crescent. The later subdivision saw another grid fixed to the original at Clyde Street following a new alignment. It introduces a more regular pattern of blocks, street widths and lanes.

**RIDGE STREET** - Mitchell Street follows the main ridge along the Peninsula and also forms the main street through the suburb

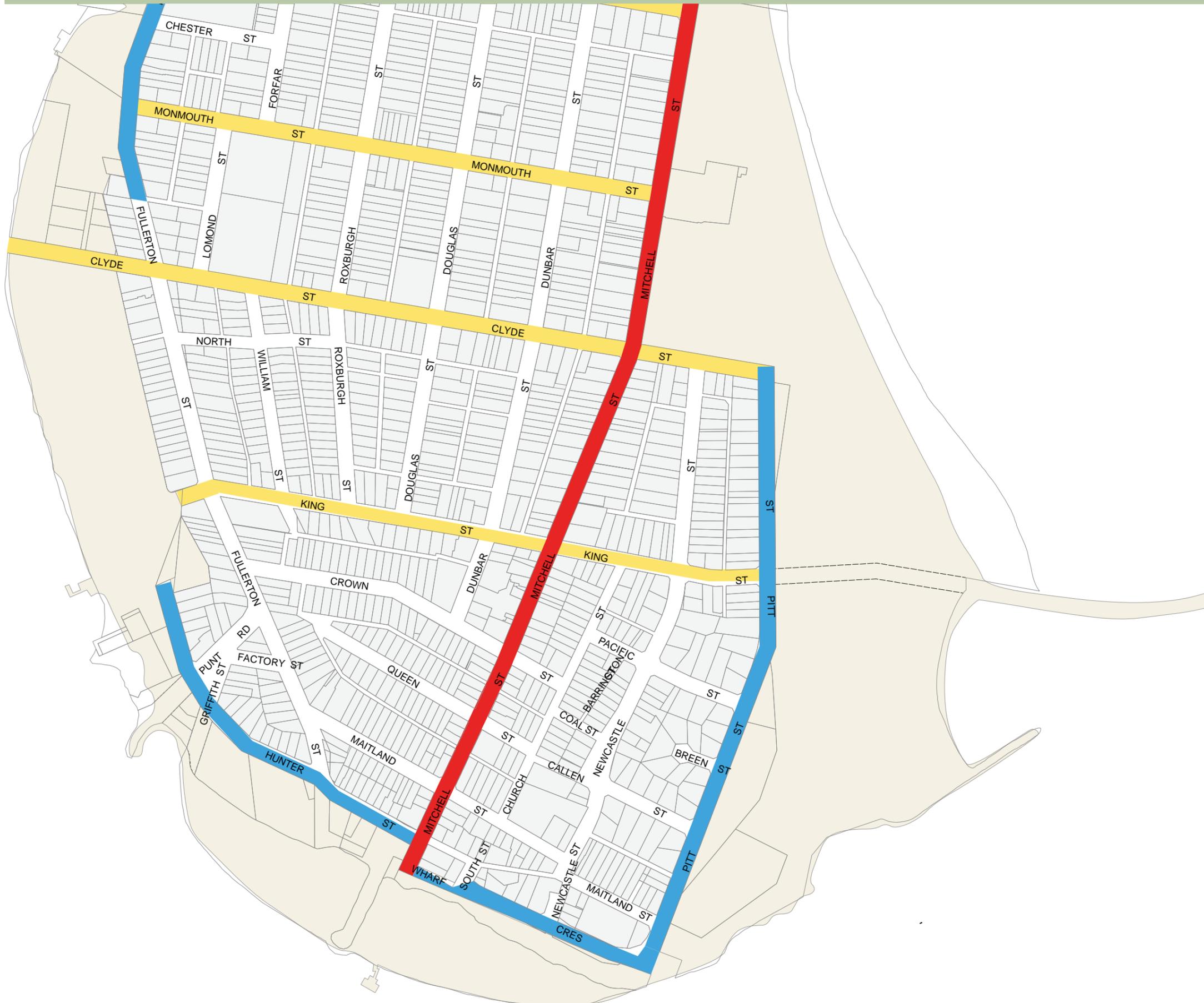
**EDGE STREETS** - Pitt Street, Wharf Crescent, Hunter Street and parts of Fullerton Street form the edge division between suburb and reserve, also signalling in part the areas of reclaimed land.

**WATER TO WATER STREETS** - King Street, Clyde Street, Monmouth Street, Hereford Street and other streets to the north of the suburb form the cross link streets between beach and river. The northern streets form a direct visual link, while cross streets to the south are interrupted by the ridge at Mitchell Street.

Of particular note is King Street which originally functioned as a rail link between the wharves on the western side of the peninsula and the building of the Northern Breakwater

#### Strategy

- Expression of the heritage of key streets through the heritage interpretation strategy
- Assess the character and views of the street in light of appropriate street tree species
- Address the expression of the edge streets bordering the reserves in regards to access, parking and key views



**Diagram - Street Analysis**  
 Three distinct categories of streets exist at Stockton and provide a legible framework for the suburb.

- Ridge Street - spine ferry to beach
- Edge Street - river, beach, park
- Water to Water Street - river to beach
- Local Streets and Lanes

SCALE 1:5 000 @ A3





Cycleway in Ballast Ground



Cycleway in Ballast Ground



Cycleway Punt Road



Improve pedestrian connection from Mitchell Street

### 3.4 PEDESTRIAN + CYCLE CONNECTIONS

Stockton is a predominantly flat suburb which allows for comfortably graded paths and equitable access to a range of users. Recently built cycle and pedestrian paths have opened up access to a large part of the foreshore reserves, however there are still sections where conflicts between pedestrians, cyclists and vehicles as well as missing links in the cycle path network exist.

#### Strategy

- Ensure that pathways are provided throughout the reserve linking parking areas with main access paths
- Improve pedestrian access to beaches, waters edge, and playgrounds
- Resolve current conflicts points between vehicles, pedestrians and cyclists
- Investigate pedestrian and cycle connections between Stockton Surf Club and the Northern Breakwater
- Complete the cycle strategy for Stockton through the extension and introduction of cycle paths to form a network
- Investigate on-road cycle path options to link cross streets between the reserves and link down streets through the reserves to the recreational cycleway.
- Apply Council's pathway policy to all existing and proposed pathways within the reserves which cater to both cycle and pedestrian use. Council standard is 4m width for all recreational pathways to ensure shared access.



**Diagram - Connections**

The recreational cycleway currently covers three quarters of the reserve waters edge. To facilitate a connected suburb pathways between on-road cycle routes and the recreational cycleway need to be installed. Major pedestrian routes also need to be assessed and pathways linking existing streets to key activity points within the reserves investigated.

- - - site boundary
- existing cycle path
- existing pedestrian path
- - - potential cycle link
- - - area of conflict

SCALE 1:5 000 @ A3





*Existing stormwater drainage at Punt Road*



*Stormwater outlet pipe in Ballast Ground*



*Punt Road stormwater drainage*



*Potential wetland treatment for Punt Road*

### 3.5 HYDROLOGY + CATCHMENT ANALYSIS

The suburb of Stockton sits on a sand peninsula defined by a long ridge between the beach and the river. This ridge, formed as a back dune, provides for surface flow across the suburb. Surface flow is picked up by a stormwater network or is quickly absorbed into the sand bed aquifer.

Due to the reclaimed land along the foreshore a number of areas of impacted drainage exist, as well as points along the foreshore where stormwater outlets emerge.

#### Strategy

- Investigate points where stormwater outlets allow for water sensitive urban design initiatives
- Assess areas of impeded drainage along roads and within the reserves



**Diagram - Hydrology**  
 Stockton drains from the highest points along the ridge of Mitchell Street, and flows along existing streets to a network of stormwater drains which empty into the Hunter River at points along the edge of the reserves. The majority of stormwater is picked up in this network while overland flow infiltrates the sand substrate. Three areas of impeded drainage exist on the site and relate to the areas of reclaimed land when natural drainage lines were altered.

-  natural drainage lines
-  street drainage lines
-  low points on site
-  ridgeline

SCALE 1:5 000 @ A3





Large existing *Ficus macrophylla*



*Casuarina* planting in Ballast Ground



*Banksia* and *Hibiscus* planting in Pitt Street Reserve



Exotic heathland behind Little Beach

### 3.7 VEGETATION ANALYSIS

As a peninsula Stockton contains a number of vegetation communities which respond to the geology (predominantly sand), salinity (fronting the river or the ocean) and the degree of exposure to coastal salt laden winds.

#### Existing vegetation communities in Stockton include:

Grassland with scattered trees - mixed planted trees in open parkland, mostly mown grass.

Woodland - dominated by *Casuarina glauca* (Swamp Oak) with grassland adjoining estuarine areas

Exotic Heathland - mix of exotic weeds like Bitou Bush.

Closed Sand Scrub - includes larger native shrubs and trees of *Banksia* and *Leptospermum* species.

There is an opportunity to increase biodiversity and habitat, and reduce maintenance (mowing) by reintroducing or expanding appropriate natural vegetation communities, particularly riparian grassland and coastal heathlands.

#### Strategy

- Identify opportunities for revegetation works in the reserves to protect against erosion and increase habitat and amenity
- Identify areas at boundaries of the reserves for screening
- Outline strategies for protecting revegetation works and restricting vehicle and pedestrian traffic within planted areas of the reserve.



**Diagram - Vegetation**  
 The Stockton Reserves are currently large expanses of turf with sparse tree cover. There are limited areas of coastal heathland on the eastern side but this is compromised by weed growth. Strategies for the reserves include additional tree planting for shade and amenity, areas of rough planting and long grasses to reduce maintenance and provide habitat and water edge treatments to encourage mangrove and foreshore habitat.

- - - 90m coastal recession investigation area
- Erosion
- 'Closed sand scrub' existing dune vegetation
- Existing trees

SCALE 1:5 000 @ A3



**SOUTH STOCKTON RESERVES PUBLIC DOMAIN PLAN**

**PART B**

## 4.0 PUBLIC DOMAIN PLAN

### 4.1 ENVIRONMENTAL STRUCTURE - POTENTIAL

Across the south Stockton reserves a number of strategies for environmental improvement have been identified. These strategies include structured planting to establish or extend vegetation communities, tree planting to improve amenity and shelter in the reserves, and a focus on reducing maintenance and repairing vulnerable areas.

#### Strategy

##### Coastal Works

- Dune stabilisation
- Enhanced environmental planting (Character planting, habitat, shelter)
- Reducing maintenance, towards a more self sustaining landscape

##### Structuring spaces

- Roughly defining recreational use areas
- Providing spatial variety, based on the Character of each reserve - make some Intimate spaces
- Focal planting reinforcing streets
- Maintaining and framing key views

-  dune stabilisation
-  coastal planting for structuring (low grasses + shrubs)
-  shelter/windbreak planting
-  roughly defined recreational areas
-  key views to maintain/enhance
-  Erosion



SCALE 1:5 000 @ A3





## 4.2 URBAN STRUCTURE - POTENTIAL

The urban structure of the reserves identifies opportunities to extend or connect with the pattern of streets where they boarder or bisect the reserves, while also establishing key nodes at these points.

### Strategy

- Extend shared path along front of tourist park water - to - water
- Create points of intensity at water to water streets and active streets
- Create nodal points of activity along cycle path with enhanced amenity
- Better connections - cycle, pedestrian, visual
- Enhance connection between water/ Ferry and activity
- Reorder existing facilities - potential extension to Tourist Park
- Investigate new facilities at Griffith Park and the boat ramp
- Address sea level rise issues

- LEGEND
- areas for built intervention investigation/ urban extension
  - carparking opportunities
  - key areas for interventions
  - improve connections - cycle, pedestrian visual
  - enhance water to water street connections between reserves
  - address informal use of reserves for rear lot access
  - address informal use of reserves
  - 1893 Shoreline

SCALE 1:5 000 @ A3





Sand



Ballast



Concrete



Coastal vegetation

#### 4.3 PUBLIC DOMAIN PLAN

This section of the Public Domain Plan includes detailed design proposals for each portion of the site. Each portion addresses key areas of the overall site, and reflect the intended future staging of works. Areas not covered in the detailed plans are addressed in the overall public domain plan.

The public domain plan encompasses existing ongoing projects including dune restoration at Pitt Street Reserve, Foreshore stabilisation throughout the reserves and upgrades to the coastal cycleway. These projects are being carried out by the following departments in council:

##### Design Elements

- Ensure new development is protected from coastal recession and erosion.
- Enhance landscape character within the Stockton Peninsula.
- Formalise connection between Griffith Park and Stockton Beach.
- Encourage educational facilities and heritage interpretation sites.
- Attract new and previous visitors to Stockton.
- Improve the type, quantity and quality of public domain elements.
- Create activity nodes on the western foreshore in the alignment of east west running streets.
- Maintain swimming pool and access to northern breakwater.
- Provide cycle and pedestrian connections to the north and south of the peninsula.
- Encourage historical interpretation by establishing interpretive tracks and sites that explore the history and heritage of the site.
- Plant vegetation and install bollards to limit vehicle access across Pitt Street reserve to improve reserve user and pedestrian safety.
- Undertake detailed studies for Tourist Park expansion in Stockton east without compromising existing facilities.
- Extend cycleway from Griffith Park north to form part of a shared cycle and pedestrian loop around the Stockton peninsula.
- Address beach and foreshore erosion, rising sea levels, and impacts on existing facilities.
- Investigate potential for a new cafe located in Griffith Park.

- Investigate a staged district level playground incorporating children's cycle paths, picnic and barbecue facilities and play opportunities for a range of ages and abilities in Griffith Park.
- Enhance environmental sustainability through long term strategies to reduce maintenance and improve biodiversity.
- Ensure that integrated urban water cycle management (that utilises WSUD) is included in the domain design elements.



### 4.3 PUBLIC DOMAIN PLAN

The public domain plan sets the structure for interventions in the reserves through a framework of key areas for intervention linked to major street connections. Interventions range in scale with site wide strategies for edge treatments, access and vegetation, to small scale projects like the Water Sensitive Urban Design (WSUD) element at Punt Road and viewing platform in Pitt Street Reserve.

- RIPARIAN/ESTUARY PLANTING
- GRASSLAND
- COASTAL VEGETATION
- EXISTING TURFED AREA
- WSUD SWALE PLANTING
- EXISTING TREES - GENERAL
- EXISTING ARAUCARIA
- PROPOSED TREES
- BEACH ACCESS
- STREET ACCESS
- VIEWING PLATFORM/SMALL JETTY STRUCTURE
- EDGE 1- MANGROVE HABITAT/ ROCK FILLETS
- EDGE 2 - SEAWALL STABILISATION
- EDGE 3 - BEACH STABILISATION
- VEHICLE RESTRICTION
- KEY AREAS

SCALE 1:5 000 @ A3





Erosion to existing cycle path



Existing vehicle access ramp to beach



Coastal planting in the reserve



Swimming centre entry

#### 4.4 PITT STREET RESERVE

##### Design Principles

- Manage access points to the beach through lockable bollards and fences to restore and protect fragile coastal dune areas
- Improve pedestrian and cycle connections through Pitt Street Reserve
- Resolve illegal vehicle use of reserve by limiting access through lockable bollards and fencing
- Address erosion throughout the reserve through structural strategies and additional coastal planting
- Provide amenity in the reserve through additional tree planting and wind protection planting
- Encourage historical interpretation through interventions at key points along King Street, the Northern Breakwater and other points around the reserves
- Investigate options for tourist park extension

- ① King Street - formalise parallel parking, pedestrian footpath on northern side, and investigate 10km low speed environment.
- ② King Street is shortened to reduce conflict between vehicles and cyclists, allowing a direct link from cycle path through Tourist Park to the Surf Club.
- ③ Northern Breakwater - replace existing paving with new wide concrete footpath with provision for fish cleaning station, bubbler, bin, heritage interpretation and lockable security bollards. Both vehicle beach access ramps to be replaced with additional stability provided through ballast on western sides and large rocks to restrict width at the top.
- ④ Partial removal of eastern side of existing gravel parking area to allow for cycleway connection and a more efficient carpark layout.
- ⑤ Existing monument with new crushed sandstone surrounds with timber edge.
- ⑥ New concrete cycle path to link with existing path in southern section of Pitt Street Reserve and to extend to northern breakwater.
- ⑦ New tree planting for shade and amenity within the reserve.
- ⑧ Provide bollards and post and wire fencing to restrict vehicle access and protect vegetation.
- ⑨ Extend garden bed and widen concrete footpath.
- ⑩ New tree planting to replace nominated parking spaces.
- ⑪ Investigate skatepark design and location as part of a skatepark strategy for the city.
- ⑫ The tourist park extension site will remain as open space until community concerns are addressed through further investigation and community consultation

- ⑬ Investigate future access (shared) through tourist park

# NORTH PITT STREET RESERVE



Regenerate dune vegetation



Proposed light weight structures

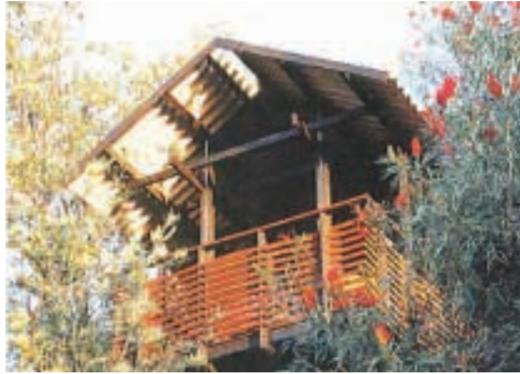


Robust materials

-  NEW TREE
-  DUNE STABILISATION
-  COASTAL VEGETATION

SCALE 1:1 000 @ A3





*Simple built elements in the landscape*



*Brighton beach houses*

#### 4.5 TOURIST PARK EXTENSION OPTION

##### Design Principles

- Provide public edge street and access to Little Beach, including public parking to improve access and safety.
- Consolidate and expand dune planting behind Little Beach to improve ecology and habitat.
- Appropriate expansion of the tourist park would provide characterful buildings in a landscaped setting with a clear structure of public and accommodation spaces.
- Well vegetated spaces between the buildings with trees for shade and amenity, and protection from coastal exposure.
- Delicate light weight sustainable structures suited to the temporal nature of holiday accommodation.
- Site and place specific tourist destination reinforcing Stockton's richness and points of difference from other destinations.
- Public safety and access along the foreshore would be of pre-eminent consideration.
- Appropriate vehicle access to accommodation would be along the edge of the swimming pool complex to car park groupings.
- The tourist park extension site will remain as open space until community concerns are addressed through further investigation and community consultation.



*Delicate, lightweight and place appropriate accommodation*

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Existing play equipment



Existing unmarked parking area adjacent to Lion Park



Erosion along foreshore edge



View from Lion Park towards Nobby's Head

#### 4.6 LION PARK

##### Design Principles

- Improve pedestrian and cycle connections through Pitt Street Reserve
- Resolve illegal vehicle use of reserve by limiting access through lockable bollards and fencing
- Address erosion throughout the reserve through structural strategies and additional coastal planting
- Provide amenity in the reserve through additional tree planting and wind protection planting
- Encourage historical interpretation through interventions at key points
- Unify the disparate elements of Lion Park, the adjacent playground, cycle path and foreshore edge

- ① Install fence/timber bollards and planting along Pitt Street to stop vehicle access into the reserve.
- ② Retain existing concrete cycle path, in future extend to 4 metres wide
- ③ Install new section of cycle path to meet old, at completion of adjacent erosion works.
- ④ Establish coastal native planting areas throughout Pitt Street Reserve to provide amenity through windbreaks and stabilise foreshore edges.
- ⑤ New tree planting around the reserve to provide greater shade and amenity. Trees to be selected based on species resistant to high exposure to salt and wind.
- ⑥ New custom timber fence to define the edge of Lion Park and adjacent playground. Timber to relate to past wharf uses as part of heritage interpretation strategy.
- ⑦ New crushed sandstone square to define Lion park gateway
- ⑧ Investigate additional barbecue and seating around play equipment
- ⑨ Vehicle access with lockable gate to allow for council maintenance vehicles.
- ⑩ New 90 angle parking on Pitt Street, parking bays to be gravel with timber edge.
- ⑪ Seawall stabilisation see page 42.
- ⑫ Relocation of informal carpark.

# SOUTH PITT STREET RESERVE



-  NEW TREE
-  DUNE STABILISATION
-  COASTAL VEGETATION
-  SEAWALL STABILISATION ZONE

SCALE 1:1 000 @ A3



# LION PARK DETAIL PLAN



Wharf timbers used for retaining wall



Wharf timbers used for informal seating



Crushed stone paving



Wharf timbers used as informal wall



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View from Hunter Street across Griffith Park



Foreshore edge at the ferry wharf



Existing pavement treatment at ferry wharf

#### 4.7 GRIFFITH PARK

##### Design Objectives

- Provide a series of viewing points along foreshore and a visual connection to Newcastle CBD
- Establish a visual connection between Stockton town centre and Griffith Park along Mitchell Street
- Install activity nodes in the form of a district playground to encourage use of the foreshore
- Accommodate future commuter parking needs at the ferry wharf as well as timed stay to allow for local vehicle use
- Improve pedestrian, cycle and universal access requirements to Griffith Park through new paths, plaza spaces, single level buildings and an inclusive playground
- Encourage historical interpretation through interventions around the ferry terminal plaza through signage, paving and public art installations

- ① Remove existing paving and cycle path and replace with paved plaza for shared use. See Paving detail for specific materials. New paving to extend from the carpark edge to ballast at waters edge.
- ② Shorten carpark and shift north to allow for generous foreshore and provide timed parking spaces.
- ③ Realign Wharf Crescent at northern end of commuter carpark to allow for extension.
- ④ Install additional commuter carparking along Wharf Crescent and Hunter Street through 90 degree angle parking. Parking bay to be gravel surface with timber edge and timber wheel stops.
- ⑤ Install new concrete pedestrian paths throughout Griffith Park linking new parking bays to the playground, cycle path, potential cafe and ferry terminal.
- ⑥ Maintain existing concrete cycle path with a future minimum width of 4m
- ⑦ Relocate existing picnic shelters to new locations throughout the district playground.

##### DISTRICT PLAYGROUND

- ⑧ Detailed investigation as part of detailed design development phase and new district level playground and new viewing area.
- ⑨ Proposed tots cycle track.
- ⑩ Proposed inclusive climbing structure with softfall surface.
- ⑪ Proposed sand play area with timber bridge, bench seat wall, wharf timber edge treatment and timber water play component.

- ⑫ Proposed swing area with accessible swing incorporated. Sand ground surface with timber edge, bench seat wall, and shade trees. Concrete path network connecting play zones. Path provides the initial framing element for the playground allowing play areas to be added in stages as funding becomes available.
- ⑬ Picnic and barbecue area incorporating new tree planting, timber shade structures, associated furniture and a crushed brick paving surface.
- ⑭ Remove existing bus turning area and replace with feature concrete. Bollards installed in concrete surface to indicate bus turning zone in shared plaza.
- ⑮ Mitchell Street alignment and width restored by shifting eastern kerb to true alignment, allowing for parallel parking along both sides of the street up to the new plaza.
- ⑯ Potential skatepark subject to further investigation as part of skatepark strategy.
- ⑰ Investigate exercise points at key nodes in Griffith Park along the coastal cycleway
- ⑱ **CAFE**  
Council will determine interest in a cafe in association with the playground through an expression of interest process.



Collage interpreting materials



Light weight shade structures



Play pod

-  NEW TREE
-  DUNE STABILISATION
-  COASTAL PLANTING
-  SEAWALL STABILISATION ZONE

SCALE 1:1 000 @ A3





Water play pump



Sand play pod with natural materials



Shade structure



#### 4.8 DISTRICT PLAYGROUND

A new district sized playground is proposed in this central location, to supplement the existing local playgrounds at Lion Park and Ballast Ground. This playground would offer a wider range of experience, attracting visitors from Stockton, Newcastle and Port Stephens. Access by public transport is facilitated by the location close to the ferry and bus stop.

The proposed café will encourage longer use, and be an added attraction to Griffith Park.

The location and topography of this piece of Griffith Park offer ideal conditions for an all abilities playground. Access by car and public transport is relatively easy, with parking close and accessible on two sides. The grades are very flat, allowing facilities to be equally accessible to all, offering a single generous path of travel.

The proximity of the cycle path also suggests inclusion of a toddler cycle track in the playground, offering a closed circuit easily supervised ride for small children. This could be supplemented with a specialised learn to ride facility, with traffic signs and crossings. The track should be a simply constructed low maintenance bitumen or concrete surface, with some challenge in the form of curves and crossings.

A range of other play features are possible, including:

- water play and sand pit for young children, with some raised sand areas;
- balance challenges for all ages;
- climbing structures and towers;
- specialised all abilities equipment
- high energy structures for older children

The mix of activities should be structured and spaced to minimise conflict between age groups, potentially spaced along the park in discreet pods. Such a layout also allows dispersal of gathering and picnic areas for supervision/oversight of the play areas by family groups.

A broad area along the car park edge is set aside for barbecues, water supply, fire pits and some shade structures and tables. The facilities are collected together on a porous paved surface to cater for intense use, and separated from the picnic areas to discourage taking over of facilities by one group.

The design of the playground and associated facilities should complement the existing character of this part of Stockton Reserves by:

- maintaining the broad flat ground surface – don't include built up landscapes;
- maintaining views though the park, elements should be generally be lightweight and as transparent as possible;
- using relatively low key materials that relate to the history of the reserves.

The area is very open and sunny – many more trees are needed for shade.

The playground will be subject to more detailed design in consultation with the community.



*Climbing nets*



*Sand play*



*Water rill for sand play*



Existing boat ramp and accessible wharf structure



Existing fish cleaning facility



Existing access to beaches along foreshore



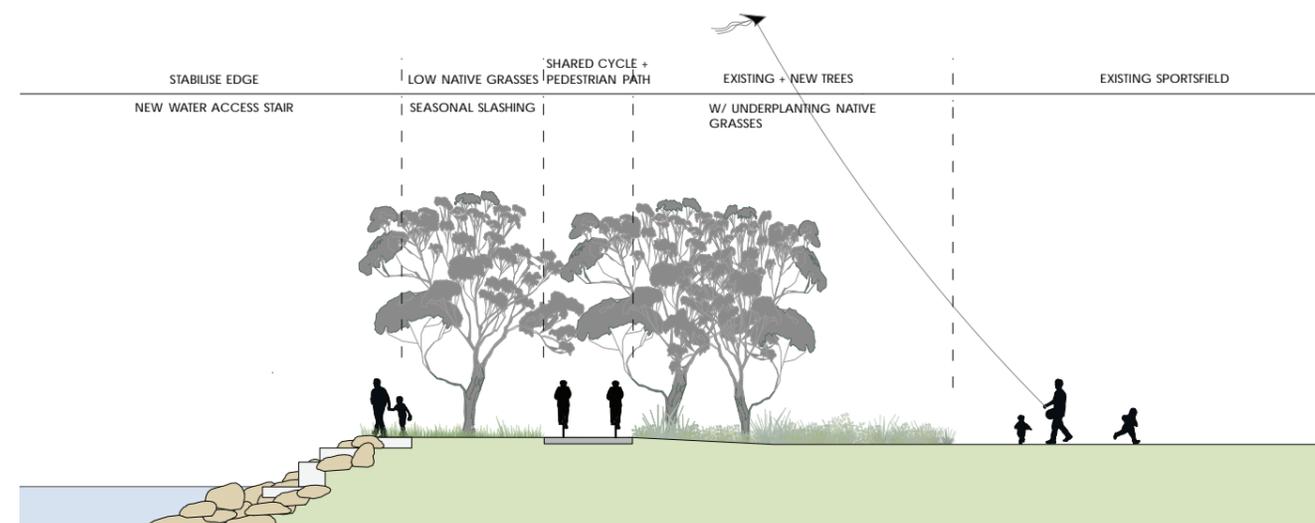
Existing cycle path and boat ramp conflict area

#### 4.9 STOCKTON BOAT RAMP

##### Design Objectives

- Provide a series of viewing points along foreshore
- Review the existing boat launching facility to improve the functionality of the boat ramp and jetty to make them more user friendly.
- Encourage historical interpretation through interventions around the reserves
- Resolve existing conflicts between cycle path and sailing club, and existing parking layout
- Improve efficiency of boat trailer parking through a one way system
- Strengthen connection between Ballast Ground and Griffith Park by consolidating fragments of land into usable areas
- Reduce maintenance and increase biodiversity. Stabilised edge with mangrove habitat

- ① New concrete pedestrian path linking Fullerton Street with the foreshore, maintain existing bollards along this edge.
- ② New tree planting in reserve.
- ③ Riparian native planting along edge of Ballast Ground.
- ④ Alternate marked on-road cycle route for use during sailing club events.
- ⑤ Shift existing bollard fence to incorporate barbecue and picnic area into playground and protect from vehicle use.
- ⑥ New beach access ramp.
- ⑦ Proposed viewing platform see detail.
- ⑧ Existing cycleway with future widening to 4m
- ⑨ Reduce amount of hard surface by grassing trailer area of each parking space as part of WSUD strategy
- ⑩ Native grasses for low maintenance as part of WSUD strategy.





Foreshore viewing platform precedent

-  NEW TREE
-  DUNE STABILISATION
-  COASTAL PLANTING
-  SEAWALL STABILISATION ZONE

SCALE 1:1 000 @ A3





Existing cycle path, northern end of Ballast Ground



Existing cycle path and railing



Existing community garden



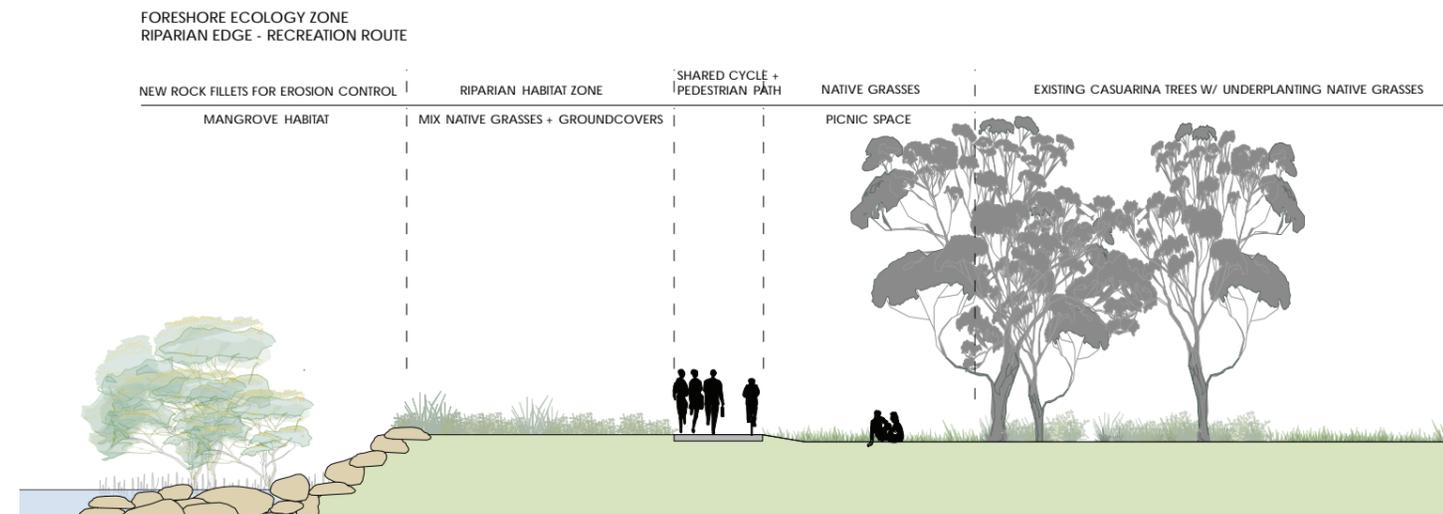
Private wharf - northern end Ballast Ground

#### 4.10 NORTH BALLAST GROUND

##### Design Objectives

- Provide a series of viewing points along foreshore
- Encourage historical interpretation through interventions around the reserves
- Restrict vehicle access to the reserves
- Investigate alternate site for community garden

- ① Retain Clyde Street link to water's edge along existing gravel road.
- ② Potential viewing platform at end of Clyde Street alignment.
- ③ New tree planting in reserve to reinforce vehicle restrictions and provide shade and amenity.
- ④ Existing scout hall.
- ⑤ Existing Private wharf.
- ⑥ Existing location of community garden.
- ⑦ Proposed riparian planting in conjunction with mangrove rehabilitation edge.
- ⑧ New concrete pedestrian path linking Monmouth Street and Clyde Street with the water.
- ⑨ Existing cycle path with future widening to 4m
- ⑩ Interpretation signage about migratory shore birds.
- ⑪ Investigate exercise points at key nodes in Ballast Ground along the coastal cycleway





Cycle path with planting either side



Generous shared path with colours defining use

-  NEW TREE
-  DUNE STABILISATION
-  COASTAL PLANTING
-  SEAWALL STABILISATION ZONE
-  NEW NATIVE GRASS EDGING

SCALE 1:1 000 @ A3





Seawall at Bobbin Head providing habitat



Seawall with increased surface area



Step type seawall with bench of saltmarsh



Revegetation of shoreline

#### 4.11 Edge Treatment - Erosion Protection

The edge of Stockton Reserves runs from Chester Street to King Street, with a range of edge conditions. Over time the edge has been shaped by environmental forces and by man made changes - to extend the available land mass in the area of ballast infill, and to mitigate against erosion on the exposed coastal and inlet edges.

Erosion continues to be a real issue at Stockton Reserves, and one that will be exacerbated by climate change and sea level rise. There are currently programs underway, or proposed, to manage erosion and enhance environmental performance.

##### Dune Protection

The dunes off Little Beach are particularly susceptible to erosion from the ocean, and to degradation from excessive public use.

This is an ongoing program essential to the health and stability of this part of Stockton Reserves. The PDP outlines increased measures to protect and stabilise the coastal foreshore, including:

- extending coastal planting to remnant dune landforms in Pitt Street Reserve;
- reduction of vehicle traffic around the top of dunes by controlling entry at King Street; and
- reduction of car park off King Street;

##### Seawalls

The existing seawalls that line the edge of the land at the inlet are failing in some places, which has forced the relocation of the cycle path. Measures are being investigated to rebuild the walls, incorporating strategies to improve environmental health, such as increasing the surface area, and/or extending areas available for estuary planting, that will help create habitat for fish and vegetation. Seawall rehabilitation is underway at Pirate Point in Pitt Street Reserve.

The PDP recommends that the seawall upgrade includes areas that allow public access to the water, to facilitate fishing and to enrich visitor experience of the edges.

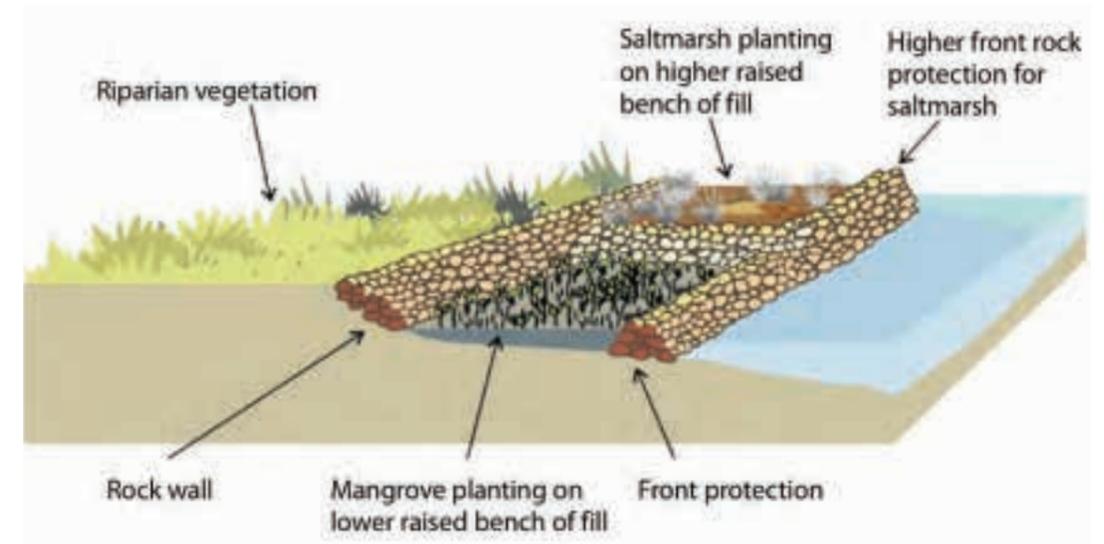
##### Mangroves

The edge between Chester Street and King Street is gradually being rehabilitated to introduce mangroves to the edge. Mangroves will provide protection against erosion, and enhance the health of the river system, provide habitat and increase biodiversity.

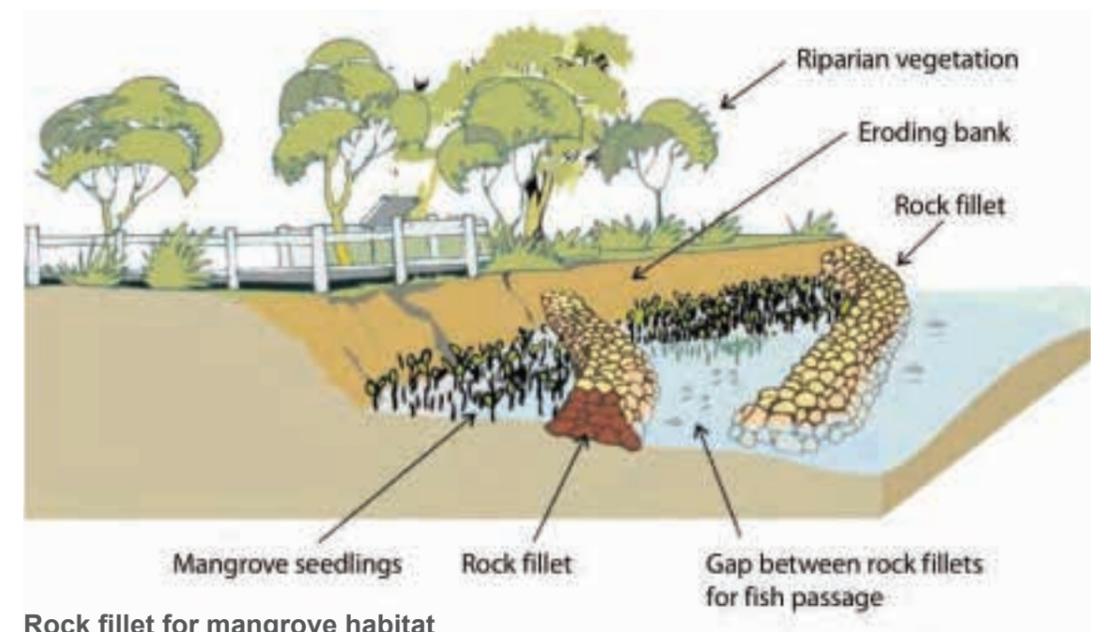
The PDP recommends that the upgrade includes areas that allow public access to the water, to facilitate fishing, to enrich visitor experience of the edges, and to foster public awareness of environmental initiatives.

##### River beaches

There are several small beaches along the river edge that should be maintained for public access to the river. These beaches are also eroding at the edges and should be subject to erosion control measures. These measures should be low key, and direct access to a single point that is reinforced to mitigate erosion by pedestrian access.



Rock bench with saltmarsh habitat



Rock fillet for mangrove habitat



River beach edge treatment

#### 4.12 Materials Strategy

Materials used in construction of the public domain, and small built elements make an essential contribution to the character of the landscape and built environment. Stockton has a particular character that will determine the material palette. Stockton Reserves are broad, flat spaces, windswept on the ocean side. The character of the river side is influenced by the maritime and industrial uses on it's flank. It also has a low key character, unpolished, slightly raw, which contributes to it's relaxed character.

Selection of materials should also consider environmental sustainability. Materials should be robust and enduring, from sustainable sources, with low embodied energy. Where possible, recycled, reused or waste by-product materials should be used.

The following is a guide to material quality and character for Stockton Reserves.

##### Paving

- Robust, long life, recycled and recyclable.
- Paths – concrete in neutral colour – reflecting the existing cycle track, and the muted colours of sea and sand.
- Feature paving - as part of a heritage interpretation strategy, feature paving could include a patchwork of materials referencing the former wharf industry, and the ballast materials that make up the reclaimed land.. This could include sandstone, brick, concrete and crushed stone.
- Porous paving – crushed sandstone, crushed builders rubble for lower traffic paths and areas around barbecues and picnic tables.

##### Landscape Walls

- Low timber wall around Lion Park – constructed from upright wharf timbers, large scale and robust. Referencing the historic former uses of the site.
- Concrete walls - playground - low concrete walls can define play pods, retain the edge of the sand pit, and act as informal seating.

**Small structures** – lightweight robust materials to withstand coastal weathering. Materials could include timber and steel.

**Parking** - informal 90 degree gravel parking bays to be inserted between established Fig trees along Wharf Crescent and Hunter Street.

##### Playground

- Surfaces - Natural materials sand mulch in preference to rubber soft fall
- Timber walls and element to reflect heritage
- Lightweight materials in climbing structures to preserve views



Feature Paving - patchwork of historic materials



Crushed stone



Concrete path



Gravel parking bays amongst established trees



*Carpobrotus glaucescens*



*Casuarina glauca*



*Banksia integrifolia*

#### 4.13 Planting Strategy

The public domain plan sets out a strategy for planting based on a long-term program of propagation, tree planting, changes to maintenance regimes and designated vegetation communities within the reserves.

This program focuses on the following points:

- Tree planting strategy within the reserves for shade, amenity and habitat
- Norfolk Island Pines as feature trees to be used sparingly in association with particular points of significance in the landscape in keeping with their use around the War Memorial on Hereford Street at Stockton.
- Protection and enhancement of foreshore habitat through establishment of riparian shrubs and grasses through parts of Ballast Ground
- Overall gradual reduction in areas of mown grass to reduce heat island effect and limit maintenance. This is particularly important along edges where mowing and trimming are difficult.
- Program for sourcing local endemic seed bank and propagating native tubestock for planting in specific areas of the reserves
- Design objective of creating distinct and varied experiences in the reserves through a long-term program of planting

The following species lists relate to the varied vegetation communities in each area of the reserves:

#### VEGETATION STRATEGY - COASTAL DUNE RESTORATION AND NATIVE GRASSLAND - PITT STREET RESERVE

##### Coastal Tree Species

Arucaria heterophylla - Norfolk Island Pine  
 Banksia integrifolia subsp integrifolia - Coast Banksia  
 Banksia serrata - Old-man Banksia  
 Ficus macrophylla - Morton Bay Fig  
 Lagunaria patersonia - Norfolk Island Hibiscus

##### Shrubs

Acacia longifolia var. sophorae - Wattle  
 Correa alba - Coastal Correa  
 Leptospermum laevigatum - Coastal Tea-tree  
 Westringia fruiticosa - Coast westringia

##### Groundcovers/ Grasses

Lomandra longifolia - Spikey-headed Mat Rush  
 Poa poiformis - Coast Tussock Grass  
 Themeda australis - Kangaroo Grass  
 Dichelachne crinita - Long-haired Plume Grass

#### VEGETATION STRATEGY - COASTAL DUNE RESTORATION AND NATIVE GRASSLAND - LION PARK

##### Coastal Tree Species

Arucaria heterophylla - Norfolk Island Pine  
 Banksia integrifolia subsp integrifolia - Coast Banksia  
 Banksia serrata - Old-man Banksia  
 Cupaniopsis anacardioides - Tuckerroo  
 Ficus macrophylla - Morton Bay Fig

##### Groundcovers/ Grasses

Lomandra longifolia - Spikey-headed Mat Rush  
 Carpobrotus glaucescens - Pigface  
 Isolepis nodosa  
 Poa poiformis - Coast Tussock Grass  
 Themeda australis - Kangaroo Grass  
 Dichelachne crinita - Long-haired Plume Grass

#### VEGETATION STRATEGY - PARKLAND ORNAMENTAL - GRIFFITH PARK

##### Coastal Tree Species

Arucaria heterophylla - Norfolk Island Pine  
 Banksia integrifolia subsp integrifolia - Coast Banksia  
 Banksia serrata - Old-man Banksia  
 Cupaniopsis anacardioides - Tuckerroo  
 Ficus macrophylla - Morton Bay Fig  
 Lagunaria patersonia - Norfolk Island Hibiscus

##### Shrubs

Westringia fruiticosa - Coast westringia

##### Groundcovers/ Grasses

Carpobrotus glaucescens - Pigface  
 Poa poiformis - Coast Tussock Grass

**VEGETATION STRATEGY - RIPARIAN PLANTING - BOAT RAMP**

**Coastal Tree Species**

- Banksia integrifolia subsp integrifolia - Coast Banksia
- Banksia serrata - Old-man Banksia
- Casuarina glauca - Swamp Oak
- Melaleuca quinquenervia - Broad Leaved Paperbark

**Groundcovers/ Grasses**

- Isolepis nodosa
- Poa poiformis - Coast Tussock Grass
- Themeda australis - Kangaroo Grass
- Dichelachne crinita - Long-haired Plume Grass

**VEGETATION STRATEGY - RIPARIAN PLANTING - BALLAST GROUND**

**Tree Species**

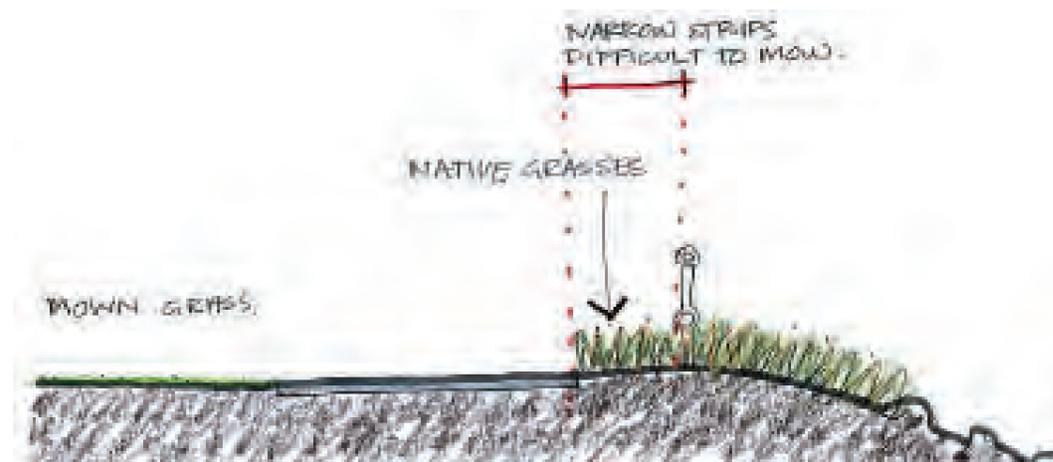
- Casuarina glauca - Swamp Oak
- Eucalyptus botryoides - Mahogany
- Melaleuca quinquenervia - Broad Leaved Paperbark

**Shrubs**

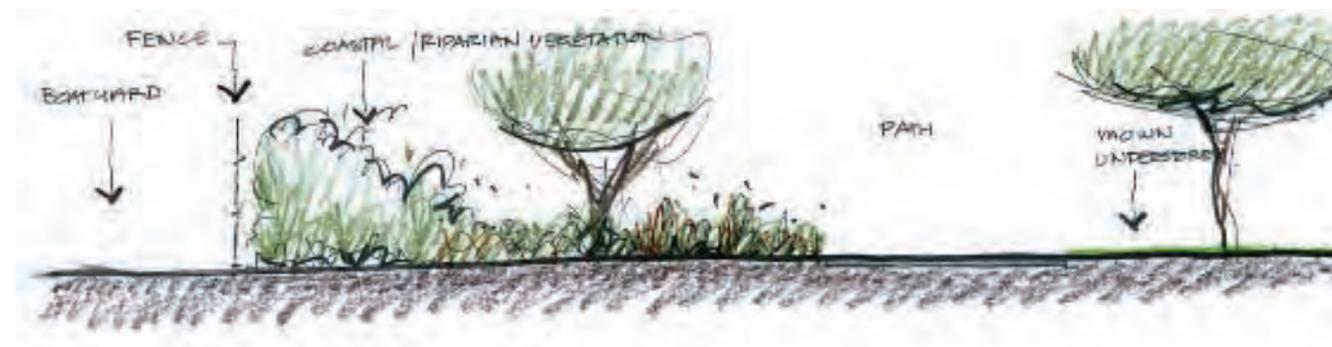
- Correa alba - Coastal Correa
- Leptospermum laevigatum - Coastal Tea-tree
- Westringia fruticosa - Coast westringia

**Groundcovers**

- Lomandra longifolia - Spikey-headed Mat Rush
- Isolepis nodosa
- Poa poiformis - Coast Tussock Grass
- Themeda australis - Kangaroo Grass
- Dichelachne crinita - Long-haired Plume Grass



Riparian planting - native grasses along edge Ballast Ground



Riparian planting - screening on boundary, Ballast Ground



Native grasses



Isolepis nodosa



Lagunaria patersonia

SCALE 1:5 000 @ A3



Existing heritage interpretation boards



Sandblasted images in concrete



Sandblasted graphics in concrete

#### 4.14 HISTORIC INTERPRETATION STRATEGY

1. River front rail line - building the second break water - markers in the ground plane.
2. Approximate shore line at Clyde Street - markers in the ground plane. Associations with maritime uses, trading, wharfage, tall ships, diverse cultures of sailors.
3. King Street west rail line - to build the second break water - markers in the ground plane. Associations with maritime uses, trading, wharfage, tall ships, diverse cultures of sailors.
4. Approximate shore line at King Street - markers in the ground plane. Associations with maritime uses, trading, wharfage, tall ships, diverse cultures of sailors.
5. Location of the early sailing club site - markers in the ground plane. Associations with waterfront recreation.
6. 6 approximate shore line at Punt Road - markers in the ground plane. Associations with maritime uses, ship building, transport, vehicle access to Newcastle.
7. Approximate shore line at Mitchell Street - markers in the ground plane.
8. Approximate location of ferry wharf on Mitchell Street, Stockton's development spine. Interpretation panels could include reference to the maritime uses, trading, wharfage, tall ships, diverse cultures of sailors, transport, access to Newcastle, visual dialogue with Newcastle over time, prospect + look out
9. Location of the colliery site corners by survey - markers in the ground plane
10. Heel of Stockton's first break water - associations with maritime uses and early settlement. Interpretation panels could include reference to the breakwater, colliery, visual dialogue with Newcastle over time, prospect + look out, Lions club associations,
11. Approximate beach foreshore line at the time of the first breakwater - markers in the ground plane
12. Approximate shore line at King Street at the time of the first breakwater - markers in the ground plane
13. Approximate location of King Street east rail line - building the second break water - markers in the ground plane. Interpretation panels could include reference to the second breakwater, rail line from the river front to build the second break water, ship wrecks, construction of Newcastle breakwaters and modification of Nobby's Headland, visual dialogue with Nobby's over time, prospect + look out.

- Interpretation panel integrated with balustrade at a viewing point. The panels would be predominantly graphic with some explanatory text and could include historic time line, outlines of historic horizons, historic photos, maps and the like.
- Markers in the ground plane - a family of elements, potentially found objects cast into new concrete paving or core drilled into existing paved surfaces. The object family would relate varied locations of
  - historic shore line
  - maritime uses, trading, wharfage, tall ships,
  - diverse cultures of sailors
  - ship building and the like



Investigate options for engaging public artists to develop place specific heritage interpretation items like these bollards at Geelong.



Interpretation signage built into walls



Interpretation signage built into structures

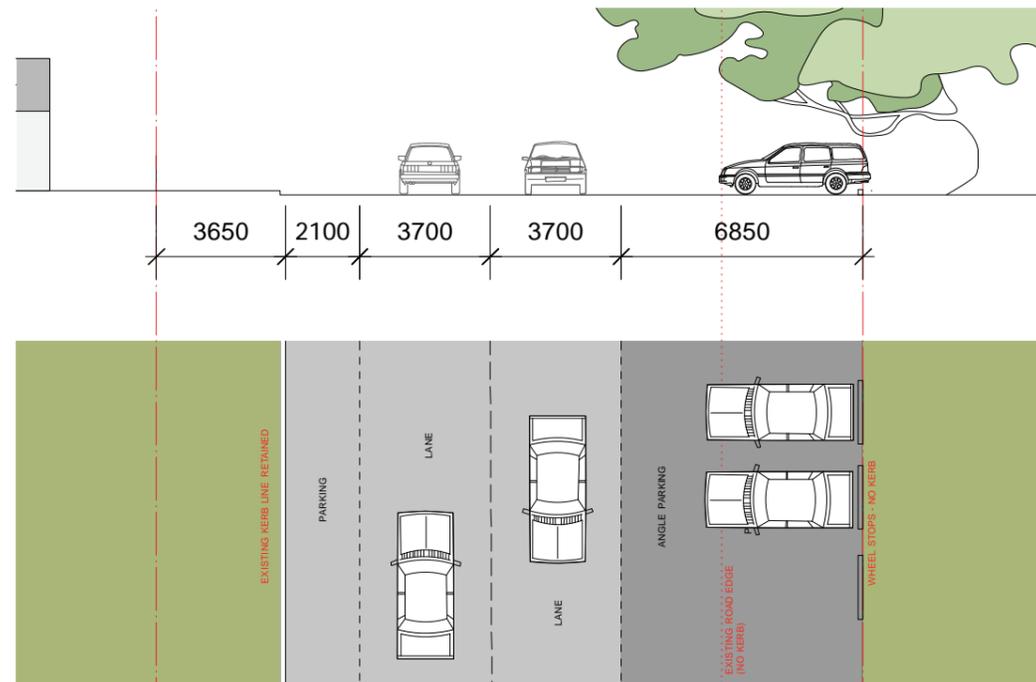


Interpretation set into walls and paving



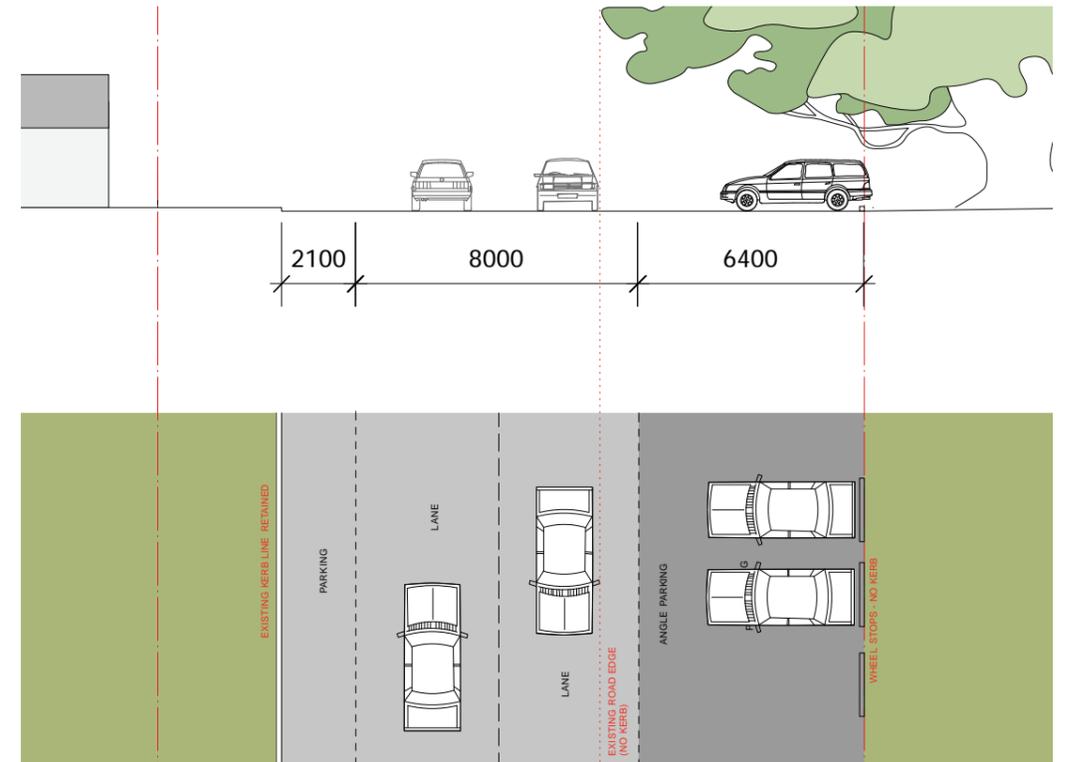
SCALE 1:5 000 @ A3





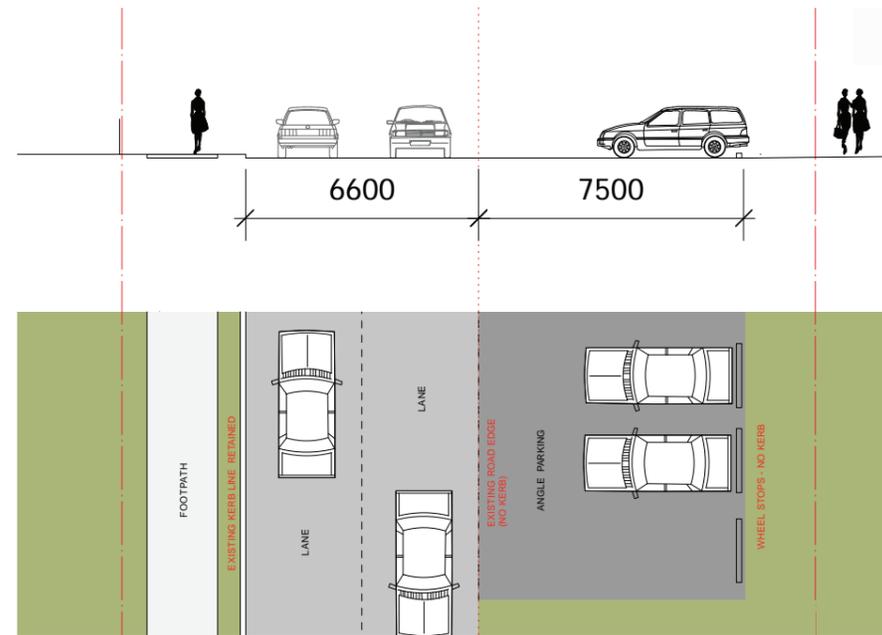
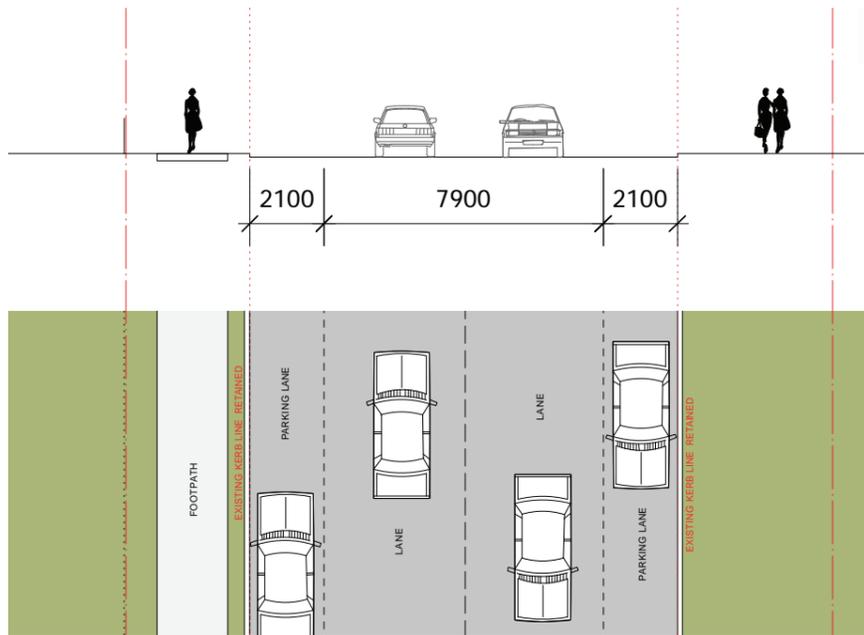
**HUNTER STREET**

Northern kerb retained with marked parallel parking  
 Southern kerb removed and gravel 90 degree parking bays extended into spaces between existing trees with timber edges and timber wheel stops



**WHARF CRESCENT**

Northern kerb retained with marked parallel parking  
 Southern kerb removed and gravel 90 degree parking bays extended into spaces between existing trees with timber edges and timber wheel stops



**PITT STREET RESERVE (NORTH)**

Both kerbs retained  
Parallel parking provided on both sides of street

**PITT STREET RESERVE SOUTH**

Western kerb retained  
Currently no kerb on eastern side  
Gravel parking bays installed to provide 90 degree angle parking with timber edge and timber wheel stops